Madison Metropolitan Sewerage District
Mercury Pollutant Minimization Plan/Source Reduction Report
2024

Section I: General Information

Name of Permittee: Madison Metropolitan Sewerage District – Nine Springs Wastewater Treatment Plant

Permit Number: WI-0024597-09

This is: Not the first permit issuance requiring implementation of a PMP/SRM

Dates of previous PMP/SRM Plans: 12/12/2006

Permit Effective Date: 5/1/2020

Date of First PMP/SRM: 12/12/2006

This variance is for: Mercury

Section II: Summary of Pollutant Reduction Work Done in 2024

In the District's pollutant minimization plan (PMP) submitted to WDNR in 2017, mercury identification and reduction tasks were organized by nine broad categories, with specific activities in those categories to be determined each year. Those categories, in the shaded left hand column of the tables below, are taken verbatim from the PMP. The middle column indicates the activities that the District planned for 2024. The Status/Updates column on the right indicates the status of each action as of this report, as well as any observations or planned follow-up actions.

The District submitted an interim progress report as part of its permit reapplication in October 2024. This report contains updated information with activities completed after the interim report was submitted, as well as more specific planned next steps for 2025.

A. Mercury Source Identification Efforts

PMP Action	2024 Planned Actions	2024 Actions
Mercury Source Identification Efforts		
1. Explore possible operational influences on mercury levels, such as process chemicals.	The District may adjust its internal mercury waste handling practices after receiving the final report for the waste audit conducted in	As of this report, the consultant has provided a draft waste audit report and is working on final deliverables. The draft recommendations included

	2023, depending on the consultant's recommendations.	some guidance for improving mercury waste handling, so the District plans to implement these recommendations. Based on the consultant's draft recommendations, the District updated its guidance for staff handling mercury waste. Small quantities of mercury-containing devices, such as float switches, are still present at the plant and in the collection system, so these are stored as mercury waste when removed. The District disposed of 3 pounds of mercury waste generated in the past year at Dane County Clean Sweep on 12/12/24. District pollution prevention staff continue to periodically check in with Operations staff to understand plant performance and take note of any factors at the plant that may affect mercury removal, such as solids control.
2. Conduct additional influent and/or collection system monitoring to identify variation in mercury levels based on time, location in the collection system, or other factors.	The District plans to analyze certain User Charge wastewater samples for mercury to investigate trends in mercury levels over time and differences between sewersheds with different building uses.	User Charge site mercury sampling was completed quarterly at two sites in 2024. The results and implications of this sampling are discussed in Attachment B.
3. Review scientific literature and case studies from other POTWs to draw ideas from successful source identification/reduction activities elsewhere.	There are several POTWs in the state with current or historical mercury limits. The District hopes to identify success stories from other POTWs in mercury source reduction that could be incorporated into District strategy. The District plans to connect with other POTWs to discover successful activities	District pollution prevention staff attended the National Association of Clean Water Agencies (NACWA) pretreatment conferences in 2024 (May 14-17, in person and virtual December 3 and 4). Staff participated in the mercury roundtable discussions with other wastewater utilities, making contact with industry peers working on mercury

	that may be applicable in the District's service area.	reduction and sharing experiences, tips and questions.

If any action was not implemented, please explain why.

See comments in Status/Activities column for specific actions.

B. Actions Identified to Minimize Mercury Sources

Actions to Minimize Mercury Sources		
4. Work with partners to extend the reach of mercury disposal messages to specific audiences, such as students.	Building on conversations that took place in 2023, the District plans to keep advocating for mercury education for dental clinics to be more standardized across the field. The District intends to engage with curriculum/content developers for dental clinician training to promote the inclusion of proper amalgam management in standard, far-reaching dental education.	In 2024, a District pollution prevention specialist gave two presentations on amalgam management to classes of dental assistants in training at Madison College. These have been valuable opportunities to reach dental students with amalgam management information that they can use in their careers, wherever they end up working. Another training presentation is scheduled for February 2025. In April 2024, we were alerted to a potential liquid mercury spill in one of our customer communities. The alert came from a news article. District staff corresponded with emergency response teams and DNR's spills team and their consultant. While it appears significant liquid mercury was present and spilled. Tests of the drains did not indicate that this material made it to the sewer system. The fact that this material is being used in large quantities in our service area is alarming as a small drop could cause us to exceed our limit. This incident alerted the HazMat team, spills team and their consultant to the potential hazards of drain disposal of

		mercury containing materials/wastes. DNR spill staff and hazardous materials teams understand situations mercury is being used for, and we lean into their expertise to eliminate this threat to local water.
5. Discuss mercury management in direct meetings with users in healthcare, school and industrial sectors to identify any remaining mercury sources and provide information about disposal/alternatives.	The District pollution prevention team plans to meet with staff from the District's constituent communities 2024 and discuss pollution prevention topics in those meetings. A specific topic we intend to discuss is processes for notifications when new dental clinics open across the District service area, which would help the District communicate with those clinics early on about their amalgam management requirements.	The District met with several customer communities in 2024 to discuss pollution prevention topics, including communication about new dental clinics and legacy mercury in sanitary sewers. • Village of Shorewood Hills 2/6 and 3/4/24 • Town of Dunn 2/13/24 • City of Middleton 2/14 and 3/4/24 • Waunakee Utilities (plant tour) 8/14/24 • Village of Cottage Grove 10/24/24 • Village of Windsor & Morrisonville 12/17/24
6. Implement other outreach and/or regulatory approaches as may be informed by research and analysis.	To be conducted as needs or opportunities arise.	District pollution staff have identified potential changes to the District Sewer Use Ordinance to support pollutant source reduction, including mercury reduction. Ordinance changes are currently being compiled and evaluated internally.

