

**DATE:** January 19, 2010

**TO:** Mayor and City Council

**FROM:** Director of Public Works

**SUBJECT:** Introduction of an Ordinance Amending Article 3 of Chapter 11, relating to the Wastewater Discharge Regulations of the City of Hayward, to Add the City of Hayward Dental Amalgam Recovery Program Ordinance

### **RECOMMENDATION**

That Council reviews and introduces the attached City of Hayward Dental Amalgam Recovery Program Ordinance requiring dental facilities that remove or place amalgam fillings to participate in the Dental Amalgam Recovery Program aimed at lowering mercury levels in the City's sanitary sewer.

### **SUMMARY**

The purpose of the Dental Amalgam Recovery Program Ordinance is to comply with the requirement of the San Francisco Regional Water Quality Control Board's (RWQCB) 'San Francisco Bay Mercury Watershed Permit' that all municipal wastewater dischargers implement cost-effective pretreatment and pollution prevention strategies for dental offices to manage and reduce the amount of mercury amalgam that is discharged from dental offices into the public wastewater collection systems. The permit requires dischargers, including the City of Hayward, to develop a Dental Amalgam Recovery Program by March 1, 2010.

The Ordinance, essentially, requires all dental practices that handle amalgam to install amalgam separators. The adoption of the Dental Amalgam Recovery Program Ordinance is necessary not only to comply with the RWQCB's order, but also to lower the levels of mercury in the effluent from the City's Water Pollution Control Facility.

### **BACKGROUND**

San Francisco Bay is listed by the State Water Resources Control Board as an impaired waterbody for mercury due to high levels of the pollutant found in fish, water and sediment. Mercury contamination is adversely affecting existing beneficial uses, including sport fishing, preservation of rare and endangered species, and wildlife habitat. According to the RWQCB, mercury concentrations in San Francisco Bay fish are high enough to threaten the health of

humans who consume them. In addition, mercury concentrations in some bird eggs harvested from the shores of San Francisco Bay are high enough to account for abnormally high rates of eggs failing to hatch.

Because of the concerns with mercury in San Francisco Bay, the RWQCB issued Order No. R2-2007-0077, Waste Discharge Requirements for Municipal and Industrial Wastewater Discharges of Mercury to San Francisco Bay, on November 1, 2007. The purpose of this Order, also known as the Mercury Watershed Permit, is to implement San Francisco Bay Mercury Total Maximum Daily Load (TMDL) wasteload allocations. For mercury TMDL, loads are expressed in terms of annual mercury loads in kilograms per year (kg/yr) because the adverse effects of mercury occur through long-term bioaccumulation. The San Francisco Bay Mercury TMDL's initial aggregate load limit is 17 kg/yr for municipal wastewater discharges. The interim 10-year load limit allocation is 14 kg/yr, and the final 20-year allocation is 11 kg/year. The associated individual load limits for East Bay Dischargers Authority (EBDA), of which City of Hayward is a constituent, are 2.6 kg/yr, 2.1 kg/yr, and 1.5 kg/yr for initial, interim and final allocations respectively. The San Francisco Bay Mercury TMDL will help in attaining mercury concentration targets that are required to protect human health, aquatic organisms, and wildlife.

The mercury TMDL implementation plan includes a requirement for the municipal wastewater dischargers to develop and implement an effective mercury source control program based on identification of the largest and most controllable sources. A major source of mercury entering wastewater treatment plants is from dental offices. Placement and removal of dental amalgam restorations generate amalgam waste particles that can be suctioned into the dental unit vacuum line and discharged into the sanitary sewer system. In addition, scrap amalgam and mercury waste can be washed down the sink and drained to the sanitary sewer. Since dental facilities are a known and controllable source of mercury discharge, it is more cost-effective to contain and dispose of mercury waste at the source than to develop expensive treatment technologies for the wastewater.

