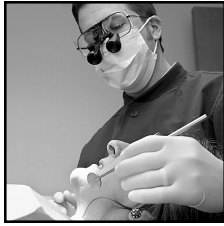


Fact Sheet: Discharging Dental Wastewater into the King County Sewer System



King County
Department of
Natural Resources and Parks
Industrial Waste Program

How to meet King County regulations for dental wastewater discharged to county sewers

King County Industrial Waste Mission Statement

The mission of the Industrial Waste Program is to protect the environment, public health, biosolids quality, and King County's regional sewerage system. We work cooperatively with our customers as we regulate industrial discharges, provide technical assistance, and monitor the regional sewerage system.

Introduction:

In 1995, King County and the Seattle-King County Dental Society began working with dentists to achieve voluntary, proper disposal of wastes. In 2000, King County's Local Hazardous Waste Management Program in King County and the King County Industrial Waste Program (KCIW) began working with the Seattle-King County Dental Society and others to identify a user-friendly process for all dental practices in the King County sewer service area to follow to ensure that they were in compliance with wastewater discharge limits.

By the end of 2003, 97 percent of the dental practices in the county's sewer service area were in compliance with these regulations. The resulting significant reduction in silver and mercury concentrations in the county's biosolids serves as an ultimate measure of the effectiveness of these efforts. (See "King County Biosolids Recycling.")



Topics overview:

- Introduction
- How to meet local dental wastewater discharge limits
 - The routes to compliance
- King County Biosolids Recycling
- Regulatory information
- Best Management Practices
- What can dental practices expect during an inspection?
- A sample equipment and waste management log
- Additional resources
- Contact information

How to meet local dental wastewater discharge limits - the routes to compliance:

Route 1:

Use an approved amalgam separator and follow Best Management Practices (BMPs)

To meet local wastewater discharge limits, the majority of King County general dentistry practices that place or remove dental amalgam will need to install a King County approved amalgam separator to remove metals including mercury and silver from their wastewater.

Selecting amalgam separators:

- Separators must be approved by King County, which publishes a list of approved amalgam separators.
- Practices wishing to install amalgam separators that are not approved by King County must apply for dental wastewater discharge permits.

Installing amalgam separators:

- Separators should either be installed at each chair or in a central location that receives wastewater from all chairs (usually closer to the vacuum pump) where amalgam is removed or placed.
- Separators must be maintained and wastes disposed of according to manufacturer's recommendations.
- Dental practices must keep installation, maintenance, and disposal records on site for three years. (See pages 7-8.)

Estimated costs for approved amalgam separators:

Costs include those of purchasing, installing, maintaining and removing amalgam wastes. Approved amalgam separators may range from \$150 - 2000 purchase price; \$200 - 500 for installation, and \$200 - 700 annual maintenance including waste disposal.

Disclaimer: Costs cited here are only estimates, with information subject to change.

Route 2:

Dental practices in compliance with local dental wastewater discharge limits may apply for dental wastewater discharge permits and follow BMPs.

A smaller number of practices may be able to demonstrate compliance without installing an approved amalgam separator and can choose to apply for a King County Dental Wastewater Discharge Permit in lieu of installing an approved amalgam separator. A discharge permit is needed to ensure that a dental practice meets local dental wastewater discharge limits on a consistent basis.

KCIW may require a practice with a dental wastewater discharge permit to regularly collect and analyze wastewater samples. KCIW may also require annual reporting.

The permitting route to compliance may apply to dental practices that do not regularly place or remove amalgams but may be able to meet the limits using BMPs only (e.g. pediatric dentists).

Practices that have installed an amalgam separator that is not on the approved amalgam separator list maintained by King County, or that are utilizing another method of metals pretreatment must also obtain a permit.

Costs for a dental wastewater discharge permit: The King County Dental Wastewater Discharge Authorization ranges from \$705 - \$1545, renewable every five years. (Per 2005 fee schedule.)



Route 3:

Follow BMPs and be inspection ready:

Certain specialties and practices will not be required to install an amalgam separator or apply for a permit **if they place or remove amalgam no more than three days each year** or they limit their practice to one of the following specialties:

- orthodontics
- periodontics
- oral and maxillofacial surgery
- radiology
- oral pathology or oral medicine
- endodontic and prosthodontic practices that do not remove or place amalgam fillings as a service to their clients more than three days each year

A small number of King County dental practices that place or remove little or no dental amalgam will not need to install a separator or apply for a permit to demonstrate compliance with the local dental wastewater discharge limits. In addition to following BMPs for amalgam wastes and used silver fixer, each practice that determines that it places or removes amalgam three days or less each year should be able to demonstrate this during an inspection. Practices should keep a record, including dates, of each procedure performed that involves placing or removing dental amalgam.



