Treatment by Generator

This publication explains portions of the Dangerous Waste Regulations, Washington Administrative Code (WAC) 173-303, that apply to waste treatment by generators. You can read the regulations cited in this document at www.ecy.wa.gov/programs/hwtr/reg_comp_guide/173-303.htm or www.ecy.wa.gov/biblio/wac173303.html.

What is Treatment by Generator?

Treatment by generator (TBG) refers to methods by which generators may treat their own wastes on site without first obtaining a dangerous waste treatment permit.

Some of the more commonly accepted methods for treating waste include:

- Carbon adsorption
- Filtration
- Elementary neutralization
- Evaporation
- Separation/Distillation
- Solidification/Stabilization

The most common of these specific treatment methods are covered later in this document.

Who does TBG apply to?

Treatment by Generator requirements of the Dangerous Waste Regulations, WAC 173-303-170(3)(b) and (c), apply to:

- Large and medium quantity waste generators who treat their own dangerous wastes on site.
- Large and medium quantity generators who treat their own *special waste*[1] on site.
- Large and medium quantity generators who treat their waste for disposal.

TBG rules do not apply:

- To wastes treated in a wastewater treatment unit or elementary neutralization unit discharging to a publicly owned treatment works (POTW) under a wastewater discharge permit or authorization. In this case, the Permit by Rule requirements in WAC 173-303-802(5) would apply instead.

Why It Matters

The goal of the Dangerous Waste Regulations (Chapter 173-303 WAC) is to ensure that we manage hazardous wastes in a manner that protects our health and environment.

The Department of Ecology promotes waste treatment by generators to encourage on-site waste reduction and waste management. This helps reduce risks associated with the transportation of dangerous waste as well as the transfer of risk to other communities.

For more information, contact your nearest Ecology regional office:

Central Regional Office
509-575-2490

Eastern Regional Office
509-329-3400

Northwest Regional Office
425-649-7000

Southwest Regional Office
360-407-6300

Special accommodations:
To ask about the availability of this document in a version for the visually impaired call the Hazardous Waste and Toxics Reduction Program at 360-407-6700. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

[1] Words in italics are defined in the glossary beginning on page 5.

- To wastes that will be recycled, reclaimed, or reused. For example, solvent distillation and photo processing silver recovery is not treatment by generator.
- To *small quantity generators* (SQG) who treat their own waste. However, an SQG who wishes to do on-site treatment can do so by following all applicable requirements for regulated generators. In effect, SQGs who treat their waste on site lose their conditionally exempt status and become subject to full dangerous waste regulation.

TBG Requirements

- Treat wastes only in *containers*, *tanks*, or *containment buildings* (see "*Special Waste*" for an exception at WAC 173-303-170(3)(c)).
- Use *containers* that meet all *container* standards (WAC 173-303-200(1)(b)(i)).
- Use *tanks* that meet all *tank* standards (WAC 173-303-200(1)(b)(ii)).
- Use *containment buildings* that meet the requirements of WAC 173-303-200(1)(b)(iv).
- Meet all accumulation requirements that apply, based on your facility's dangerous waste generator status (WAC 173-303-200, -201, -202).

Treatment must not:

- Use a process involving heat that would destroy the waste or its constituents.
- Involve applying waste to the land or mixing it into the soil (land treatment).
- Use detonation or open burning.
- Allow the generation of extreme heat or pressure.
- Cause a fire, explosion, or violent reaction.
- Produce uncontrolled toxic mists, fumes, dusts, or gases.
- Produce uncontrolled flammable fumes or gases.
- Threaten to damage the structural integrity of the facility or device containing the waste.
- Threaten human health or the environment.

Accumulation Time Limit

All dangerous waste and resulting dangerous waste treatment residue must be shipped off site within the accumulation time limit (90 or 180 days) applicable to the status of the generator. Any treatment residues that are dangerous wastes keep the accumulation start date of the original waste being treated.

For instance, when a dangerous waste sludge is treated by evaporation to reduce the volume by removing water, the remaining dry sludge is still a dangerous waste. If the accumulation start date for the wet sludge before treatment is March 8th, the accumulation start date for the dry sludge after treatment is also March 8th. A new accumulation time limit does not begin for the sludge when it is removed from the treatment unit. These time limits also apply for multi-stage, multi-vessel processes.

Reporting and Recordkeeping

- **Site Identification Form**
  Prior to beginning the treatment process you must submit a Site Identification Form or revise your existing form to include TBG (Checkbox #7 in Section 10 of the form). Generators must note the type of treatment in the comment section (such as neutralization, filtration, solidification and stabilization, carbon adsorption, evaporation, or separation and distillation). For more information on the Site Identification Form call 1-800-874-2022 or visit www.ecy.wa.gov/programs/hwtr/reportingrequirements.html.

- **Dangerous Waste Annual Report**
  Annual reporting and generator status determinations must include the total quantity (including weight of any liquids) of waste generated prior to treatment and the weight of any dangerous waste remaining after treatment. For more information on Annual Dangerous Waste Reporting, call 1-800-874-2022 or visit www.ecy.wa.gov/programs/hwtr/reportingrequirements.html.

- **Waste Treatment Log**
  Generators must maintain a written log of all dangerous waste treated on site, including the date of treatment and the amount of each dangerous waste treated.

Discharge to Sewer after Treatment

Sometimes dangerous waste is treated to prepare it for discharge to a sewer under the Domestic Sewage Exclusion (WAC 173-303-071(3)(a)) or permit by rule (WAC 173-303-802(5)).