If any action was not implemented, please explain why.
See comments in Status/Activities column for specific actions.

C. Actions Taken to Maintain Source Reduction

Maintenance of Source Reduction		
7. Continue dental certification program, supplemented with direct site visits to	The District plans to carry out its annual dental certification and continue assessing ways to make the certification as	The District carried out its annual amalgam certification process as usual to verify that dental clinics are still properly managing

	dental clinics, to ensure compliance with amalgam separator and management requirements in the sewer use ordinance.	efficient as possible for clinics and the District while still gathering valuable information.	mercury and making corrections if necessary. New in 2024, the District launched a positive recognition program for consistently compliant dental clinics. These clinics received a certificate, acknowledgement on the District's website, and an exemption from the annual reporting requirement for the year. A more detailed summary of dental mercury reduction in 2024 is in Attachment C.
8.	Evaluate need for local limits and/or general permits related to mercury.	As mercury levels have held low at the plant, we have not seen a need for new regulation at this point. The District will continue monitoring mercury levels at the plant and in the collection system to identify controllable sources, and will assess potential policy approaches if deemed necessary.	Not planned in 2024. The District has not seen indications that industrial dischargers are a notable source of mercury. By continuing collection system sampling for mercury, the District hopes to better categorize sources of mercury to determine appropriate actions to minimize them.
9.	Publicize options for residential and commercial disposal of mercury, particularly Dane County Clean Sweep.	The District has an active social media presence and occasionally promotes information about proper waste disposal to its followers. The pollution prevention team suggests topics to communication staff and will promote household hazardous waste disposal when appropriate.	The District published several posts to its social media channels that promoted Clean Sweep and/or contained information about proper disposal of household hazardous waste. Posts were shared on the District's Facebook and Twitter pages, as well as LinkedIn (L) and Instagram (IG) 1/12/24 3/21/24 4/22/24 4/25/24 7/17/24 (L) 7/26/24 8/22/24 (IG) 9/3/24 (L)

If any action is not ongoing, please explain why.

See comments in Status/Activities column for specific actions.

Section III: Summary of Progress and Barriers to PMP Effectiveness

Average Effluent Mercury Concentration in Previous Year (2023): 0.76 ηg/L

Average Effluent Mercury Concentration This Year (2024): 1.03 ηg/L

The District takes one effluent grab sample per month for mercury analysis.

Please attach a graph of variance pollutant concentration data over the last five years.

See Attachment A.

Have you encountered any barriers that have limited pollutant minimization program/source reduction measure effectiveness? If so, what adjustments will you make to the program during the next year to help address these barriers?

Overall, the District continues to record low mercury values in influent, effluent and biosolids, indicating that mercury source reduction efforts have been effective. Many of the challenges that the District encounters in its mercury reduction work are systemic and would be most effectively addressed at a higher level, rather than at an individual treatment plant, because these challenges affect dental clinics and treatment plants in other areas beyond the District service area.

Some of these systemic challenges, which the District has noted in the past, include the continued placement of new amalgam fillings in dental clinics, dental staff turnover leading to gaps in amalgam management, and a geographic patchwork of amalgam requirements depending on the area.

In future mercury minimization work, the District plans to prioritize work with other stakeholders to standardize mercury reduction activities and identify collective solutions. With many different treatment plants working to minimize mercury, it makes sense to collaborate on strategy. The District also plans to continue collection system monitoring for mercury source identification and categorization that will inform future reduction activities.

Section IV: Planned Actions

The District plans to take actions related to these categories each year of the upcoming permit term.

PMP Action	Types of actions over 5-year PMP	2025 Planned Actions

Mercury Source Identification Efforts		
Continue work to differentiate between categorical sources of mercury to the plant.	• Work with USGS Mercury Research Lab to continue isotope analysis as resources allow. • Continue collection system sampling in sewersheds with different characteristics to compare mercury levels. • Investigate potential residential sources of mercury.	• Collect additional User Charge samples for mercury analysis to compare mercury levels in different subbasins. Quarterly mercury sampling is already scheduled for 2025 in a subbasin that contains one dental clinic and a mix of commercial and residential dischargers.
Assess real-world effectiveness of amalgam separators to determine whether current dental requirements are adequate for sustaining low mercury levels.	• Communicate with researchers and separator experts to gather data related to amalgam separator function. • Take dental wastewater samples as possible for mercury analysis.	• Inspect dental clinic in 2024 monitoring basin to verify self-reported amalgam management activities. • Contact dental experts, which may include the Wisconsin Dental Association and dental parts/maintenance suppliers, to gain information about amalgam separator performance and other management practices.
Mercury minimization activities		
Build community connections with partners and stakeholders whose work is related to mercury.	• Connect with stakeholders such as universities, law enforcement, waste management, dental industry groups, public health departments, and others to coordinate on messaging and mercury reduction goals. • Work to standardize mercury reduction strategy and education through communication with wastewater and dental industry groups/educators.	• Present amalgam management information to dental hygiene students at Madison College. • Engage local property management companies on pollution prevention, including mercury management. The District aims to provide rental maintenance staff and renters with information about identifying and properly disposing of mercury-containing materials.
Evaluate policies that could support mercury reduction.	• Modify requirements in District Sewer Use Ordinance (SUO) related to mercury reduction based on	• Continue Excellence in Mercury Management recognition program to positively reinforce amalgam management compliance.

