



Mandatory Amalgam Separator Program Frequently Asked Questions

Q: When will amalgam separators need to be installed?

A: Amalgam separators will be one part of a multistage rollout of the District's program stretched out over two years:

- November 2006. Informational packet will be mailed after a joint presentation and vendor fair at the October 10 Contra Costa Dental Society meeting.
- Early 2007. Wastewater Permit will be issued, followed by workshops on how to comply. Permit will require use of specified Best Management Practices (BMPs), including installation and maintenance of amalgam separator.
- December 31, 2007. Deadline for amalgam separator to be in operation at every dental practice that has not been exempted.
- Early 2008. The District will begin inspections to verify compliance with amalgam separators and other BMPs.

Q: In 2004 dentists were under the impression that if we worked with the District, we could avoid having to install mandatory amalgam separators. Why the change?

A: During the outreach for the Dental Inventory Program, the District indicated that proceeding with a strictly voluntary Best Management Practices (BMP) program would be evaluated to determine its effectiveness for reducing mercury in the District's influent to the treatment plant.

Based on the findings of the information provided in the Dental Inventory Report Forms, less than 15% of the dental practices in the District's service area either have installed, or planned to install, amalgam separators under the voluntary program. This low level of voluntary implementation of amalgam separators will not significantly reduce the amount of mercury entering the District's treatment plant.

In addition, the San Francisco Bay Regional Water Quality Control Board (RWQCB) has indicated that the District's new permit requirements will have a lower effluent limit for mercury and will contain a specific condition that will mandate a dental program be implemented to effectively control mercury sources.

Implementation of a Mandatory Amalgam Separator Program is needed to begin reducing the amount of mercury entering the District's treatment plant. Similar programs have been implemented in other areas of the SF Bay region such as San Francisco, East Bay Municipal Utilities District, and Palo Alto.

Q: The mercury in amalgam isn't like other mercury and can't be converted as easily to a toxic form, so why work to control the mercury from dentists?

A: After mercury enters the District treatment plant with sewage, it settles out in the biosolids that are then incinerated. This process converts almost all the mercury to bio-available forms that are removed from the flue gas by wet scrubbers. This scrubber water is then recycled back into the sewage treatment process. As a result, by the time the mercury is discharged to Suisun Strait from the treatment plant, most of it is available to be converted by bacteria in the aquatic environment into a toxic form. This cycle is why it's better to remove as much mercury as possible before it becomes mixed with sewage in the sanitary sewer.

Q: Why doesn't the District just treat the scrubber water or effluent, given the current influent mercury and the anticipated permit limit?

A: According to studies by the Sanitation District of Los Angeles County and ADVENT, the estimated cost of removing mercury from wastewater would be \$1.90 annually for every gallon per day of flow. The average flow of the District's treatment plant is over 45 million gallons per day, which translates to almost **\$90 million per year**—about four times the current operating cost of the treatment plant.

The District is currently studying options for reducing the amount of mercury that is recycled back through the treatment plant in the scrubber water (currently 1 million gallons per day) in order to develop cost estimates. The preliminary findings indicate that, due to the nature of the waste (e.g., concentrated mercury and other metals, high temperature), the cost for treatment will be significantly higher than \$1.90 per gallon.

Q: Why should dentists have to be regulated by a permit?

A: The RWQCB required the District to calculate a mercury limit to control sources from any industrial or commercial discharge to our sewer system. The District's proposal is to restrict the mercury concentrations in the sewer from all unpermitted businesses to below a background concentration of 0.1 parts per billion, and to enable all permitted businesses to discharge up to 3 parts per billion.

When the dental practice obtains an Industrial User Permit, they will be allowed to discharge mercury under this higher allocation.

In addition, the District can define compliance in the permit as technology-based, not strictly a numerical limit. This strategy would allow dentists to discharge amalgam-containing wastewater to the sanitary sewer as long as they use and maintain the best available technology; i.e., an approved amalgam separator.

Q: Can the District recommend a particular separator or manufacturer?