The RWQCB requires each permitted municipal wastewater discharging agency, including the City of Hayward, to begin a dental amalgam program by March 1, 2010. The goal for this program is to bring 85% of dental offices in the region into participation in an amalgam program by December 2011. An estimate of dental amalgam collected is due to the RWQCB on June 30, 2012.

Efforts to create a Dental Amalgam Recovery Program by City staff have been underway since 2006. Surveys were mailed to dental offices to collect information regarding amalgam handling practices in 2006, and again in 2009. A Best Management Practices (BMPs) flyer was also mailed with each survey. The results of the survey indicated that concerted efforts are needed to implement proper handling and disposal practices at the dental offices.

The dental amalgam BMPs are supported by the ADA and are gaining acceptance by dental societies in the Bay Area. On December 29, 2008, the ADA, the United States Environmental Protection Agency, and the National Association of Clean Water Agencies signed a Memorandum of Understanding recommending amalgam separator installation as one of several BMPs for dental offices.

## DISCUSSION

The Dental Amalgam Recovery Program Ordinance was developed by the City staff with the purpose of requiring mandatory implementation of the BMPs and installation of ISO 11143 certified amalgam separators at all dental offices that place or remove amalgam fillings. An amalgam separator is a device that employs filtration, settlement, centrifugation, or ion exchange to remove amalgam and its metal constituents from a dental office vacuum system before it discharges to the sewer. ISO 11143 is the International Organization for Standardization's standard for amalgam separators. According to information shared by other local agencies, a mandatory program requiring amalgam separator installation is the most cost-effective and efficient way to ensure compliance with RWQCB requirements for dental mercury reduction in discharged wastewater.

There are about 75 dental offices in Hayward. Based on the results of the survey, 22 dental offices have amalgam separators; only 12 are ISO 11143 certified. If the ordinance is adopted, it will be mandatory for dental offices in Hayward that remove or place amalgam fillings to participate in the Dental Amalgam Recovery Program as required by the RWQCB in the Mercury Watershed Permit. Those dental offices that do not handle mercury amalgam, such as orthodontists, radiologists, and oral surgeons, will be exempt from participation in the Program upon certification of de minimis use of mercury amalgam. Staff will monitor the implementation of BMPs and installation of amalgam separators by the participating dental offices, conduct periodic sampling of dental wastewater, and keep track of the amalgam collected.

Many Bay Area cities and agencies, including neighboring agencies of Union Sanitary District (serving Union City, Fremont and Newark) and the Oro Loma Sanitary District (serving San Lorenzo), have adopted similar ordinances. The City of San Leandro has required dental offices to install amalgam pretreatment systems for the last 20 years. Those agencies or cities that do not have an ordinance are in the process of adopting one. The Castro Valley Sanitary District's draft dental amalgam ordinance is scheduled to be finalized and adopted at a Board meeting in February. Some of the bigger agencies and cities with substantial staffing and financial resources, such as the East Bay Municipal Utility District, the San Francisco Public Utilities Commission, the Central Contra Costa Sanitary District, and the City of San Jose, have gone a step further and have implemented mandatory amalgam separator *permitting* programs for dental offices.

The Dental Amalgam Recovery Program Ordinance is essential to lower mercury discharge in the City's wastewater. Data from agencies that have mandatory Dental Amalgam Recovery Programs, such as Palo Alto, Central Contra Costa Sanitary District, and Union Sanitary District, indicate that implementation of such programs has led to significant reductions in mercury concentration in wastewater and sludge. Among EBDA member agencies, the City of Hayward is the highest contributor of mercury in the effluent discharged to EBDA. Staff hopes to reduce the level of mercury in the City's treated wastewater effluent by implementing the Dental Amalgam Recovery Program Ordinance.

## ECONOMIC IMPACT

There will be no direct economic impact of this ordinance on Hayward residents. This ordinance will impact only those dental offices that handle amalgam, but do not have an ISO 11143 certified

amalgam separator, or an amalgam separator that provides amalgam removal similar to an ISO-certified system. The costs of amalgam separators can vary depending on the model type, technology, capacity, and function. Typically, the cost of purchasing and installing an amalgam separator can vary from \$250 (serving one chair) to \$3,500 (serving up to 20 chairs).

