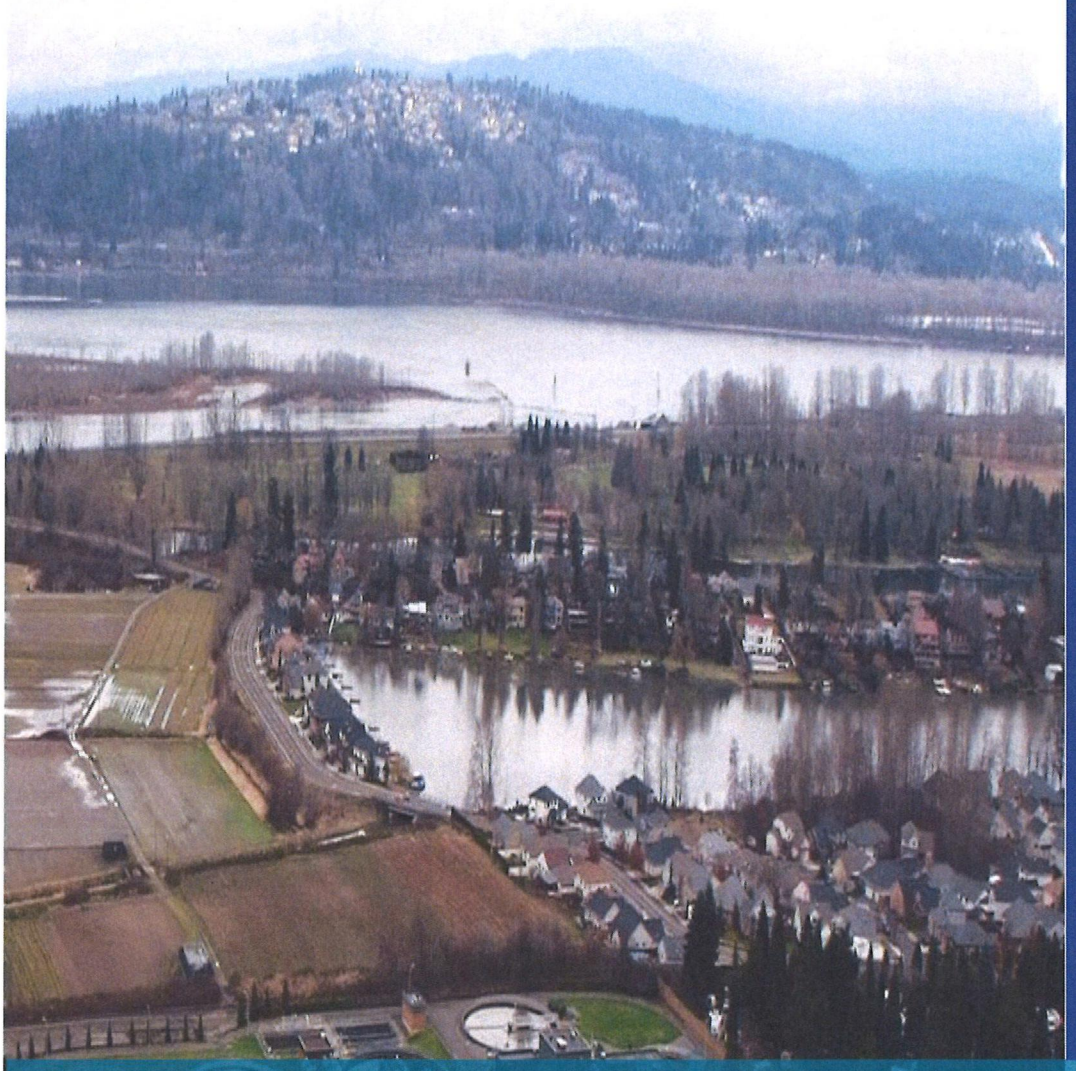

2023 MERCURY MINIMIZATION PLAN

NPDES WASTE DISCHARGE PERMIT NO. 102523

CITY OF GRESHAM

1333 NW Eastman Parkway
Gresham, OR 97030

503-618-3454
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GreshamOregon.gov

