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February 20, 2015

Water Docket

U.S. Environmental Protection Agency

1200 Pennsylvania Avenue, NW

Washington, DC 20460

Via email: [OW-Docket@epa.gov](mailto:OW-Docket@epa.gov)

**Re: Docket ID No. EPA-HQ-OW-2014-0693, Effluent Limitations Guidelines and Standards for the Dental Category**

The National Association of Clean Water Agencies (NACWA) appreciates the opportunity to comment on the proposed rule, *Effluent Limitations Guidelines and Standards for the Dental Category* (79 FR 63257, October 22, 2014). NACWA represents the interests of nearly 300 public clean water agencies nationwide. NACWA members operate highly successful pretreatment programs and are actively involved in efforts to reduce the quantities of pollutants that are discharged into the sewer system.

Mercury is undoubtedly one of the most persistent, bioaccumulative, and toxic pollutants that the clean water community must contend with and NACWA's members take seriously their responsibility for ensuring that water quality is protected from its impacts. Nearly two decades ago, recognizing the importance of controlling mercury, NACWA formed its Mercury Workgroup to focus on improving our understanding of the sources of mercury and ways to control its discharge. NACWA has produced several technical reports – including one with U.S. Environmental Protection Agency (EPA) grant funding – and a comprehensive sampling study over that time in an attempt to increase our understanding of the issue.

Long before EPA or any regulatory agency contemplated requiring dentists to install amalgam separators, NACWA's members identified these devices as an important tool for addressing mercury discharges where water quality based effluent limits or other water quality objectives demanded additional mercury control. These programs have worked and will continue to work where water quality needs demand. NACWA applauded the American Dental Association (ADA) in 2002 when, recognizing the important role dental amalgam separators could play in reducing mercury, the ADA championed the incorporation of separators into its national best management practices (BMPs) for dentists.

Acknowledging that the placement of mercury amalgam fillings was on the decline and that adoption of the ADA's BMP program was increasing, EPA, together with NACWA and ADA, committed to working together to broaden adoption of the BMP program and installation of separators across the country in a 2008 Memorandum of Understanding. Without pausing to give that collaborative effort a chance to show progress, new leadership at EPA changed course and began to develop pretreatment standards that would mandate separator installation. In doing so, EPA abandoned an industry-led effort to improve dental office practices in favor of a burdensome regulatory framework that will result in no greater water quality benefits, but will dramatically increase administrative costs and oversight burdens, and will potentially have negative impacts on the programs that are already in place.

### ***Proposed Pretreatment Standards Should be Withdrawn***

While NACWA shares EPA's goal of reducing mercury discharges, the proposed pretreatment standards for the dental category are not needed and the proposed rule should be withdrawn by EPA. Publicly owned treatment works (POTWs) are already meeting the mercury limits in their National Pollutant Discharge Elimination System (NPDES) permits, as well as the mercury concentration requirements for their biosolids. When needed, POTWs can and do establish their own local limits and local dental amalgam separator programs, and the results from POTWs that have already done this prove that 100% compliance of dental offices can be achieved, even with some voluntary programs. For POTWs that do not have a need to reduce their mercury influent or effluent levels, establishing and maintaining a dental amalgam separator program is not an efficient use of resources, which could be spent addressing more pressing environmental problems.

In addition, EPA's analysis to justify the rule is fatally flawed. EPA uses the out-of-date 1982 50 POTW Study to determine POTW mercury removal efficiency, and overestimates the number of amalgam filling placements and removals each year, leading to an overestimation of the amount of mercury that would be kept out of the environment by the rule. EPA also greatly underestimates the cost of the rule, completely ignoring the cost to POTWs and other Control Authorities to develop dental amalgam separator programs and greatly underestimating the amount of time needed to implement the programs. Most importantly, EPA's fundamental justification of the rule – that the best available technology (BAT) of dental amalgam separators removes more mercury than POTWs – is erroneous. EPA compares the old 50 POTW Study removal efficiency, which represents removal of total mercury, to the removal rate of dental amalgam separators, which is based on amalgam particle removal.

NACWA's comments below provide more details about these reasons why the rule should be withdrawn. Should EPA proceed with finalizing the rule, these comments also include changes that must be made to ensure any final requirements can be implemented. While NACWA does not agree with the ADA that the rule can proceed with certain changes, in the event that EPA decides to issue final pretreatment standards, NACWA supports the changes outlined in the ADA's comments.

### ***Previous Communications between NACWA and EPA***

After EPA announced in 2010 that it would propose a dental amalgam rule, NACWA provided the Agency with input on pretreatment standards for dental amalgam on several occasions. NACWA's primary concern was – and remains – that an amalgam separator rule would place too high of a burden, with little environmental benefit, on the POTW pretreatment programs that would be responsible for ensuring compliance at all dental facilities. NACWA appreciates the opportunities to communicate with EPA throughout the time period that the rule was drafted. Many aspects of the proposed rule, such as the creation of the Dental Industrial User

(DIU) category, respond to the concerns raised by NACWA and its members. However, the proposed rule does not go far enough to alleviate the burden placed on POTWs by the responsibility to provide regulatory oversight to over 100,000 dental offices, or to reduce the disruption of existing POTWs dental amalgam separator programs.

### ***NACWA Survey Results Provide Support for Withdrawing Proposal***

In preparation for drafting its comments on the proposal, NACWA conducted a nationwide survey of POTWs to collect information related to mercury and dental amalgam separator programs. Two hundred and eleven (211) wastewater treatment facilities voluntarily responded to the survey, representing 123 clean water agencies. In addition to basic information about the utilities (e.g., population served, treatment methods used, biosolids disposal methods), utilities were asked to provide influent, effluent, and biosolids mercury concentrations for three years (2011, 2012, and 2013) and whether they had any NPDES permit or biosolids violations during these years. Utilities were also asked for whole effluent toxicity (WET) test results. Utilities that already have dental amalgam separator programs in place provided information about their programs, including program requirements, and staff time and cost to develop and implement the programs.

A summary of information about the utilities completing the survey is included as Attachment A. The 123 clean water agencies represented in the survey serve a wide range of populations, from less than 25,000 to over 1 million. Every EPA Region is represented in the survey. The 211 treatment facilities range from less than 5 MGD to greater than 500 MGD, with most of the facilities less than 200 MGD. Activated sludge was the most common treatment process used at the facilities in the survey, and land application and landfilling were the most common methods of biosolids disposal.

### **National Dental Office Pretreatment Standards are Unnecessary**

The proposed rule is unnecessary for many reasons. As NACWA's survey data shows, POTWs are currently meeting all of their effluent and biosolids requirements for mercury, and are able to remove mercury from influent with high efficiency. EPA's justification of pass through for mercury is incorrect, with POTW removal efficiency estimated at too low a value and improper comparisons made between POTW and dental amalgam separator removal efficiencies. When needed, states and local POTWs can institute their own dental amalgam separator programs, and many have shown that they can operate mandatory or voluntary programs with nearly universal compliance from dental offices. POTWs that do not need to reduce mercury can better use their resources on higher priority environmental issues.

