Hazardous Waste Generator Treatment Options:

Permit By Rule

INTRODUCTION

Hazardous waste management and off-site disposal can be challenging and expensive, especially for small businesses. But not all hazardous waste must be shipped off-site for proper treatment or disposal. There are a number of allowable methods that businesses can utilize to minimize their hazardous waste on-site. This document provides information on these methods, which can be divided into two categories:

1) Strategies to reduce the amount of hazardous waste actually generated, and

2) Acceptable on-site treatment processes that do not require a permit.

This document will provide you with information to help answer the question of whether any of these methods will work for you. Included is a brief overview of Alabama's Hazardous Waste Program as it applies to small businesses and a summary of the acceptable hazardous waste minimization methods mentioned above.

After reviewing the information contained in this document, if it appears that any of the waste minimization methods could be effective at your business, you should contact* an Alabama Department of Environmental Management (ADEM) hazardous waste compliance inspector to discuss your particular situation. The compliance inspector will help you understand the specific operational requirements for the method(s) in question. You should remember that the waste minimization methods described in this document should only be conducted as part of a comprehensive hazardous waste management program that addresses all regulatory requirements.

* Telephone numbers, along with other contact information, which you might find helpful are located on the last page.

HAZARDOUS WASTE PROGRAM

Definition of Hazardous Waste

ADEM defines "hazardous waste" in ADEM Admin. Code chapter 335-14-2. Wastes can be hazardous because they appear on one of four lists or because they exhibit a particular hazardous property (characteristic). Listed and characteristic hazardous wastes are identified using hazardous waste numbers consisting of one letter followed by three digits. Often, for small businesses, the most relevant listings are those for spent solvents (a portion of the F-list) and discarded commercial chemical products (known as the P- and U-lists). Spent solvents on the F-list are designated by the numbers F001, F002, F003, F004, and F005 and include common solvents such as acetone, methanol, methylene chloride, toluene, and xylene. The P- and U-lists apply to unused discarded commercial chemical products with a sole active ingredient on one of the two lists. Typical P- and U-listed wastes are expired or unused chemicals or wastes from cleaning up spills of unused chemicals. P-listed wastes (and certain F-listed wastes) are special in that they are known as "acutely hazardous wastes." The fourth list, known as the K-list, identifies various industrial process wastes.

There are four hazardous waste characteristics: ignitability, corrosivity, reactivity, and toxicity. Ignitable wastes are generally liquids with a flash point less than 140°F. These are identified with the hazardous waste number D001. Non-chlorinated solvent wastes are usually ignitable and sometimes F-listed. Corrosive wastes are aqueous solutions with a pH of 2 or less or 12.5 or greater. The hazardous waste number D002 is used to identify corrosive wastes. Reactive wastes are those that are unstable, explosive, water reactive, or can generate toxic cyanide or sulfide fumes and are signified by the hazardous waste number D003. Toxic wastes, denoted by the hazardous waste numbers D004 to D043, contain toxic constituents (e.g., herbicides, organic compounds, heavy metals) that, when subjected to the Toxicity Characteristic Leaching Procedure (TCLP or Tee-Clip), release these constituents at hazardous levels.

Hazardous Waste Generator Status

ADEM sets varying requirements for three classes of generators: large quantity generators (LQGs), small quantity generators (SQGs), and very small quantity generators (VSQGs). Generators are defined by location; so your hazardous waste generator status is determined by counting **all** hazardous waste generated at the location. Sites generating no more than 100 kilograms (~220 pounds) of hazardous waste in a calendar month are VSQGs and are subject to minimal regulation. Sites

that generate between 100 (~220) and 1000 kilograms (~2,200 pounds) of hazardous waste in a calendar month are SQGs. Those sites generating more than 1000 kilograms (~2,200 pounds) of hazardous waste in a calendar month are LQGs. Also, any site that generates more than 1 kilogram (~2.2 pounds) of acutely hazardous waste in a calendar month is an LQG.