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1. Facility Information

• 1.1 Facility and Mercury Minimization Plan Contact Information

		Date (mm/dd/yyyy):	08/07/2023
Facility name:	City of Gresham Wastewater Treatment Plant	Permit No.:	102523
Facility address:	20015 NE Sandy Blvd. Portland OR, 97230		
Preparer:	Rachel Allen City of Gresham	503-618-2634 Rachel.Allen@GreshamOregon.gov	
Technical contact:	Alan Johnston, P.E.	503-618-3454	
Legal contact:	Steve Fancher, P.E.	503-618-2583	

• 1.2 Wastewater Treatment Plant and Collections Information

The City of Gresham operates an activated sludge wastewater treatment plant (WWTP) that serves the cities of Gresham, Fairview, and Wood Village with a 2022 population served of approximately 129,000. The current NPDES Waste Discharge Permit #102523 (Permit) was issued on September 22, 2021 with an effective date of November 1, 2021 and an expiration date of August 31, 2026.

The WWTP discharges to the Columbia River near Interlachen Lane and Marine Drive. The area served by the WWTP was established through regional planning and is bound by Inverness Basin on the west, the urban growth boundary on the south, and the City of Troutdale and urban growth boundary on the east.

The WWTP contains two similar treatment trains, the upper and lower plants, with major components including the following: Headworks, Primary Clarifiers, Aeration Basins, Secondary Clarifiers, Chlorine Contact Basins, and Anaerobic Digesters. Both the upper and lower plants begin with headworks consisting of bar screens, a spiraling vortex grit removal system, and Parshall flumes to measure flow to each primary clarifier. Influent samples are withdrawn from the channel between the grit removal systems and the Parshall flumes. The headworks in the lower plant and upper plant are followed by secondary treatment processes consisting of three (3) aeration basins and three (3) secondary clarifiers in the lower plant and one (1) aeration basin and one (1) secondary clarifier in the upper plant. The sludge generated by the primary and secondary treatment processes are transferred to two (2) anaerobic digesters for stabilization.

The average dry weather design flow for the facility is 15 million gallons per day (mgd) and average wet weather design flow is 25 mgd. The WWTP monthly average effluent flow is 10.3 mgd.

The Mercury Minimization Plan follows the Oregon Department of Environmental Quality requirements detailed in the Permit, Schedule A (4) Mercury Minimization Plan.

2. Identification and Evaluation of Mercury Sources

Studies that identify common sources of mercury loading into wastewater systems include the following:

- **Commercial Sources**: Dental offices, hospitals, laboratories, universities, secondary schools, medical clinics, vehicle service facilities, laundry graywater, industrial activities
- **Residential Sources**: human waste (dental amalgam), household products, improper disposal of mercury thermometers, fluorescent light bulbs, medications.
- **Other Sources:** Historic groundwater infiltration, stormwater inflow

Past studies identify discharges from dental offices as the largest contributor to mercury levels in WWTP influent. However, since these reports were published, both the Oregon Legislature and EPA adopted requirements for dentists to install mercury amalgam separators to prevent mercury discharges to wastewater systems. In addition, the use of mercury amalgam in new and replaced fillings has been significantly reduced over the past 20 years, as reflected by a 64% drop in the quantity of mercury sold in dental amalgam between 2001 and 2016. Moreover, ACWA, the Oregon Dental Association, DEQ, and others collaborated to provide dentists with best management practice (BMP) information. Mercury amalgam waste collection events were conducted in Oregon periodically from the late-1990s through 2007 to further reduce dental amalgam discharges. While the magnitude of the wastewater loading from dental offices has been reduced significantly in the past 15 years, dental offices remain a major source of mercury in WWTP influent.

It is important to understand that publicly owned WWTPs receive mercury and, therefore, are pathways to water discharges of mercury rather than originating sources.