	lessons from PMP implementation so far. • Positively recognize or otherwise reward dental clinics and other mercury dischargers for taking steps to reduce mercury.	• Participate in District SUO revision discussion to update dental language as appropriate.
Maintenance of reduction activities		
Continue dental amalgam minimization program.	• Confirm with local dental clinics that they are continuing to follow practices that minimize mercury to the sewer system through certification reports and occasional inspections as deemed necessary. • Update educational resources for dental clinics as necessary.	• Conduct annual certification of amalgam management at dental clinics.
Publicize options for residential and commercial disposal of mercury, particularly Dane County Clean Sweep.	• Include mercury identification and disposal information in District outreach on social media and print materials. • Maintain relationship with Dane County Department of Waste & Renewables and identify potentials for collaboration.	• Continue including information about Dane County Clean Sweep and safe management of mercury and other household hazardous wastes in District communications.
Follow best practices for mercury disposal at the treatment plant.	• Maintain training documentation on identifying mercury-containing devices and properly disposing of them. • Periodically update District staff outside the pollution prevention team about mercury reduction activities.	• Present update on mercury source identification monitoring to District staff.

Section V: Notes

No additional notes.

Section VI: Certification

I certify that the information contained in this document and all attachments were gathered and prepared under my supervision and based on inquiry of people directly under my supervision and that, to the best of my knowledge, the information is true, accurate, and complete.

Authorized Representative Signature: 

Date of PMP Annual Report Submittal to WDNR: 1/29/2025

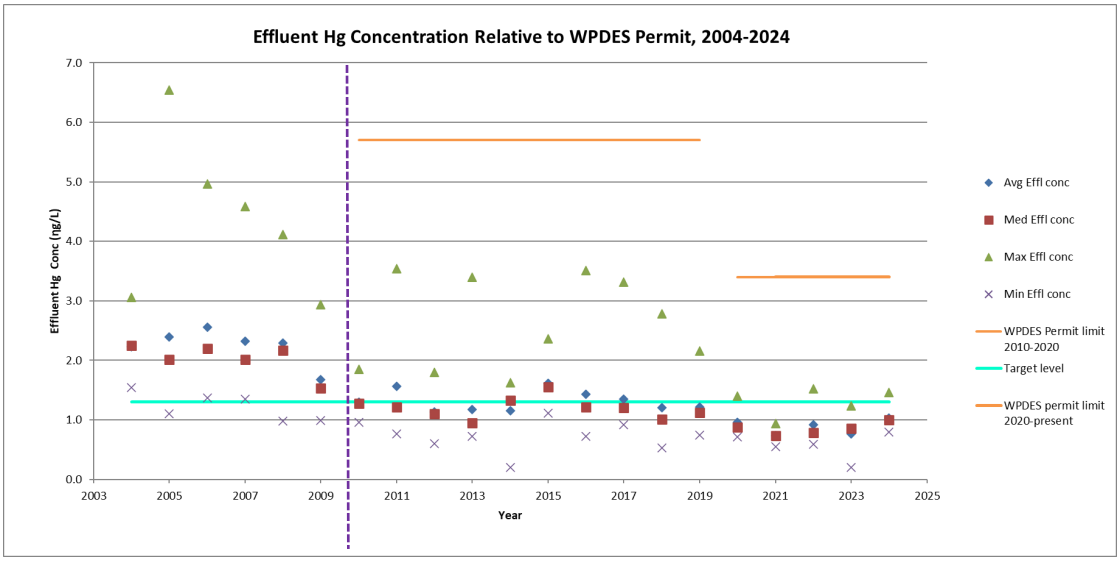
Attachment A – 2024 Mercury Data and Graphs

Sampled date	Influent Hg concentration (ppt)	Effluent Hg concentration (ppt)
1/17/24	34	0.99
2/6/24	34	0.95
3/5/24	38	0.95
4/2/24	67	1.46
5/7/24	41	1.00
6/11/24	37	1.09
7/2/24	37	0.89
8/20/24	33	1.29
9/10/24	41	0.79
10/22/24	44	1.15
11/5/24	45	1.00
12/10/24	40	0.81
Average	**39**	**1.03**

Month (monthly composite)	GBT biosolids Hg concentration (mg/kg, dry weight)
1/2024	0.5
2/2024	0.3
3/2024	0.3
4/2024	0.2
5/2024	0.5
6/2024	0.4
7/2024	0.6
8/2024	0.6
9/2024	0.5
10/2024	0.3
11/2024	0.3
12/2024	0.3
Average	**0.4**

