Department of Public Works
Engineering Division
W240 N3065 Pewaukee Road
Pewaukee WI 53072
Phone: 262-691-0804

PUBLIC WORKS COMMITTEE
MEETING NOTICE AND AGENDA
Thursday, June 11, 2026
4:00 PM
Pewaukee City Hall Common Council Chambers
W240N3065 Pewaukee Road, Pewaukee, WI

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1. Call to Order and Pledge of Allegiance
2. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.
3. Discussion and Action Regarding the Minutes
   - 3.1 Discussion and possible action to adopt Apr 23, 2026 meeting minutes
4. Water and Sewer Division
   - 4.1 Discussion and possible action regarding Well #8 PFAS Pilot Study [Mueller/Kincaid]
   - 4.2 Discussion and possible action regarding the 2025 Annual Consumer Confidence Report [Mueller/Kincaid]
   - 4.3 Discussion and possible action regarding the 2025 Compliance Maintenance Annual Report [Mueller/Kincaid]
   - 4.4 Discussion and Possible Action regarding Adoption of Sewer Ordinance Chapter 3XX
   - 4.5 Discussion and possible action regarding Mandatory Sewer Connections on Various Assessment Districts [Wagner/Mueller]
5. Highway Division
   - 5.1 Discussion and possible action regarding whether to continue battery recycling at the DPW Recycling Center. [Stevens]
6. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.
7. Adjournment

Magdelene Wagner
Director of Public Works
June 11, 2026

NOTICE

It is possible that members of other governmental bodies of the municipality may be in attendance to gather information that may form a quorum. At the above stated meeting, no action will be taken by any governmental body other than the governmental body specifically

referred to above in this notice.

Any person who has a qualifying disability under the Americans with Disabilities Act that requires the meeting or materials at the meeting to be in an accessible format must contact the DPW Main Office at (262) 691-0804 by 12:00 p.m. the Tuesday prior to the meeting so that arrangements may be made to accommodate your request.

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and possible action to adopt Apr 23, 2026 meeting minutes

Sub Item Agenda Language:

Background Provided By:

Background:
Draft minutes for the Apr 23, 2026 meeting are attached for your review and approval.

Fiscal Impact:

Recommended Motion:
Committee approve the minutes.

In Attendance**:**
Mayor Steve Bierce, Alderman Jerry Wamser, Michael Kreiter, Jim Blackwood

Also In Attendance**:**
Director of Public Works M. Wagner, Chief Engineer-Utilities R. Wirtz, Utility Manager J. Mueller, Administrative Assistant H. Jacobs

1. Call to Order and Pledge of Allegiance

   Mayor Bierce called the meeting to order at 4:00 p.m. and called for everyone to stand for the Pledge of Allegiance.

2. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.

   No public comments were made.

3. Discussion and Action Regarding the Minutes

   3.1 Discussion and possible action to adopt Mar 05 2026 meeting minutes.

   Motion was made and seconded (M.Kreiter, J. Blackwood) to approve the March 05, 2026 meeting minutes. The motion passed unanimously.

4. Storm Water Management Division

   4.1 Discussion and possible action regarding the 2025 MS4 Annual Storm Water Report.

   Mr. Wirtz presented the annual storm water report, explaining that the city is working to finalize its TMDL (Total Maximum Daily Load) requirements by the end of summer. He noted that the agreement with the City of Brookfield water treatment facility to purchase credits will significantly help reduce the number of projects needed to meet TMDL requirements due to the efficiency of the waste water treatment plant in removing Total Suspended Solids (TSS) and phosphorus.

   Mr. Wirtz reported that the storm water management team conducted extensive erosion control inspections through both internal staff and consultants. The enforcement efforts included issuing five Notices of Noncompliance and eight Notices of Violations, with recommendations for fines sent to the sheriff's office resulting in tickets being issued. Most of the City's best management practices were inspected, with only two locations inaccessible due to snow.

The report tracked salt usage at approximately 2,100 tons of salt and 3,380 gallons of brine used before the recent snow storm, with additional usage numbers to be refined for the next report. This winter proved more demanding than the previous year, requiring increased salt usage. Mr. Wirtz emphasized ongoing efforts with the highway department to better track salt application rates.

Street sweeping operations totaled 2,405 lane miles of roadway swept during the year, which represents multiple passes over the city's approximately 198 lane miles of roads. The sweeping helps remove leaves and debris to prevent materials from entering the storm sewer system.

