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Trentwood Works

June 23, 2025

Mr. Pat Hallinan
Department of Ecology
4601 N Monroe
Spokane, WA 99205-1295

RE: NPDES Permit No. WA0000892

Dear Mr. Hallinan:

In accordance with the provisions of NPDES Permit No. WA0000892, Special Condition S8 entitled, "PCB Pollutant Minimization Plan (PMP), the following submittal is provided:

- 2024 PCB Pollutant Minimization Plan Annual Report

If you should have any questions or need any additional information, please feel free to contact me at (509) 927-6219.

Sincerely,

Brent Downey
Director of Corporate Environmental Engineering

P.O. Box 15108
Spokane Valley, WA 99215-5108

2024 PCB Pollutant Management Plan Annual Report

PCB Monitoring Data Collection – 2024

As required by the facility's NPDES Permit, PCB monitoring data was collected on a bi-weekly basis at Outfall 001 (final discharge point) and at the inlet to the Walnut Shell Filter System (WSFS). Although not routinely required by its NPDES Permit, the facility also collected PCB monitoring data on a bi-weekly basis at Internal Outfall 004 (south area) and Internal Outfall 005 (north area).

Outfall 001

PCB monitoring data was collected with a dedicated 24-hour composite sampler. Analytical analysis were performed using EPA Method 1668. For the first 16 sampling events of the year, PCB analyses were conducted by SGS-AXYS Analytical Services in Surrey, British Columbia, Canada. For the remaining 10 sampling events of the year, PCB analyses were conducted by Eurofins Sacramento, West Sacramento, California. Since continuous flow data were also collected, congener level PCB concentration data were generated as well as calculated Total PCB mass loading data. As discussed in the Initial Pollutant Minimization Plan Report (July 25, 2019), blank censoring of the analytical results was conducted at the congener level at three censoring levels – "0X" censoring, "5X" censoring, and "10X" censoring.

Appendix A of this report is an excel file that contains the congener level analytical data for the 2024 sampling events along with the associated analytical method blank for each level of censoring discussed above as well as Total PCB data, homologue level and dioxin-like level data for the sampling events. Flow information as well as the calculated mass loading at each censoring level is also provided. In addition, a summary data table is provided.

The tables below provide a Total PCB concentration and a Total PCB mass loading summary for the 26 sampling events conducted in 2024 at each censoring level.

Outfall 001
2024 Total PCB Concentration Summary
(Bi-Weekly Sampling Events)
(EPA Method 1668)

Total PCB Concentration, picograms/liter

Censoring Level	Minimum	Mean	Median	Maximum
"0X"	2,449	3,701	3,570	7,002
"5X"	2,389	3,653	3,534	6,894
"10X"	2,379	3,582	3,464	6,855

Outfall 001
2024 Total PCB Mass Loading Summary
(Bi-Weekly Sampling Events)(EPA Method 1668)

Total PCB Mass Loading, milligrams/day

Censoring Level	Minimum	Mean	Median	Maximum
"0X"	49	75	71	145
"5X"	48	74	71	143
"10X"	41	72	70	142

Walnut Shell Filter System Inlet

PCB monitoring data was collected with a dedicated 24-hour composite sampler. Analytical analysis were performed using EPA Method 8082 ULL. These analyses were conducted by ALS Global in Kelso, Washington. As discussed, and detailed in the Initial Pollutant Minimization Plan Report (July 25, 2019), blank censoring of the analytical results was not conducted. Continuous flow data were also collected. As a result, Aroclor level PCB concentration data were generated as well as calculated mass loading data. As specified in the facility's NPDES Permit Special Condition S9.A. however, non-detect results for Aroclor 1242 are to be considered to be present at half of the specified detection limit for any sampling event.

Appendix B of this report contains the PCB Aroclor level analytical data for each of the 26 sampling events in 2024 and the calculated mass loading. The table below provides Total PCB Aroclor concentration and mass loading summaries for the 26 sampling events conducted in 2024.

Walnut Shell Filter Inlet
2024 Total PCB Aroclor Concentration and Mass Loading Summary
(Bi-Weekly Sampling Events)
(EPA Method 8082 ULL)

Total PCB Aroclor Concentration, nanograms/liter

Censoring	Minimum	Mean	Median	Maximum
None	2.5	11	3.8	57

Total PCB Aroclor Mass Loading, milligrams/day

Censoring	Minimum	Mean	Median	Maximum
None	44	220	77	1,155

Internal Outfall 004 and Internal Outfall 005

PCB monitoring data was collected with 24-hour composite samplers. Analytical analysis were performed using EPA Method 8082 ULL. These analyses were conducted by ALS Global in Kelso, Washington. As discussed, and detailed in the Initial Pollutant Minimization Plan Report (July 25, 2019), blank censoring of the analytical results was not conducted. Continuous flow data were also collected. As a result, Aroclor level PCB concentration data were generated as well as calculated mass loading data. As discussed, and detailed in the Initial Pollutant Minimization Plan Report (July 25, 2019), blank censoring of the analytical results was not conducted. As specified in the facility's NPDES Permit Special condition S9.A. however, non-detect results for Aroclor 1242 are to be considered to be present at half of the specified detection limit for any sampling event.

Appendix C of this report contains the Total PCB Aroclor level analytical data for each of the 26 sampling events in 2024 along with the calculated mass loading. The tables below provide Total PCB Aroclor concentration and Total PCB mass loading summaries for the 26 sampling events conducted in 2024 for each of these two internal outfalls.

Internal Outfall 004
2024 Total PCB Aroclor Concentration and Mass Loading Summary
(Bi-Weekly Sampling Events)
EPA Method 8082 ULL)

Total PCB Aroclor Concentration, nanograms/liter

Censoring	Minimum	Mean	Median	Maximum
None	2.5	3.3	2.5	7.5

Total PCB Aroclor Mass Loading, milligrams/day

Censoring	Minimum	Mean	Median	Maximum
None	11	26	24	51

Internal Outfall 005
2024 Total PCB Aroclor Concentration and Mass Loading Summary
(Bi-Weekly Sampling Events)
(EPA Method 8082 ULL)