2.1 Known and Potential Sources of Mercury Wastewater Discharge

Table 2.1. Known and Potential Sources of Mercury Wastewater Discharges

Commercial and/or Industrial Facilities	Number	Comments
Dental Facilities	50	Dental Facilities are monitored through federal regulations program requirements for report and the City's Annual Dental Waste Certification.
Medical Facilities	1	Medical Hospitals
Laboratories	4	3 Diagnostics Laboratories, 1 Drug testing Laboratory.
Universities	1	Local Community College (not a known mercury wastewater discharger)
Secondary Education	9	3 High Schools, 6 Middle Schools within 3 school districts. (not a known mercury wastewater discharger)

Commercial and/or Industrial Facilities	Number	Comments
Automotive Related Businesses (ARB)	82	Businesses conducting automobile and other vehicle repair, washing, and recovery
Commercial businesses (Groundwater Protection Program)	64	Current businesses regulated under the Groundwater Protection Program that are determined to have hazardous materials on-site.
Industrial Activity	16 Permitted Industrial Users (IU) in the Industrial Pretreatment Program (IPP)	Evaluated through IPP IU Survey and Permitted Industry monitoring.
Residential Sources	Household Population in 2022: 128,363	Projected Household Population in 2027: 127,385 Residential sources include: Human waste, laundry graywater, household products, improper disposal of mercury thermometers, light bulbs, medications.

3. Mercury Reduction Activities Implemented (2018-2022)

Table 3.1 MMP Evaluation 2018-2022

MMP Action	Evaluation	Conclusions
Mercury Minimization Public Website	The Mercury Minimization Website was updated in 2020 to clarify requirements for Dental Offices. The main audience of this page is Dental Offices. From 2018-2023 the page had 317 direct visits and 362 page views. 103 of those visits were from a search engine source; 72 were from direct traffic. The webpage link is on the certifications that we currently mail to dental offices.	Dental offices are directed to the website on their mailed annual certification for up-to-date dental amalgam rulings. The page is found by direct link or by search on the City website. The website is another informational tool but the majority of information is distributed to Dental offices through direct communication.

MMP Action	Evaluation	Conclusions
Dental Office Annual Dental Waste Certification	The Dental Waste Best Management Practices Annual Certification program started in 2016. We receive 95-100% response rate to our annual certifications.	As the program has matured, staff do not need to send as many reminders or follow-ups to offices for the return of their certification and disposal records. There are still a few offices that need several reminders and are late to return certifications.
Hauled Waste and Hazardous Waste Collection Events	2017-2019: Earth Day collection events to collect e-waste and fluorescent bulbs and tubes from residents and small business. 2017 ~15,000 of e-waste ~1500 ft of 4ft tubes ~200 mixed fluorescents 2018 30,000lbs of e-waste ~1779 ft of 4 ft tubes ~280 ft of 8 ft tubes ~480 mixed fluorescents 2019 21,666lbs of e-waste 1507 ft of tube lights 267 mixed fluorescents	Events were halted due to the COVID-19 pandemic 2020-2022 and are now starting again in 2023. These events are resource dependent and are proactive in pivoting location or type of collection events to meet the community's current needs.
School Outreach	In 2019, a notice was included in the Gresham Green School Newsletter (approximately 250 subscribers) informing schools of the availability of free outreach materials about the hazards of mercury to public health and the environment. Staff also had these materials available at tabling events. There was no response to receive these materials from the City.	The City no longer has an active School Outreach program due to resource constraints and re-allocation of staff time to focus on the City's Climate Action Plan in 2020. Staff continue to be available as a resource to schools if they contact the city for proper disposal for hazardous or toxic materials.
Groundwater Protection Program (formerly Wellfield Protection Program)	Currently 64 businesses in the program are inspected every other year.	The Groundwater Protection Program is expanding city-wide and will potentially add an additional 88 businesses. The city is expanding its resources and staff to support this program. See section 4 for more details on this program.