Mayor Bierce inquired about the disposal of swept materials, learning that debris goes to the landfill due to metal contamination from vehicles, brake pads, and atmospheric sources. Mr. Wirtz explained that while some communities have explored metal recovery, it remains cost-prohibitive.

The discussion of salt and brine application led to detailed explanations of their different uses. Pre-wetting roadways with brine before snow events helps prevent ice-pavement bonding when conditions are appropriate, while pre-wetting salt pellets as they leave trucks helps keep salt on pavement surfaces rather than bouncing off the roadways. Some counties have experimented with all-brine applications, though this may result in different service levels.

Committee members discussed alternative de-icing products including beet juice, pickle brine, and cheese brine. Mr. Wirtz noted drawbacks to organic alternatives, including increased slickness on roadways, corrosiveness to vehicle components, and the trade-off of introducing organic phosphorus while trying to manage other pollutants.

Ms. Wagner emphasized that the city has evolved significantly in winter maintenance practices, progressing from sand to sand-salt mixtures to straight salt to the current salt-and-brine approach. The committee discussed varying service levels across different counties and municipalities.

Motion was made and seconded (J. Wamser, M. Kreiter) to adopt the 2025 MS4 Annual Storm Water Report. The motion carried unanimously.

5. Water and Sewer Division

5.1 Discussion and possible action regarding Proposals to Conduct Groundwater Well Siting Study

Ms. Mueller reminded the committee that after last year's water supply alternatives analysis, which examined water provision amid radium and PFAS contamination issues and deteriorating well formations, the Common Council directed staff to explore both the possibility of diverting Great Lakes surface water and continuing with

groundwater well options.

Ms. Mueller presented proposals from two firms for well siting studies. Pat Jurcek from Intera has extensive experience with projects statewide and internationally. John Jansen from Collier Geophysics has sited most of the City's existing wells and is highly regarded in the field.

Both proposals involve initial desktop studies compiling existing information including contamination sources, bedrock layers, and geophysical data to create comprehensive mapping systems. Intera's proposal totaled $41,365 while Collier's came in at $37,500. Ms. Mueller noted that Collier identified the next phase would involve on-site geophysical studies and field borings after potential well sites are identified.

The immediate need is for two new wells — one to replace the collapsed radium-contaminated well and another to replace a PFAS-contaminated well. Looking forward, the city will need to replace six to eight wells over the next 50 years to meet demand projections.

Ms. Wagner explained that this study will help determine whether the city can remain on groundwater within its boundaries or if it needs to look outside its borders for well sites. The study strengthens any surface water application and is essential if staying on groundwater.

Mr. Blackwood asked about potential duplication of efforts if neighboring municipalities have conducted similar studies. Ms. Mueller indicated this would be identified during the phase one study, though she noted the challenges of drilling wells in other communities.

The discussion touched on the western areas of the county where high-producing sandstone wells exist, though Ms. Wagner cautioned about increased PFAS risk with shallower surface wells and reduced filtration through sandstone layers.

Motion was made and seconded (J. Blackwood, M. Kreiter) to recommend to the council to award the well siting study to Collier Geophysics for a cost not to exceed $37,500. The motion carried unanimously.

5.2 Discussion regarding an Excerpt-AWWA Beyond the Replacement Era: Balancing Compounding Infrastructure Needs With Household Affordability

Ms. Mueller presented information from the American Water Works Association (AWWA) report to validate the challenges the city faces daily. The report highlights how the water industry has evolved beyond simply replacing failing pipes to addressing contamination issues, climate change considerations, and other complex challenges that utilities struggle to fund.

Ms. Wagner emphasized that the City of Pewaukee is not alone in these struggles, with many communities advocating for federal and state assistance to prevent all

costs from hitting ratepayers. She noted that communities nationwide are experiencing double and triple-digit rate increases during current rate case proceedings, reflecting the ongoing impacts of COVID-era increases in labor and supply chain costs that never returned to previous levels.

The discussion covered affordability programs, including a COVID-era federal program that helped residents pay water bills, which ended in 2023 despite strong advocacy for its renewal. The program effectively reached severely impoverished households.

When asked about local residents struggling with water bills, Ms. Mueller indicated the city has some customers who don't pay on time, with arrearages collected through the tax roll. During COVID, five to ten residents requested relief programs, with staff directing them to available veteran assistance programs.