Total PCB Aroclor Concentration, nanograms/liter

Censoring	Minimum	Mean	Median	Maximum
None	2.5	15	8	56

Total PCB Aroclor Mass Loading, milligrams/day

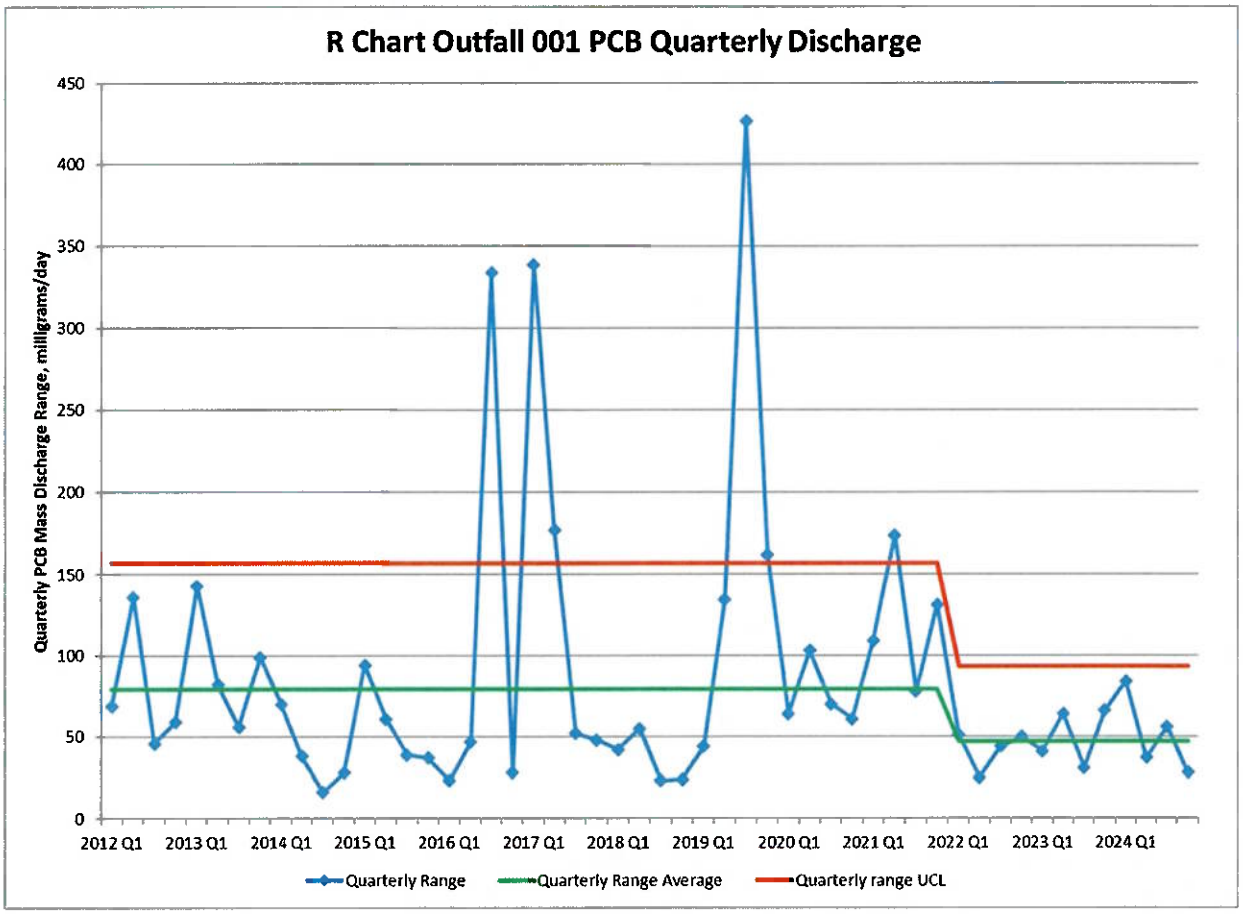
Censoring	Minimum	Mean	Median	Maximum
None	27	180	85	667

Performance and Effectiveness Analysis - 2024

As discussed in the Initial Pollutant Minimization Plan Report (April 2019), the facility tracks the performance and effectiveness of its PCB discharge reduction efforts through the use of standard statistical process control charting, specifically the use of "R Charts" (quarterly data ranges) and " $\overline{X}$ Charts" (quarterly average data). In addition to the tracking of PCB mass loading tracking at multiple locations, the results of flow reduction efforts are also tracked as this is a key element of the facility's efforts.

Outfall 001 PCB Loading – R Chart

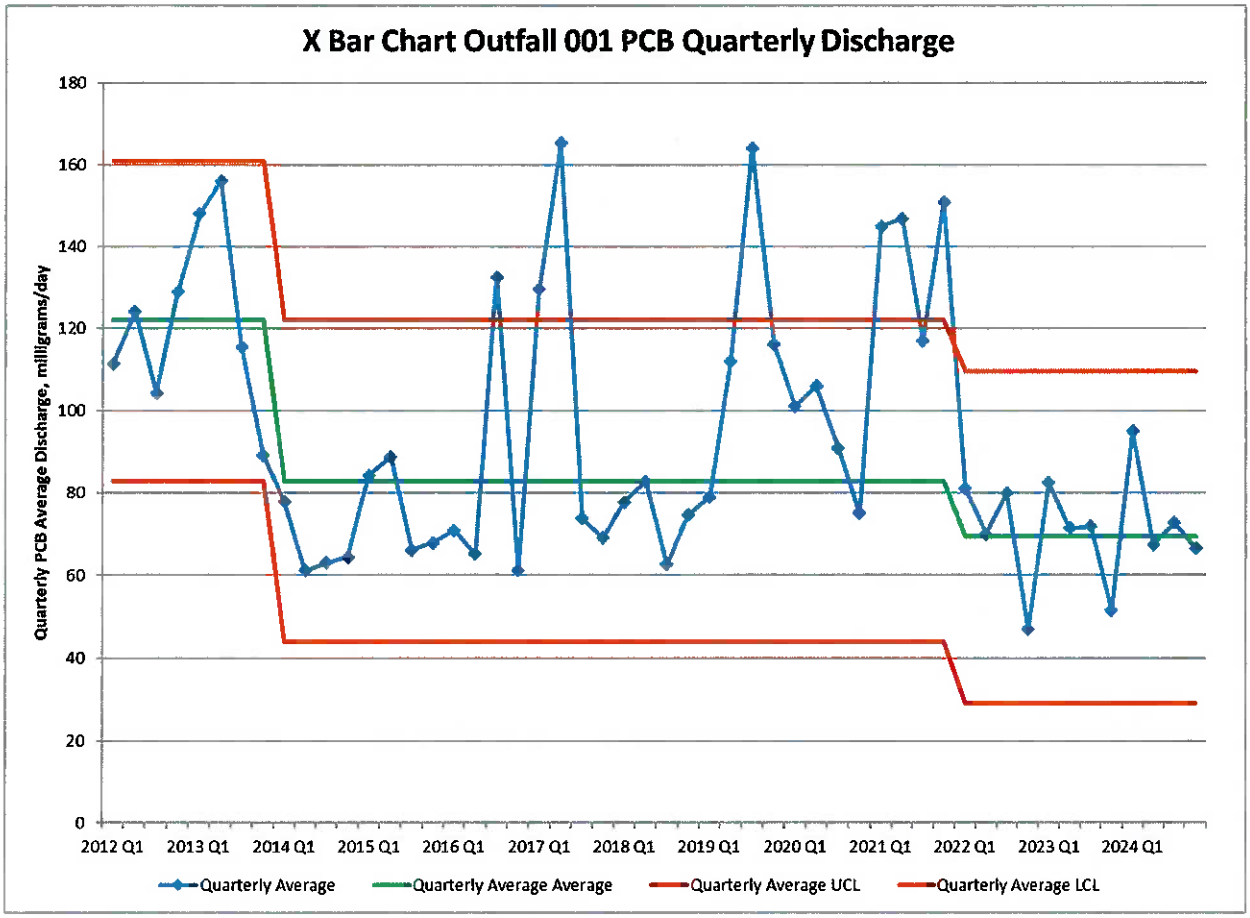
The chart below is the R Chart for Outfall 001 that was updated with the 2024 sampling event results.