MMP Action	Evaluation	Conclusions
Auto Related Business Inspection Program	Currently 82 regulated ARBs.	No changes have been made to this program and continues to be supported by the city. See section 4 for more details on this program.
Green Business Program and Outreach (formally GREAT Business Program)	Businesses that have achieved Green Certification (valid for 3 years) in Gresham: 11 businesses were new or recertified. 5 businesses are currently working on recertification. 2 new businesses are starting the process. Green Business e-newsletter: Approximately 1200 subscribers every 2 months. Collaboration w/ partners such as Energy Trust to bring more businesses into the Brighter Futures program which facilitates free LED bulb throughout a facility. Many bulbs removed are CFL and are then disposed properly.	The Green Business Program is one of the City's largest outreach and technical assistance programs for commercial businesses in Gresham and facilitates responsible disposal practices, greener cleaning products, and energy efficient upgrades. The program is constantly innovating and pivoting to meet the needs of the community.
Industrial Pretreatment Program	IPP staff continually survey new and existing businesses entering Gresham, Fairview, and Wood Village through IU Survey Procedures. 16 Permitted industries are monitored at least annually for mercury discharged in the process effluent.	IPP performed a baseline survey in 2020 and has worked to expand survey completeness in Fairview and Wood Village in 2022. The IU survey is ongoing and hired staff in 2022 dedicated to this work. Process effluent monitoring continues to result in non-detect results. IU's permitted in the WWTP jurisdiction are not sources of mercury to the sanitary sewer.
City of Gresham	Computer Replacement Project 2022: The city recycled or facilitated reuse of over 246 laptops and 319 desktops through Lenovo's recycling and refurbishment program. All other electronic equipment is recycled through Green Century Recycling.	The City is proactive in finding responsible end of life or reuse solutions for mercury and metal containing electronics and other building materials. Through the Computer Replacement Project, the majority of monitors and peripherals were re-used and kept in service.

4. Implementation Plan for Mercury Management and Reduction: Next 5 years

The City provides a collaborative approach to mercury minimization through our pretreatment, watershed, groundwater, and solid waste and sustainability programs in reducing or eliminating all possible waste and pollutants released to the environment. Programs work with many community partners to consolidate resources and provide education and assistance to the community through a variety of means. This section describes current and future plans to reduce mercury sources within City of Gresham.

Dental facilities

The Industrial Pretreatment Program works with businesses and dental practices to keep mercury containing wastestreams out of the public sanitary sewer system. All dental offices are required to submit documentation demonstrating their compliance with pretreatment devices and BMPs. The format to submit documentation is the Dental Waste Best Management Practices Annual Certification of Compliance Statement (GRC 4.45.110). Starting in 2016, the City required annual certification of proper mercury disposal practices as well as disposal records to be submitted. Dental offices that place or remove amalgam must install and properly maintain an amalgam separator. Dental offices with traditional x-ray machines that discharge used x-ray fixer must install and properly maintain a silver recovery unit (GRC 4.45.025).

In 2017, EPA added a federal category for dental practices (40 CFR 441). The City sends, receives, and maintains Federal One-Time Compliance Certificates in addition to the City's annual certification of compliance statements. The City currently has 50 dental facilities subject to annual reporting and is committed to maintaining and continuing the annual Dental Certification process. The City maintains a 100% return rate of Federal One-Time Certification submittal and 100% return rate of annual City certifications.

The annual dental office certification requires records of amalgam disposal to be submitted in addition to the signed certification that the office is following all dental office BMPs. The City has a designated staff member in the Industrial Pretreatment Program assigned to implement the dental facility program and will continue to support this work throughout the permit cycle.

Currently, annual certifications are mailed to all applicable dental offices. It has been found that this leads to several reminder mailing efforts. In 2022/2023, IPP focused on compiling e-mail contacts for the Dental Offices in order to move to a fully electronic reporting process. It is predicted that this will cause certifications to be returned sooner and will reduce reminders and staff time.

Industrial facilities

The City currently permits 16 Industrial Users (IU) with Industrial Waste Discharge Permits through the Industrial Pretreatment Program (IPP). The City has implemented a local discharge limit for mercury of 0.10 mg/L for all non-domestic discharges to the public collection system whether they are permitted through the IPP or not. None of the permitted IUs within Gresham, Fairview, and Wood Village have processes that use or generate mercury.

