



North Carolina Pretreatment Consortium, Inc.

February 20, 2015 [via email at OW-Docket@epa.gov Attention: **Docket ID No. EPA-HQ-OW-2014-0693**]

Water Docket - EPA Docket Center
Environmental Protection Agency
Mail Code: 4203M
1200 Pennsylvania Avenue NW
Washington, DC 20460
Attention: Docket ID No. EPA-HQ-OW-2014-0693

SUBJECT: Docket ID No. EPA-HQ-OW-2014-0693. Comments on Effluent Limitations Guidelines and Standards for the Dental Category, 40 CFR Part 441

North Carolina Pretreatment Consortium

The North Carolina Pretreatment Consortium (NC-PC) was organized in 1997 and is a non-profit corporation whose 138 members are all pretreatment professionals employed by North Carolina municipalities and sewer authorities. Our members are committed to protecting their POTWs, the waters of the State, and safety of POTW workers. The organization represents 59 local pretreatment programs with a total design/permitted flow of 939 MGD. This represents 68% of the total NPDES permitted flow for POTWs in North Carolina.

North Carolina Pretreatment Consortium Position

The North Carolina Pretreatment Consortium does not support the proposed 40 CFR Part 441 Effluent Limitations Guidelines and Standards for the Dental Category. The proposed Rule should be withdrawn. POTWs are currently meeting NPDES effluent mercury limits, biosolids mercury limits and have not experienced inhibition due to mercury. The existing pretreatment regulations and framework provide adequate authority to achieve the intent of this new Rule without the unreasonable burdens imposed by the Rule.

The State of North Carolina Pretreatment Program

The State of North Carolina Department of Environment and Natural Resources (NC-DENR) sought and received delegation in 1981 as Approval Authority for the North Carolina Pretreatment program. There are currently 110 active Pretreatment Programs in North Carolina: 80 full Pretreatment Programs and 30 Modified Pretreatment Programs. *Note: Per North Carolina regulation, a modified Pretreatment Program is one with a POTW flow of <2MGD and less than 4 Significant Industrial Users (SIUs).*

The 110 North Carolina Pretreatment Programs regulate a total of 636 Significant Industrial Users, 291 of which are subject to a Federal Categorical Pretreatment Standard. The NC-DENR currently does not directly regulate a single SIU. Any North Carolina POTW with even one Significant Industrial User (and presumably one Dental Industrial User) must develop and implement a State approved pretreatment program.

There are only 2.33 Full Time Equivalent (FTE) pretreatment staff to conduct State oversight for all 110 pretreatment programs. The State of NC pretreatment regulations as currently written do not provide administrative provisions for the State's staff to directly regulate any SIU or DIU. The NC-PC has identified at least 23 North Carolina municipalities or sewer authorities that do not have an approved pretreatment program, but would have at least one DIU under the proposed EPA Rule. Even the University of North Carolina Dental School discharges to a sewer authority that does not have a pretreatment program. The proposed Rule would place an enormous administrative burden on these 23 agencies as well as a regulatory burden on the State's staff in the review and oversight of 23 new pretreatment programs.

Mercury in North Carolina

The NC-DENR established a state-wide Mercury TMDL (Total Maximum Daily Load) approved by Region IV EPA on October 12, 2012. According to the North Carolina Mercury TMDL document dated 9-13-2012 and written by the Modeling and TMDL unit, "Among the facilities monitored for mercury, industrial process and commercial facilities appeared to contribute the most... Point source discharges are considered a small contribution to mercury concentrations in fish since cumulative baseline loading of all wastewater point sources to the receiving waters accounts for only 2% of total mercury loadings."

North Carolina also established an NPDES mercury permitting strategy to be used in conjunction with the TMDL. The NC Mercury TMDL used 2002 as the baseline year, and North Carolina must achieve a 67% reduction in total mercury loading to meet the TMDL target of 0.3 mg/kg mercury in fish tissue. Wastewater sources have already met this reduction and NC air sources are expected to meet this goal by 2016.

In response to the TMDL, many major POTW NPDES permits include the requirement to develop and implement a Mercury Minimization Plan (MMP). Although the State has provided a Model MMP, it is strictly *guidance*, and all POTWs are allowed (and encouraged) to develop a site-specific MMP to address the unique circumstances, resources, and needs of the POTW. Any North Carolina POTW that needs or wants to develop a Dental Amalgam Program is empowered to do so as part of their MMP.