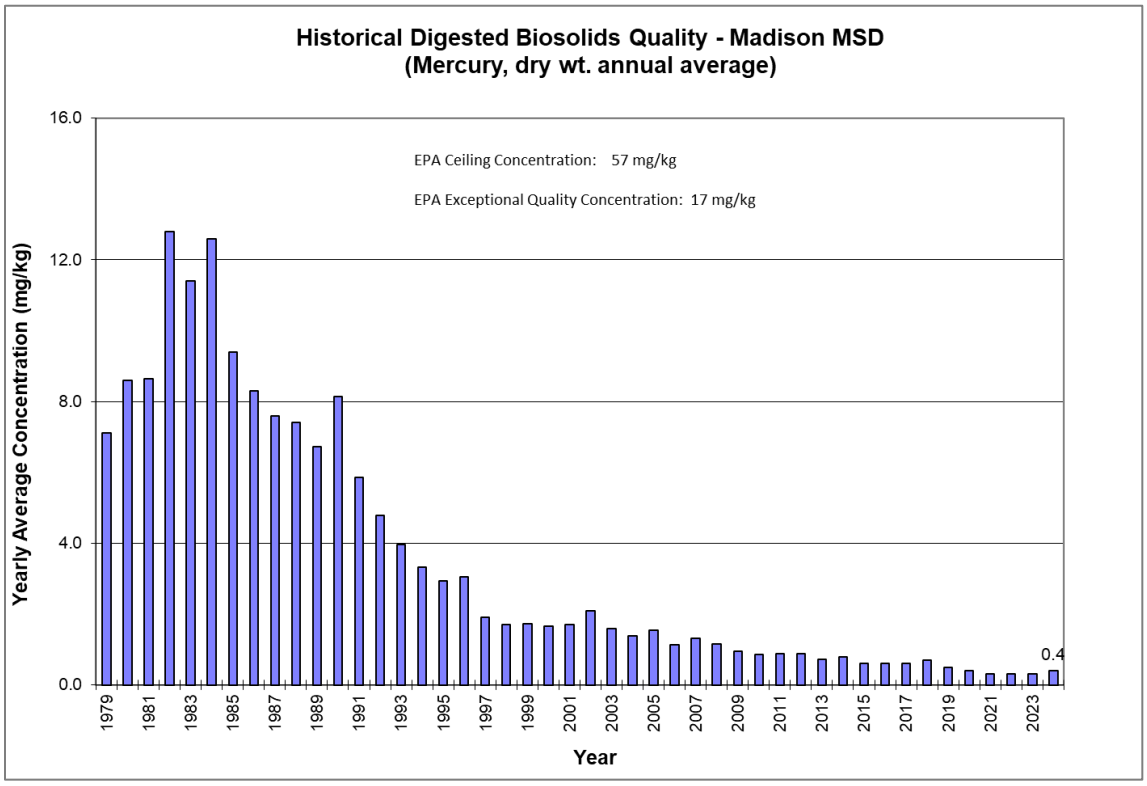
The District conducts influent mercury analysis in-house, using EPA method 254.7. The influent sample is a 24-hour composite. Biosolids samples are collected from the gravity belt thickener (GBT) and also analyzed in-house. The effluent sample is a grab sample collected according to the "clean hands-dirty hands" protocol. This sample is sent out for low-level mercury analysis via EPA method 1631E at Pace Analytical in Green Bay, WI.

Annual Effluent Mercury Concentration



The purple dashed line represents the Dec. 31, 2008 deadline for dental clinics in the service area to install amalgam separators.

Annual average biosolids mercury concentration



Attachment B – Mercury Source Identification Sampling Summary

Background:

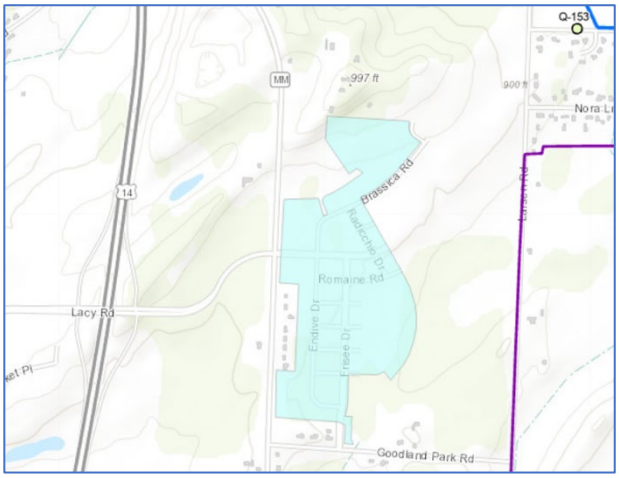
The District has achieved very low effluent mercury concentrations. Most monthly effluent values over the past several years have been under the Great Lakes mercury criterion of 1.3 ŋg/L. However, the District still records higher effluent mercury values from time to time with no known cause for the higher values. At such low levels, variations in mercury levels may be due to random chance, but there is also a possibility that upstream mercury discharges affect effluent mercury levels. The better the District understands where these mercury discharges are coming from, the better equipped it is to address those sources and further reduce mercury in the sewer system.

The District conducted sampling in 2024 to investigate mercury levels in two subbasins: a newer, primarily residential subdivision and an older, mixed-use subdivision containing one dental clinic.

Goals of sampling:

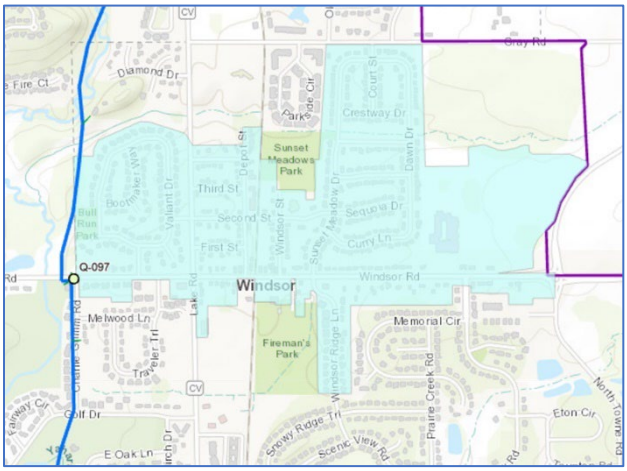
- Compare mercury levels in two User Charge sampling basins with different characteristics to determine if there is a significant difference.
- Determine whether dental clinics are still associated with higher mercury in the collection system.
- Assess baseline mercury levels in a relatively new, residential subdivision that is unlikely to have a source of legacy mercury.

