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Interim Guidance on Management of Evaporator Systems

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This interim guidance explains the Massachusetts Department of Environmental Protection (MassDEP)'s regulations that apply to evaporator units, which employ a tank or tank system to heat industrial wastewater so that it evaporates, reducing its volume.

The term "evaporator system" as used in this interim guidance is a system that includes a wastewater treatment unit (or "WWTU" as defined in 310 CMR 30.010) that treats an influent hazardous industrial wastewater to render it non-hazardous, and then evaporates the non-hazardous treated wastewater in an evaporator unit. An evaporator system therefore includes a WWTU, an evaporator unit and all piping ancillary to operation of that system.

In Massachusetts, these evaporator systems are often, but not necessarily, found in the metal finishing/electroplating industries. They generally evaporate process rinse waters and treated process wastewaters, and eliminate the need to discharge these types of industrial wastewaters to sewers. Evaporator systems may emit water vapor to air outside the building in which they are located through stacks or vents. Some systems may condense the water vapor to reuse the condensed water in industrial processes.

This interim guidance does not apply to:

- a. Evaporator systems treating only non-hazardous wastewater (generated on-site or off-site).
- b. Evaporator units that separate non-hazardous wastewater from waste oil at the site of generation, in compliance with 310 CMR 30.252(4).
- c. Units that evaporate non-hazardous wastewater transferred from an elementary neutralization unit at the site of generation, in compliance with 310 CMR 30.1103.
- d. Closed-loop vacuum evaporators that evaporate wastewaters and transfer the vapors to a condenser for reintroduction of water into the production process, and have no air emissions (these are exempt from 310 CMR 30.000).
- e. Evaporator systems treating hazardous wastewaters received from off-site. These systems require a MassDEP hazardous waste facility license pursuant to 310 CMR 30.801.

- f. Sludge dryers associated with wastewater treatment systems approved by MassDEP under 314 CMR 12.00.
- g. Containers and treatment units (other than evaporator systems) subject to M.G.L. c. 21C and 310 CMR 30.000.

Interim Implementation Guidance

1. MassDEP's current hazardous waste regulations establish requirements for units that treat hazardous waste [310 CMR 30.500-30.900]. This guidance explains how these requirements apply to evaporator systems that treat hazardous wastewater. MassDEP anticipates drafting hazardous waste regulations specific to evaporator systems in mid-2011 and promulgating them in 2012. Therefore, the agency is providing this interim guidance to companies currently operating evaporator systems so they may determine if they are in compliance with existing requirements. This guidance is modeled on the standards for "Treatment Which is an Integral Part of the Manufacturing Process" established in 310 CMR 30.010, and is intended to address the practical realities of manufacturing processes that have been developed over time.

2. General Requirements:

Evaporator systems that treat hazardous wastewater and meet all of the following requirements do not require a site-specific approval from MassDEP for operation (but may need to obtain approval for air emissions, as noted below). These evaporator systems must:

- a. Include a WWTU that is directly connected via permanent piping to the industrial production process and to the evaporator unit;
- b. Receive and treat industrial wastewater in a WWTU containing only hazardous constituents in dissolved form. Evaporator systems cannot receive and treat concentrated wastes, which include (but are not limited to) separate phase hazardous waste in a multi-phase hazardous waste/wastewater mixture or hazardous process solutions (which are not wastewaters);
- c. Receive and evaporate treated wastewaters directly from their associated WWTUs and not from any other source;
- d. Treat the influent hazardous industrial wastewater in a WWTU sufficiently to render it non-hazardous before it is evaporated; and
- e. Prevent emissions of hazardous constituents from hazardous wastewater and from the treated (non-hazardous) wastewater in the evaporator system, to the maximum extent that is practically feasible. A MassDEP inspector would look for the following to judge whether this performance standard is being met:
 - Covered/closed tanks in the evaporator system;
 - Tanks, piping, fittings and valves that do not leak;

- Engineering controls (e.g. traps, recycle lines, sorption units) that prevent emissions of hazardous constituents;
- Evidence that non-hazardous or less hazardous chemicals have been substituted for more hazardous chemicals in the process(es) that generate wastewater, to prevent/reduce emissions of hazardous constituents and
- Other factors preventing hazardous emissions.

Any sludge generated by the evaporator system must be evaluated to determine whether it meets the criteria for classification as “hazardous waste”; and if so, the sludge must be managed accordingly.

Evaporator system operators may also have to comply with the applicable U.S. Environmental Protection Agency (USEPA) Resource Conservation and Recovery Act’s (RCRA) organic air emission standards, 40 CFR Part 264, subparts AA, BB and CC. See “For More Information” below for contacts about compliance assistance. If the air emissions from the evaporator system, alone or in combination with emissions from other sources at the facility, exceed one ton (2000 pounds) in a calendar year, the system will also need to obtain a MassDEP air quality approval in compliance with 310 CMR 7.00.

3. MassDEP Approvals for Evaporator Systems

Evaporator systems that meet all of the general requirements described above are considered to be a form of “Treatment Which is an Integral Part of the Manufacturing Process”, and do not need to obtain site-specific approvals from MassDEP (except that permits for air emissions may be required as noted). Essentially, these systems are operating under an exemption from the requirement to obtain a hazardous waste treatment license [310 CMR 30.801(3)].

Evaporator systems that have replaced legal discharges of treated wastewater to a sewer system (with or without a specific permit) or to surface water (with a permit) AND which do not comply with all of the general requirements above will need to be modified so they qualify for the exemption at 310 CMR 30.801(3).

Evaporator systems that have not replaced legal discharges of treated wastewater to a sewer system or to surface water AND which do not comply with all of the general requirements above will need to:

- a) be modified to meet all of the general requirements described above to comply with the requirements of “Treatment Which is an Integral Part of the Manufacturing Process” (310 CMR 30.010), OR
- b) obtain a waiver from the license requirement under 310 CMR 30.1100 .

In deciding whether to grant a waiver, MassDEP will require at a minimum that the evaporator system meets the hazardous waste tank system standards at 310 CMR 30.690 and the USEPA’s RCRA air emission standards at 40 CFR Part 264, subparts

AA, BB and CC, as applicable. MassDEP will also consider factors such as the volume, quantity, toxicity, or frequency and rate of generation of the wastewater, and other criteria that are appropriate for the waste or activity. See "For More Information" below about applying for a waiver.

The need to employ an evaporator system may be minimized or avoided by eliminating or reducing the use of toxic chemicals in the manufacturing process, which in turn will eliminate or reduce the need to treat a facility's industrial wastewater (See "For More Information" below).

Any company operating a unit to treat hazardous industrial wastewater by evaporation without sufficient prior treatment to render the wastewater non-hazardous will be considered to be performing hazardous waste treatment and disposal without a hazardous waste license and will be considered in noncompliance.

This guidance will terminate when amended MassDEP regulations that specifically address evaporator systems take effect.

For More Information:

- Information about complying with applicable USEPA RCRA air emission standards is available from the Office of Environmental Stewardship, U.S. EPA-New England. Call the Customer Call Center at 888-372-7341 (toll-free).
- Free and CONFIDENTIAL technical assistance on toxics use reduction is available from the Massachusetts Office of Technical Assistance & Technology (OTA). Assistance available includes on-site assessments, financial evaluations, the handbook "The Practical Guide to Toxics Use Reduction" and other resources. Call 617-626-1060 or visit: <http://www.mass.gov/eea/ota>
- To apply for a waiver from the hazardous waste treatment license requirement, contact (james.paterson@state.ma.us or 617-556-1096) in MassDEP's Boston Office.