As is shown in the R Chart above, the R Chart values for the last twelve quarters were within the control limits that were reset beginning with 2022 Q1 as a result of improved (more stable) system performance.

Outfall 001 PCB Loading - $\overline{X}$ Chart

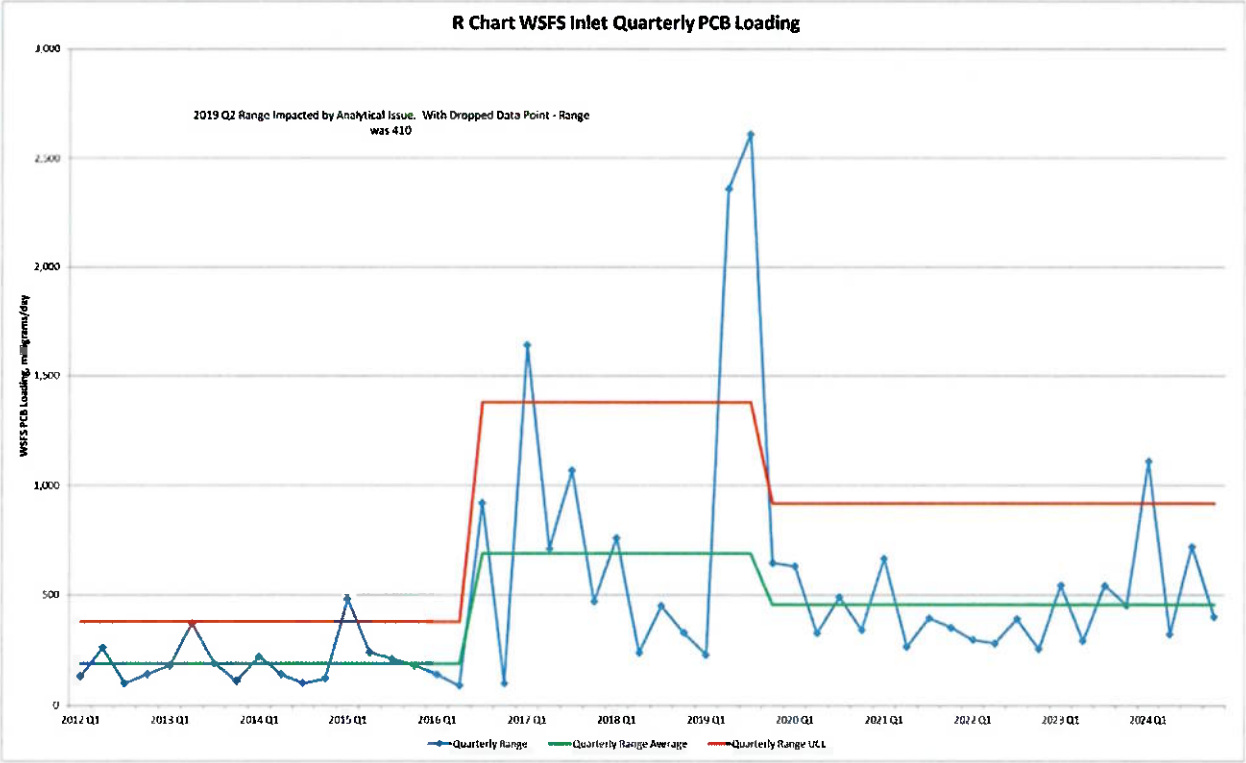
The chart below is the $\overline{X}$ Chart for Outfall 001 that was updated with the 2024 sampling event results.



As is shown in the $\overline{X}$ Chart above, the $\overline{X}$ Chart values for the last twelve quarters were within the control limits that were reset beginning with 2022 Q1 as a result of improved (lower mass discharge levels) system performance.

Walnut Shell Filter System Inlet PCB Loading – R Chart

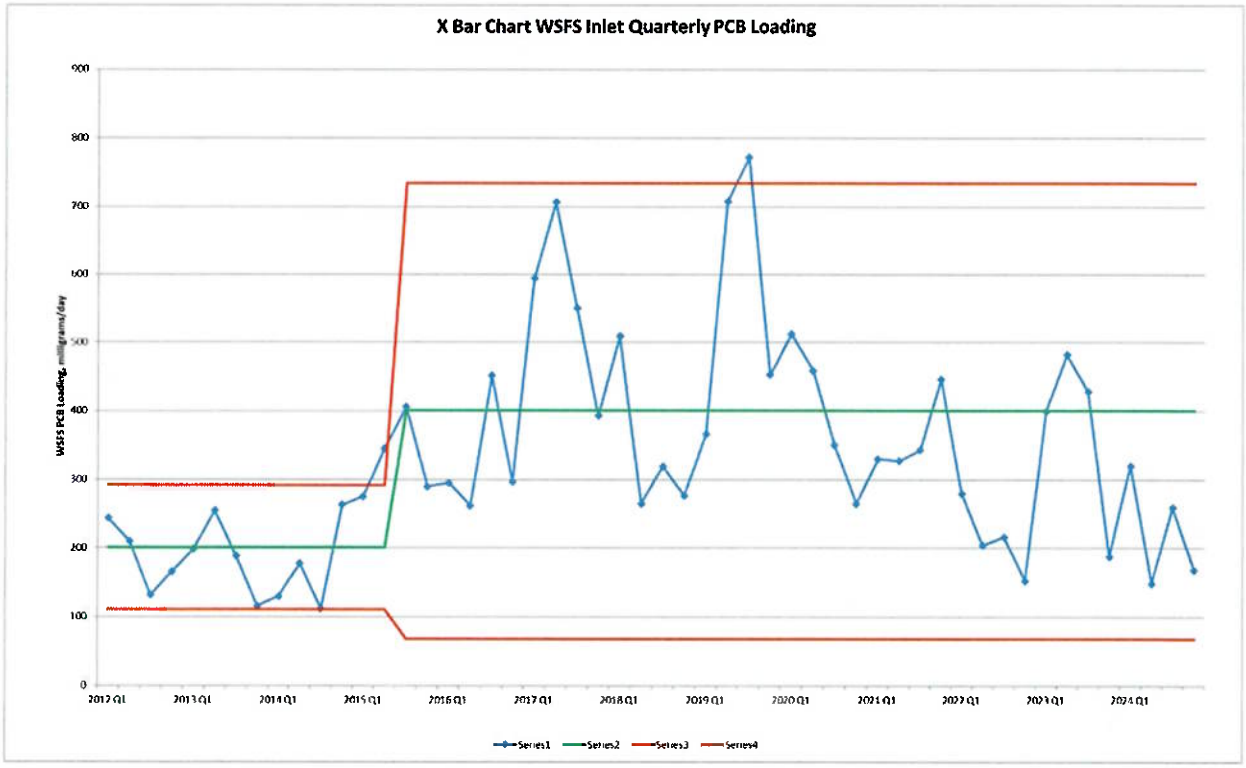
The chart below is the R Chart for the WSFS Inlet that was updated with 2024 sampling event results.