- **Domestic Sewage Exclusion**
  If a waste is still a dangerous waste after treatment under the TBG requirements, it must meet these requirements of the Domestic Sewage Exclusion before it can be discharged to a sewer leading to a POTW:
  - The waste must be treatable in the POTW where it will be received. Dilution is not considered acceptable treatment.
  - The waste must be mixed with domestic sewage before it is discharged to a public sewer.
  - The discharger must have a permit or written authorization from the appropriate authority allowing the discharge of that specific waste. To receive a permit, the discharger will need to follow pollution prevention measures.

- **Permit by Rule**
  If the dangerous waste, treatment process, and the resulting discharge to a POTW are covered by a wastewater discharge permit, the treatment and discharge may be regulated under Permit by Rule (WAC 173-303-802(5)) rather than TBG. Please refer to this regulation for more details and requirements.

Guidelines for Specific Types of Treatment

Many different types of treatment processes will meet the TBG requirements. Requirements for the three most common types are discussed below.

1. Solidification and Stabilization

Solidification and stabilization technologies use additives to reduce the mobility or toxicity of pollutants in the waste.

> "Solidification" physically limits the mobility of dangerous waste by reducing or eliminating free liquids.
>
> "Stabilization" chemically limits the hazard potential of dangerous waste by converting the constituents into a less soluble form.

- Solidification or stabilization cannot be used for waste with a volatile organic content greater than 500 parts per million.
- The waste must be solidified using a non-biodegradable solidification material. Criteria for meeting this standard are found in WAC 173-303-140(4)(b)(iv).
- The solidified waste must not contain any free liquids. This is determined by using the Paint Filter Liquids Test, EPA Method 9095[2].
- The generator must ensure all applicable *container* or *tank* standards are met.
- The treated waste must not break down due to changes in temperature or moisture, or exposure to radiation, chemicals, or compression.

A small test run may be required to assess compliance with all of the above criteria.

2. Evaporation

Evaporators remove water from waste to reduce the weight and volume. After the water is evaporated, only a residue is left for disposal as dangerous waste.

- Only inorganic wastes mixed with water should be treated in an evaporator.
- The evaporator must meet all applicable accumulation requirements.
- Use secondary containment around the evaporator to catch spills.
- Don't "overcook" the wastes. Leave some water in the remaining sludge.
- Dispose of the remaining sludge properly.

You may want to condense your evaporator steam and reuse it in your process or rinse water *tanks* to help conserve water.

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[2] As described in *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods*, U.S. Environmental Protection Agency (EPA) publication SW-846 as incorporated by reference in WAC 173-303-110(3)(a).

3. Carbon Adsorption

Carbon adsorption uses activated carbon to remove constituents from a liquid or gaseous waste. Carbon adsorption generates a treated waste, spent carbon, and sometimes a backwash waste stream. Activated carbon is "spent" when its adsorptive capacity is severely depleted.

- Any treated waste and backwash wastes from the process must be designated and managed properly.
- The spent carbon is either sent off site for regeneration at an appropriate facility, or designated and managed properly.

Ecology has publications on technical aspects of several types of waste treatment on their website:

- Carbon Adsorption, #96-415
- Elementary Neutralization, #96-417
- Evaporation/Distillation, #96-414
- Filtration, #96-413
- Separation, #96-418
- Solidification, #96-416

Glossary of Terms

Container

"Container" means any portable device in which a material is stored, transported, or treated. Generators using containers for waste treatment must comply with WAC 173-303-200(1)(b)(i).

Containment Building

A "containment building" must be completely enclosed and have sufficient structural strength to physically support all its activities. The building must also be built and operated to prevent releases of dangerous waste and control air emissions. WAC 173-303-200(1)(b)(iv) lists requirements a containment building must meet while conducting Treatment by Generator activities.

Large Quantity Generator (LQG)

A generator whose monthly waste generation or accumulation is 2,200 pounds or more of dangerous waste, or 2.2 pounds or more of acutely hazardous waste or WT01.

Medium Quantity Generator (MQG)

A generator whose monthly waste generation or accumulation is 220 pounds or more, but less than 2,200 pounds, of dangerous waste.

Small Quantity Generator (SQG)

A generator whose monthly waste generation is less than the QEL (220 pounds for most common wastes or 2.2 pounds for acutely hazardous wastes or WT01) and whose accumulation (at any time) is less than 2,200 pounds for waste with a QEL of 220, or 2.2 pounds for waste with QEL of 2.2 pounds.

Special Waste

"Special waste" is any state-only dangerous waste that is solid only (non-liquid, non-aqueous, non-gaseous), and

- Corrosive waste (WAC 173-303-090 (6)(b)(ii)),
- Toxic waste that has Category D toxicity (WAC 173-303-100(5)),
- PCB waste (WAC 173-303-9904 under State Sources), or
- Persistent waste that is not extremely hazardous waste (EHW) (WAC 173-303-100(6)).

Any solid waste that is regulated by EPA as hazardous waste cannot be a special waste.

Tank

A "tank" is a stationary device designed to contain an accumulation of dangerous waste, which is constructed primarily of non-earthen materials to provide structural support. It is not the same as a surface impoundment, waste pile, or containment building. A "tank system" is a dangerous waste storage or treatment tank and its associated equipment and containment system.

Large Quantity Generators who treat their waste in tanks or tank systems must follow the requirements of WAC 173-303-200(1)(b)(ii). Medium Quantity Generators must meet the tank management standards in WAC 173-303-202.