Significant Industrial Users (10)
- Metal Finishers (3)
- Semi-Conductor Manufacturing (2)
- Food Producers (3)
- Paper Industry (1)
- Photo Development (1)

Non-Significant Industrial Users (4)
- Food Producer (2)
- Brewery (1)
- Recycler (1)

Non-Significant Categorical Users (2)
- Metal Finishers (2)

Although none of Gresham's permitted industrial dischargers have mercury in their processes or as a byproduct, mercury local discharge limits apply, and several IUs are required to sample to verify its absence and report to the City in their Self-Monitoring Reports. Permitted industries are also sampled annually for Mercury as a part of their compliance sampling. (See Data in Section 6, Table 6.2) Outreach will continue to the City's permitted industries and routine sampling and monitoring will be ongoing as a part of the Industrial Pretreatment Program implementation and administration.

Through the IPP Survey process, new and emerging industrial sources will continue to be identified and included in the pretreatment program as needed to control and identify any discharge of mercury containing waste to the collection system.

Green Business Program:

The Green Business Program provides technical assistance to businesses looking for ways to help conserve, save money, and become a certified Green Business. The program focusses specifically on the following areas:

- Recycling, waste reduction, and composting
- Water conservation and wastewater management
- Energy conservation
- Pollution reduction to local streams and rivers
- Alternative transportation options
- Food donation
- Waste-free events
- Community involvement
- Cleaning product replacement assistance

GRESHAM
GREEN BUSINESS

Interest in becoming a Gresham Green Certified business continues to grow. The Green Business Program has a large outreach effort through a monthly newsletter subscription and coffee hour events that are used to create support and collaboration for sustainable, environmental business practices.

The Green Business Program staff does a large amount of collaboration with other partners such as the Pollution Prevention Resource Center (PPRC), Portland General Electric, and Metro.

Gresham is teaming with PPRC on providing outreach and access to Safe/Green cleaning products at culturally specific grocery stores through community events.

Efforts of the program in the past have been to larger businesses where a great environmental impact could be made and measured. While these efforts will continue, future and current resources have been shifted to focus on smaller, more diverse BIPOC businesses in the community. More information can be found on the webpage Green Business Program | City of Gresham (greshamoregon.gov)

Auto-Related Businesses: The Auto Related Business (ARB) program evaluates all auto/vehicle repair and wash facilities as well as salvage yards to assess risk from automotive fluids, parts storage, salvage storage, solvents and detergents, and proper disposal of hazardous materials. Facilities that pose a risk are required to put in place measures to mitigate those risks such as safe chemical and waste storage, proper disposal, secondary containment, spill prevention, and drain maintenance. ARBs are inspected based on risk factors. For example, higher risk businesses are inspected annually, while lower risk businesses are inspected every other year. This program will continue to be supported by city resources and staff and currently partners with EcoBiz for additional technical assistance and support. More information can be found on the Pollution Prevention Program webpage.
Pollution Prevention Program | City of Gresham (greshamoregon.gov)

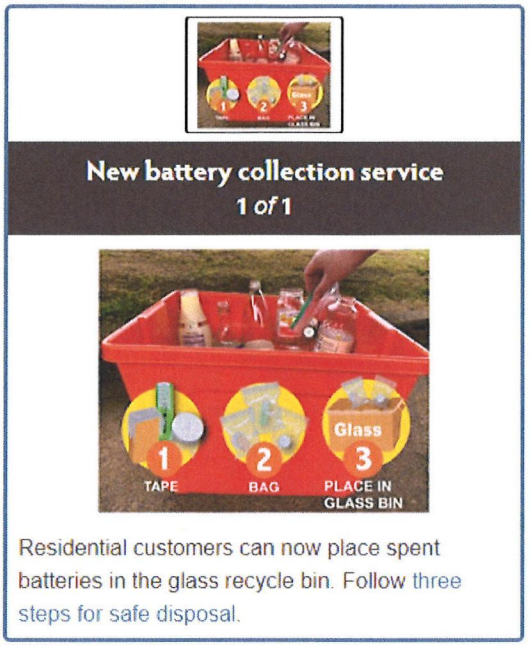
Groundwater Protection Program: The Groundwater Protection Program (formerly Wellfield) regulates new and existing businesses that use and store hazardous materials that may pose a threat to groundwater. To protect this valuable drinking water source, the cities of Gresham, Portland, and Fairview share the same groundwater protection regulations. The City provides free, on-site assistance in the management of toxic products, including toxic product reduction, product containment, cleaning protocols and materials for in-house training.