The amalgam separators require some form of maintenance to remove the collected amalgam. Some units require daily decanting, while others require replacement of the whole unit or containment unit every 3-18 months, depending on the size of collection tanks and volumes generated. The annual cost of maintenance can vary from \$100 to \$800, depending on the nature of disposal (filter or canister replacement), the number of dental chairs served, and the number of doctors practicing per dental office.

## **FISCAL IMPACT**

The Dental Amalgam Recovery Program is a part of the Industrial Pretreatment and Pollution Prevention Programs, which are managed by the City's Utilities Division. The funding for this program will come from the pretreatment and pollution prevention program budgets. Staff estimates an annual cost of \$5,000 for the Dental Amalgam Recovery Program in order to cover expenses for outreach to dental offices, consultation fees for staff training, and dental office wastewater sampling and analyses. This expense has already been accounted for, and is not expected to impact the other activities funded by the pretreatment and pollution prevention program budgets.

## **PUBLIC CONTACT**

As noted above, work on the City's Dental Amalgam Recovery Program was initiated in 2006. Dental Office Surveys and ADA-supported dental amalgam BMP flyers were sent to all dental offices in Hayward in 2006 and again in March 2009. When the City's website was updated in November to include information on the Dental Amalgam Recovery Program, City staff provided information about the program to the Southern Alameda County Dental Society (Dental Society). As many Hayward dentists are affiliated with the Dental Society, City staff met with Dental Society staff early in 2009 to provide information about the City's proposed program. They asked that City staff funnel communications on this issue through the Dental Society and proposed to forward relevant information provided by the City to its members.

A public notice was published in the *Daily Review* 10 days prior to the Council meeting, and another public notice will be published 3 days prior to the Council's adoption of the ordinance. Notice of this public hearing and a copy of the proposed ordinance have been provided to the Dental Society Board. City staff will schedule a presentation to Dental Society members following Council's adoption of the ordinance.

## **NEXT STEPS**

If the ordinance is adopted, the first step will be to send notification letters to all dental offices by the end of February, 2010. The notification will include a fact sheet about the Dental Amalgam Recovery Program requirements, and two self-certification forms. The first form will require certification from dental offices confirming the implementation of BMPs. The second form will be

due for submittal within 30 days of installation of an amalgam separator. This form will require certification by the dental offices that an amalgam separator has been installed by January 1, 2011.

The next step will be to hold a presentation for the dentists to discuss the requirements of the ordinance and provide assistance to implement them. A consultant with expertise in dental amalgam programs will be hired for the presentation.

Water Pollution Source Control Inspectors will review the self-certification forms and determine the need for inspecting some of the dental offices. The Inspectors will receive training from a consultant in February 2011, prior to conducting inspections.

Based on feedback staff received from the local Bay Area agencies, a mandatory amalgam recovery program is necessary to ensure complete participation by the dental offices. Failure to adopt the ordinance will result in staff pursuing an alternative method of inspecting and permitting the dental offices. This will result in allocating additional staff time and resources for the Dental Amalgam Recovery Program that will significantly increase costs to the City. If the ordinance is adopted, staff will work cooperatively with the Dental Society and the dentists, with minimum impact on budget and staffing resources.

*Prepared by:* Alex Ameri, Deputy Director of Public Works

*Recommended by:* Robert A. Bauman, Director of Public Works

Approved by:

  
\_\_\_\_\_  
for  
Gregory T. Jones, City Manager

Attachments:

I – Draft Ordinance: City of Hayward Dental Amalgam Recovery Program Ordinance

# DRAFT

ORDINANCE NO. 10-XX

ORDINANCE ADDING SECTION 2.15 TO CHAPTER 11,  
ARTICLE 3, SECTION 400, APPENDIX "A" OF THE  
HAYWARD MUNICIPAL CODE RELATING TO DENTAL  
AMALGAM RECOVERY PROGRAM ORDINANCE