Sampling locations:



Q-153

- Newer (homes built within the last ~5 years)
- Primarily residential, with an elementary school and some commercial shops



Q-097

- Older (homes in area several decades old)
- Primarily residential, but contains one dental clinic, auto repair shop, school and commercial buildings

These locations were selected for sampling because of their contrasting land uses, sampling feasibility, and because of previous sampling results, conducted for USGS mercury analysis in 2022, which indicated a pronounced difference in mercury levels at the two sites.

Q-153		**Q-097**	
11/1/2022 (weekday)	12.7 ppt	10/10/2022 (weekend)	91 ppt
11/7/2022 (weekend)	10.1 ppt	10/11/2022 (weekday)	530 ppt

The District wanted to gather additional data points to compare mercury levels in domestic and mixed-use wastewater. Mercury values can be "peaky," so a larger data set is helpful to draw conclusions.

Although dental clinics in the District service area have generally indicated they have been following amalgam management practices for years, they still may be sources of mercury to the sewer system for several reasons:

- Behavioral: There may be a difference between what clinics report and what they do in practice to manage amalgam waste.
- Technological: Amalgam separators are effective in removing mercury, but they are not 100 percent effective, so some mercury passes through the separator and into the sewer. Amalgam separators are designed to remove particulate mercury, but not dissolved mercury.
- Historical: Mercury discharges over a clinic's lifespan may have settled into the clinic's plumbing, and mercury is released when the settled debris is disturbed.

Due to these factors, the District wanted to compare a subbasin containing a dental clinic with a subbasin that never contained a dental clinic. The newer subbasin provides insight into mercury levels in a residential area without any known historical mercury uses.

Sampling and analysis:

- A sample was collected each day during standard User Charge sampling period. User Charge samples are collected as composites over 1-2 days, typically starting around 6 a.m.
    - 24-hour composite (Mon.-Tue., Tue.-Wed., Wed.-Thurs., Thurs.-Fri.)
    - 48-hour composite (Sat.-Mon.)

- A portion (aliquot) of the standard User Charge sample was poured out of the collection carboy into a 250-mL mercury-free sample bottle and brought back to the District lab for analysis. Samples were preserved with hydrochloric acid upon receipt at the lab.

- Samples were analyzed for mercury using EPA method 254.7.

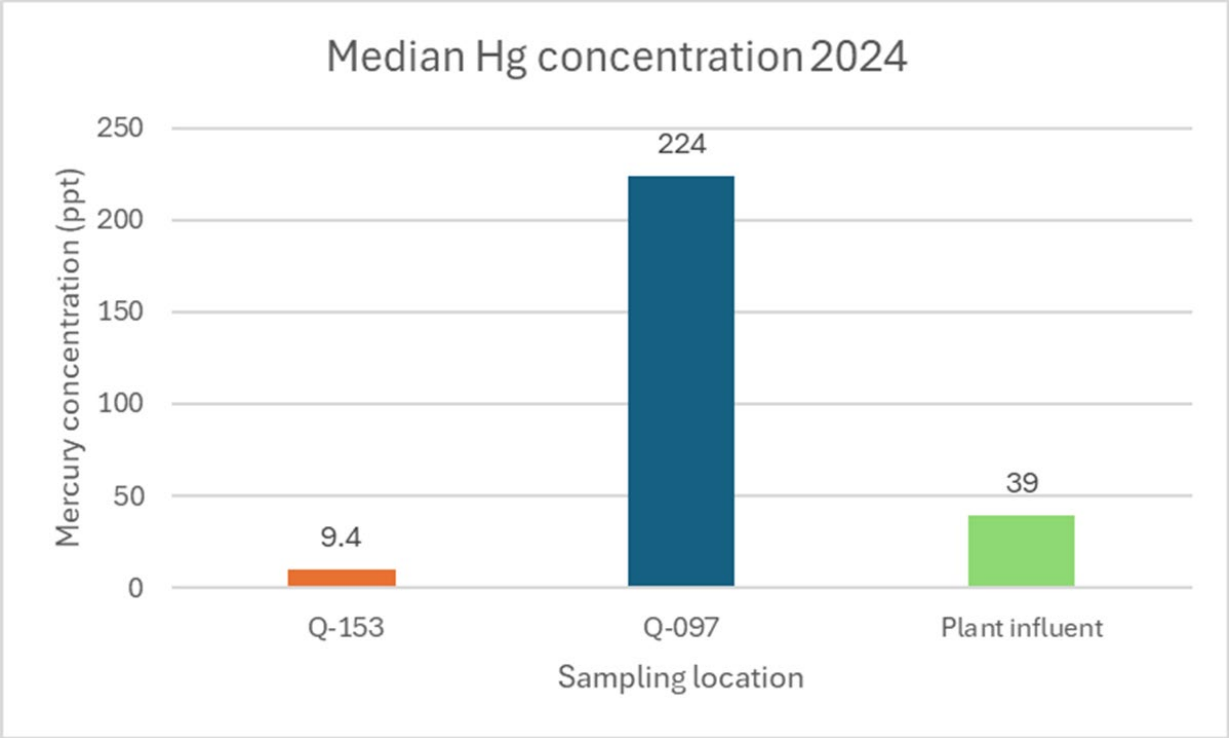
Results:

