

The Florida Handbook of Solid and Hazardous Waste Regulation: Resource Conservation and Recovery Act (RCRA)¹

Michael T. Olexa and Christopher Hill²

What is the Resource Conservation and Recovery Act (RCRA)?

The Resource Conservation and Recovery Act (RCRA) manages all aspects of solid and hazardous wastes. RCRA has separate requirements for:

- generators of wastes
- transporters of wastes
- owners/operators of facilities for the treatment, storage, or disposal of hazardous waste

The requirements of RCRA include:

- permitting by the federal Environmental Protection Agency (EPA)
- exhaustive recordkeeping

The requirements are intended to track the movement and handling of the waste until it reaches final disposal. This is known as the “cradle-to-grave” approach to monitoring wastes.

How does RCRA define solid waste?

If none of the exceptions apply, and if the material has been discarded or has served its useful purpose, it is a solid waste.

RCRA defines solid waste as including any:

- garbage
- refuse
- sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility
- discarded materials.

1. This is EDIS document FE762, a publication of the Department of Food and Resource Economics, UF/IFAS Extension. Original publication date November 2008. Revised March 2023. Please visit the EDIS website at <http://edis.ifas.ufl.edu> for the currently supported version of this publication.

2. Michael T. Olexa, professor, Department of Food and Resource Economics; director, Center for Agricultural and Natural Resource Law, UF/IFAS Extension; and member, The Florida Bar. Christopher Hill, law student, Levin College of Law; UF/IFAS Extension, Gainesville, FL 32611.

This handbook is distributed with the understanding that the authors are not engaged in rendering legal or other professional advice and that the information contained herein should not be regarded or relied on as a substitute for professional advice. This handbook is not all-inclusive in providing information to achieve compliance with laws and regulations governing the practice of agriculture.

For these reasons, using these materials constitutes an agreement to hold harmless the authors, the Center for Agricultural and Natural Resource Law, the Institute of Food and Agricultural Sciences, and the University of Florida for any liability claims, damages, or expenses that may be incurred by any person or party as a result of reference to or reliance on the information contained in this handbook.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Andra Johnson, dean for UF/IFAS Extension.

Solid waste may be in the form of:

- solids
- liquids
- semi-solids
- contained gaseous materials

Waste from agricultural activities is expressly included. Agricultural solid waste is defined as waste produced in either of the following:

- the rearing of animals
- the producing and harvesting of crops or trees.

Materials excluded from the RCRA solid waste definition include:

- domestic sewage
- waste from irrigation return flows
- point source discharges into navigable waters that are permitted for release under the National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act ([FE770](#)).

What may I do with solid waste?

Solid waste may be:

- recycled
- reused
- discarded
- reclaimed or stored, depending on its nature
- treated

Many solid wastes may also be hazardous wastes, and therefore subject to other, more restrictive, regulations.

Facilities or people that dispose of waste contrary to RCRA solid waste guidelines violate federal law.

How does RCRA define hazardous waste?

Hazardous waste under RCRA is defined as a solid waste, or combination of solid wastes, with special characteristics. The specific characteristics to which the statute refers are:

- quantity
- concentration

- physical, chemical, or infectious characteristics

These characteristics are important because they show that the waste is hazardous and may cause or significantly contribute to an increase in mortality or serious illness, or pose a substantial hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

What are the characteristics of hazardous waste?

To decide what constitutes hazardous waste, EPA also considers a material's characteristics. These characteristics include:

- toxicity
- persistence and degradability in nature
- potential for accumulation in tissue
- flammability
- corrosiveness
- reactivity

What materials are excluded from this definition?

Certain materials have been specifically designated as *not* hazardous, including:

- household waste (kitchen garbage, food scraps, and septic tank wastes)
- solid wastes that are generated by growing or harvesting agricultural crops or by raising farm animals (including manure) and that are returned to the soil as fertilizer
- slight residues in otherwise empty containers

How is RCRA enforced?

EPA is responsible for:

- establishing the criteria for classifying hazardous wastes
- listing those wastes to which the statute automatically applies
- implementing and enforcing RCRA

RCRA also allows each state to enact its own solid and hazardous waste programs that the state, instead of EPA, may enforce. Florida is authorized to administer most aspects of RCRA's "base program" for the regulation of solid

and hazardous wastes. The “base program” includes all aspects of RCRA passed before 1985.