The City and neighboring municipalities developed a Groundwater Protection Program for the Columbia South Shore and Cascade Protection Area. This source of groundwater supplements water supplies from Bull Run. In addition, groundwater is necessary in the event of an emergency.

Gresham is in the process of transitioning to 100% groundwater source for its drinking water by 2026. As a result, the Groundwater Protection Program will be extended and implemented City-wide to protect the City's drinking water from potential industrial and commercial contamination sources. The expansion of the number of commercial and industrial facilities included in the program will increase outreach and reduce potential toxic exposures to the environment. The program currently regulates 64 businesses within the current groundwater protection areas. The program expects to regulate an additional 88 businesses with the city-wide expansion. The City is increasing its resource allotment and staff to continue to support this program in 2023. More information can be found on the Groundwater Protection Program webpage. Groundwater Protection Program | City of Gresham (greshamoregon.gov)

Solid Waste & Recycling – Gresham's Solid Waste and Sustainability Program has proactive programs implemented that address sorting materials for recycling and proper hazardous waste disposal (biological, chemical, and material). Public outreach is done via mailers, personal

contact, and the City's website and social media and includes information regarding year-round drop off sites and resources for proper disposal of all types of materials that may contain pollutants of concern which include mercury.



Residential customers can now place spent batteries in the glass recycle bin. Follow three steps for safe disposal.

In 2022, curb-side recycling for batteries in collaboration with the city's contracted garbage haulers was implemented. Since this is a new program, the City does not have complete metrics on the use or success.

The City and Coalition of Gresham Neighborhood Associations, with Gresham Free Swaps, organize Gresham Repair Cafés to bring people with repair skills together to help neighbors fix their broken items. This program was paused due to COVID and is planned to be re-instated in 2023.

Recycle+ is a new residential collection service offered by Gresham garbage and recycling haulers with support from the City. This program is available for an additional fee and creates a convenient curb-side option for household disposal of compact fluorescent lightbulbs and household e-waste. This program started in 2023.

The Solid Waste and Recycling Program plans to hold e-waste collection events every other year starting in 2023. The event held in April 2023 collected 20,000 lbs of e-waste and another event is planned for 2024. The addition of medications, fluorescent bulbs, and batteries may be included on a less frequent basis due to resources available for collection and disposal transfer. Previously, events were held at City Hall. Future plans include creating satellite smaller events throughout the community to increase accessibility.

Collection System Monitoring - The City does not have recent collection system data for Mercury concentration from residential, commercial, or un-permitted industrial sources. The Industrial Pretreatment Program will explore potential sampling plans to perform a sampling event for collection system background mercury levels. The City plans to incorporate collection system sampling for mercury and all Local Limits at the time of required permit sampling in 2024 as resources allow. This data will also be used for future Local Limits Evaluations.

5. Facility Changes

• 5.1 Facility Changes during the previous permit cycle (2018-2022)

During the previous permit cycle there were no facilities, collection system, or operational process changes related to mercury discharges and management.

• 5.2 Mercury Source Reduction and Control Actions within the WWTP

According to DEQ's IMD for *Implementation of Methylmercury Criterion in NPDES Permits*, methylation of mercury occurs mainly under anaerobic conditions and is greatly affected by the availability of inorganic mercury, pH, organic matter concentration, microbial activity, redox potential, sulfate concentration and temperature. Natural treatment systems like wetlands, ponds, and lagoons are conducive to these conditions.

The City's (WWTP) is a secondary treatment plant utilizing activated sludge. The treatment consists of screening, grit removal, primary clarification, aeration basins, secondary clarification and chlorination/dichlorination.

According to a study cited in DEQ's IMD, referring to the San Jose/Santa Clara Water Pollution Control Plant secondary treatment facilities, "Although anoxic conditions are present during some process steps of secondary treatment, the conditions were not sufficient to promote methylation of mercury." Also, noted in this study was that there is a strong affinity between methyl mercury and solids. Therefore, methyl mercury entering the WWTP will likely be removed during the two clarification processes. Given that Gresham does not utilize any natural treatment systems and it has a high total mercury removal rate, there is little potential for discharge of methyl mercury to the receiving stream.