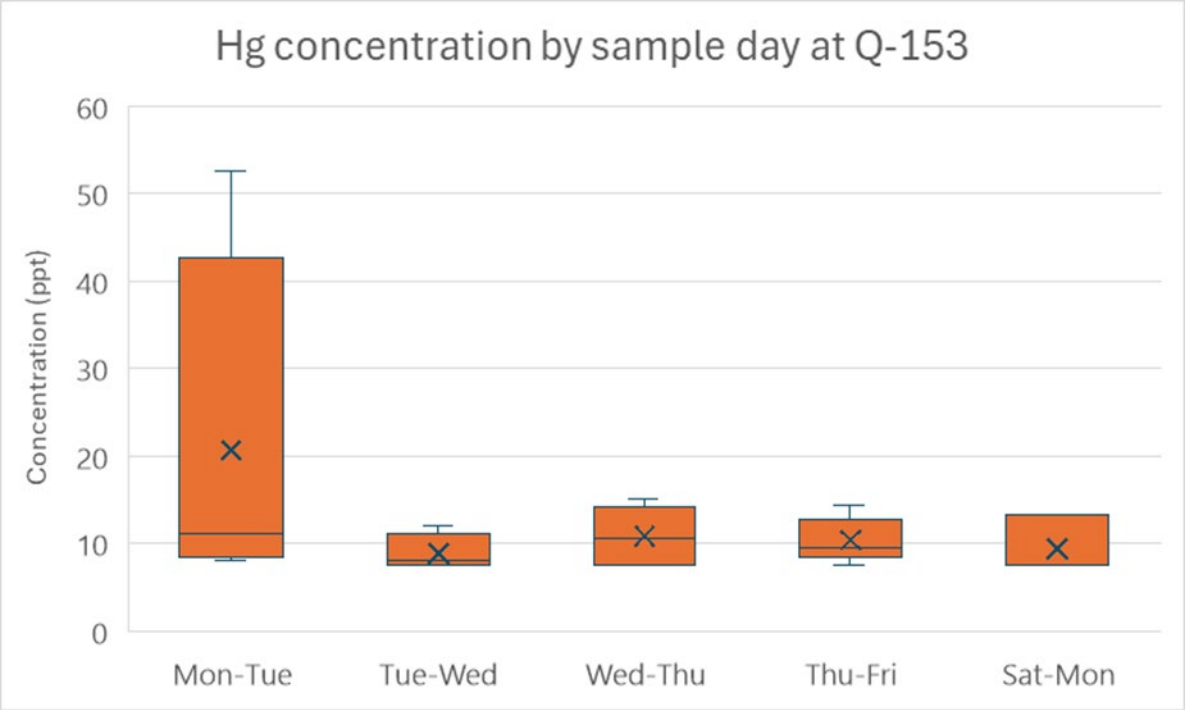
	Q-153	Q-097
Quarter 1 average Hg concentration (ppt)	10.7	441.1
Q1 Sampling dates	*1/31-2/7*	*2/17-2/24*
Quarter 2 average Hg concentration (ppt)	22.4	170.3
Q2 Sampling dates	*5/13-5/16*	*4/15-4/22*
Quarter 3 average Hg concentration (ppt)	9.1	509.5
Q3 Sampling dates	*7/31-8/7*	*8/14-8/21*
Quarter 4 average Hg concentration (ppt)	9.2	1228.4
Q4 Sampling dates	*11/7-11/14*	*10/15-10/21*
Average of all 2024 samples (ppt)	**12.0**	**559.4**

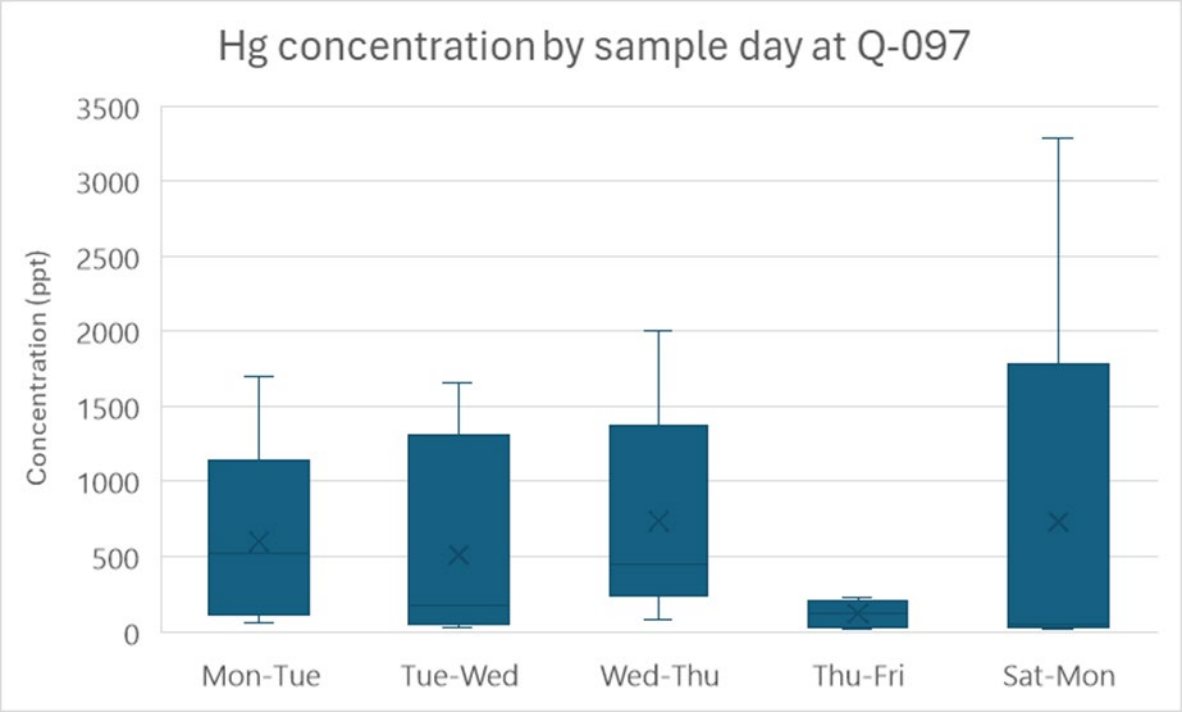
	Q-153	Q-097
Minimum Hg concentration (ppt)	7.4	14
Maximum Hg concentration (ppt)	52.6	3290
Median Hg concentration (ppt)	9.4	224