Dental Amalgam Programs in North Carolina

The NC-PC is not aware of a single voluntary or mandatory dental amalgam program in North Carolina. North Carolina POTWs have not developed a dental amalgam program because the vast majority is consistently meeting NPDES effluent mercury limits and mercury biosolids limits without such a program.

Some POTWs do not have NPDES mercury limits due to the lack of Reasonable Potential for mercury. However, the North Carolina pretreatment regulations require all pretreatment programs to calculate a mercury Maximum Allowable Headworks Loading (MAHL), which uses the NC Water Quality Standard as a basis for the calculation, even if the POTW does not have an NPDES mercury limit.

The NC-PC obtained the list of licensed dentists in North Carolina from the State Board of Dental Examiners. As of 2013, there were 4,489 licensed dentists in North Carolina. Of the 100 counties in North Carolina, only 4 counties did not have a dentist listed in that county. The distribution of dentists in North Carolina is far from uniform. Wake County had the most dentists (698). Mecklenburg County was second with 625 dentists and Guilford County had the third highest number of dentists with 277.

As mentioned previously, there are 636 SIUs in North Carolina. With 4,489 potential new Dental Industrial Users (DIUs), this translates to an increase of more than 700% in the pretreatment program regulated community.

If the Rule is adopted, POTWs without existing pretreatment programs will have to expend significant resources to develop and implement a local pretreatment program for the sole purpose of regulating dentists. These programs will achieve only minimal reductions in mercury discharged to the environment.

North Carolina Pretreatment Consortium Mercury Survey

In response to the proposed 40 CFR Part 441, the NC-PC formed a Mercury Workgroup. The workgroup developed a Mercury survey to assess recent data and program needs, including mercury compliance status, mercury loading, and mercury removal rates. The NC-PC full Mercury Survey was emailed to the signatory officials of *all* 289 municipal wastewater treatment plants/POTWs in North Carolina (167 major facilities and 121 minor facilities). A minor facility is defined as a POTW with a design capacity of <1MGD with no Pretreatment Program. The total design capacity of these 289 municipal wastewater treatment plants is 1371 MGD (1.37 billion gallons per day).

The full survey included 66 questions about operations and compliance for Calendar Years (CY) 2011, 2012, and 2013 as well as a General Information page containing facility location and contact information. The NC-PC surveys were submitted electronically and assigned a unique ID number upon receipt to allow anonymity in the final comments.

The questions included:

- POTW Background: Design/Permitted Capacity, CY Average Daily Flows, Treatment Processes, Biosolids Disposal Method, Number of SIUs
- Mercury Influent and Effluent Concentrations (in nanograms per liter)
- Mercury NPDES Permit Limits and Compliance Status
- Mercury Biosolids Concentrations (in mg/kg dry weight) and Compliance Status
- Whole Effluent Toxicity (WET) results and Compliance Status

- Incidents of POTW Inhibition/Interference caused by mercury
- How many dentists in the POTW service area?
- Does your POTW want or need the EPA Dental Amalgam Rule?

To increase participation, a short survey was developed as the original comments deadline approached. This short survey was sent to POTWs that had not responded to the full survey. The short survey included 22 questions and did not solicit actual influent, effluent, and biosolids data. The questions included:

- Number of SIUs
- How many dentists in the POTW service area?
- For Calendar Years 2011, 2012 and 2103:
 - Number of POTW mercury violations
 - Number of incidents of inhibition and/or interference caused by mercury
 - Biosolids mercury violations
 - Whole Effluent Toxicity Compliance Status
- Does your POTW want or need the EPA Dental Amalgam Rule?

- Number of surveys returned: 102
- Number of usable surveys: 101
 - Number of Full Surveys: 75
 - Number of Short Surveys: 27

POTW Background Information

- The total permitted/design capacity represented by the POTW respondents was over 939 MGD, which is approximately 68.5% of the total North Carolina POTW permitted/ design flow. The permitted/design capacities ranged from 0.1 MGD to 64 MGD.
- Three fundamental types of Treatment Processes were reported and analyzed on the full surveys: Activated Sludge, Oxidation Ditch, and Trickling Filter.
- The following Biosolids Disposal Methods were reported on the full surveys: Land Application, Incineration, Landfill, and Compost.
- The total number of Significant Industrial Users reported by survey respondents was 557. This represents 87.6% of the 636 SIUs identified by North Carolina.