### **EPA's Contradictory Justification for the Rule is Not Supported by Any New Data or Information**

EPA first began considering pretreatment standards for dental amalgam in its Preliminary 2006 Effluent Guidelines (ELG) Plan when it identified the Health Services Industry for a detailed study, with a focus on dental amalgam and unused pharmaceutical disposal. In the Final 2008 ELG Plan, EPA did not identify dental facilities for ELG rulemaking, stating that the Agency

“does not think national, categorical pretreatment standards for dental mercury discharges are appropriate at this time. While this is a possibility for the future, EPA has identified a number of successful voluntary programs demonstrating that there are opportunities for pollution prevention and adoption of BMPs without federal regulation. Moreover, the dental industry is working towards

voluntarily reducing its mercury discharges. Also, due to mercury-free fillings and improved overall dental health, the use of mercury in dentistry is decreasing in the U.S.”

The Plan also said that EPA would “continue to examine the percentage of dentists using amalgam separators and their effectiveness at recovering dental amalgam.” EPA, NACWA, and ADA signed their Memorandum of Understanding (MOU) in 2008 to encourage the voluntary use of dental amalgam separators and establish methods of tracking their use.

EPA changed course on dental amalgam separators with its 2010 ELG Plan. The Preliminary 2010 Plan, published in December 2009, reaffirmed EPA’s decision not to pursue a rulemaking for dental amalgam. However, the Final 2010 Plan, published in October 2011, stated that “given the human health and aquatic-life impacts associated with mercury, the level of stakeholder interest, and the availability of a technological solution, EPA decided to initiate rulemaking to develop pretreatment standards for dental mercury to more thoroughly and expeditiously address this water pollution problem.”

EPA made this decision before the MOU could be fully implemented, not allowing sufficient time to determine if voluntary use of dental amalgam separators could be increased. EPA has never provided an explanation of why its conclusion in the Final 2008 ELG Plan was incorrect just two years later. No new data or information has been released to justify the change in decision. As will be discussed below, POTWs do not need the rule to prevent pass through and interference, since they are able to meet all NPDES permit and biosolids mercury requirements. POTWS remove mercury with high efficiency in their treatment processes and can establish local limits and/or local dental amalgam separator programs if needed.

***POTWs Currently Meet All Mercury Requirements***

NACWA’s survey data clearly demonstrate that neither interference nor pass through is occurring with mercury from dental amalgam discharges. None of the facilities completing the survey reported an incident of mercury inhibiting or disrupting the POTW. Table 1 shows that there was only one facility with a biosolids mercury violation in 2012 and no violations in 2011 or 2013. The violation in 2012 occurred for a facility with a maximum biosolids mercury concentration of only 1.51 mg/kg dry weight, much lower than the 40 CFR Part 503 pollutant limit of 17 mg/kg for “high quality” biosolids. This lower level was established to ensure that the facility’s sewage sludge incinerator would reliably meet its air emission requirements.

Table 1. NACWA survey data on biosolids violations for 2011-2013.

	2011	2012	2013
Number of Facilities Reporting Data	168	163	163
Total Number of Biosolids Samples	1973	1879	1871
Number of Facilities with Biosolids Violations	0	1	0
Maximum Biosolids Content from Facility with Violation (mg/kg dry weight)	--	1.51	--
Maximum Biosolids Content from Facilities without Violations (mg/kg dry weight)	10.6	10.0	8.31

Facilities that use land application of biosolids have biosolids mercury concentrations that are well below the 40 CFR Part 503.13 Table 3 “high quality” biosolids mercury limit of 17 mg/kg. As shown in Table 1, the maximum biosolids concentrations from all facilities that did **not** have a violation were 10.6, 10.0, and 8.31 mg/kg dry weight for 2011, 2012, and 2013, respectively. The average biosolids concentrations for each facility are shown in Figure 1. The vast majority of facilities reporting biosolids concentrations had average concentrations of less than 2 mg/kg dry weight. These low mercury concentrations in biosolids, the extremely low numbers of biosolids violations, and the absence of inhibition or disruption events at POTWs, show that national pretreatment standards are not needed to prevent interference with treatment plant processes or biosolids disposal options. Instead, this information suggests that where mercury may present a challenge – as in the case of the low mercury limit to ensure air emissions requirements are met – that a targeted, local program may be appropriate.

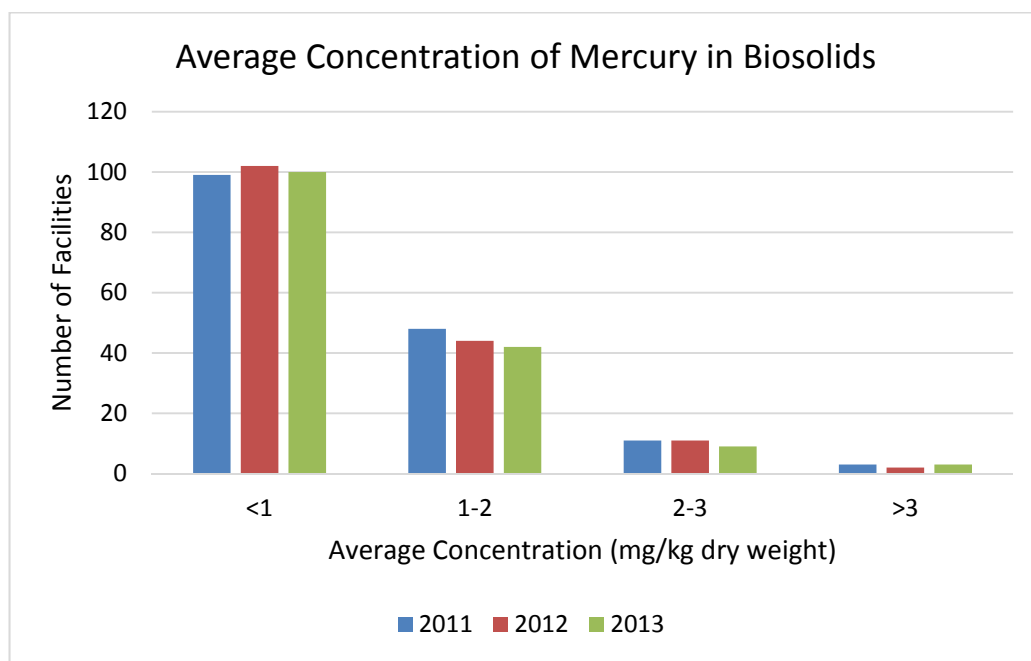


Figure 1. Average Concentration of Mercury in Biosolids from NACWA survey.

Table 2 shows the number of total effluent mercury NPDES permit exceedances reported in the NACWA survey. The facility that had a permit violation in 2011 did not have violations in 2012 and 2013. Violations in 2012 and 2013 for one facility were due to very low default interim limits that were put in place after the facility’s NPDES permit expired. These violations would not have occurred with the facility’s usual permit limits. The interim status mercury limits were 3.2 ng/L daily maximum and 1.8 ng/L monthly average. No enforcement action was taken by the state for exceeding these limits. When the facility’s new permit takes effect later in 2015, the mercury limits will be 7.4 ng/L daily maximum and 5.8 ng/L monthly average, which would not have resulted in violations for the 2012 or 2013 samples.

Table 2. NACWA survey data on NPDES permit violations for 2011-2013.