6. Mercury Monitoring (total mercury)

The City of Gresham performs monitoring of its influent, effluent, and biosolids as part of its Permit requirements. In addition, there are regulatory samples taken of permitted industries to further confirm compliance. A summary of this data from the last five years was performed to illustrate the low levels of mercury in Gresham and the high removal rate occurring at Gresham's WWTP.

Influent, effluent, and biosolids are monitored quarterly on 3 consecutive days. The quantitation limit for effluent monitoring must be < 1.0 ng/L or less. See Appendix A for a detailed table of Mercury monitoring data from the previous permit term (2018-2022).

Table 6.1. Average Annual Total Mercury Flow/Load Summary Information 2018-2022

Year	Influent			Effluent			Biosolids		
	Flow (MGD)	Conc. (ng/L)	Mass (lb/yr)	Flow (MGD)	Conc. (ng/L)	Mass (lb/yr)	Flow-Dry (ton/day)	Conc. (mg/kg)	Mass (lb/year)
Year 1 2018	10.02	94.5	2.9	10.08	3.5	0.11	6.54	0.62	2.96
Year 2 2019	9.73	92.9	2.8	9.71	4.2	0.12	6.29	1.08	4.98
Year 3 2020	10.13	27.3	0.8	10.16	3.3	0.10	4.83	1.12	3.96
Year 4 2021	10.64	30.1	1.0	11.10	2.6	0.09	7.45	0.47	2.58
Year 5 2022	11.42	53.1	1.8	11.76	3.4	0.12	5.74	0.42	1.75

Table 6.2. Permitted Industrial User Mercury Data 2018-2022

The City monitors all permitted industrial users for effluent and are sampled to monitor for any possible sources of pollutants of concern which include mercury. Samples for the past five years were reviewed and displayed below. These samples are from the City's annual compliance sampling.

Industry	Process	Mercury Results 2018-2022 Local Limit 100,000 ng/L				
		2018	2019	2020	2021	2022
Advanced Precision	Metal Finishing	<200	<200	<200	<200	<200
Boeing	Metal Finishing	<200	<200	<200 <200	<200 <200	<200 <200
CAG Logistics	Film Processing	<200	<200	<500	<200	<910
Cascade Corporation	Metal Finishing	<200	<1000	<200	<200	<100
Denton Plastics[1]	Plastics recycler					<200
Eclaire Health[2]	Nutrition Confectionary	<200	<1000	<200	<2000	
International Paper Co.	Paper Product Manufacturer	<200	<200	<800	<200	<200
Microchip	Semiconductor	<200 <200	<200	<200	<200	<200
Migration Brewing	Brewery	<200	<1000	<200	<2000	<100 <300
onsemi	Semiconductor	<200	<200	<200	<200	<200
Portland Specialty Bakery	Industrial Bakery	<200	<200	<200	<200	<200
Teeny Foods	Industrial Bakery	<200	<200	<4000	<200	<200
Townsend Farms[3]	Frozen Fruit Packaging	<200	<200	*	<300	<200
Trailblazer Foods	Canned Fruits, Preserves etc	<200	<200	<200	<200	<91

[1] Denton Plastics is a new permittee in 2022. First year of sampling.
[2] Eclaire Health not sampled in 2022 due to a halt in production.
[3]Townsend farms was not sampled in 2020 due to COVID-19 concerns and staff safety.

As mercury reduction actions became more effective over time, the implementation of the MMP has captured most of the typical sources associated with common industrial, commercial, and institutional discharges. The resulting flattening mercury data trends may appear at odds with continual improvements in mercury minimization efforts. However, as demonstrated in the sections of this plan that summarize past, current, and future mercury minimization actions, Gresham continues to aggressively identify, reduce, and control sources of mercury discharge to the wastewater treatment system.

7. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Preparer
(please print): Rachel Allen

Title: Pretreatment Coordinator Date 8/7/2023

Signature: Rachel Allen Digitally signed by Rachel Allen Date: 2023.08.08 09:02:59 -07'00'

Phone: 503-618-2634

Authorized agent
(if different): Alan Johnston, P.E.