A: The District intends to reference the International Organization for Standardization (ISO) certification program for amalgam separators as a means of identifying “approved” manufacturers of separators. ADA has a list of ISO certified manufacturers to choose from, but the District does not recommend any particular vendor or model. The ADA is expected to update its list to keep current with changes in ISO certification and other developments.

Q: Will separators installed before the dental practice discharge permit is issued be grandfathered in as acceptable compliance?

A: Yes, provided that a company that is recognized in the dental equipment supply field at the time of its purchase manufactured the unit. The primary concern is to not establish a blanket statement that might allow a “homemade” amalgam separator to be grandfathered as acceptable.

Q: How much will this new requirement cost?

A: There is no cost for the Dental Practice Discharge Permit.

Cost of amalgam separators varies, but the most popular model in Central County currently costs \$600-\$700 installed. Some amalgam separators can cost more than \$2,000.

Only one separator will be required per vacuum system, so that cost may be shared between dentists with a shared vacuum line. If significant plumbing modifications are required to complete the installation of a separator, then the installation cost will be higher.

The estimated cost of additional disposal of amalgam and other wastes is about \$200 per year. Contra Costa County is serviced by three Household Hazardous Waste collection facilities that collect hazardous waste from small businesses. The following link provides information on the location and operations of these programs:

<http://www.co.contra-costa.ca.us/depart/cd/recycle/options/v5951.htm>

Each HHW program is operated independently. Call the HHW facility that provides service for your area to obtain program specific requirements. See response below regarding services through the District’s Household Hazardous Waste Collection Facility for amalgam waste management.

Q: Haven’t the cost of separators and amalgam waste disposal gone up, and will continue to rise?

A: The cost of amalgam separators and the disposal of the amalgam waste generated are subject to market fluctuations. The District is planning a gradual phase-in of the Mandatory Amalgam Separator Program to allow dental offices the time to “shop around” among the different vendors of amalgam separator devices.

If possible, individual dental practices are encouraged to coordinate their purchases of amalgam separator units in order to negotiate a better price with an amalgam separator vendor.

The District plans to host an event for amalgam separator suppliers to demonstrate their products in order to assist dental practices in making an informed decision about their amalgam separator purchase. The phased-in strategy will also allow more time for dentists to locate and work with qualified vendors to ensure the installation is done right.

Q: What is the best option to dispose of amalgam waste?

A: According to the California Department of Toxic Substances Control, amalgam wastes, even from the amalgam separator, can be managed as a Universal Waste if they are eventually recycled.

Such amalgam wastes should **not** be discarded with your biohazard/infectious/medical waste since the mercury could be released to the air through the disposal of the medical wastes.

Additional information is available at the DTSC website:

http://www.dtsc.ca.gov/HazardousWaste/EWaste/upload/HWM_FS_UWR.pdf

<http://www.dtsc.ca.gov/InformationResources/upload/DocVet-042606draft.pdf>

Vendors of amalgam separators typically accept the waste amalgam trapped in their self-contained cartridge units at recommended maintenance intervals. (See response below regarding services through the District's Household Hazardous Waste Collection Facility.)

Q: Will the District be able to accept amalgam waste? Would the District accept it at locations other than its Household Hazardous Waste Collection Facility? What would it cost?

A: The District will accept amalgam waste at its Household Hazardous Waste Collection Facility (HHWCF), but not at any remote or pick-up sites.

The waste hauler and treatment company the District uses to dispose of amalgam wastes requires that the amalgam waste be disinfected and certified to that effect. Since the District does not recycle amalgam wastes delivered to the HHWCF, the wastes delivered do not qualify as a Universal Waste. Instead, the wastes would be classified as hazardous.

Historically, the HHWCF has received very little amalgam waste. The District is investigating recycling options in case we begin receiving significant quantities of amalgam wastes.

Cost depends on the size of the container the wastes are accumulated in. Currently a one-gallon container of sterilized and certified amalgam waste delivered to the HHWCF will cost around \$9.50 per container, plus a \$20 administrative fee per load.

Contact the HHWCF staff at (800) 646-1431 for details.

Q: Will the District sample the discharge or require the dental office to sample?