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF HAYWARD  
DOES ORDAIN AS FOLLOWS:

Section 1. Upon the effective date of this ordinance, Chapter 11, Article 3, Section 400, Appendix "A", known as the Wastewater Discharge Regulations of the Hayward Municipal Code is hereby amended to add a new Section 2.15, and which is hereby enacted to read in full as follows:

## ARTICLE 3

### SECTION 400

#### APPENDIX "A"

#### WASTEWATER DISCHARGE REGULATIONS OF THE CITY OF HAYWARD

#### Chapter 2 REGULATIONS

#### CITY OF HAYWARD DENTAL AMALGAM RECOVERY PROGRAM ORDINANCE

- |        |   |
|--------|---|
| 2.15   | REQUIREMENTS FOR DENTAL FACILITIES<br>THAT REMOVE OR PLACE AMALGAM FILLINGS |
| 2.15.1 | DEFINITIONS   |
| 2.15.2 | BEST MANAGEMENT PRACTICES   |
| 2.15.3 | AMALGAM SEPARATOR REQUIREMENTS  |
| 2.15.4 | EXEMPTIONS  |

ARTICLE 3

SECTION 400

APPENDIX "A"

WASTEWATER DISCHARGE REGULATIONS OF THE CITY OF HAYWARD

Chapter 2  
REGULATIONS

CITY OF HAYWARD  
DENTAL AMALGAM RECOVERY PROGRAM ORDINANCE  
(Added by Ordinance No. 10-XX, adopted January 26, 2010)

2.15 Requirements for Dental Facilities that Remove or Place Amalgam Fillings. This section shall be known and may be cited as the Dental Amalgam Recovery Program Ordinance of the City of Hayward.

2.15.1 Definitions. For the purposes of this section, the following definitions shall apply:

- (a) Amalgam separator. A device that employs filtration, settlement, centrifugation, or ion exchange to remove amalgam and its metal constituents from a dental office vacuum system before it discharges to the sewer.
- (b) Amalgam waste. Includes non-contact amalgam (amalgam scrap that has not been in contact with the patient); contact amalgam (including, but not limited to, extracted teeth containing amalgam); amalgam sludge captured by chairside traps, vacuum pump filters, screens, and other amalgam trapping devices; used amalgam capsules; and leaking or unusable amalgam capsules.
- (c) ISO 11143. The International Organization for Standardization's standard for amalgam separators.

2.15.2 Best Management Practices. All owners and operators of dental facilities that remove or place amalgam fillings shall comply with the following waste management practices:

- (a) Segregate amalgam containing waste. Amalgam waste must never be placed in the regular trash, placed with infectious (red bag) waste, or flushed down the drain or toilet.
- (b) Eliminate all use of bulk elemental mercury (also referred to as liquid or raw mercury). Any bulk elemental mercury must be recycled or disposed of as hazardous waste.

- (c) Use only pre-capsulated dental amalgam in the smallest appropriate size; keep a variety of amalgam capsules on hand to more closely match the amount needed in a restoration.
- (d) Change or empty chair-side traps frequently and store the trap and its contents with amalgam waste. Never rinse traps in the sink. If you have reusable traps, make sure any material you use to clean the trap is disposed of with amalgam waste.
- (e) Do not use sodium hypochlorite (bleach) and other chlorine-containing products to cleanse vacuum lines, as these products have been shown to release the mercury in the amalgam. Information on non-bleach line cleaners can be found at [www.baywise.org](http://www.baywise.org).
- (f) Change vacuum pump filters and screens as needed or as directed by the manufacturer. Seal and store filters and screen, as well as their contents (including any water that may be present), with amalgam waste in an airtight container.
- (g) For dry vacuum turbine vacuum units, have a qualified maintenance technician, licensed amalgam recycler or hazardous waste disposal service pump out and clean the air-water separator tank at least once per six months. Perform this service more frequently if necessary to maintain suction or if so directed by the vacuum system manufacturer.
- (h) Have a licensed recycling contractor, mail-in service, or hazardous waste hauler remove your amalgam wastes. Recycling is the preferred method for disposal of amalgam wastes.
- (i) Obtain receipts or other documentation from your recycler or hazardous waste hauler of all amalgam waste recycling and disposal shipments. Keep these receipts on file for at least five years, and make them available to authorized City inspectors upon request.
- (j) Store amalgam waste in airtight containers. Follow recycler's or hauler's instructions for disinfection of waste and separation of contact and non-contact amalgam. Do not use disinfectant solutions with oxidizers, such as bleach, to disinfect the amalgam.
- (k) Use a licensed hauler to transport spent x-ray fixer solution to be recycled or managed as hazardous waste. Never pour fixer solution down the drain.
- (l) Train staff in the proper handling, management, and disposal of mercury-containing material and fixer solutions. Maintain a training log and keep this log