As is shown in the R Chart above, the R Chart value for 2024 Q1 was outside of the control limit. An analysis of the data showed that one of the results from 2024 Q1 was a statistical outlier. If that single result is excluded from the analysis, then all four quarters of 2024 were within control limits.

Walnut Shell Filter System Inlet PCB Loading - $\overline{X}$ Chart

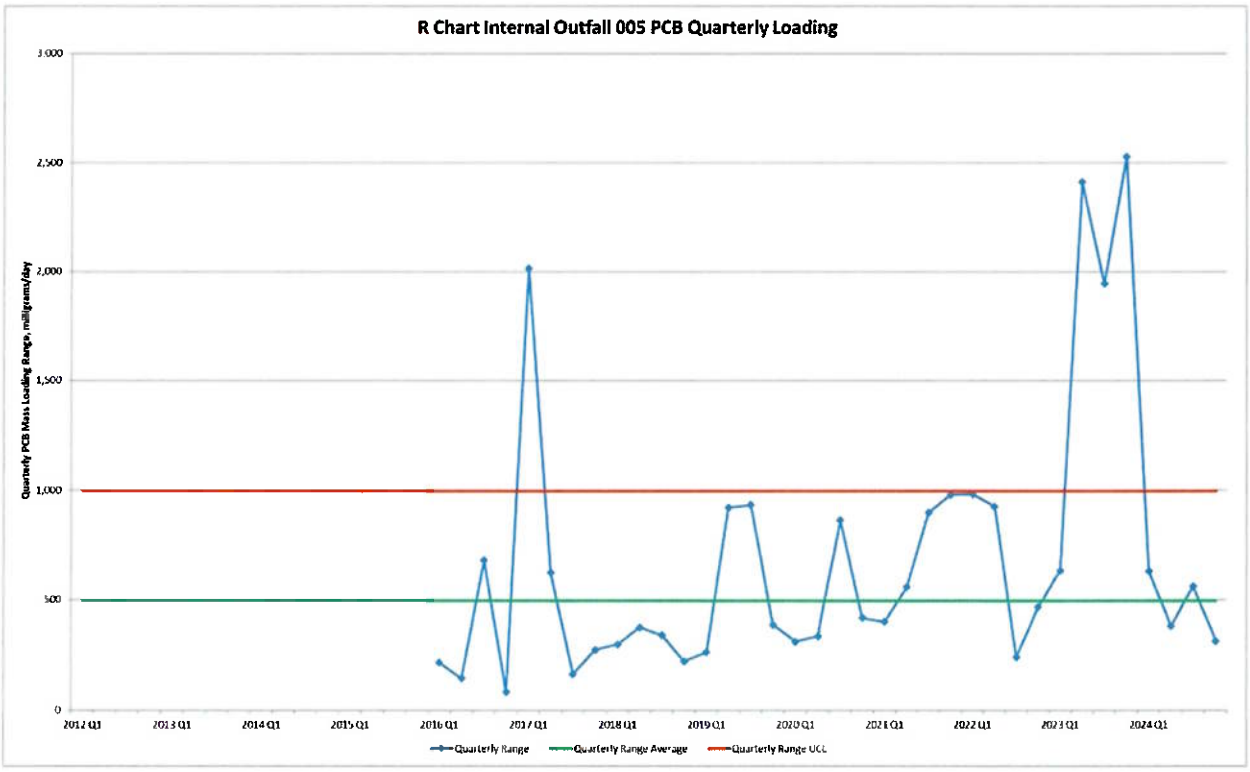
The chart below is the $\overline{X}$ Chart for the WSFS Inlet that was updated with 2024 sampling event results.



As is shown in the $\overline{X}$ Chart above, the $\overline{X}$ Chart values for all four quarters of 2024 were within control limits with the last five quarters below the current Quarterly Average Average for WSFS Inlet loading. If this trend continues during the first three quarters of 2025, the Quarterly Average Average value will be reset based on improved system performance.

Internal Outfall 005 PCB Loading – R Chart

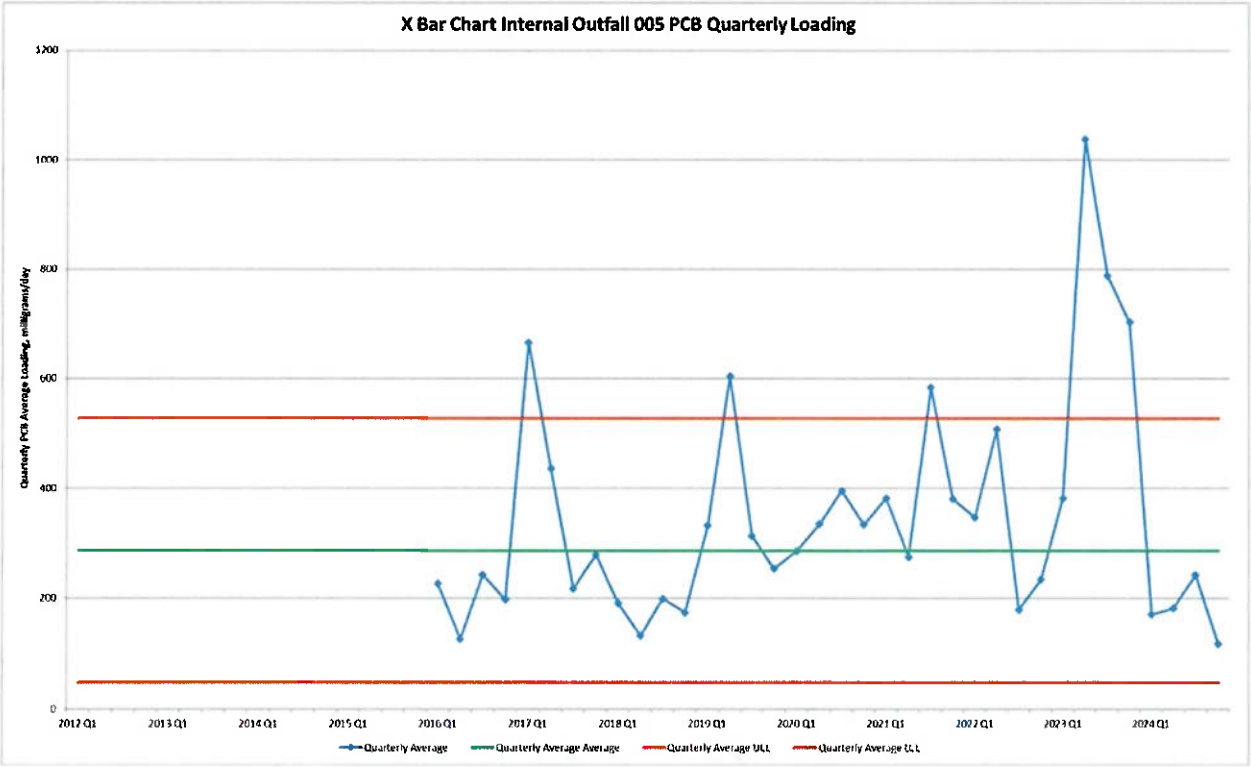
The chart below is the R Chart for Internal Outfall 005 that was updated from the one contained in the Initial Pollutant Minimization Plan Report (April 2019) with 2024 sampling event results.