Title: WWTP Program Manager Date:

Signature: Alan Johnston Digitally signed by Alan Johnston Date: 2023.08.10 13:36:19 -07'00' Adobe Acrobat version: 2023.003.20269

Phone: 503-618-3454

Appendix A: Mercury Monitoring Data from Previous Permit Term (2018-2022)

Date	Influent (ng/L)	Effluent (ng/L)	Date	Biosolids (mg/kg)
1/16/18	29.1	3.5	01/12/18	1.580
1/17/18	29.0	3.4	02/06/18	0.360
1/18/18	52.3	2.7	03/06/18	0.382
4/9/18	130.0	5.9	04/03/18	0.501
4/10/18	27.9	3.6	05/01/18	0.471
4/11/18	29.1	3.1	06/05/18	0.620
7/9/18	110.0	2.6	07/12/18	0.573
7/10/18	170.0	2.7	08/15/18	0.736
7/11/18	51.0	2.5	09/19/18	0.609
10/9/18	57.0	3.1	10/11/18	0.545
10/10/18	410.0	3.2	11/19/18	0.734
10/11/18	38.0	5.3	12/17/18	0.346
1/8/19	20.0	3.0	01/29/19	1.330
1/9/19	120.0	3.5	02/21/19	0.380
1/10/19	26.0	3.6	03/20/19	1.550
4/1/19	260.0	5.5	04/18/19	1.470
4/2/19	330.0	8.9	05/16/19	1.410
4/3/19	120.0	8.9	06/19/19	1.550
7/8/19	30.0	2.7	07/17/19	1.300
7/9/19	30.0	2.9	08/14/19	2.200
7/10/19	44.0	2.8	09/18/19	0.389
10/7/19	29.0	2.9	10/17/19	0.398
10/8/19	66.0	2.7	11/26/19	0.594
10/9/19	40.0	2.4	12/19/19	0.444
1/13/2020	17.0	3.1	Jan-20	0.504
1/14/2020	24.0	2.7	Feb	0.879
1/15/2020	28.0	2.6	Mar	0.921
4/6/2020	19.0	2.0	Apr	0.984
4/7/2020	22.0	2.1	May	0.422
4/8/2020	18.0	1.8	Jun	0.333
7/13/2020	31.0	2.8	Jul	1.300
7/14/2020	40.0	2.3	Aug	2.220
7/15/2020	30.0	2.4	Sep	1.280
10/5/2020	34.0	5.0	Oct	1.550
10/6/2020	42.0	9.1	Nov	1.510

10/7/2020	23.0	4.0	Dec	1.580
1/12/2021	16.0	2.7	Jan-21	1.120
1/13/2021	12.0	2.1	Feb	0.414
1/14/2021	16.0	2.2	Mar	0.506
4/12/2021	27.0	2.7	Apr	0.391
4/13/2021	25.0	2.7	May	0.414
4/14/2021	30.0	2.8	Jun	0.422
7/13/2021	25.0	2.5	Jul	0.463
7/14/2021	33.0	2.7	Aug	0.393
7/15/2021	68.0	2.7	Sep	0.443
10/12/2021	27.0	3.2	Oct	0.304
10/13/2021	26.0	2.6	Nov	0.490
10/14/2021	56.0	2.5	Dec	0.330
1/25/2022	31.0	2.8	Jan-22	0.321
1/26/2022	31.0	2.6	Feb	0.308
1/27/2022	41.0	3.1	Mar	0.276
5/3/2022	20.0	2.1	Apr	0.267
5/4/2022	25.0	2.0	May	0.428
5/5/2022	32.0	2.7	Jun	0.391
8/2/2022	56.0	6.1	Jul	0.383
8/3/2022	67.0	4.7	Aug	0.386
8/4/2022	61.0	3.2	Sep	0.550
10/18/2022	150.0	4.3	Oct	0.824
10/19/2022	56.0	3.5	Nov	0.435
10/20/2022	67.0	3.3	Dec	0.441