	2011	2012	2013
Number of Facilities Reporting Data	190	181	178
Total Number of Effluent Samples	3163	2775	2880
Number of Facilities with NPDES Permit Violations	1	2	3

The chronic and acute whole effluent toxicity (WET) test results reported in the NACWA survey are shown in Tables 3 and 4. Both chronic and acute WET test failures occurred each year, but in a small proportion of the utilities responding to the survey. None of the test failures was positively attributable to mercury.

Table 3. NACWA survey data on chronic whole effluent toxicity (WET) test failures for 2011-2013.

	2011	2012	2013
Number of Facilities Reporting Data	135	135	137
Total Number of Chronic WET Tests	929	912	931
Number of Facilities with Chronic WET Test Failures	14	17	22
Total Number of Chronic WET Test Failures	26	59	60
Total Number of Chronic WET Test Failures Positively Attributable to Mercury	0	0	0

Table 4. NACWA survey data on acute whole effluent toxicity (WET) test failures for 2011-2013.

	2011	2012	2013
Number of Facilities Reporting Data	133	127	125
Total Number of Acute WET Tests	841	830	809
Number of Facilities with Acute WET Test Failures	9	7	4
Total Number of Acute WET Test Failures	41	30	12
Total Number of Chronic WET Test Failures Positively Attributable to Mercury	0	0	0

The extremely low number of NPDES permit violations and the lack of WET test failures due to mercury show that pretreatment standards are not needed to prevent mercury from passing through treatment facilities and causing violations of NPDES permit limits or WET test failures.

### ***POTWs Remove Mercury with High Efficiency***

In NACWA's survey, 41 facilities in each year (2011, 2012, and 2013) used EPA Method 1631 to measure concentrations in both the influent and effluent. Removal efficiencies were examined using only the data from these facilities, since other methods are not sensitive enough to determine removal efficiencies at the low concentrations of mercury found in wastewater treatment plant effluent. The distribution of removal efficiencies is shown in Figure 2. A significant percentage of facilities had mercury removal efficiencies greater than 95% each year (59%, 49%, and 73% of facilities in 2011, 2012, and 2013, respectively, had removal

efficiencies greater than 95%). There was no correlation between removal efficiency and treatment plant size or type of treatment method used.

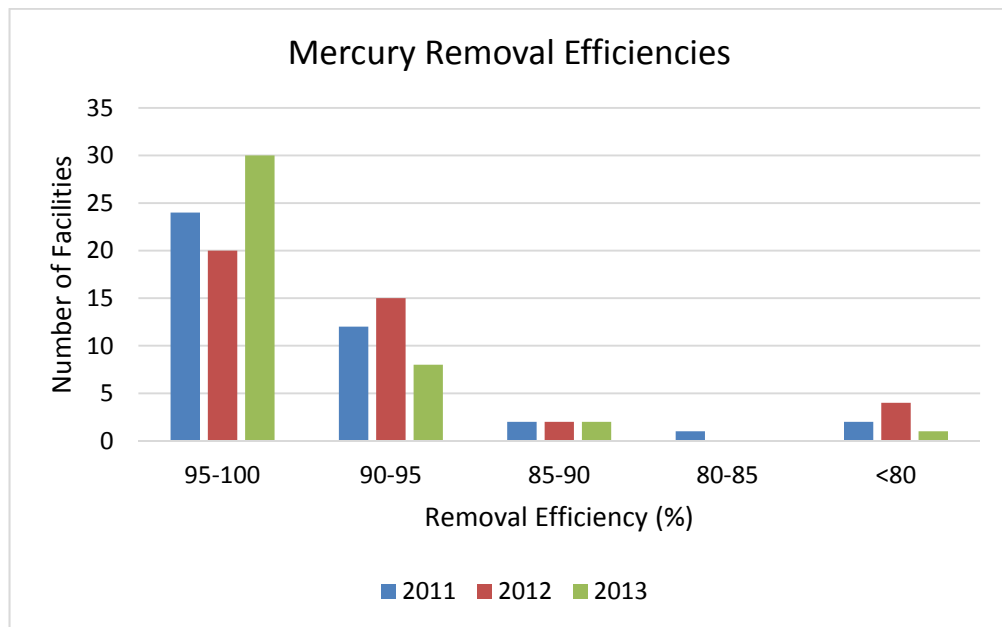


Figure 2. Mercury removal efficiencies at treatment facilities in NACWA survey.

Combining all of the removal efficiencies reported for 2011-2013 results in a mean mercury removal efficiency of 94%. The median of 95% for the three years of combined data better accounts for the outlying low values. Of the facilities that reported mercury removal efficiencies less than 80%, only one facility did not have at least one other year with an efficiency over 90%, indicating that nearly all of the outlying low values may be inconsistent with the actual mercury removal efficiency of the treatment facility.

***EPA’s Pass Through Conclusion is Not Valid***

EPA states in the proposed rule, “a pollutant is deemed to pass through a POTW when the average percentage removed by a typical POTW is less than the percentage removed by direct dischargers complying with BPT/BAT effluent limitations.” EPA concludes that pass through is occurring because the mercury removal rate for dental amalgam separators is higher than the Agency’s assumed mercury removal rate of POTWs. As highlighted by NACWA’s survey results, this conclusion is erroneous because the mercury removal rate of POTWs is higher than the value EPA uses. In addition, EPA’s assumed removal rate for dental amalgam separators cannot be verified for the separators that are being tested and in use today, and the removal rates for POTWs and dental amalgam separators are not directly comparable.

EPA used the 1982 50 POTW Study to estimate that POTWs remove 90% of total mercury from influent wastewater. However, the data collected for the 50 POTW Study from 1978 to 1980 is now 35 years old. The removal efficiencies, physical parameters, and process data from the Study are no longer valid, and treatment technologies at most POTWs have vastly improved since the Study was completed. The National Pretreatment

Program was in its infancy at the time of the 50 POTW Study, and utilities' pretreatment programs have matured in the past 30 years. Utility pretreatment programs, in addition to other pollution prevention measures, have significantly reduced the concentrations of pollutants in POTW influent, with corresponding increases in treatment plant removal efficiency values. In addition, Method 1631 was introduced for measuring mercury concentrations after the 50 POTW Study, and the older methods used in the Study are not adequate for obtaining accurate removal efficiencies for low mercury concentrations. As one utility that completed the NACWA survey succinctly stated, "Our plant is not the same plant it was in 1982. Sampling and analyses are not the same." The 50 POTW Study is simply not valid for estimating current mercury removal efficiencies.

As described above, NACWA's survey data indicates that the vast majority of utilities using Method 1631 for influent and effluent have mercury removal efficiencies greater than 90%. For each of the three years that data were collected, over 85% of the treatment plants had mercury removal efficiencies greater than EPA's estimated value of 90%. The mean removal efficiency value of the three years of data was 94%, and the median was 95%. NACWA's survey data represent a much more accurate estimate of current POTW mercury removal efficiency than the 50 POTW Study data. With additional study and analysis, it is possible that the mean and median could be even higher, with explanations found for the outlying low removal efficiency values.