As is shown in the R Chart above, all four quarters of 2024 were within control limits and were centered on the current Quarterly Range Average.

Internal Outfall 005 PCB Loading - $\overline{X}$ Chart

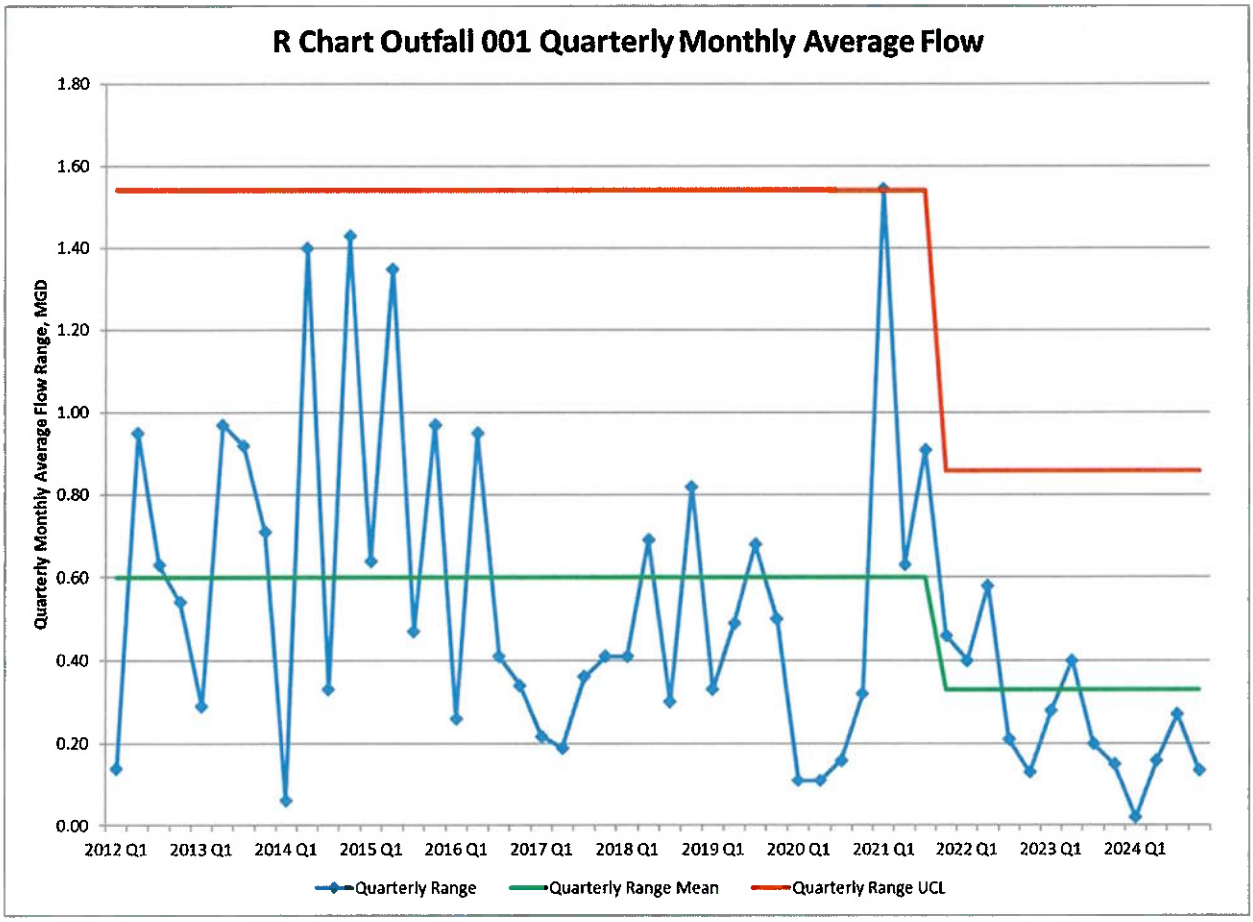
The chart below is the $\overline{X}$ Chart for Internal Outfall 005 that was updated with 2024 sampling event results.



As is shown in the $\bar{X}$ Chart above, all four quarters of 2024 were within control limits and below the Quarterly Average Average. If this trend continues during all four quarters of 2025, the Quarterly Average Average value will be reset based on improved system performance.

Outfall 001 Flow – R Chart

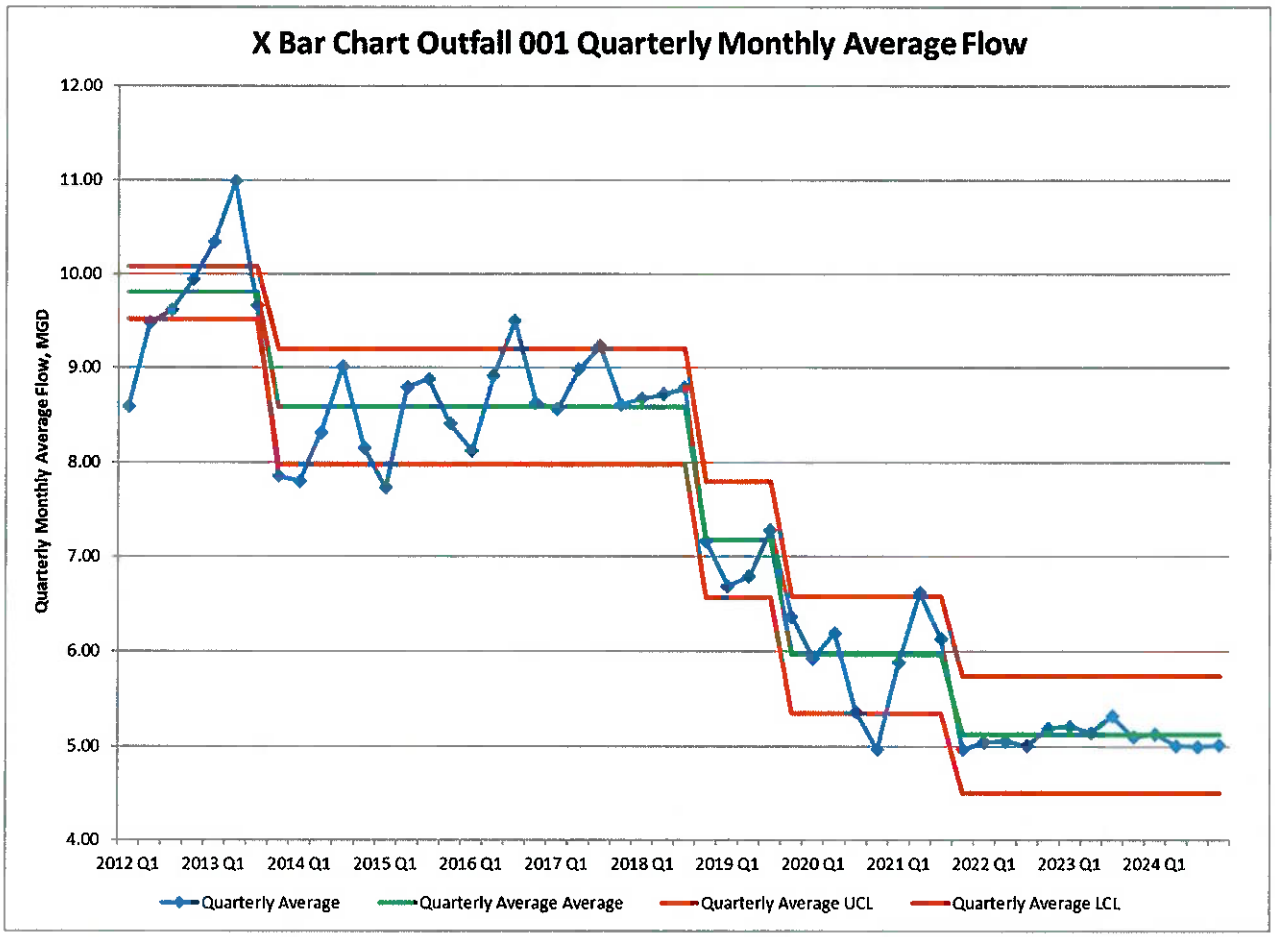
The chart below is the R Chart Outfall 001 flow beginning in the first quarter of 2012. This chart is based on the compilation of monthly daily average daily flow information that is aggregated on a quarterly basis to be consistent with the PCB loading data charting.