Overall, mercury concentrations were much higher in Q-097 than in Q-153, suggesting that there is a current or historical source of mercury in the Q-097 subbasin.

Graphs:


Median Hg concentration 2024
Mercury concentration (ppt)
250
200
150
100
50
0
224
39
9.4
Q-153
Q-097
Plant influent
Sampling location


Hg concentration by sample day at Q-153
Concentration (ppt)
60
50
40
30
20
10
0
Mon-Tue
Tue-Wed
Wed-Thu
Thu-Fri
Sat-Mon



The Sat-Mon average is elevated by an anomalously high concentration of 3290 ppt recorded for 10/19-10/21. In a 250 mL sample, this concentration is equivalent to only 0.00082 mg of mercury – 1/600,000th of the amount of mercury in one mercury filling.

Potential reasons for elevated mercury in Q-097:

Dental clinic

- Improper handling of amalgam waste/maintenance of separator
- Elevated mercury discharge even while properly handling waste (for example, dissolved mercury passing through the separator)
- Legacy mercury in plumbing or lateral

Other sources

- Auto repair shop
- Residential homes
- Legacy mercury in sanitary sewer from historical sources

The annual dental certification is a source of helpful background information on the dental clinic in this subbasin. The District has this background information about the clinic from the annual report:

- Established in 1975
- Removes 6-10 amalgam fillings per week
- Places 1-5 new amalgam fillings per week
- Compliant with required amalgam management practices (self-reported in annual certification)

- No bleach or corrosive line cleaners used down the drain (which can dissolve mercury out of particulate mercury and increase releases to the sewer)

Further questions and next steps:

Sampling in 2024 established that mercury levels are higher in a mixed-use subbasin containing a dental clinic than in a new residential area. However, the District does not yet know the reason for higher mercury in Q-097. There are several remaining question in this source identification efforts, and the District's potential next steps in source identification are guided by these questions:

- Is the dental clinic definitely following all required practices?
- Is there residual mercury in the clinic's plumbing from past operations?
- Is the small amount of mercury leaving a properly maintained amalgam separator still enough to elevate concentrations in the sewer?
- Could mercury be coming from another source in the subbasin, such as the auto shop or residential homes?
- Is there legacy mercury in the sanitary sewer that causes elevated mercury concentrations at the User Charge sampling site when mobilized?
- How does the mercury level in Q-097 compare to other subbasins with similar characteristics?

The District is planning several source identification actions in 2025 to answer some of these questions, such as inspecting the dental clinic to verify compliance with amalgam management practices and sampling another subbasin that contains one dental clinic to compare mercury values.

Attachment C – Dental amalgam certification summary

As of July 2024, there are 118 known active clinics in the District's service area. By mid-Q3 2024, the District had attempted contact with all known clinics. Clinics were contacted with different information and requirements depending on their clinic's status and history with reporting:

1) **One Time Compliance Report (and/or transfer of ownership form)**
   As of July 2024, the district was missing EPA One-Time Compliance Reports for about 25 known active clinics (full detail on approach and clinics contacted saved on memo). Many of these clinics had undergone transfers of ownership; however, at least 4 were new to our service area within the last year. Although we are only required to collect a compliance report one time, it is important to note that collecting these forms requires ongoing maintenance.

   Known service area clinics without one time compliance reports on file were contacted by mail (letters sent 8/2). They were sent a cover letter asking the clinic to fill out the report, a hard copy of the one-time compliance report, and a postage-paid return address envelope. By 9/4, all but 6 clinics had returned the requested one-time compliance report. Folow up calls were made to nonresponsive clinics to check in if there are any questions or confusion. Many of the clinics at that time had cited having received the form in the mail, but were still working on completing it. By November 2024, all but one form had been returned. Two of the submitted one-time compliance reports were not filled out completely or correctly. Multiple attempts have been made to seek clarification with these clinics; however, due to the franchise/national corporate structure, it has not been possible to find a point person in the clinic to talk to. All calls are diverted to call centers. In-person follow-ups to these clinics may be necessary.

2) **Excellence in Mercury Management**
   Eighteen clinics were recognized as having Excellence in Mercury Management this year. The new recognition program shows appreciation to clinics that consistently adhere to best practices for amalgam waste management by relaxing reporting requirements. Criteria for having Excellence in Mercury Management include:
   - **Timely annual reporting:** Clinics have submitted their annual amalgam management reports punctually for at least three consecutive years.
   - **Amalgam separator maintenance:** Clinics have shown diligence in maintaining their amalgam separators, ensuring they function optimally.
   - **Amalgam management practices:** Clinics have regularly followed all amalgam management practices outlined by the American Dental Association and Wisconsin Dental Association for handling amalgam waste.