EPA has proposed a pretreatment standard of "removal of at least 99.0% of total mercury from amalgam process wastewater," which "may be met by installation and operation of at least one 2008 ISO 11143 certified amalgam separator that. . . meet[s] a removal efficiency of no less than 99.0%." However, ISO 11143 requires demonstration of the capability to remove at least 95% of the amalgam particles (not total mercury) entering the separator, based on the testing methodology in the standard. Although half of the ISO 11143 certified amalgam separators commercially available remove more than 99.0% of amalgam by weight (according to the Technical and Economic Development Document for the proposed rule), the testing method in ISO 11143 is only validated at a removal efficiency of 95%. Reproducible and accurate removal efficiency measurements can therefore only be ensured at 95% or less of amalgam by weight. EPA therefore cannot use the conclusion that dental amalgam separators complying with ISO 11143 remove 99.0% of dental amalgam, since a removal efficiency this high cannot be validated.

Since ISO 11143 removal efficiency refers to amalgam particle removal, while the POTW removal efficiency refers to total mercury removal, the two removal efficiencies are not equivalent measures and cannot be accurately compared. If EPA does want to make this "apples and oranges" comparison, though, it should use a more realistic POTW removal efficiency, such as the mean of 94% or median of 95% found in the NACWA survey. POTW removal efficiencies should go up when focusing solely on particle removal, so using the mean or median values for total mercury removal efficiency from the NACWA survey is likely conservative. Since removal efficiency for dental amalgam separators cannot be validated above 95%, the BAT removal efficiency should be set at 95%, which is essentially the same as current POTW removal efficiencies. The similar removal efficiencies between separators and POTWs is often pointed to as the reason why in some cases there is not much change in effluent mercury concentrations when amalgam separator programs are put in place. EPA's conclusion that pass through occurs because the BAT removal percentage is greater than the POTW removal efficiency is therefore not valid.

#### ***Local Dental Amalgam Separator Programs and Voluntary Efforts are Successful***

Many states and local governments have already established successful dental amalgam separator programs based on an established water quality need or the need to reduce mercury in biosolids. Detailed examples of



POTWs with successful programs are provided in Attachment B. Despite the lack of a federal rule, these POTWs have achieved nearly universal amalgam separator compliance with the dental offices in their service areas. The proposed rule, if finalized, would have no environmental benefits for these POTWs, but would increase their time and cost to implement their program. For the 39 utilities in the NACWA survey that already have dental amalgam separator programs, only three said that the federal rule would result in further reductions of mercury to their treatment plants, beyond what has already been achieved from their current programs. Two of these three qualified their answer by indicating that it would be a small reduction in mercury. Only two of these 39 utilities with dental amalgam separator programs said that they would not have to make changes to their current program as a result of the federal rule.

EPA assumes that dental offices in the 12 states that require amalgam separators have 100% compliance, which is a reasonable assumption based on the information submitted by utilities for the NACWA survey. For states without mandatory programs, EPA assumes that 20% of dentists have voluntarily installed amalgam separators. This results in the following:

- 28,000 dental offices have dental amalgam separators in the 12 states with mandatory programs;
- 16,000 dental offices have amalgam separators in the 38 states without mandatory programs; and
- 65,000 dental offices do not have separators.

This results in 40% of all dental offices in the U.S. already having separators voluntarily or due to only 12 state programs. The percentage could have been much higher by now if the 2008 Memorandum of Understanding between EPA, NACWA, and ADA had been given time to increase the voluntary use of amalgam separators. In the NACWA survey, several utilities that do not already have dental amalgam separator programs stated that they have surveyed the dentists in their service areas and found that nearly all of them have amalgam separators installed already and are following the ADA's BMPs, suggesting that EPA's assumptions could be underestimating the number of dental offices that already have separators. Some POTWs with voluntary dental amalgam separator programs also reported 100% compliance. The voluntary approach could have resulted in a high percentage of dentists using dental amalgam separators, but EPA did not give this approach time to work. Nevertheless, based on NACWA's survey, EPA's assumptions about separator installation could be overstating the estimated benefits of the proposed rule.

The uncertainty caused by the long delay in EPA actually proposing the rule – announcing in 2010 that it would develop a national rule but not proposing it until 2014 – also prevented more amalgam separators from being installed. Many POTWs decided to delay their plans to develop amalgam separator programs, to avoid changing their programs when a national rule was finalized. Dentists likely also put off installing amalgam separators to avoid the risk that they would not be in compliance with the requirements of a national rule.

### ***Dental Amalgam Separator Programs are Not Necessary for all POTWs***

The vast majority of POTWs do not have mercury problems with their influent, effluent, or biosolids, and will not benefit from a national dental amalgam separator rule. For the 49 facilities in the NACWA survey that do not currently have dental amalgam separator program and used Method 1631 to measure effluent concentrations at least once in the three-year period of the survey, effluent mercury concentrations are already very low. The average and maximum influent and effluent mercury concentrations for these utilities are shown in Table 5 (samples tested only with Method 1631 were used in this analysis). Many utilities have reported that

their influent and effluent mercury concentrations have been declining in past years. This trend is indicated in three years of the survey data and could be verified with a more detailed study.

Table 5. Influent and effluent mercury concentrations for facilities in NACWA survey without dental amalgam separator programs.

	2011	2012	2013
Average Influent Concentration (ng/L)	92.5	110.5	74.4
Average Effluent Concentration (ng/L)	3.0	2.8	2.5
Total Number of Influent Samples	230	264	265
Total Number of Effluent Samples	472	422	424

For these and other utilities without elevated influent or effluent mercury levels, the costs associated with establishing and maintaining a dental amalgam separator program will not be justified by the environmental benefits. Descriptions of two utilities that do not need dental amalgam separator programs are in Attachment C. These utilities should be allowed to prioritize their resources to address their most pressing environmental concerns.

### EPA Drastically Underestimated the Cost of the Rule and Overestimated the Benefit

EPA estimates that the average annual cost to a dental office for a dental amalgam separator is \$700. EPA estimates that Control Authorities **as a whole** – so the roughly 1500 approved pretreatment programs, together with the state agencies that would be required to oversee programs where POTWs do not have approved pretreatment programs – would spend an average of 17,400 hours and \$960,000 combined each year to review the information submitted by dentists to certify that they meet the requirements of the proposed rule. The proposal states that “EPA estimates the annual cost of the proposed rule would be \$44 to \$49 million.”

To evaluate the benefits of the rule, EPA makes several assumptions and estimates to determine the reduction of mercury discharges that would be achieved by the proposal:

- EPA assumes that dental offices in states that require amalgam separators have 100% compliance.
- For states without mandatory programs, EPA assumes that 20% of dentists have voluntarily installed amalgam separators.
- EPA assumes that all dental offices have chair side traps or a combination of chair side traps and vacuum filters that result in 68% and 78% collection of dental amalgam, respectively.
- EPA estimates that 4.4 tons of mercury are discharged to POTWs annually from dental offices from placement and removal of fillings.
- EPA estimates that POTWs remove 90% of total mercury from wastewater, based on the 1982 50 POTW Study.

With these assumptions, EPA calculates that 877 lbs of mercury (reported as 880 lbs in the proposed rule) from dental amalgam are discharged into surface waters by POTWs annually, and this would be reduced to 14 lbs of mercury annually with nationwide dental amalgam separator use. According to EPA, this results in discharges

of mercury to waters of the U.S. being reduced by 863 lbs (reported as 860 lbs in the proposed rule) per year as a result of the proposed rule.