As is shown in the R Chart above, all four quarters of 2024 were within control limits and were below the current Quarterly Range Average. If this trend continues during the first two quarters of 2025, the Quarterly Range Mean value will be reset as a result of improved (more stable) system performance.

Outfall 001 Flow - $\overline{X}$ Chart

The chart below is the $\overline{X}$ Chart for Outfall 001 flow beginning in the first quarter of 2012. This chart is based on the compilation of monthly daily average flow information that is aggregated on a quarterly basis to be consistent with the PCB loading data charting.



As is shown in the chart above, the $\overline{X}$ Chart values have shown four downward shifts (reductions) in flow since the first quarter of 2012. These downward shifts (reductions) coincide with changes in water utilization strategies. It was observed that the most recent shift in the Quarterly Monthly Average Flow Average coincides with the complete conversion of the facility to groundwater sourced cooling water which provides essentially constant temperature and chemistry cooling water to the facility as well as the activation of the UIC South system as discussed in the 2022 PMP. The Quarterly Average Flow results for all four quarters in 2024 continue to center on the current Quarterly Average Average.

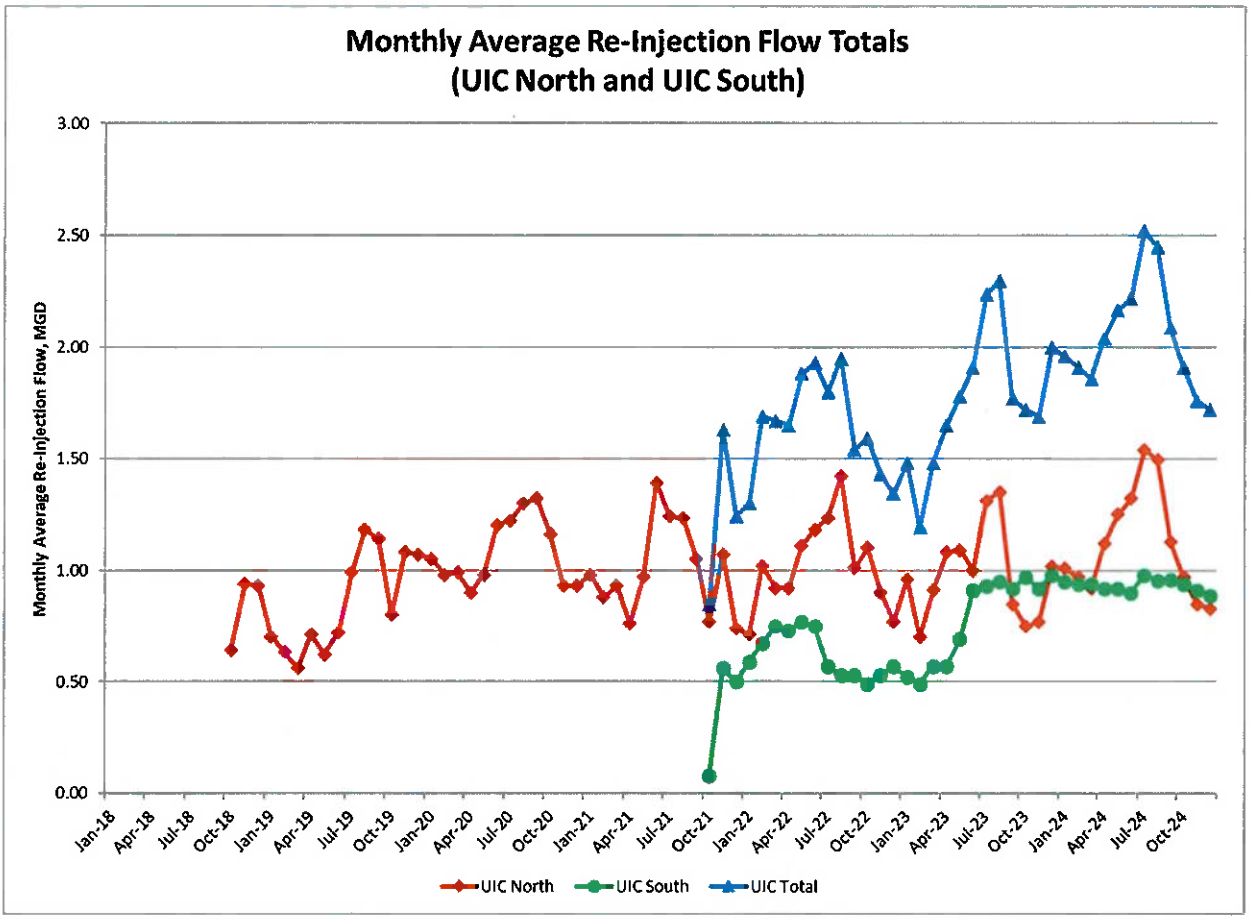
Status Reviews – Flow Reduction Projects

The facility has been implementing an additional series of projects to reduce its discharge flow, enhance the performance of its current treatment technology and pursue the identification and implementation of additional applicable PCB treatment technology.

The following are summaries of 2024 activities relative to these identified projects.

Non-Contact Cooling Water Elimination or Reinjection

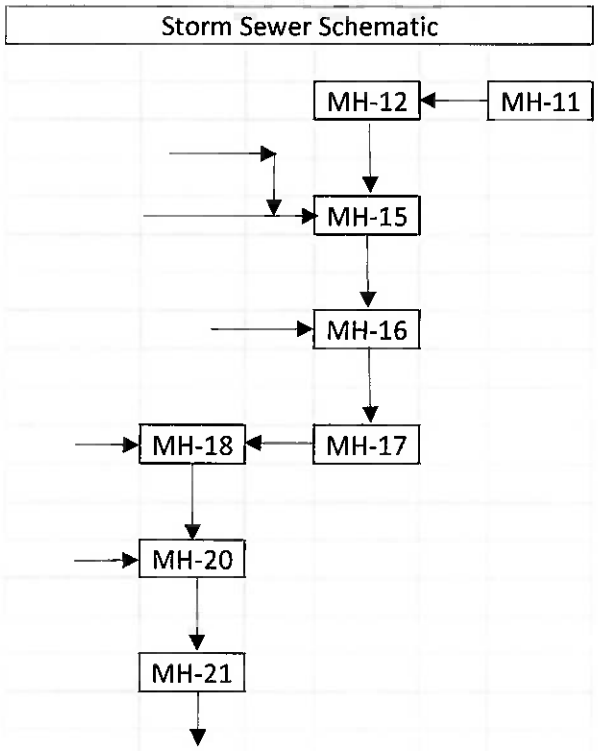
The initial phases of the implementation of the UIC System are complete. The chart below tracks the UIC System's re-injection rates. Currently work is in progress to identify additional equipment cooling use points that could be added to the UIC System.