King County Biosolids Recycling

For more than 30 years, King County has been turning wastewater solids into a product called biosolids. All of King County's biosolids are used beneficially in agriculture and forestry or as an ingredient in compost for landscaping and gardening. Biosolids contain organic matter, as well as nitrogen, phosphorus, potassium and other nutrients necessary for plant growth. This valuable soil amendment can be used to build soils, revegetate barren areas and fertilize crops.

In order to be safely recycled, biosolids must meet stringent quality standards set by the U. S. Environmental Protection Agency. King County's Industrial Waste Program (KCIW) and the Local Hazardous Waste Management Program in King County work with industries, businesses and citizens to limit the amount of metals and organic contaminants entering the sewer system. Thanks to continued efforts by local industries and businesses to meet source control requirements set by the county, biosolids contain only small amounts of metals and organic pollutants.

For contact information see page 8.



Regulatory information

What are the requirements for dental practices in King County?

Dental practices that remove and or place amalgam must use approved amalgam management practices and must install an amalgam separator. (A small number of practices may choose to apply for a King County Dental Wastewater Discharge Permit.)

Why do dental practices need to meet the dental wastewater discharge limits?

Protecting water quality is a sound business investment. The region is committed to improving its natural resources, including water. This means that businesses and regulators must work together to find better ways to manage waste.

Regulations are designed to prevent businesses from discharging substances that can degrade the wastewater treatment process, harm workers or facilities, or impact surface-water quality. All wastewater discharged by any business, located in the King County sewer service area, including dental practices, must adhere to regulations as described in King County Code—Title 28 (KCC) and Public Rule PUT 8-13 (PR).

Most commonly, dental practices need to address the amounts of mercury and silver they discharge to the sewer system. While this is only a portion of the mercury and other pollutants going into the environment, dental amalgam nonetheless is identifiable and controllable in the waste stream.

What are the rules defining the wastewater discharge limits?

King County limits for metals and their applicability to businesses in the sewer service area are cited in King County Code—Title 28 (<http://www.metrokc.gov/mkcc/CODE/index.htm#28>)

and in King County Industrial Waste Local Discharge Limits at

<http://www.metrokc.gov/recelec/archives/policies/put813pr.htm> on the internet.

If an industrial user discharges less than 5,000 gallons of wastewater per day, the industrial user must comply with local discharge limits for mercury of 0.2 parts per million (ppm) and for silver 3.0 ppm.

For more details about our rules and regulations go to <http://dnr.metrokc.gov/wlr/indwaste.htm> or call KCIW at 206-263-3000 to have a copy of the regulations mailed. (See end of document for additional contact information.)

County Code provides that businesses or individuals who illegally discharge substances to the sewer system must pay for damages and may be fined. Names of businesses that are fined are published in a *Seattle Times* display ad titled “Companies Violate Pretreatment Standards.”



King County dentist and KICW inspector view the practice's amalgam separator.

Best management practices (BMPs) for dental practices in King County sewer service area.

Whichever route to compliance is applicable to a particular dental practice, it is crucial that all practices follow BMPs for amalgam wastes and spent fixer used in X-ray processing.

KCIW requires that all dental practices use BMPs as a means of limiting metal discharges into the sewerage system.

1. BMPs for amalgam wastes:

- Keep amalgam out of sinks and never rinse amalgam waste down the drain.
- Clean or replace chair-side traps on a regular schedule and properly dispose of amalgam waste.
- Clean vacuum pump filters regularly, according to the manufacturer's recommendations, and properly dispose of amalgam waste.
- Send amalgam wastes to a licensed TSDR (treatment, storage, disposal, or recycling facility).
- Maintain all disposal records on site for three years.
- King County expects all dental practices to apply BMPs for amalgam wastes on an ongoing basis.

2. BMPs for properly handling spent fixer used in X-ray processing:

- Collect spent fixer and have it disposed of by a vendor who will recover the silver in it.

(OR)

- If practices prefer to treat the fixer on site and dispose of it down the drain, they must remove the silver by installing two chemical recovery cartridges (CRCs) in a series. Cartridges must be sized and maintained according to the manufacturer's recommendations.
- Maintain all disposal or maintenance records on site for three years.
- King County expects all dental practices to apply BMPs to spent fixer on an on going basis.

3. BMPs for use of cuspidors:

- Practices may discharge wastewater from cuspidors directly to the sanitary sewer without having to route then through the amalgam separator provided that:

During placement or removal of amalgam, use suction device to evacuate waste and use cuspidor primarily as receptacle for patients when they rinse their mouths for refreshment.

Maintain in-line filters in cuspidor and handle all dental wastes, including waste amalgam particles, according to current BMPs for Dental Office Wastewater.

What can dental practices expect during an inspection?