***EPA Overestimates the Amount of Mercury Removed by a National Rule***

As discussed above, EPA's use of the outdated 1982 50 POTW Study underestimates the removal efficiency of current POTWs. The removal efficiency is now at least 94%, with many utilities achieving removal efficiencies of 98% or more. Using a greater POTW removal efficiency will decrease the additional mercury that EPA calculates would be removed by universal use of dental amalgam separators.

EPA overestimates the number of fillings removed and placed each year, using a value for the number of amalgam restorations and removals that is out-of-date and contradictory with other references. EPA uses an estimate of 71 million restorations and 97 million removals in 2005. However, in the NACWA/ADA/EPA Memorandum of Understanding, a value of 52.5 million amalgam restorations in 2005 is cited<sup>1</sup>. The Food & Drug Administration in 74 FR 38,686 (August 4, 2009) calculated that there were 50.5 million amalgam restorations performed in 2005, and projected that there would be 42.2 million amalgam restorations in 2015, with continued decline after 2015. This FDA projection for the number of restorations to be performed this year is only 59% of the number used by EPA in its calculations.

The number of amalgam removals is currently also likely to be lower than EPA's 2005 value of 97 million. Improved oral health and the long-standing use of amalgam alternatives should decrease the number of amalgam fillings placed that will eventually need to be removed. Since the number of removals is the dominant factor in EPA's calculation of the amount of mercury discharged by dental offices without amalgam separators to POTWs, any reduction in the number of removals would decrease the amount of mercury that the proposed rule can prevent from discharge to POTWs and their receiving waters. EPA must therefore evaluate more accurately the current number of amalgam filling removals performed in the U.S.

EPA's estimate of 4.4 tons of mercury discharged by dental offices to POTWs per year should be correlated with mercury measurements from POTWs. For example, the Sanitation Districts of Los Angeles County (LACSD) has approximately 4,600 dental offices that discharge to the sewer systems of the Districts. Based on EPA's assumption that 20% of dental offices do not place or remove amalgam and that 20% of dental offices that do place or remove amalgam have voluntarily installed dental amalgam separators, there are approximately 2,900 dental offices in LACSD's service area that do not have separators and discharge dental amalgam. These 2,900 dental offices are 5.6% of the 52,000 dental offices nationwide that EPA estimates do not have dental amalgam separators but discharge dental amalgam, corresponding to 490 lbs of mercury per year discharged by dental offices to LACSD. However, the measured mass of mercury in LACSD influent in 2014 was 204 lbs, of which approximately 102 lbs can be assumed to be from dental amalgam (based on EPA's assumption that 50% of mercury discharged to POTWs is from dental amalgam). This 102 lbs of mercury from dental amalgam is approximately one-fifth of the extrapolated EPA estimate for LACSD. EPA should conduct a similar analysis of a representative sample of POTWs to determine a more realistic value of mercury discharged by dental offices to POTWs.

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<sup>1</sup> From Tryfon Beazoglou, Ph.D., et al., Economic Impact of Regulating the Use of Amalgam Restorations, Public Health Reports, Vol. 122 at 657, 659-660, Synopsis (September–October 2007), available at [http://www.ada.org/~media/ADA/Member%20Center/Files/amalgam\\_economic\\_impact.ashx](http://www.ada.org/~media/ADA/Member%20Center/Files/amalgam_economic_impact.ashx) ("Impact of Regulating Amalgam")

### ***Cost for Control Authorities***

EPA greatly underestimates the cost for Control Authorities to implement the proposed rule. EPA estimates that Control Authorities would spend an average of 17,400 hours each year, at a labor rate of \$55.18/hour, to review the information submitted by dentists to certify that they meet the requirements of the proposed rule. This results in an annual cost of \$960,000 each year for Control Authorities. Since EPA estimates that 109,000 dental offices will be subject to the proposed rule, the estimated time for Control Authorities to verify certification for each dental office is less than 10 minutes.

In reality, however, the results from NACWA's survey indicate that the average time required for annual implementation of dental amalgam separator programs by control authorities was 2 hours per dental office. For 109,000 dental offices, this results in a total of 218,000 hours per year to implement dental amalgam separator programs. Using EPA's \$55.18/hour cost of labor – which is much lower than most of the labor costs estimated by the utilities – results in an annual cost to Control Authorities of over \$12 million.

EPA's proposed rule requires annual certification by dentists, with no inspections by Control Authorities unless the dental office is in noncompliance. In the case of noncompliance, the dental office becomes a SIU, requiring additional time for administrative work and inspection by the Control Authority. Looking to existing programs for insight on the burden associated with these requirements is difficult – many do not follow these same requirements – but utilities that do require certifications report that submissions by the due date are typically 60-95%, requiring significant follow-up work by the utility. Utilities have also found that dentists move frequently, which requires additional investigative and recordkeeping work by the Control Authority, further adding to the administrative burden and the amount of time the Control Authority must spend on an annual basis.

While existing programs and the EPA program are not exactly the same, the experiences of and work done by existing programs to bring dentists into compliance illustrates that ensuring compliance is likely to take tremendously longer than EPA's estimate of less than 10 minutes per dental office. A detailed example of one utility with an existing dental amalgam separator program that closely mirrors the requirements of the proposed rule is provided in Attachment D.

EPA also neglects to calculate the initial costs for POTWs and other Control Authorities to establish dental amalgam separator programs. NACWA's survey respondents with existing separator programs averaged \$300 per dental office to establish their programs. Development costs under the proposed rule for POTWs with existing dental amalgam separator programs will likely be less, but these POTWs will still need to spend time and money to change their operations and procedures to meet the requirements of the proposed federal rule, including setting up new recordkeeping systems and notifying dentists of the changed requirements.

Using the information available in EPA's *Technical and Economic Development Document for the Proposed Effluent Limitation Guidelines and Standards for the Dental Category*, NACWA estimates that there are 28,000 dental offices in the states that already have dental amalgam separator programs. Even assuming no additional costs for the Control Authorities in these states – which is not realistic given the feedback NACWA received in response to its survey – a cost of \$300 per dental office for the remaining 81,000 dental offices results in a total initial cost for separator program establishment of over \$24 million for Control Authorities.

**Summary of Cost Information**

Table 2 presents a comparison of the costs associated with the proposed rule, estimated by EPA and NACWA. NACWA’s calculation uses EPA’s methodology for the amount of mercury that would be discharged with and without a federal dental amalgam separator requirement. As a conservative estimate, NACWA’s cost estimate changes only the POTW mercury removal efficiency, the costs to POTWs and other Control Authorities, and the annual costs for dental offices. However, other factors in the calculation could also be changed, resulting in a higher cost per pound of mercury removed by the proposed rule. As discussed above, the amount of mercury discharged is likely much lower because of EPA’s overestimation of the number of amalgam fillings that are currently placed and removed. In the absence of more definitive values, though, NACWA uses the EPA values as a conservative estimate. ADA also describes in its comments other adjustments that should be made to these calculations, which further reduce the cost-effectiveness of the rule.

Table 6. Comparison of EPA and NACWA cost estimates for proposed rule.