Contact Cooling Water Recirculation for Heat Treating Operations

During 2024, additional operational issues with respect to the water quench systems for the FPLs (equipment physical integrity) were identified that require system re-engineering and outages prior to proceeding with closed loop cooling water system design and implementation. While operational upgrades are being pursued, PCB discharge reduction activities in the South Area focused on the upper end of the Outfall 004 sewer system. This section of the Outfall 004 sewer system (see schematic

diagram below) was the focus of a series of sediment removal actions in 2008, 2009 and 2012. As a result of this series of actions, some 67 tons of sediment with PCB levels ranging from 1.7 to 130 mg/kg were removed from the sewer system upstream of Manhole 21 (MH-21).



Water sampling in this section of the sewer system (MH-16 and MH-21) in 2015 indicated that PCB mass levels in wastewater were significantly lower than a 2013 post sewer cleaning sampling event at the same locations. The 2015 mass levels were still however, significant relative to mass loading in Outfall 004.

In August and September 2024, GeoEngineers conducted wastewater sampling events that included sampling location at MH-16 (outlet), MH-21 (outlet) and Outfall 004. The sampling events consisted of continuous wastewater flow measurements at all three locations as well as 24-hour composite (15 minute intervals) sampling of wastewater at all three locations. The composite wastewater samples collected were analyzed for Total PCB with EPA Method 1668 by Eurofins. The table below summarizes the results of the two sampling events.

(EPA Method 1668)				
Event Dates	Location	Mean Flow (mgd)	Total PCB (pg/L)	PCB Mass (mg/d)
08/29/24	MH-16 (outlet)	0.411	569	0.9
	MH-21 (outlet)	0.623	606	1.4
	Outfall 004	2.11	299	2.4
09/05/24	MH-16 (outlet)	0.483	611	1.1
	MH-21 (outlet)	0.673	1,912	4.9
	Outfall 004	1.88	264	1.9

Based upon the results from the 2024 sampling events, additional investigation and/or sampling efforts in 2025 will focus on source identification and mitigation actions upstream of MH-16 and between MH-16 and MH-21 with an emphasis on sewer sections where previous sediment removal actions were performed.

Next Level of Treatment Development

On June 1, 2022, the facility's NPDES Permit (WA0000892) was renewed by Ecology. The provisions of Agreed Order No. 16958 dated January 2, 2020, which included the development of the next level of treatment, were incorporated into and subsumed by various permit conditions. Permit Condition S10, entitled Compliance Schedule identifies four tasks.

The initial task under Permit Condition S10 is as follows:

	Tasks	Date Due
1.	Submission of results of bench scale testing Proposed schedule for pilot scale testing of candidate technologies	1/1/2025

By letter dated December 30, 2024, results from pilot scale testing were provided to Ecology related to testing conducted by CDM Smith with UVAOP/H_2O_2 technology both in combination with and in parallel with the existing WSFS with Outfall 001 discharge water. Test results showed PCB destruction rates between 55% and 98% over the range of inlet water quality conditions encountered and operational parameters tested.

Enhancement of Current Treatment System Performance

Following the performance enhancement work conducted in and reported on in the 2023 annual report, additional testing was conducted during the second half of 2024 by Kennedy Jenks. Testing focused on three specific areas.

The first area was the optimization of the castor oil injection system. While the modification of the castor oil injection carrier water piping system (direct discharge into pump intake screens) showed improvement in consistent filter intake castor oil

concentrations, there was a concern that the castor oil was becoming emulsified. In addition, at the 5 ppm castor oil addition rate, a noticeable increase in the Carbonaceous Biological Oxygen Demand (CBOD) mass discharge level was observed once the piping modifications were completed across all three filters. To address these concerns, two alternative injection methods were tested on Filter #1. Both methods involved castor oil injection just downstream of the filter intake pump and prior to the filter inlet in order to address the potential emulsification of the castor oil. The methods tested were the direct injection of castor oil into the filter inlet piping just downstream of the intake pump using the existing castor oil metering pump which has sufficient discharge pressure capacity. The second method tested was the use of the current castor oil chase water system with the addition of a booster pump so that the necessary discharge pressure could be achieved.

The second area of investigation was filter performance relative to castor oil injection rates (1 ppm vs. 5 ppm) for both of the potential revised castor oil injection systems that were tested as discussed above. A series of test were conducted at both injection rates utilizing both potential injection system configurations.

The third area of investigation was the efficiency of the current filter backwash cycle operating parameters, backwash flowrate and backwash duration. The current backwash cycle parameter settings are a flowrate of 1,000 gallons per minute (gpm) for 40 minutes. Since the installation of the filter system in 2003, several process operating parameters such as the filter system overall flowrate which peaked at an annual daily average of 9.4 million gallons per day and currently averages 5.04 million gallons per day and the filter backwash cycle initiation pressure drop set point have changed. Based upon the evolution of these process operating parameters, a series of tests were conducted with backwash cycle flowrates of 1,000 gpm and 1,300 gpm with backwash cycle durations of 40 minutes and 75 minutes. The testing focused on tracking indicator parameters of filter backwash efficiency such as Total Suspended Solids (TSS) and Oil & Grease (O&G) at various time intervals during backwash cycles.

Once the final test results and recommendations have been received from Kennedy Jenks and reviewed, plans for system mechanical upgrades as well as revised operating parameter set points will be developed and implemented in 2025.

Contact Cooling Water Recirculation for Casting Operations

During 2024, Kaiser completed Conceptual Planning (FEL-1) and initiated Preliminary Scope Development Engineering (FEL-2)[1]

Next Level of Treatment Implementation

On June 1, 2022, the facility's NPDES Permit (WA0000892) was renewed by Ecology. The provisions of Agreed Order No. 16958 dated January 2, 2020, which included the implementation of the next level of treatment, were incorporated into and subsumed by various permit conditions. Permit Condition S10, entitled Compliance Schedule identifies four tasks.

The task related to the next level of treatment implementation under Permit Condition S10 is as follows:

	Tasks	Date Due
4.	Confirmation Letter for completion of construction of the Ecology approved treatment system	1/1/2031

No specific implementation actions were planned for 2024.