North Carolina Pretreatment Consortium Mercury Survey Results

In Section VIII of the Preamble of the proposed 40 CFR Part 441, EPA states:

“National pretreatment standards are established for those pollutants in wastewater from indirect dischargers that may pass through, interfere with or are otherwise incompatible with POTW operations, including sludge disposal methods of POTWs.”

The data provided in the North Carolina Pretreatment Consortium survey addresses pass-through, interference, and sludge disposal concerns.

Pass-Through: Mercury NPDES Permit Violations

The survey data indicates a 3-year average of 98.68 % compliance for POTW respondents with mercury NPDES limits. More than half (15 out of 28 = 54%) of these violations were from one small POTW (See Case Study in Conclusion Section):

<i>POTW NPDES Permit Violations Data</i>	2011	2012	2013
Total Number of POTWs with Mercury Limits	31	31	31
Total Number of Effluent Mercury Samples from POTWs with NPDES Permit Limits	805	731	563
Number of POTWs with Violations	6	4	1
Number of NPDES Permit Violations	10	12	6
% Compliance	98.76%	98.36%	98.93%

POTW Removal Rates

In calculating the mercury removal rates for the NC-PC mercury survey, the Mercury Workgroup only used data from the 32 POTWs that utilized EPA Method 1631 for influent and effluent monitoring. For all values that were below detection level (BDL), half of the detection level was used in the calculations. Annual Mean Removal Efficiency [MRE] values were obtained for each of the 32 POTWs.

The median removal rates were as follows:

CY 2011	96.86%
CY 2012	98.47%
CY 2013	98.10%

The average removal rate was skewed by some POTWs whose influent concentrations were as low as 4.05 nanograms per liter (ng/l), with corresponding effluents of ~1 ng/l.

The average removal rates were as follows:

CY 2011	91.34%
CY 2012	94.21%
CY 2013	95.40%

It should be noted the workgroup decided that the use of any EPA Method 245.1 data would introduce uncertainty to the data analysis and calculations. Most of the 245.1 data was BDL and the high quantitation limit rendered that data useless for removal rate calculations. Therefore, only low-level 1631 data was used.

POTW Influent and Effluent Concentrations

The same EPA Method 1631 criteria was used for the influent and effluent data present below:

<i>POTW Influent and Effluent Data in ng/l</i>	2011	2012	2013
Average Influent Concentration (ng/l)	78.0	137.1	125.0
Median Influent Concentration (ng/l)	51.21	92.48	74.1
Average Effluent Concentration (ng/l)	3.82	3.21	2.52
Median Effluent Concentration (ng/l)	2.25	1.7	1.83
Total Number of Influent Samples	196	231	252
Total Number of Effluent Samples	1278	1204	1021

Actual Influent and Effluent Loadings

<i>POTW Influent and Effluent Loadings Data</i>	2011	2012	2013
Total Influent Loading (pounds/day) from 33 POTWs	0.10	0.16	0.16
Total Effluent Loading (pounds/day) from 75 POTWs	0.011	0.0096	0.0095
Total Number of Influent Samples	196	231	252
Total Number of Effluent Samples	1278	1204	1021

Whole Effluent Toxicity (WET) Testing

The State of North Carolina includes chronic Whole Effluent Toxicity limits and monitoring in NPDES Permits. North Carolina has an excellent compliance record on WET. None of the WET failures reported were attributed to mercury. The data from the survey is as follows:

<i>Whole Effluent Toxicity Data</i>	2011	2012	2013
Number of Facilities Reporting Data	89	89	90
Total Number of Chronic WET Tests	378	409	395
Total Number of Chronic WET Test Failures	6	19	17
Total Number of Chronic WET Test Failures Positively Attributable to Mercury	0	0	0

Incidents of Inhibition/Interference

No incidents of inhibition or interference due to mercury were reported in any of the three years covered by the survey.