The conversation evolved into broader water system considerations, including the concept that 90 percent of treated water isn't used for consumption purposes. Ms. Mueller suggested exploring point-of-use reverse osmosis systems for drinking water while providing lower-quality water for other uses, though this would require significant regulatory changes and presents monitoring challenges.

The committee discussed regional approaches and different water systems like those in Las Vegas with multiple water qualities for different uses, though these require operating multiple systems with associated costs. Mr. Blackwood suggested comparing local rates to those in water-scarce regions like Arizona and Nevada to provide perspective during rate discussions.

Mayor Bierce requested that this information be presented to the Common Council given the ongoing discussions about water rates and infrastructure needs.

6. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.

No public comments were made.

7. Adjournment

Motion was made and seconded (M. Kreiter, J. Wamser) to adjourn the meeting at 4:44 p.m. The motion passed unanimously.

Respectfully Submitted

Magdelene Wagner
Director of Public Works

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and possible action regarding Well #8 PFAS Pilot Study [Mueller/Kincaid]

Sub Item Agenda Language:

Background Provided By:
Jane E. Mueller

Background:
Early in our evaluation of PFAS treatment systems, one of the considerations was how the treatment system would affect the look of the Well #8 building. While working with our consulting engineers, we learned that anion exchange resin (AIX) treatment plants have a smaller footprint than the other common treatment of Granular Activated Carbon (GAC) systems. With some internal building modifications, we would be able to excavate the floor of the existing garage, creating a recessed space for the pretreatment and PFAS treatment vessels, while keeping the same east-facing view of the structure.

Therefore, in early 2025, the Utility requested proposals from three companies/consultants that provide PFAS treatment system to supply pilot treatment plants so the Utility could determine the most appropriate treatment system for PFAS removal at Well #8. From May 2025 through May 2026, the Utility staff operated a PFAS removal pilot system using Lanxess TP108 media anion exchange resin (AIX) in the small-scale treatment plant.

The variables evaluated included: 1) media life, 2) pretreatment requirements, 3) backwash frequency, and 4) treatment effectiveness.

Well #8 has naturally occurring high levels of iron. One treatment vessel operated using only a bag filter for pretreatment for iron, while another vessel operated with an OxiPlus filtration system. Over time, the AIX media became fouled with iron despite the use of OxiPlus media for pretreatment. In October 2025, an additional column utilizing SandPlus iron-removal media was added. Initially, the SandPlus column was operated with an additional oxidant. However, in February 2026, aeration was added at the head end of the SandPlus system to allow for greater iron removal.

Summary
Considering all the variables evaluated, AIX treatment using Lanxess TP108 media is recommended for the full-scale PFAS treatment system at Well #8, as the media performed effectively in removing PFAS compounds. SandPlus pretreatment with inline pressure aeration was determined to be the most applicable pretreatment process because it effectively reduced iron concentrations without the use of additional

chemicals.

Fiscal Impact:
Estimated $2,000,000

Recommended Motion:
Recommend that the Public Works Committee forward the PFAS Pilot Test Report move on to the Common Council

May 13, 2026

Jane Mueller, Utility Manager
City of Pewaukee Water and Sewer
jem@pewaukee.wi.us

Subject: PFAS Pilot Test Report for the City of Pewaukee

Dear Ms. Mueller,

WaterSurplus would like to thank you for the opportunity to provide PFAS pilot testing for the City of Pewaukee. The pilot report discusses:

- Pilot setup for pilot testing
- Results achieved including PFAS removal, operating pressures, and SDI testing
- Discussion of how these results may impact the full-scale system
- Pretreatment recommendations to minimize fouling of the PFAS media
- Recommendations for the full-scale treatment system

Please contact us if you have additional questions regarding the pilot test and results to date.

Respectfully submitted,

Bryan Kumfer

BRYAN KUMFER
DIRECTOR OF PFAS SOLUTIONS
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726 Beacon Street, Loves Park, IL 61111 | watersurplus.com

CC: Rob Kincaid – City of Pewaukee
Magdelene Wagner – City of Pewaukee
Seth Brown – City of Pewaukee
Dan Dimoff- City of Pewaukee
Brooke Larson – Strand Associates, Inc.
Ben Wood – Strand Associates, Inc.