   Full list of clinics recognized as having Excellence in Mercury Management was shared publicly on the District's News Blog in July 2024.

3) **Annual Certification**

We reached out to 76 clinics to collect an annual certification form on the schedule below. Four additional clinics returned their certification without it being requested by the District.

Mode	Topic	Date
Mailed letter	Heads up – certification coming soon	8/21
Email (Active Campaign)	Initial Invite to complete certification	8/26
Email (Active Campaign)	1st reminder	9/4
Email (Active Campaign)	2nd reminder	9/16
Email (Active Campaign)	Final reminder	9/24
Phone Calls	Due date approaching – questions?	9/25 through end of week
Email (Active Campaign)	Due date	10/1
Email (Active Campaign)	Late notice	10/7
Phone Calls	Late notice	10/7-10/21
Follow-Ups for non-compliance	Verification, education, & resources	October through end of 2024.

As in years past, the Annual Certification form was collected electronically. The in-house-developed form collects information about the clinic's use of amalgam and adherence to best management practices and a picture of the amalgam separator.

The District received certification reports from 76 clinics in 2024, while four clinics did not return their reports after multiple attempts to collect them.

Of the clinics that submitted reports:

- 74/76 are general dental practices, 2/76 are endodontic
- 67/76 handle amalgam in some way, 9/76 do not handle amalgam at all except in emergency situations.
    - Of those that handle amalgam, about 40% of those (n=29) place new fillings. Extraction and removal are more common practices than placing new fillings, with majority of reporting amalgam-handling clinics doing either of these practices (respectively, n=58, n=66).
    - Of those that place new fillings, there is a range of frequency for placing new amalgam fillings: 24% (n=18) of clinics place fewer than 1 per week, 13% (n=10) of clinics place 1-5 per week, and 1% of clinics (n=1) place more than 10 per week.
    - Of those that remove amalgam fillings, there is also a range: 11% (n=8) have fewer than one removal per week, 55% (n=42) remove 1-5 per week, 16% (n=12) remove 6-10 per week, and 5% (n=4) remove more than 10 per week.
    - Handling of bulk elemental mercury is rare – only 1 clinic (out of 29 that place new amalgam fillings) reported using something other than prefilled capsules.
- Among the reporting clinics that handle amalgam in some way this year, amalgam separators remain the most common method for compliance with 65/67 reporting

having an amalgam separator. Two clinics reporting this year have a holding tank type collector instead.
    - Solmetex is the most common separator brand, 75% of 2024 reporting clinics that handle amalgam report having this brand.
    - Other brands include, Rebec (n=5), Aseptico, Acadia, and Amalgam Collector Ch12
- Understanding about solid amalgam waste appears to be high among reporting clinics.
    - Among clinics that use prefilled capsules for placing new fillings (n=28) use of a mercury disposal container is well understood- this practice had full compliance.
    - One clinic reported disposing scrap amalgam in a manner other than through a collection container. One clinic reported disposing of contact amalgam in a manner other than through a collection container. We will need to follow up to understand more about these two responses.
    - All clinics which extract amalgam-containing teeth report disposing of them as amalgam waste.
    - Use of chairside traps for clinics that handle amalgam, and how to dispose of these as amalgam waste, are practices that are also well understood and implemented – with all 67 clinics that handle amalgam reporting they follow BMPs for these practices.
- 46 out of 76 reporting facilities (about 60%) were in full compliance with all BMPs this year.
- Of the 30 that were not in full compliance, the main reasons included:
    - Checking their amalgam separator for proper function frequently enough- About half of clinics with separators checked them at the recommended frequency (weekly at least).
    - Using a variety of capsule sizes: clinics left comments for us letting us know a range of answers about this question. Wording may be revised for future annual certifications to get to the root concern underlying this question.
    - pH of line cleaner: compliance with this practice appears to be improving from years' past (or understanding of the question is improving). Only 5/67 were out of compliance on this item this year.

Clinics with corrective actions needed receive a message during completion of the report about those actions, and they also receive an automatically generated emailed report after submitting their certifications that summarizes the actions they need to take to be in full compliance.

The District's self-developed online amalgam certification form requires clinics with an amalgam separator to verify that the separator is still in place and is not getting too full. Of clinics that reported, nearly all of them uploaded photos of their amalgam separator (or equivalent devices). District staff followed up with 14 clinics that submitted a photo that was unclear, missing, or had a visual cue indicating the separator needed maintenance (such as a full collection canister). The high proportion of clinics that submitted acceptable separator photos is an encouraging sign that most clinics are continuing to maintain their separators in a way that prevents amalgam waste from reaching the sewer system.

Recommendations for Annual Certification next year:

- We may be able to slightly revise the form to make it easier and more streamlined (removing questions about medicine waste, x-rays, and silver fixer for example)
- Reword question about capsule size.
- Consider revising MMSD Sewer Use Ordinance to update definitions and align with One-Time Compliance report definitions, such as for exempt clinics. This would likely most impact clinics that do not currently handle any amalgam. Currently, we check on these clinics and ask them to certify that this is still their practice every year. If this changed, or if we only checked on these clinics every 5 years say, then that could free up time to focus on working with clinics that work with amalgam most.
- Other recommendations for dental program as noted in main report.