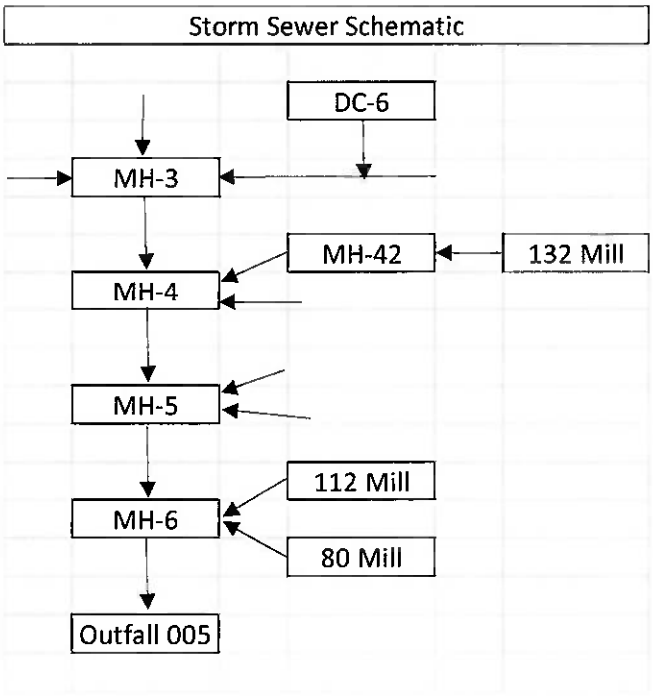
Status Reviews – PCB Source Reduction Projects

The following are status updates for the facility's PCB source reduction activities during the reporting period.

North Sewer Source Investigation

PCB source investigation work in 2024 was focused in two areas in the North Sewer System. The first area of focus was related to verifying the validity of previous sampling events (April and July 2022) that that showed that the DC-6 casting station wastewater discharge was a significant contributor to PCB mass loading in Outfall 005. The second area of focus was on assessing the potential level of PCB mass contribution from Hot line Area wastewater sources to Outfall 005.

[1] Kaiser Front End Loading (FEL) Engineering is a five step process for large projects that begins with Conceptual Planning and ends with Project Evaluation after completion.



In May and June 2024, GeoEngineers conducted wastewater sampling events that were focusing on validating the PCB mass contribution levels from the DC-6 casting station.. Wastewater sampling and flow measurements were conducted at three locations. These locations were the discharge from the DC-6 casting station, the east inlet of MH-3 and Outfall 005.

The sampling events consisted of continuous wastewater flow measurements at all three locations as well as composite sampling of wastewater at all three locations during a casting drop. The composite wastewater samples collected were analyzed for Total PCB with EPA Method 1668 by Eurofins. The table below summarizes the results of the three sampling events.

DC-6 North Sewer System Sampling Events Results				
Event Dates	Location	Mean Flow (mgd)	Total PCB (pg/L)	PCB Mass (mg/d)
05/30/24	DC-6 Outlet	0.11	13,576	6
	MH-3 Inlet	2.83	63,573	718
	Outfall 005	2.88	102,704	1,120
06/05/24	DC-6 Outlet	0.09	14,039	5
	MH-3 Inlet	2.23	29,053	259
	Outfall 005	3.13	32,528	385
06/06/24	DC-6 Outlet	0.18	13,249	9
	MH-3 Inlet	2.39	31,407	292
	Outfall 005	2.74	33,715	350

Two observations were made based on the results of the sampling events. The first observation was that the average PCB mass loading of ~6.5 mg/d from the DC-6 casting station during these sampling events was significantly lower than the average PCB mass loading of ~53.7 mg/d during previous sampling events. The second observation was that the DC-6 casting station average PCB mass loading was a very small percentage of the average Outfall 005 PCB mass loading of ~618.2 mg/d.

With respect to the second area of focus, the Hot Line Area, GeoEngineers conducted wastewater sampling events in September that included six locations. These locations were the 132 Mill, the 112 Mill, the 80 Mill, MH-42 outlet, MH-5 outlet and MH-6 outlet. The sampling events consisted of continuous flow measurements and 24-hour composite sampling at the three manhole locations. For the Mill related locations, instantaneous flow data was able to be obtained for the 112 Mill location but no data was able to be obtained for the 132 Mill and 80 Mill locations. Grab samples were collected from the 132 Mill, 112 Mill and 80 Mill locations. The wastewater samples collected were analyzed for Total PCB with EPA Method 1668 by Eurofins. The table below summarizes the results of the sampling events. (Total PCB includes "J" flagged data.)

Hot Line Area Sampling Events Results				
Event Date	Location	Mean Flow (mgd)	Total PCB (pg/L)	PCB Mass (mg/d)
09/13/24	MH-42 Outlet	0.62	162	0.4
	MH-5 Outlet	3.78	20,366	292
	MH-6 Outlet	5.51	22,353	467
	132 Mill		2,233	
	112 Mill	0.28	446	0.5
	80 Mill		ND	

Hot Line Area Sampling Events Results				
Event Date	Location	Mean Flow (mgd)	Total PCB (pg/L)	PCB Mass (mg/d)
09/20/24	MH-42 Outlet	0.68	83	0.2
	MH-5 Outlet	4.22	35,212	564
	MH-6 Outlet	6.31	20,946	501
	132 Mill		138	
	112 Mill	0.27	11	0.01
	80 Mill		10	

Based on the results of these sampling events the combined PCB loading from the Hot Line Area, assuming similar flows from the 132 Mill and 80 Mill, was estimated to average ~1.8 mg/d. PCB loading at the MH-5 outlet and MH-6 outlet averaged 428 mg/d and 484 mg/d, respectively. It was observed from the sampling events results that the Hot Line Area was an insignificant contributor at ~1.8 mg/d to the main sewer line PCB loading of 428 to 484 mg/d. No additional PCB source investigation work is planned for 2025 in this section of the sewer system.

Screening for PCB Containing Materials

Thus far during the implementation of the North Sewer Source Investigation efforts described above, no materials beyond those already tested for PCB (see Initial PMP Report dated July 25, 2019) that are used in the Casting Area were identified. As the investigation work proceeds, materials testing will be initiated for any previously untested materials identified.

Best Management Plans Review

The following summarizes the review of Best Management Plans (BMPs).

Building Demolition and Disposal

No activities occurred during the reporting period that triggered the implementation of this BMP. As a result, no review of this BMP was conducted.

PCB Containing Electrical Equipment

In October 2024, a third party contractor (SD Meyers) conducted inspections and testing. Per the BMP, no transformers were scheduled for testing for PCB levels in their oil. No revisions to the BMP were made as a result of inspection findings.

Leak Prevention/Detection in Electrical Equipment

Internal and/or third party contractor repair work related to cleaning and oil leaks was conducted. In all, 8 transformers received maintenance attention. The majority of the maintenance involved addressing leaking bushing repairs on 4 transformers and conducting NFPA recommended mechanical and electrical testing on 8 transformers. No revisions to the BMP were made as a result of implementing repair work.

BMP Evaluation and Revisions

As mentioned above, neither of the two electrical equipment related BMPs was updated based on evaluations of the BMPs resulting from inspections during 2024. Since there was no activity related to the demolition BMP during 2024, no judgements relative to this BMP were made. In addition, no conditions which would warrant the development of any additional BMPs were identified.