The compliance inspection process:

Compliance inspections of all dental practices that discharge mercury into the King County sewerage system occur on an ongoing basis. Each year the county inspects a portion of dental practices in the sewer service area for compliance with its regulations and general compliance with federal, state and local hazardous waste regulations.

Inspectors from KCIW, the Local Hazardous Waste Management Program in King County (LHWMP) and Public Health – Seattle & King County may inspect dental practices. Inspectors may schedule inspections with dental practices or may visit without prior notice. While KCIW and LHWMP each have their own criteria, the two agencies are combining their inspections into one session for ease of the dental practices.

Since dental practices that are certified by the EnviroStars program have already demonstrated compliance with these regulations, they will not receive additional inspections. (See page 8 for additional EnviroStars information.)

What can dental practices expect during an inspection?

During inspections, which will normally last less than one half hour, the inspector:

- Will look to see if the dental practice has ONE of the following:
 - an approved amalgam separator unit (ASU) properly installed (see Compliance Route 1, page 2), or
 - a valid wastewater discharge permit, (see Compliance Route 2, page 2), or
 - an exemption from the above requirements (see Compliance Route 3, page 3).
- Will check to see that X-ray fixer is properly managed.
- Will check to see that other hazardous wastes such as scrap amalgam, lead foils, and certain disinfectants are being disposed of properly.

- Will check records such as:
 - receipts or other documentation for equipment maintenance, and,
 - solid and liquid hazardous waste removal records.
- Will also answer any questions practices may have about maintaining compliance.

Inspection follow-up:

A typical follow-up to an inspection would include the inspector completing an inspection report and evaluating the dental practice for compliance. If the practice is in compliance there will be no further action.

Minor Problems:

If minor problems are noted during the inspection, King County will follow-up to see if they have been corrected promptly. If so, there will be no further action.

Major Problems:

If the inspector noted major problems (e.g. no separator or permit in place when required) he or she will set up a compliance schedule for that dental practice. If the practice does not correct the problem within 30 days, King County will proceed using its Enforcement Response Plan. The goals of this plan are to:

- Correct violations as soon as possible.
- Treat all industrial dischargers equitably.
- Eliminate any economic advantage to a business for not complying.
- Recover costs caused by violations.

More information about the Enforcement Response Plan is contained on the KCIW Web pages. See “Enforcement” or “Dental Office Waste.”

For additional information regarding compliance inspections, see contact information page eight.

Suggested equipment and waste management log

See example provided by the King County Industrial Waste program as a resource for dental practices on next page. Records should be kept three years, including receipts and manifests.

Date	Event or waste type	Number or amount and units	Vendor name	Signature and title of dental practice employee

Sample equipment and waste management log

Example provided by the King County Industrial Waste program as a resource for dental practices. Records should be kept three years, including receipts and manifests.

Date	Event or waste type	Number or amount and units	Vendor name	Signature and title of dental practice employee
Example				
3/8/95	silver fixer	5 Gallons	Safety Kleen	Helen Delecroix/ Dental Assistant
3/8/95	Harvey's	2 Gallons	Safety Kleen	Helen Delecroix/ Dental Assistant
1/1/04	replace filter on ASU filter	1	ABC Dental Supply	Helen Delecroix/ Dental Assistant
5/5/05	scrap amalgam/ lead foils	5 gallon bucket	Enviroclean	Dr. Young/ Dentist

Additional resources for meeting the local dental practice wastewater discharge limits:

KCIW's Dental Office Waste Web pages, <http://dnr.metrokc.gov/wlr/indwaste/dentists.htm> include:

- a downloadable version of this fact sheet;
- a downloadable Dental Practice Wastewater Discharge Permit Application and Guidelines and Instructions;
- the list "Amalgam Separators Approved by King County"; a comparison chart for King County approved amalgam separators, and links to information about companies that transport dental office waste to licensed TSDRs (treatment, storage, disposal, or recycling facilities); and,
- information about the EnviroStars program, a service of the Local Hazardous Waste Management Program of King County that certifies businesses for their efforts in preventing pollution and reducing hazardous waste.



To request mailed copies of this information, see contact information below.

King County Biosolids Recycling: For more information see the program's Web pages at <http://dnr.metrokc.gov/WTD/biosolids/> or contact Technology Assessment and Resource Recovery by calling 206-684-1255 or emailing roberta.king@metrokc.gov.



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King County's Wastewater Treatment Division protects public health and water quality by serving 18 cities, 16 sewer districts and more than 1.4 million residents in King, Snohomish and Pierce counties. Formerly called Metro, the regional utility now operated by King County has been preventing water pollution for nearly 40 years.

This information is available in accessible formats for persons with disabilities upon request. Please call 206-263-3000 or TTY relay service at 1-800-833-6388.

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