WATER SURPLUS

POWERED BY HAWKINS

PFAS Pilot Test Report

City of Pewaukee

Project: 50052086

Date of Issue: 13May2026

Written By: Bryan Kumfer

TABLE OF CONTENTS

1. SUMMARY

A pilot study was performed at Well 8 for the City of Pewaukee. This study was designed to confirm Lanxess TP108 AIX media is suitable for PFAS removal at this location and verify state and EPA regulatory PFAS limits are met.

The duration of the pilot was 361 days. In the process of the pilot, multiple variables were evaluated to determine the best full scale system configuration. This included:

- Media life
- Pretreatment requirements
- Backwash frequency
- Treatment effectiveness

Based on these variables, AIX treatment using Lanxess TP108 media is recommended for use for the full-scale system at Well 8 for removal of PFAS. Table 1 provides the average raw water and treated PFAS concentrations. Two different technologies were evaluated for iron removal pretreatment which included OxiPlus$^{75™}$ and SandPlus™ media. It was determined that SandPlus™ with inline pressure aeration was the most applicable pretreatment process as it effectively reduce the iron and no additional chemicals were required in this process. This will minimize the backwashing frequency required for the AIX columns.

Table 1. Average PFAS Concentrations

Compound	Units	Regulatory Limit	Untreated Well Water	TP108 Effluent with SandPlus Pretreatment
PFOA	ng/L	4	4.9	Non-Detect
PFOS	ng/L	4	4.1	Non-Detect
HFPO-DA (Gen X)	ng/L	10	<0.94	Non-Detect
PFHxS	ng/L	10	35	Non-Detect
PFNA	ng/L	10	<0.52	Non-Detect
PFBS	ng/L	---	14	Non-Detect
Hazard index	---	1	3.6	0

2. BACKGROUND

Well water from the City of Pewaukee Well 8 was used for the pilot test for PFAS removal. The well water contains concentrations of PFOA, PFOS and PFHxS that are above the EPA regulatory limits. The well is located at W249N2173 Fox Creek Court, Pewaukee, Wisconsin. The well currently has a flowrate of 400 gpm but may increase to 500 gpm after rehabilitation. The existing wellhouse is designed to blend in with the neighborhood and looks very similar to a house. The new equipment will need to fit inside the existing garage space.

Figure 1. Well House

Previous sizing estimates indicated that anion exchange resin (AIX) is the preferred media due to the higher flowrate and smaller footprint compared to GAC. The Lanxess TP108 media was selected because previous studies have shown that it is successful in removing PFAS and has a longer treatment life than comparable medias. This media is NSF-61 certified for use in drinking water applications. Lanxess TP 108DW AIX resin is a 20x50 mesh, gel type polystyrene based strong base anion exchange resin. This is a one-time use absorption resin and no regeneration is performed. This media has modified functional groups to facilitate a very selective uptake of per- and polyfluoroalkyl substances (PFAS).

The well water does contain 0.5 mg/L of iron so iron pretreatment may be necessary to minimize fouling and/or backwashing requirements for the AIX PFAS treatment system. The pilot testing was designed to further evaluate if iron pretreatment was necessary.

3. OBJECTIVES

The test objectives of the pilot test are:

- Confirm the PFAS loading capacity of the media.
- Confirm the effluent PFAS concentrations are below state and EPA regulations, preferably reduced to non-detectable concentrations.
- Evaluate if any fouling or plugging of the media occurs and determine if backwashing is sufficient for continued operation of the media (if needed).
- Evaluate the prefiltration requirements for successful operation of the media and estimate the filter backwash frequency for a full-scale system.

4. PILOT DESCRIPTION AND PROCEDURES

The pilot system was set up to test PFAS treatment both with and without pretreatment for iron. At the start of the pilot, pretreatment for iron reduction was performed using OxiPlus^{75} media. The PFAS treatment that utilizes the OxiPlus^{75} filter system stored pretreated water after iron removal for near continuous flow of the PFAS column. The PFAS treatment column without pretreatment will only operate when the well is running (expected 6-12 hours per day). During the pilot test, an additional iron pretreatment technology was also tested which consisted of SandPlus with pressure aeration. A PFD of the pilot system is provided in the appendix.

A single connection to the well system (Figure 2) was used to supply all water for the pilot system. The raw water supply connection was before any chemical injection at the well site.