<i>Inhibition/Interference Data</i>	2011	2012	2013
Number of Facilities Reporting Data	100	100	100
Total Number of POTWs Reporting incident of Inhibition or Interference attributed to mercury	0	0	0

Biosolids Data

The vast majority of North Carolina POTWs land apply or compost biosolids. There are only 4 incinerators in the entire state. The 40 CFR Part 503 regulations include the following land application standards for mercury:

40 CFR Part 503.13 Table 1: *Mercury Ceiling Concentration: 57 mg/kg dry weight*

40 CFR Part 503.13 Table 3: *Mercury Pollutant Concentration (Class A): 17 mg/kg dry weight*

There were no Table 1 mercury biosolids “Ceiling Concentration” violations in the three year period covered by the study. Even more impressive, there were no Table 3 “Pollutant Concentration” (Class A Sludge) violations in the three year period covered by the study.

<i>Biosolids Data</i>	2011	2012	2013
Number of Facilities Reporting Data	74	75	79
Total Number of Biosolids Samples	401	431	408
Number of Facilities with Biosolids Violations	0	0	0
Average Biosolids Concentration in mg/kg	0.92	0.97	0.77
Maximum Biosolids Concentration in mg/kg	13.2	7.47	10.8

The average biosolids concentration from the respondents was an order of magnitude below the 40 CFR Part 503.13 ceiling concentration and the maximum biosolids concentrations were significantly below even the Table 3. Data trends significantly lower than these standards.

Respondents Comments on Rules

All survey respondents were asked if their POTW needed the Rule in order to comply with NPDES permit limits or biosolids limits.

Yes	No	Do Not Know	Did Not Respond
1	97	4	0

All survey respondents were also asked if they wanted the Rule.

Yes	No	Do Not Know	Did Not Respond
6*	95	0	1

**Four of the 6 POTWs who responded “yes” are operated by the same sewer authority and had design capacities ranging from 0.049 to 0.6 MGD.*

Other North Carolina Pretreatment Consortium Comments

Costs of the Rule to POTWs and States

The cost-benefit analysis used to justify the rule must consider costs to dental offices *as well as POTWs and state regulatory agencies*. In those parts of the country where POTWs are not the Control Authority for the pretreatment program (such as Alabama), state regulatory agencies will

be required to implement the new standards. In other delegated states, there will still be significant staff time needed to review submittals from POTWs.

The EPA estimate of the annual cost of \$960,000 to the POTWs and States to implement 40 CFR 441 is, by the most cursory analysis, simply wrong. To propose that a national program seven times larger than the existing pretreatment program can be rolled out for an average cost of \$19,200 per state suggests that most of the costs involved have not been included in the estimate. The rule cannot even be printed for that cost!

Direct personnel costs for the local control authorities and the states were grossly underestimated or not included. The NC-PC estimates from the survey that at least 23 new local pretreatment programs will have to be developed and implemented with the State of North Carolina providing oversight. There will be considerably more than 23, as the survey only represents 102 of the 289 POTWs in the state. Using the EPA hourly rate of \$55 and the NC-DENR pretreatment program work load analysis of 46 hours to review a new pretreatment program, the State’s cost alone for the 23 identified new programs would be \$58,000.

Even existing pretreatment programs must re-write control documents including Sewer Use Ordinances, Enforcement Response Plans, draft a new class of permits, and perform periodic industrial waste surveys. These documents must be reviewed by legal professionals and submitted to city councils and state regulators for review, comment, and approval. This process, in combination with the costs mentioned above for the new local pretreatment programs, seriously exceeds the EPA’s proposed estimate of costs. The actual cost of physically inspecting each dentist office and document management for the resultant inspection reports and permits is omitted from the estimate. The NC-PC would be remiss if we did not inform our members and other municipalities that they must prepare for a great unfunded mandate if this rule is implemented.

Use of Dental Amalgam is Declining

The practice of dentistry is very much driven by and responds to market forces. Better dental awareness and care results in fewer cavities for the younger generation. Aesthetic issues and consumer preference are driving the conversion from mercury amalgam to composite restorations. Increased concern for the health risks of exposure to mercury also plays a role in declining mercury use. Some dentists do not use dental amalgam at all now.