A: Installation and maintenance of amalgam separators will be defined as the standard deemed to meet the Local Discharge Limit for mercury. Sampling will not be required to document compliance under the Mandatory Amalgam Separator Program. If an inspection finds that an individual dental practice is not properly maintaining the amalgam separator, sampling may be performed to document the condition.

The District may initiate a program to sample sewer lines outside dental offices to determine overall effectiveness of the dental permit program to reduce mercury in the sanitary sewer system.

Q: How does the District define compliance with Local Discharge Limits now? How would the District define it differently when the District issues a dental practice discharge permit? Will the District enforce numerical limits?

A: Currently, if a sample is obtained from the discharge from a dental practice and it exceeds the District's Local Discharge Limit, then a violation will be documented. This compliance standard applies to all non-domestic businesses in the District's service area. Through the implementation of various dental programs, the District does not intend to sample in order to enforce numerical limits.

Under the current Dental Inventory Report Program, compliance is defined as meeting the deadlines the District establishes to submit Dental Inventory Reports. As soon as the District issues a dental permit under the Mandatory Amalgam Separator Program, compliance will be defined by the conditions in the permit, which would make BMPs mandatory, including installation and maintenance of amalgam separators with compliance deadlines.

As noted in response to the previous question, the discharge from a dental practice that has installed and is properly maintaining an amalgam separator will be deemed to be in compliance with the District's mercury Local Discharge Limit.

Q: How will the District assess compliance if no sampling is performed?

A: Submittal of the initial and annual certifications that an amalgam separator has been installed and is being properly maintained will determine compliance at first. The District will inspect BMPs at dental offices beginning in 2008. Inspections will examine waste records, the functioning of amalgam separators, waste storage and disposal practices, etc., in order to determine compliance with the dental permit conditions.

Q: Will the District reward dentists for voluntarily installing amalgam separators, digital x-ray machines, or pretreated sterilizer chemicals?

A: The District currently has no monetary incentives for dentists who opt for new pollution-preventing equipment. However, the District does give out Pollution Prevention Awards every year to deserving dentists; eight dentists received awards in 2005.

Q: Can the District recommend a particular method for pretreating glutaraldehyde waste before disposal to the sanitary sewer?

A: Talk to your vendor who supplies you with glutaraldehyde, Cidex, OPA, or similar sterilizer chemicals. Deactivators or neutralizers contain glycine, which will allow the wastes to be discharged to the sanitary sewer after you follow the manufacturer's instructions. This method of pretreating sterilization chemicals is required to be recorded on a log through the current hospital permits and would likely be required through the dental BMP permits. The DTSC informational brochure on medical and dental wastes is a valuable resource: <http://www.dtsc.ca.gov/InformationResources/upload/DocVet-042606draft.pdf>

Q: In the District pie chart of mercury sources, there is a slice labeled "Human waste due to amalgam fillings." How large a sample of people was used with and without amalgam fillings to determine the impact on human waste, and how many fillings did they have on average?

A: The original pie chart used data generated through the laboratory research on mercury in human waste due to amalgam that was published by I. Skare in Water, Air and Soil Pollution 80: 59-67 (1995). The 18% allocation in this pie chart was calculated by multiplying the amount of mercury found in human waste through this study by the population of the District's service area.

Q: What percent of mercury sales are to dentists and how has this changed over time?

A: According to a study completed for the ADA, dentists consumed over 20% of the mercury in the U.S. in 2001, making them collectively the third largest user. As mercury-free fillings are used in greater quantities, the amount of mercury used by the dental industry is expected to decline. However, as long as mercury fillings are being removed, the presence of mercury in the wastewater from dental practices will need to be controlled.

Q: Can we earn CEUs for the training that will be required for this dental practice discharge permit?

A: The District is working with ADA, CDA and CCDS to set up training on the permit elements that will give participants CEUs when possible.

Q: Whom do I contact if I have additional questions?

A: The District's Source Control staff:

- Steve Linsley at (925) 229-7107 (slinsley@centalsan.dst.ca.us) or
- Tim Potter at (925) 229-7380 (tpotter@centalsan.dst.ca.us).