Figure 2. Pilot Feed Connection

This was used as the source water for a booster feed pump (Figure 3) that was energized only when the well was running. A backflow preventer was installed at the outlet of the pump. After the backflow preventer, the source water was split into two different streams. One raw water stream was connected directly to the PFAS treatment system (Column 2) and did not have any pretreatment for iron removal.

Figure 3. Feed pump with backflow preventer

Due to the iron concentrations in the well water, the other raw water stream was treated for iron removal using an OxiPlus^{75} media filtration pilot. This pretreatment system only operated when the well was running. The OxiPlus^{75} pilot system was operated at a flow rate of 4.2 gpm representing a load rate of 7.86 gpm/ft^2. The OxiPlus^{75} pilot inlet was attached to the supply pump via a flexible hose. This connection supplied both the raw water and the backwash water. A chemical feed tank on the pilot skid supplied sodium hypochlorite to the feed water. The mix flowed through a static mixer prior to the filter. The pilot unit has an automated controller to control whether the unit is in service mode or backwash mode. In service mode, water enters at the top of the filter column and flows down through the filter bed (36" depth of OxiPlus^{75} filter media atop a support bed of gravel). There is a basket strainer at the bottom of the tank where the treated water collects and then flows up the center tube and out. During backwash mode, the flow is reversed. The backwash flowrate is 13.5 gpm for 5 minutes. The backwash piping and finished water piping each have separate globe valves and gate valves for flow adjustment and isolation. An automated backwash was performed after 6,000 gallons of water were treated. A flow meter is present on the inlet piping to verify flow rates. Filtered water was sent to the storage tank via a flexible hose. Any additional water produced that was not used by the PFAS filtration system was sent to the drain using a designated overflow port on the tank. The backwash water was sent to the onsite drain. A pump was connected to the tank and used to supply the pretreated feed water for the PFAS system.

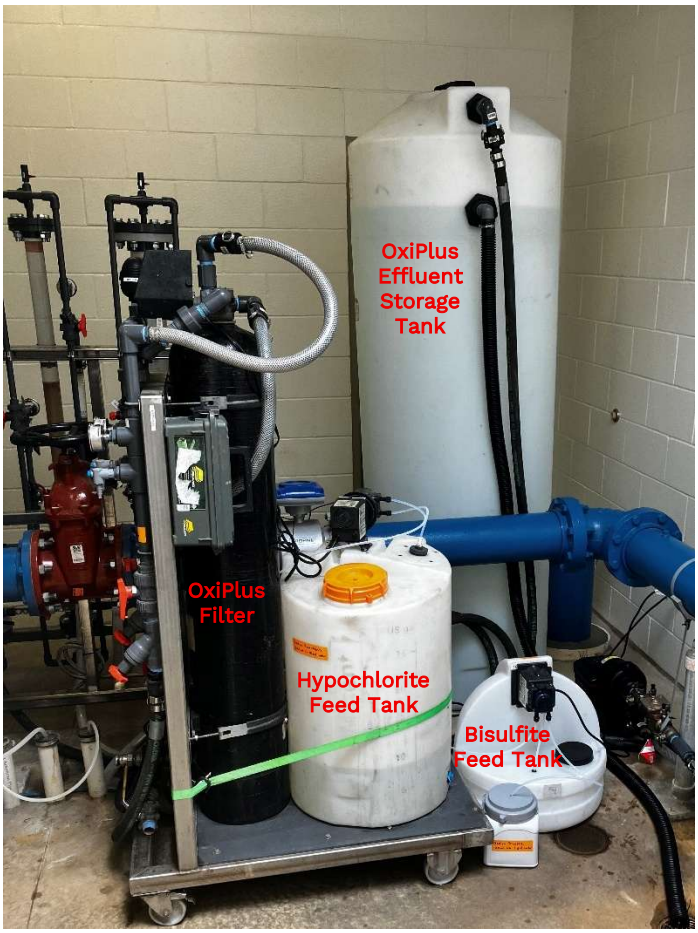


Figure 4. OxiPlus Pilot System

A picture of the PFAS pilot system is presented in Figure 5 below. The pilot has the ability to allow different sources of water to be used with the same pilot system (column 4 used OxiPlus pretreated water, column 2 used raw water). The connection from the supply source to the PFAS pilot system was made using 1" hose with cam lock fittings. This connection supplied both the raw water and the backwash water.