	<b>EPA Estimate</b>	<b>NACWA Estimate</b>
Total Mercury discharged to POTWs from dental offices	4.4 tons	4.4 tons (conservative estimate; actual figure likely much lower)
Mercury removed with dental amalgam separators	4.3 tons	4.3 tons
POTW mercury removal efficiency	90%	95%
Mercury discharged to surface waters by POTWs without rule	877 lbs	440 lbs
Mercury kept out of receiving waters with a national rule	863 lbs	431 lbs
Mercury discharged to surface waters with proposed rule	14 lbs	7 lbs
Initial program development cost	0	\$24 million
Annual Control Authority time to implement rule	0.16 hrs/dental office	2 hours/dental office
Annual Control Authority cost to implement proposed rule (\$55.18/hr, 109,000 dentists)	\$960,000	\$12 million
Annual dental office cost to implement proposed rule	\$44-49 million	\$54.5 million
Total annual cost of proposed rule	\$47.5 million (using midpoint of EPA’s annual dental office cost range)	\$66.5 million
Total cost per pound of mercury removed with proposed rule	\$55,000/lb mercury annually	\$154,000/lb mercury annually, plus \$23 million initial program development cost

Even using conservative assumptions, including EPA’s inflated numbers for dental amalgam filling placements and removals and a relatively low cost of labor for Control Authorities, NACWA’s estimate for the annual cost

for mercury removed by the proposed rule is \$154,000/lb, almost three times EPA's estimated annual cost of \$55,000/lb. In addition, NACWA estimates that the initial cost of starting dental amalgam separator programs for POTWs and other Control Authorities is \$24 million – a cost that EPA entirely neglects. NACWA's estimate of \$24 million is again conservative, since the assumption was made that POTWs with existing dental amalgam separator programs would not have any initial costs. In reality, these POTWs will have substantial costs to transform their programs to match the federal requirements.

There are several other factors that will further decrease the cost-effectiveness of the proposed rule. The amount of mercury kept out of the environment will decrease each year, since placement and removal of dental amalgam fillings continues to decline. However, the number of dental offices will likely remain the same or increase, keeping compliance costs for dental offices and Control Authorities steady or increasing.

In practice, reductions in influent and biosolids mercury concentration at POTWs are usually seen when a dental amalgam separator programs is put in place. However, effluent concentrations do not always decrease. NACWA's 2008 report, *An Examination of Mercury Levels at Clean Water Agencies, 2003-2006*, demonstrated this with data collected from 12 POTWs. The POTWs with dental amalgam separator programs in NACWA's survey also confirmed this trend. The reasons for this trend were not immediately clear, but concerns about legacy mercury in building laterals and collection systems could be contributing to the issue, and other factors such as sewer cleaning and construction activities can also affect effluent mercury. ADA notes in its comments on the proposed rule that POTWs effluent mercury concentration may not be reduced by dental amalgam separator installation because POTWs already remove the same size amalgam particles that are removed by dental amalgam separators. Because of this, the calculation method used above may be overestimating the amount of mercury that is being prevented from discharge to waters of the U.S.

#### ***Additional Costs for Small Utilities***

The proposed rule states that if a dental office does not comply with all of the requirements of the rule, then it will lose its DIU status and become a SIU. In some states, such as Oregon and North Carolina, POTWs must have a pretreatment program if they have any SIUs in their service area. Therefore, small POTWs in these states would need to establish an entire pretreatment program if even one dentist in their service area became a SIU through noncompliance. Even if all dental offices fully comply with requirements and remain DIUs, some state pretreatment programs could still force small POTWs that do not currently have pretreatment programs to regulate DIUs. Establishing a pretreatment program to simply regulate dentists would be tremendously expensive for small utilities and an inefficient use of resources.

#### **Recommendations for Modifying the Rule if it is Not Withdrawn**

NACWA recommends that EPA withdraw the proposed rule since it is unnecessary and is not cost-effective. However, if EPA does move forward with finalizing the rule, there are many aspects of the rule that must be changed to make the rule workable. These changes are described below.

#### ***Remove the SIU Provision***

The provision of the proposed rule that states that a dental office in noncompliance loses its DIU status and becomes a significant industrial user (SIU) is unreasonable and must be removed. Noncompliance results even if a dental office is simply late filing its annual certification, and the experiences of POTWs with existing dental amalgam separator programs have shown that a certain proportion of dentists will be late filing their

paperwork. Although not specified in the proposal, conversations with EPA indicate that a dental office may return to DIU status as soon as it reaches compliance. The rule contains a 90-day period after the DIU is in noncompliance before the status changes to SIU, but a POTW cannot wait until the 90 days are over to begin preparing to regulate the dental office as a SIU. This is a significant amount of work for the POTW, which will be wasted if the dental office then achieves compliance before the 90-day period is over or soon afterward. The SIU provision also creates a problem for states such as North Carolina and Oregon, which require that a POTW establish a full pretreatment program if they have even one SIU.

The SIU provision of the proposed rule also has the potential to create an adversarial relationship between POTWs and dental offices. POTWs that have already established dental amalgam separator programs consistently point to the relationships they have established with dental offices as the primary reason for their nearly universal compliance, even for voluntary programs. Adding the threat of SIU status, especially in addition to the other new requirements of the proposed rule, creates the potential to erode these relationships. As one POTW with an existing program stated in the NACWA survey, "It's a shame and insult to our local dentists who we collaborated with that now we will have to use the heavy handed approach that the EPA wants to require."

If EPA finalizes the proposed rule, the SIU provision must be removed to reduce the burden on POTWs and enable them to establish or preserve positive relationships with dental offices.

#### ***Increase Compliance Time for Baseline Reporting and New Sources***

The proposed rule allows only 180 days after publication of the final rule for the over 100,000 existing sources to submit baseline reports to their POTW or other Control Authority. In addition, new sources must be in compliance with the pretreatment standards only 90 days after publication of the final rule. This means that POTWs and other Control Authorities would have only 90 days to be prepared to accept certifications from new dental offices, and only 180 days to prepare to receive baseline reports, which will number in the hundreds or thousands for some utilities. If the SIU provision remains, POTWs will need to ensure dental office compliance with both of these short deadlines to prevent the dental offices from losing their DIU status and becoming SIUs.

This timeframe in the proposed rule is completely unrealistic and must be changed to prevent a massive compliance problem for dental offices and Control Authorities. Many utilities and states will need to change their approved pretreatment programs to allow adoption of the DIU category, since dental offices will otherwise be treated as Categorical Industrial Users. Utilities may also need to change their enforcement response plans to include the DIU category. EPA Regions will need guidance that these changes should not be considered substantial modifications. Logistical problems will occur at the beginning of the rule's implementation, including determination of the proper Control Authority for dental offices (particularly for utilities without pretreatment programs).

For both baseline reporting and new source compliance, the deadline should be extended to at least two years after the publication date of the final rule.

***Ensure that POTWs Will Not Need to Establish Pretreatment Programs to Regulate Only Dental Offices***

EPA recognizes in the proposed rule that a POTW could be required to establish a pretreatment program if it has even one dental office in its service area. The proposed rule states, “EPA anticipates that the approved states will choose to carry out the oversight activities themselves rather than requiring a POTW to develop a full Pretreatment Program solely to regulate its dental dischargers.” Establishing a full pretreatment program is a major undertaking that will require significant time and expense for the POTW. To prevent this excessive burden, EPA must do more than “anticipate” that states will step in and provide oversight of all dental offices that are in the service areas of POTWs without pretreatment programs.