Even though it has delegated permitting authority to the state of Florida, EPA retains broad authority under RCRA. This authority includes requiring tests, inspections, or additional monitoring when EPA determines there is an enhanced danger to health or the environment from a generator or treatment facility.

How does RCRA regulate solid and hazardous waste?

You do not need an RCRA permit to dispose of solid waste. Solid waste must be disposed of in a place and manner consistent with state law. See the Resource Recovery and Management Act (RRMA) under state regulation of solid and hazardous waste disposal ([FE775](#)).

Who is regulated under RCRA?

Under RCRA, three categories of people are regulated:

1. Generators of hazardous waste.
2. Transporters of hazardous waste.
3. Owners/operators of hazardous waste treatment, storage, and disposal facilities.

Owners/operators of facilities that dispose, store, or treat hazardous wastes must obtain a RCRA permit to do so.

Generators and transporters of hazardous wastes must have an identification (ID) number. Depending on the quantity and types of hazardous wastes they handle, generators and transporters of hazardous waste:

- may operate without a permit
- may be required to file reports with EPA at regular intervals

What are the requirements for generators?

Generators are defined by RCRA as producers of hazardous waste. EPA requires large quantity generators (LQGs) and small quantity generators (SQGs) to obtain an identification number before they treat, store, dispose of, or transport their waste. EPA also requires from generators:

- extensive pre-transportation packaging and labeling of waste
- comprehensive accumulation and storage practices
- wide-ranging emergency management and employee training requirements
- a manifest recordkeeping system that allows the government to account for the waste from the point of its creation to its final disposal

LQGs may accumulate a limited amount of waste on-site for up to 90 days without a permit. After that, EPA may grant 30-day extensions for unforeseen delays in removing the waste. If EPA does not grant the extension, the LQG must obtain an owner/operator permit.

SQGs may accumulate a limited amount of waste on-site for up to 180 days without a permit. After that, EPA may grant 30-day extensions for unforeseen delays in removing the waste. If EPA does not grant the extension, the SQG must obtain an owner/operator permit.

Am I a large quantity generator (LQG)?

EPA defines LQGs as follows:

1. Generators of more than 2,200 pounds/month (1,000 kilograms/month) of hazardous waste
2. Generators or accumulates of more than 2.2 pounds/month (1 kilogram/month) of acute hazardous waste
3. Anyone who in any month accumulates 220 pounds (100 kilograms) of spill cleanup materials that contain acute hazardous waste or that result from a spill of acute hazardous waste

Am I a small quantity generator (SQG)?

EPA defines SQGs as follows:

1. Generators of more than 220 pounds/month (100 kilograms/month) but less than 2,200 pounds/month (1,000 kilograms/month) of hazardous waste
2. SQGs cannot accumulate more than 13,228 pounds (6,000 kilograms) of hazardous waste on-site at any time

Am I exempt from the requirements for generators?

Only farmers who dispose of their own pesticides may be exempt from the requirements governing generators because they must comply with the disposal instructions on the pesticide label and triple-rinse each container under the Federal Insecticide, Fungicide, and Rodenticide Act (FE764).

However, there is a conditional exemption for those who:

- produce less than 220 pounds/month (100 kilograms/month) of hazardous waste
- accumulate less than 2.2 pounds (1 kilogram) of acute hazardous waste

Those who meet these requirements are Very Small Quantity Generators (VSQGs), and have:

- the ability to accumulate waste on-site for longer periods of time without a permit
- no EPA identification number requirements
- greater disposal options, including recycling, universal waste, and solid waste management facilities

How should I prepare my hazardous waste for transport/disposal?

Generators should do the following:

- prepare each package so that in the event of an accident it does not leak
- label the exact dangers associated with transporting this type of waste

These restrictions apply to all those having hazardous waste shipped by another to be treated, stored, or disposed.

What are the requirements for transporters of hazardous waste?

