

3.2.1 Vapor Recovery Devices such as Condensers and Carbon Adsorption Systems (264.1033(b) and 265.1033(b))

A control device involving vapor recovery must be designed and operated to recover the organic vapors vented to it with an efficiency of 95 weight percent or greater. This requirement must be maintained unless the total organic emission for all of the affected process vents at the facility can be maintained at less than 1.4 kg/h and 2.8 Mg/yr if the vapor recovery device is operating at an efficiency less than 95 weight percent. The owner or operator must install, calibrate, maintain and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow from each affected process vent to the control device at least once every hour. The flow indicator sensor must be installed in the vent stream at the nearest feasible point to the control device inlet but before the point at which the vent streams are combined.

If a condenser is used, the owner or operator has two choices to monitor the unit. One option is to use an organics concentration monitoring device equipped with a continuous recorder to measure the concentration of the organic compounds in the exhaust vent stream from the condenser. Another option is to install a temperature monitoring device equipped with a continuous recorder. The temperature monitoring device must be installed at a location in the exhaust vent stream from the condenser. The temperature monitoring

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device must operate with an accuracy of ± 1 percent of the temperature being monitored in $^{\circ}\text{C}$ or ± 0.5 $^{\circ}\text{C}$. The facility owner or operator must demonstrate through the results of the monitoring that the condenser is being operated according to the manufacturer's specifications to achieve the necessary operating efficiency.

When a carbon adsorber is used the owner or operator must monitor the unit to determine when breakthrough has occurred. If the unit is a fixed-bed carbon adsorber, the owner or operator has two options for monitoring. One is to install a continuous record to monitor the organic concentration in the exhaust vent stream from the carbon bed. The other option is to install a monitoring device equipped with a continuous recorder to measure a parameter that indicates the carbon bed is regenerated on a regular predetermined time cycle. One parameter that may be measured is the organic concentration of the effluent from the adsorber. An increase in organic concentration would reveal breakthrough has occurred. The owner or operator must inspect the readings from each monitoring device at least once each operating day to insure that the control device is operating properly.

A carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device must replace the existing carbon in the control device with fresh carbon on a regular basis using one of two options. The first option is to monitor the concentration level of the organic compounds in the exhaust vent stream from the carbon adsorption system on a regular schedule and replace the existing carbon with fresh carbon immediately when carbon breakthrough is indicated. The monitoring frequency is required to be daily or at an interval no greater than 20 percent of the time required to consume the total carbon working capacity, whichever is greater. The second option is to replace the existing carbon with fresh carbon at a regular, predetermined time interval that is less than the design carbon replacement interval.

Refer to [Overview of Subparts AA and BB](#) presentation from the March 2002 EPA Region 4 RCRA Organic Air Emissions Permit and Compliance Training for additional information on these regulations.

All carbon that is hazardous waste that is removed from a carbon adsorption system must be managed appropriately. The carbon may be treated thermally in a permitted thermal treatment unit, a unit that is operating in accordance with the Subpart H, or a unit that is operating in compliance with Subparts AA and CC standards. Records must be maintained to demonstrate that the carbon that is hazardous waste that is

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removed from the carbon adsorption system was disposed of in an appropriate manner.