SQGs and LQGs must obtain EPA identification numbers and comply with numerous other requirements. Waste accumulating at the point where it is generated is said to be in a satellite accumulation area and must be placed in containers that are in good condition, compatible with the waste, closed, and labeled to identify the contents and the associated hazards. Satellite accumulation is limited to one quart of acutely hazardous waste (i.e., P-listed waste) or 55 gallons of hazardous waste. Once the waste is moved from the satellite accumulation area, it must be marked with the date and the words “Hazardous Waste” and placed in a designated accumulation area equipped to handle emergencies such as a release or fire. Also, plans for handling such emergencies must be developed and distributed. Waste management personnel must receive annual hazardous waste management training.

Permit-exempt accumulation: a hazardous waste storage permit is not required for SQGs that accumulate waste on-site for up to 180 days (or 270 days if it is to be transported over 200 miles for disposal). LQGs can accumulate waste for up to 90 days without a permit.

HAZARDOUS WASTE MINIMIZATION METHODS

All generators should attempt to minimize the volume and toxicity of their waste. The preferred method is to reduce waste generation through source reduction – any activity that reduces or eliminates the generation of hazardous waste at the source. When source reduction is not feasible, waste should be recycled or treated to reduce its volume and toxicity. From a practical perspective, there are substantial incentives for source reduction and waste minimization; for example, avoiding the high costs of shipping and disposing of hazardous waste and limiting liability concerns.

Small businesses should look for source reduction opportunities (e.g., careful chemical purchasing and inventory control, replacement of hazardous chemicals with less hazardous ones). In addition, generators can sometimes treat their hazardous waste to reduce the volume or toxicity of the waste. Typically, small businesses do not have permits for treatment, storage, or disposal of hazardous wastes since the permitting process is burdensome and costly. However, the hazardous waste program does contain some provisions for treating hazardous waste on-site without a permit.

Source Reduction

Businesses can avoid generating hazardous waste if the material generated is never classified as a solid waste. Materials are not solid wastes when they are recycled by being:

- ⇒ Used or reused as ingredients in an industrial process to make a product, provided the materials are not first being reclaimed [ADEM Admin. Code r. 335-14-2-.01(2)(e)1(i)];
- ⇒ Used or reused as effective substitutes for commercial products [ADEM Admin. Code r. 335-14-2-.01(2)(e)1(ii)]; or
- ⇒ Returned to the original generating process as a substitute for feed stock materials, without first being reclaimed or land disposed [ADEM Admin. Code r. 335-14-2-.01(2)(e)1(iii)].

Other materials that are not solid wastes include:

⇒ Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment [ADEM Admin. Code r. 335-14-2-.01(4)(a)1(ii)]; and

⇒ Under certain conditions, secondary materials that are reclaimed and returned to the original process in which they were generated where they are reused in the production process [ADEM Admin. Code r. 335-14-2-.01(4)(a)8.].

On-Site Treatment

ADEM regulations provide some regulatory exclusions that allow generators to treat their hazardous waste without a permit. Some of these treatment exclusions may be useful in furthering the waste reduction efforts of your business. Treating hazardous waste on-site without a permit in ways other than those provided for in the regulatory exclusions will subject generators to the possibility of civil and/or criminal penalties. Before treating hazardous waste on-site, generators should be absolutely sure that the treatment they are considering is allowed without a permit from ADEM. In addition, generators should ensure that they have proper procedures, equipment, and skilled employees to conduct treatment safely and effectively on-site.

ADEM's regulatory exclusions that allow generators to treat hazardous waste on-site without a permit are described below.

⇒ Airbag Deployment - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(xi)

Generators may deploy intact airbag modules and seatbelt pretensioners provided that (1) prior to treatment, the items are managed in accordance with all applicable requirements of ADEM Admin. Code division 335-14; and (2) the items are deployed using a method approved by the automotive industry or the manufacturer.

⇒ Burning - ADEM Admin. Code r. 335-14-7-.08(9)

The small-quantity on-site burner exemption, which is part of the boiler and industrial furnace regulations, allows hazardous waste generators to burn small quantities of hazardous waste in an on-site boiler without a permit. The quantity of waste that can be burned is determined by the terrain-adjusted effective stack height and the boiler's total fuel requirement. Some additional restrictions apply to the properties of waste that can be burned (e.g., BTU

value) and small businesses taking advantage of this allowance are subject to simple notification and recordkeeping requirements. Before burning hazardous waste on-site, you should consult not only a hazardous waste inspector, but also the appropriate individual in ADEM's Air Division.