Transporters of hazardous waste must:

- obtain an identification number from EPA
- maintain detailed manifest records of all wastes they handle

- obtain an owner/operator permit if they store waste more than 10 days
- notify crisis management authorities of any spill and take necessary action to protect the public health and environment
- comply with requirements under the Hazardous Materials Transportation Authorization Act (FE767)

In addition, the Florida Department of Environmental Protection (FDEP) requires anyone who transports hazardous waste within the state of Florida to maintain one million dollars' worth of casualty insurance in case of an accidental spillage.

What are the requirements for owners/operators?

Owners/operators of treatment, storage, or disposal facilities must obtain a permit from EPA (federal) and FDEP (state). The only exceptions to this rule are limited on-site accumulations allowed to generators, the farm pesticide exceptions, and exceptions for facilities that completely reuse hazardous waste in some type of production process. EPA has established detailed rules for the operation and security of facilities for the treatment, storage, or disposal of hazardous waste. These rules address:

- precautions
- personnel
- safety
- closure
- virtually all aspects of maintaining a treatment, storage, or disposal facility

What is the Universal Waste Rule (UWR)?

The Universal Waste Rule (UWR) of RCRA was enacted in 1995 to facilitate hazardous waste recycling. UWR created streamlined regulations that govern the collection and management of certain widely generated wastes (universal wastes). Under the rule, EPA exempts universal wastes from the full scope of RCRA's hazardous waste regulations.

What are universal wastes?

Universal wastes share several characteristics:

1. frequently generated in settings other than industrial settings

2. generated by a large number of individuals
3. present in significant volumes in non-hazardous waste management systems

UWR specifically mentions the following universal wastes:

- batteries
- hazardous waste lamps (e.g., fluorescent bulbs)
- mercury-containing equipment
- pharmaceuticals
- pesticides that are recalled, suspended, or collected for discarding

States may also regulate additional wastes through their own state universal waste programs.

Who is regulated under UWR?

Under UWR, four categories of people are regulated:

1. Small quantity handlers of universal waste (SQHUWs) who store less than 5,000 kilograms of universal waste at any time
2. Large quantity handlers of universal waste (LQHUWs) who store 5,000 kilograms or more of universal waste at any time
3. Transporters who move universal wastes by air, rail, highway, or water
4. Owners or operators of destination facilities who treat, dispose of, or recycle universal wastes

What are the requirements for SQHUWs?

There are several requirements for SQHUWs under the rule. SQHUWs:

- must use methods specified by EPA to prevent releases of universal wastes (contact EPA for more information)
- must immediately contain accidental releases
- must give detailed labeling on all universal waste containers
- must inform employees of any hazards
- may store universal wastes for up to one year

If an SQHUW stores universal waste for longer than a year, the handler must establish that prolonged storage is necessary to facilitate proper recycling, treatment, or disposal. If an SQHUW stores less than 220 pounds/month (100 kilograms/month) of waste, a conditional exemption may exist from UWR.

In addition, SQHUWs are prohibited from:

- shipping universal waste off-site unless they send it to another universal waste handler, transporter, destination facility, or foreign country
- disposing, diluting, or treating universal wastes

What are the requirements for LQHUWs?

LQHUWs must adhere to the same requirements and prohibitions as SQHUWs with a few additions. LQHUWs must:

1. notify EPA before storing 5,000 kilograms or more of universal waste
2. obtain an EPA identification number
3. comply with stricter employee training requirements
4. keep records on the universal wastes they ship and receive

What are the requirements for transporters of universal waste?

Transporters of universal waste share the same requirements and prohibitions as SQHUWs with a few exceptions. Under UWR, they must:

- store universal waste for 10 days or less
- comply with the Department of Transportation's (DOT) tracking regulations (contact DOT for more information, see FE786, Contact Agencies)

If a transporter stores universal waste for longer than 10 days, the transporter must comply with the regulations for SQHUWs and LQHUWs, depending on the amount of waste stored. The transporter can only transport to destination facilities that are authorized to handle universal waste.

What are the requirements for owners/operators of destination facilities?