EPA has not estimated the number of dental offices that do not discharge to a POTW with a pretreatment program. This could be a substantial number, and it is unlikely that the states will willingly take on the responsibility of regulating these dental offices. EPA needs to determine this number of dental offices, and the ability of the states to regulate them, to find out if the rule can realistically be implemented by the states.

***Grandfather Existing Dental Amalgam Separator Programs***

POTWs that have existing, successful dental amalgam separator programs should be allowed to continue their programs as they are currently operating them. There will be no environmental benefit if these programs are required to change to meet the requirements of EPA’s rule – no additional dentists will install separators and no additional mercury will be removed. Complying with the federal rule will only generate extra expense for these programs, and potentially damage the already-established relationships with their dental offices, as discussed above. These programs should be deemed functionally equivalent to the federal standards and allowed to continue their current methods of ensuring dental office compliance.

***Provide Assurance that Violations Will Not Occur for POTWs for a Minimal Number of Dental Offices in Noncompliance***

The experience of POTWs with existing programs have shown that dental offices open, close, and move more frequently than other industrial users. This creates challenges for the POTW to ensure that all dental offices remain in compliance with the rules. POTWs need to be guaranteed that a small number of dental offices slipping through the cracks will not result in violations when an audit of their pretreatment program is conducted.

***Remove the Requirement to Collect License Numbers of Dentists***

The requirement that dental offices provide the license number of all practicing dentists in that office should be removed. This requirement does nothing to ensure compliance and the regulation applies to each dental office, not to each dentist. License numbers will not work well as an identifying number for dental offices, since each office may have multiple dentists or a dentist may practice at multiple offices, each of which must comply with the dental amalgam separator requirements. In addition, for the many existing dental amalgam separator programs that have not required this information in the past, it will be another unnecessary change that they must make to their procedures.

***Allow Electronic Submission of Certifications***

Many POTWs with existing dental amalgam separator programs allow electronic submission of any required certifications. Submitting certifications electronically would be more practical than paper certifications for many POTWs and dental offices.



***Remove the Requirement for Monthly Inspections of Separators***

The proposed rule's requirement that dental offices inspect their separators on a monthly basis is unnecessary and will result in many instances of non-compliance.

***Include a Provision to Sunset the Rule When It is No Longer Needed***

Since the use of dental amalgam continues to decline, a provision must be included to allow the rule to sunset when amalgam use and/or amalgam filling removal drops below a certain level. Expensive and time-consuming dental amalgam separator programs should not be continued longer than needed.

***Clarify the Status of Mobile Dental Units***

Mobile dental units can cross into multiple jurisdictions, and it may be difficult to determine which Control Authority must provide oversight for these units. This needs to be addressed if the rule is finalized.

**Conclusion**

NACWA asks that EPA withdraw the proposed rule since it is unnecessary and is not justified by the environmental benefits. POTWs are not having difficulty achieving their NPDES permit limits or meeting biosolids mercury requirements. In areas where mercury control is a concern, states and local POTWs have, and can continue to, establish successful dental amalgam separator programs, without a federal rule. POTWs without mercury problems can better spend their resources on addressing issues that will have a greater environmental impact for their utility.

EPA has not adequately justified the need or the cost-benefit analysis for the rule. The outdated 1982 50 POTW Study data used to determine POTW mercury removal efficiency is invalid, as is EPA's comparison of total mercury removed by POTWs to the amalgam particle removal of dental amalgam separators as the BAT. In its cost-benefit analysis of the rule, EPA overestimated the amount of mercury that will be removed, while greatly underestimating the cost to POTWs and other Control Authorities. POTWs will incur considerable expense to establish dental amalgam separator programs and track compliance of dental offices each year.

If EPA does decide to move forward with finalizing the rule, many changes must be made to the rule. Most importantly, the provision that dental offices will become SIUs if in noncompliance must be removed and the compliance times for the rule must be increased to allow POTWs to prepare to implement the rule.

Thank you for your consideration of these comments. NACWA can provide more information from its survey of wastewater treatment facilities upon request. Please contact me at 202-533-1836 or [cfinley@nacwa.org](mailto:cfinley@nacwa.org) if you have any questions.

Sincerely,



Cynthia A. Finley, Ph.D.  
Director, Regulatory Affairs

## Attachment A

### Characteristics of Wastewater Treatment Facilities Responding to NACWA's Survey

NACWA conducted a nationwide survey of wastewater utilities to collect information about mercury concentrations in influent, effluent, and biosolids, as well as information about existing dental amalgam separator programs. The survey was completed for each treatment facility; therefore, utilities with multiple treatment facilities completed the survey multiple times. A total of 211 treatment facilities responded to the survey, representing 123 utilities. The characteristics of the utilities and facilities completing the survey are summarized below.

Table A.1. Population served by utilities in NACWA survey (utilities may have multiple treatment facilities).

Population Served	Number of Utilities
≤25,000	2
25,001 – 50,000	10
50,001 – 100,000	15
100,001 – 250,000	15
250,001 – 500,000	29
500,001 – 1,000,000	22
>1,000,000	14
Did not report	16
<b>TOTAL</b>	<b>123</b>

Table A.2. Location of facilities in NACWA survey by EPA Region.

EPA Region	Number of Facilities
1	4
2	12
3	26
4	32
5	22
6	25
7	2
8	12
9	41
10	16
<b>TOTAL</b>	<b>211</b>

Table A.3. Major treatment process used by facilities in NACWA survey.

<b>Treatment Process</b>	<b>Number of Facilities</b>
Activated Sludge	150
Oxidation	7
Trickling Filter	6
Combination or Other	29
Did Not Specify	19
<b>TOTAL</b>	<b>211</b>

Table A.4. Design flow of treatment facilities in NACWA survey (rounded to nearest MGD).

<b>Design Flow (MGD)</b>	<b>Number of Facilities</b>
<5	25
6 - 10	16
11 - 25	59
26 - 50	41
51 - 100	30
101 - 200	21
201 - 500	8
>500	3
Did Not Specify	8
<b>TOTAL</b>	<b>211</b>

Table A.4. Primary biosolids disposal option used by treatment facilities in NACWA survey.

<b>Primary Biosolids Disposal Method</b>	<b>Number of Facilities</b>
Land Application	86
Landfill	59
Incineration	15
Compost	20
Combination or Other	13
Did not specify	18
<b>TOTAL</b>	<b>211</b>

## Attachment B

### Examples of Utilities with Successful Dental Amalgam Separator Programs

The following examples of POTWs with successful dental amalgam separator programs were previously provided to EPA in NACWA's October 7, 2013 comment letter on the Preliminary 2012 Effluent Guidelines Program Plan and 2011 Annual Effluent Guidelines Review Report.

- The Narragansett Bay Commission (NBC) in Providence, Rhode Island, established a dental amalgam separator program in 2005 for the 90 dental facilities, representing 145 dentists, in its service area. NBC gave dentists the option of either installing a dental amalgam separator or sampling, and all of the facilities have chosen to install a separator. The dental facilities are required to submit annual certification that they are complying with best management practices (BMPs). NBC inspects each dental facility every other year, and these inspections are announced due to the nature of the dental business.

NBC has seen drastic loading reductions since implementation of this program. Influent mercury has been reduced by 57% (from 13.3 lbs in 2005 to 5.7 lbs in 2012) at the Field's Point treatment facility and by 53% (from 5.6 lbs in 2005 to 2.6 lbs in 2012) at the Bucklin Point treatment facility.