for at least five years. This log must be made available to authorized City inspectors upon request.

2.15.3 Amalgam Separator Requirements. All owners and operators of dental vacuum suction systems, except as set forth in subsection 2.15.4 of this section, shall comply with the following:

- (a) An ISO 11143 certified amalgam separator device shall be installed for each dental vacuum suction system on or before January 1, 2011; provided, however, that all dental facilities that are newly constructed on and after the effective date of this ordinance shall include an installed ISO 11143 certified amalgam separator device capable of removing a minimum of 95 percent of amalgam. The amalgam separator system shall be certified at flow rates comparable to the flow rate of the actual vacuum suction system operation. Neither the separator device nor the related plumbing shall include an automatic flow bypass. For facilities that require an amalgam separator that exceeds the practical capacity of ISO 11143 test methodology, a non-certified separator will be accepted, provided that smaller units from the same manufacturer and of the same technology are ISO-certified. For facilities that have installed amalgam separators on or before the effective date of this Ordinance that are not ISO-certified, they may be grandfathered in if it can be shown that the existing device provides amalgam removal similar to an ISO-certified system. Alternative materials and methods may be proposed to the Water Pollution Control (WPC) Administrator for approval.
- (b) Self-certification of Amalgam Separator Installation form issued by the City of Hayward shall be submitted to the WPC Administrator within 30 days of installation.
- (c) Amalgam separators shall be maintained in accordance with manufacturer recommendations. Installation, certification, and maintenance records shall be available for immediate inspection upon request by the WPC Administrator or a designee during normal business hours.

2.15.4 Exemptions. The following types of dental practice are exempt from this section 2.15, provided that removal or placement of amalgam fillings occurs at the facility no more than 3 days per year:

- (a) Orthodontics
- (b) Periodontics
- (c) Oral and maxillofacial surgery
- (d) Radiology
- (e) Oral pathology or oral medicine
- (f) Endodontics and prosthodontics

Section 2. SEVERABILITY. Should any part of this ordinance be declared by a final decision by a court or tribunal of competent jurisdiction to be unconstitutional, invalid, or beyond the authority of the City, such decision shall not affect the validity of the remainder of this ordinance, which shall continue in full force and effect, provided that the remainder of the ordinance, absent the unexcised portion, can be reasonably interpreted to give effect to the intentions of the City Council.

Section 3. EFFECTIVE DATE. In accordance with the provisions of Section 620 of the City Charter, this ordinance shall become effective 30 days from and after the date of its adoption.

IN COUNCIL INTRODUCED at a regular meeting of the City Council of the City of Hayward, held the \_\_\_ day of \_\_\_\_\_, 2010, by Council Member \_\_\_\_\_.

ADOPTED at a regular meeting of the City Council of the City of Hayward held the \_\_\_ day of \_\_\_\_\_, 2010, by the following votes of members of said City Council.

AYES: COUNCIL MEMBERS:  
MAYOR:

NOES: COUNCIL MEMBERS:

ATTEST: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

APPROVED:  
Mayor of the City of Hayward

DATE:

ATTEST: \_\_\_\_\_  
City Clerk of the City of Hayward

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney of the City of Hayward