⇒ Elementary Neutralization - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(v)

Elementary neutralization units may only be used to treat corrosive hazardous wastes (D002 only or listed for corrosivity only). Also, elementary neutralization is only allowed in tanks or containers managed in compliance with the applicable management standards of the following ADEM Admin. Code rules: 335-14-3-.01(6) for small quantity generators; 335-14-3-.01(7) for large quantity generators; 335-14-6-.09 for containers at interim status facilities; or 335-14-6-.10 for tanks at interim status facilities. Two important points to remember are (1) elementary neutralization refers to pH adjustment only, and (2) neutralized waste may require further treatment prior to land disposal (if underlying hazardous constituents are present at the point of generation).

⇒ Evaporation - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(viii)

Generators may treat hazardous wastes by evaporation in tanks or containers under certain conditions. These conditions include: (1) hazardous wastes or constituents are not released into the environment in excess of any ADEM or EPA standard; (2) treatment is conducted in compliance with applicable security, inspection, training, safety, emergency, container management, and tank management requirements; and (3) you notify ADEM of your intent to treat waste in this manner at least 60 days prior to beginning. Remember that treatment residues may still require management as a hazardous waste and residues destined for land disposal may be subject to the land disposal restrictions found in ADEM Admin. Code chapter 335-14-9.

⇒ Reclamation - ADEM Admin. Code r. 335-14-2-.01(6)(c)2.

A material is “reclaimed” if it is processed to recover a usable product or if it is regenerated. Reclamation is a form of recycling and the recycling process is exempt from regulation. Generators may be able to take advantage of this provision by performing procedures such as distilling solvents or reclaiming precious metals (e.g., silver). Remember that storage prior to recycling may require a permit and any treatment residues may still require management as a hazardous waste.

⇒ Solidification - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(vii)

Generators may add absorbent material to waste, or waste to absorbent material, in a container that is in good condition and is compatible with the waste. This must be done at the time the hazardous waste is first placed in the container. When treating hazardous waste in this way, you must take precautions to prevent reactions which could threaten human health or the environment.

⇒ Totally Enclosed Treatment - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(iv)

Generators may treat their hazardous waste in totally enclosed treatment facilities that are directly connected to an industrial production process. The treatment facility must prevent the release of any hazardous waste or constituent into the environment during treatment. Be aware that any hazardous waste removed from a totally enclosed treatment facility prior to completion of treatment may not be reintroduced into the treatment facility unless all of the applicable requirements of ADEM Admin. Code chapters 335-14-3, 335-14-5, 335-14-6, 335-14-8, and 335-14-9 have been satisfied.

⇒ Volume Reduction - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(x)

Generators may treat hazardous wastes (excluding free liquids) in tanks or containers by physical or mechanical processes for the purpose of reducing the bulk volume provided certain conditions are met. These conditions include: (1) the chemical composition of the waste is not changed; (2) different waste streams are not mixed; (3) hazardous wastes or constituents are not released into the environment in excess of any ADEM or EPA standard; (4) treatment is conducted in compliance with applicable security, inspection, training, safety, emergency, container management, and tank management requirements; and (5) you notify ADEM of your intent to treat waste in this manner at least 60 days prior to beginning. Remember that treatment residues will still require management as a hazardous waste and residues destined for land disposal are subject to the land disposal restrictions found at ADEM Admin. Code chapter 335-14-9.

⇒ Wastewater Treatment - ADEM Admin. Code r. 335-14-8-.01(1)(c)2(v)

Wastewater treatment units may be used to treat influent wastewaters or wastewater treatment sludges that are hazardous wastes. Two important points to remember are (1) the wastewater treatment unit must be part of a wastewater treatment facility that is subject to regulation under either Section 402 or 307(b) of the Clean Water Act, and (2) the wastewater treatment unit must be a tank or tank system in compliance with the applicable management standards of ADEM Admin. Code r. 335-14-6-.10.

ADEM Contact Information

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Web Site:

Home www.adem.alabama.gov

Regulations
http://www.adem.alabama.gov/alEnviroRegLaws/default.cnt

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