- The Northeast Ohio Regional Sewer District (NEORS) in Cleveland, Ohio, has been addressing mercury issues since the mid-1990s and has developed and implemented an ongoing Pollutant Minimization Program (PMP). Early on in the program, a numeric local limit to achieve the 1.3 ppt water quality criterion in NEORS effluent was determined to be infeasible, and a narrative local limit was adopted instead. This limit requires significant dischargers of mercury into the sewer system, including dental offices, to implement BMPs to minimize the amount of mercury discharged. In 2010, NEORS received Great Lakes Restoration Initiative funding to reduce the amount of mercury emitted from its treatment plants. This funding was used to install amalgam separators in approximately 415 of the dental facilities in the NEORS service area in an effort to reduce the amount of mercury in the NEORS biosolids that are ultimately incinerated.

Due to NEORS's overall mercury reduction efforts, including amalgam separators at dental facilities, average annual influent mercury has decreased dramatically from 2005 to 2012 at its three treatment facilities: from 103 to 37 ng/L at the Westerly treatment plant, from 182 to 62 ng/L at the Southerly treatment plant, and from 150 to 36 ng/L at the Easterly treatment plant.

- Central Contra Costa Sanitary District (CCCSD) in Martinez, California, is part of the San Francisco Bay Area regional watershed permit for its municipal wastewater dischargers to meet the Total Maximum Daily Load (TMDL) for mercury adopted by the San Francisco Bay Regional Water Quality Control Board in 2006 and approved by EPA in 2008. The watershed permit requires that POTWs implement dental amalgam programs and that the programs meet specified performance criteria. CCCSD implemented its program in 2007 and as a result has seen a 74% reduction in its influent mercury, a 67% reduction in effluent mercury, and 77% reduction in its biosolids mercury.

The other Bay Area POTWs in the watershed permit have also seen reductions in their influent, effluent, and biosolids mercury levels. Each agency was allowed the flexibility to design its own programs, and the dental amalgam separator programs are part of larger mercury reduction strategies employed by the POTWs.

- The Western Lake Superior Sanitary District (WLSSD) in Duluth, Minnesota, has had a very successful mercury source reduction program in place since the 1990s to meet the low mercury limits imposed by the Great Lakes Water Quality Initiative. WLSSD's source control program includes dental amalgam separators and other industrial and residential control efforts. WLSSD's dental amalgam separator program is voluntary, but all of its 60 dental offices, representing 100 dentists, have dental amalgam separators. This success was achieved through cooperation with the local dental society, and a 2003 local supplemental environmental improvement grant awarded to WLSSD and the Northeast District Dental Society allowed the purchase of dental amalgam separators for all of the dental facilities. Total mercury emissions from WLSSD facilities have dropped from 208.7 lbs in 1990 to 83 lbs in 2012.

## Attachment C

### Examples of POTWs That Will Not Benefit from a Dental Amalgam Separator Program

The following examples of POTWs that do not need dental amalgam separator programs, and for which establishing a program will be an unacceptable burden, have been updated from NACWA's October 7, 2013 comment letter to EPA on the Preliminary 2012 Effluent Guidelines Program Plan and 2011 Annual Effluent Guidelines Review Report.

- The City of Greensboro, North Carolina, has over 250 dentists, most of which are located in the service area of its 16 mgd treatment plant. This facility has had no mercury discharge violations since 2009. The average mercury concentrations in the biosolids were 0.36 mg/kg in 2007 and have steadily decreased to 0.18 mg/kg in 2011, two orders of magnitude below the 40 CFR Part 503.13 Table 3 "high quality" biosolids mercury limit of 17 mg/kg. The removal rate for mercury at this facility is 98.2%.

The City of Greensboro estimates that it would need to hire at least one full-time employee, at approximately \$50,000 per year, to implement a mandatory dental amalgam separator program. The total effluent mercury per year at Greensboro is 0.475 lbs. If half of this mercury is removed by an amalgam separator program, the cost to the City is over \$200,000 per pound of mercury each year. This does not include the cost to the dentists.

- The Los Angeles County Sanitation Districts (LACSD) has 11 wastewater treatment plants. Seven of these plants currently have effluent limits, performance goals, and/or recycled water specifications for mercury, and those limits are consistently met. LACSD's largest facility, the Joint Water Pollution Control Plant (JWPCP), processes approximately 260 MGD and discharged only 0.007 lbs of mercury per day in 2014. The biosolids from JWPCP had an average mercury concentration of 0.84 mg/kg for calendar year 2014, an order of magnitude below the 40 CFR Part 503.13 Table 3 "high quality" biosolids mercury limit of 17 mg/kg. Influent mercury loadings to JWPCP have steadily decreased from 4-5 lbs/day in the late 1970s to approximately 0.5 lbs/day now.

LACSD estimates that it has 4,600 dental offices in its service area. Based on EPA's rationale, LACSD estimates that 80% (3,700 dental offices) place or remove amalgam and 80% of those (2,900 dental offices) do not have an amalgam separator. LACSD estimates that the costs to implement the rule are \$560,000 for the initial three-year period leading up to the final compliance date and \$130,000 per year thereafter.

## Attachment D

### Example of POTW with Existing Dental Amalgam Separator Similar to Proposed Rule

The City of Vancouver, WA, has a service population of 200,000 and 90 dental offices in its mandatory dental amalgam separator program. These dental offices were determined to place or remove amalgam fillings based on an initial survey conducted by the City. The City of Vancouver's dental amalgam separator program consists of issuing a template "Letter of Discharge" (LOD) and requires annual certifications. The LODs require installation and maintenance of amalgam separators; following of best management practices (BMPs) that mirror ADA's; use of non-oxidizing line cleaners; and submission of annual certifications. The annual certification is a check-off sheet that confirms that the dental office followed the BMPs and serviced/maintained the separator, and it requires a signature. The form also includes entries if ownership has changed and if a new amalgam separator was installed.

The City of Vancouver established its program by identifying dentists in its service area, which proved to be challenging. Online "yellow pages" and search engines were used to locate dentists. New dental offices were identified through the City's development review process, through which sewer engineers see plans for new developments and flag to the pretreatment program.

About a year and a half before the effective date of the program, the City of Vancouver sent out initial outreach letters to inform dentists about the establishment of the City's "Dental Mercury Program" and described what would be required, including the expectation of annual certifications. The letter included a "fact sheet" describing fate of mercury and reductions of mercury concentrations in biosolids.

About a year before the effective date of the program, the City of Vancouver sent out an application form (custom made for the dental business sector) to collect office contact info, amalgam separator information, whether the office was using non-oxidizing line cleaners, and signature. The City found that all offices, except one, already had separators in place. The return response rate was about 80%, but the City achieved 100% after follow-up phone calls. The staff time to build the program to this point of issuing LODs was 400 hours.

The City of Vancouver issued LODs about 2 months in advance of the effective date of the program (January 1, 2013). The first certifications were due February 2014, to certify activities for 2013. Each year, the City sends out reminder notices for certifications, which include the form and a return envelope. The return rate by the February 28 due date is about 80%, and City staff must make phone calls after that date to get the other 20% of certifications returned. In addition, changes in ownership must be tracked and recorded and applications from new dentists must be processed, requiring over 80 hours of staff time each year.