Owners and operators of destination facilities must comply with RCRA's general hazardous waste regulations. Specifically, these individuals must:

- obtain a permit from the federal EPA and the state DEP (see [FE786](#), Contact Agencies)
- notify crisis management authorities in the event of a release (24-Hour Spill Reporting Hotline, 1-800-424-8802)
- create procedures for rejecting hazardous wastes
- maintain detailed records of all universal wastes handled for at least three years

Anyone who is involved in the handling of universal wastes should contact EPA to find out what steps must be taken to comply with UWR.

How are underground storage tanks regulated?

RCRA regulates underground storage tanks to limit the threat of groundwater contamination. This type of tank is defined as a storage tank and connecting pipes with at least 10 percent of the volume underground. The tanks are regulated if they contain a substance regulated under CERCLA or if they contain petroleum or petroleum-based substances. Regulated substances are covered in more detail in the CERCLA document ([FE763](#)).

What underground storage tanks are exempt from regulation under RCRA?

Certain underground storage tanks are specifically excluded from regulation under RCRA:

- farm or residential tanks of less than 1,100-gallon capacity that are used for storing motor fuel for non-commercial purposes
- tanks used for storing heating oil for consumptive use on the premises where stored
- septic tanks
- tanks of less than 110 gallons
- emergency spill and overflow tanks
- surface impoundments, pits, ponds, or lagoons

- storm water or waste water collection systems
- flow-through process tanks
- storage tanks situated in an underground area (e.g., basements, cellars, mine shafts, or tunnels) if the storage tank is on or above the surface of the floor

What are the requirements for underground storage tanks under RCRA?

If you own an underground storage tank that does not meet these exceptions you must:

- notify the implementing agency within 30 days of an UST system ownership change
- notify the appropriate state or local agency of the existence of the tank
- maintain any required leak detection system
- maintain records of any required monitoring or leak detection system
- take the proper corrective action when a leak is detected, including notifying the proper emergency response personnel
- comply with the requirements to prevent future releases
- maintain evidence of financial responsibility (insurance) for potential injury to third parties if a leak or release occurs

The Energy Policy Act of 2005 imposed two additional requirements for underground storage tanks:

1. Secondary containment requirements for tanks storing hazardous substances
2. A three-year inspection policy

What are the penalties for underground storage tank violations?

Regulation of underground storage tanks in Florida has been delegated to Florida and is administered by the Florida DEP ([FE777](#)). However, EPA may impose penalties in addition to state sanctions.

Failing to comply with either the state or federal RCRA provisions will subject violators to a federal fine of up to \$10,000 per day, per tank.

What are the penalties for violating RCRA?

Penalties under RCRA can be quite severe. These include civil fines of either of these:

- up to \$37,500 per day, per violation of the permit or permit requirements
- up to \$37,500 per day, per violation for continued non-compliance with RCRA

Criminal penalties may attach to any person who violates RCRA by:

- knowingly transporting, or causing to be transported, hazardous waste to a facility that does not have a permit
- knowingly omitting material information from documentation, or making any false material statement or representation
- knowingly treating, storing, transporting, or disposing of hazardous waste in a manner inconsistent with state or federal RCRA requirements
- knowingly storing, treating, transporting, or disposing of used oil in violation of any state or federal RCRA requirements

Anyone convicted of violating RCRA will be subject to a fine of up to \$50,000 per day for each violation, or imprisonment up to two years (up to five years for certain offenses), or both. The maximum sentence will be doubled for repeat offenders.

Anyone who knowingly places another person in imminent danger of death or serious bodily injury will be subject to a fine of up to \$250,000, or up to 15 years imprisonment, or both. Organizations will be subject to a fine of up to \$1,000,000. Where hazardous waste has been released into the environment, EPA may require corrective responses.

Does RCRA contain a citizen suit provision?

Yes, RCRA authorizes private citizens to bring civil suits to enforce RCRA's provisions against offenders. It also allows citizen suits against federal or state agencies to compel them to properly enforce RCRA.

Acknowledgment

The authors are indebted to the personnel of both state and federal agencies who gave of their time and advice in the preparation of this handbook. The authors are also indebted to the O. R. and Shirley Minton and the James S. and Dorothy F. Wershow Endowments for funding assistance in the development of this handbook, and Andra Johnson, Ph.D., dean and professor, Office of Dean for Extension and the Florida Cooperative Extension Service.