The Interstate Mercury Education and Reduction Clearinghouse (IMERC) published the following information on Total Mercury Sold in Dental Amalgam, indicating a 44.5% reduction in the sale and use of dental amalgam from 2001 to 2010:

Total Mercury Sold in Dental Amalgam (in pounds) – Updated 2014				
Product	2001 Total Mercury	2004 Total Mercury	2007 Total Mercury	2010 Total Mercury
Dental Amalgam	61,537 (30.8 tons)	53,213 (26.6 tons)	39,913 (20.0 tons)	34,163 (17.1 tons)

http://www.newmoa.org/prevention/mercury/imerc/factsheets/dental_amalgam_2014.pdf

From the table above, it is clear that the environmental impact of dental mercury amalgam is rapidly declining without this cumbersome regulatory scheme.

NC-PC Study

The North Carolina Pretreatment Consortium expended many hours on the Mercury Study. The respondents reported 293 hours in the completion of the surveys. In addition to the time spent reading and analyzing the Rule, the Mercury Workgroup spent in excess of 300 hours on survey development, data review, data verification and data analysis, telephone interviews, and drafting the final comments.

North Carolina Pretreatment Consortium Conclusions

- *Case Study and Case In Point!*

The Mercury Workgroup personally contacted each POTW who reported a mercury NPDES Permit violation. In the process of calling, NC-PC learned of the following situation. We present this as a case study to demonstrate that the proposed Rule is not needed.

This case study involves a small town in the southeastern part of NC. The population is ~2000 and slowly declining as industries depart. The WWTP is a 0.5 MGD design capacity oxidation ditch that was having repeated effluent violations for mercury. The average daily flow for 2011 through 2013 was 0.318 MGD. Industries included a manufacturer of pipeline strainers, a flooring manufacturer, and a trucking company. Sampling was performed at all lift stations which indicated the general direction to continue the search. Further sampling at manholes led to a single dental office. The dentist was very cooperative when made aware of the situation and purchased and installed an amalgam separator. During the period 2011-2013, this WWTP was responsible for more than half of the effluent mercury violations reported in this survey. This town had no mercury violations in 2014. The problem was solved using the legal authority and implementation tools and skills currently available to even the smallest town and its pretreatment program.

- ***EPA should withdraw the proposed 40 CFR Part 441 Rule***

The NC-PC survey has proven that POTWs are currently meeting NPDES effluent mercury limits, biosolids mercury limits, and have not experienced inhibition due to mercury. The NC-PC survey was conducted in North Carolina, but the National Association of Clean Water Agencies survey had similar results from nationwide respondents.

Current removal rates cannot be properly evaluated using data and analytical methods more than 30 years old. Pretreatment was a work in progress when the 50 POTW Study was conducted. It does not represent acceptable supportive evidence to justify the new rule. EPA should do their due diligence and conduct a current nationwide study before launching a new rule of dubious value.

Mercury Removal Rate calculations from the survey indicate median removal rate values of 98% using actual POTW data and the most current EPA approved methodology for mercury sampling and analysis.

POTWs should not be forced to assign resources to a dental amalgam program when water quality goals are already being met.

NACWA Comments Adopted By Reference

Several NC-PC member POTWs provided data to the National Association of Clean Water Agencies (NACWA) in support of their analysis of the implementation costs and mercury reduction estimates associated with the proposed rule that EPA identified in the Federal Register publication. *The NC-PC hereby supports the conclusions and recommendations NACWA presented in their comment letter by reference.*

If you have any questions about the North Carolina Pretreatment Consortium comments, please do not hesitate to contact me.

Sincerely,

Ryan Faw

Ryan Faw
North Carolina Pretreatment Consortium Chair
919-996-3679
ryan.faw@raleighnc.gov

Attachments:

- Exhibit A – NC-PC Survey Results: Treatment Processes and Design Flow-1 page
- Exhibit B – NC-PC Survey Results: POTW Influent Data (All Treatment Processes)-2 pages
- Exhibit C – NC-PC Survey Results: POTW Effluent Data (All Treatment Processes)-3 pages
- Exhibit D –NC-PC Survey Results: Removal Rates (All Treatment Processes)-2 pages
- Exhibit E - NC-PC Survey Results: Biosolids Data-3 pages