Figure 5. PFAS Pilot System

This system has four columns available to test different media, but only two of the columns were initially used during this pilot test. This system includes a filter housing with a 10-micron bag filter and pressure regulator which was used with only the raw water source for column 2. The OxiPlus pretreated water was piped directly to the column 4 inlet. Sodium bisulfite was added to the OxiPlus pretreated water to remove residual hypochlorite. Each column can be individually backwashed even when the other columns are in normal operation. For each column, there are sample taps before and after each column. The effluent from the columns is piped into a manifold and the treated water was sent to the onsite drain.

In service mode, water enters at the top of the filter column and flows down through the filter bed (36" depth of Lanxess TP108 AIX media on top of a 5" support bed of anthracite). There is a screen at the bottom of the column where the treated water collects, and then flows out of the bottom to the effluent discharge line. During backwash mode, the flow is reversed using two 3-way valves. The backwash piping and finished water piping use the same diaphragm flow adjustment valve. The backwash is a manual process and was only performed if the differential pressure between the inlet and outlet of the column exceeded 10 psi differential. A flow meter is present on the inlet piping to verify flow rate to each column. A totalizer is also installed to verify the total gallons of water treated for each column. Filtered water and backwash water are piped together and are discharged

to the onsite drain. The flowrates of the pilot were determined based on the anticipated flowrate and design of the full-scale system. Refer to Table 2.

Table 2. Initial Pilot System Design

PFAS Pilot System					
	Full Scale	Column 1	Column 2	Column 3	Column 4
Media	Lanxess TP108 DW	*empty*	Lanxess TP108 DW	*empty*	Lanxess TP108 DW
Type	AIX		AIX		AIX
Pre-Treatment	TBD		none		OxiPlus[75]
EBCT	2.35		2.35 min		2.35 min
Column Diameter	60” (two lead/lag systems)		2”		2”
Media Depth	36”		36”		36”
Flowrate	500 gpm		0.21 gpm		0.21 gpm

During testing, an additional filtration column followed by a PFAS column was added on Oct 9, 2025 (day 159). The media that was being tested was SandPlus. SandPlus is a NSF61 certified, high flow filter medium that can filter to smaller particle sizes compared to many other filter media. Previous experience with other PFAS pilots has shown this to be effective to minimize solids building up on the AIX column. The two empty columns in the PFAS skid were used for this. Column 1 was loaded to a 36” media depth with SandPlus media. Raw water (taken before the bag filter) was used for this testing. The column containing the SandPlus media was operated in a similar manner as the PFAS columns. The water entered the top of the column and flowed through the media and the flowrate was controlled by the diaphragm valve on the outlet. A tee and valve were installed at the outlet sample valve, and a portion of the treated water was sent to column 3 using a flexible hose. This was used for additional PFAS treatment using AIX resin. Any SandPlus treated water not used by AIX column 3 was sent to drain.

Figure 6. PFAS System with SandPlus and additional TP108 Media Column

After initial loading of the SandPlus media, the column was backwashed for 30 minutes for the initial backwash. The SandPlus was only backwashed if the differential pressure reached 10 psi differential or there was significant iron in the filter effluent. When needed, the SandPlus was backwashed at 1.4 gpm (16 gpm/ft^2) for 8 minutes. During any backwash, the flow to the PFAS column (column 3) is stopped to avoid excess solids being sent to this column.

Table 3. Pilot System Design (SandPlus included)

	Column 1	Column 2	Column 3	Column 4
Media	SandPlus	Lanxess TP108 DW	Lanxess TP108 DW	Lanxess TP108 DW
Type	Filter media	AIX	AIX	AIX
Pre-Treatment	N/A	none	SandPlus	OxiPlus^{75}
EBCT	---	2.35 min	2.35 min	2.35 min
Surface Loading Rate	16 gpm/ft^2	9.6 gpm/ft^2	9.6 gpm/ft^2	9.6 gpm/ft^2
Column Diameter	4”	2”	2”	2”
Media Depth	36”	36”	36”	36”
Flowrate	1.4 gpm	0.21 gpm	0.21 gpm	0.21 gpm

Initially, the SandPlus column was operated without an additional oxidant being added. Additional testing was performed with aeration before the SandPlus column to confirm if this would improve the pretreatment process. This was added on Feb 2, 2026 (day 280 of operation). Compressed air was added to the inlet water using a compressor and an

aeration stone. A solenoid was included that only allowed air to be added when the well was running and providing water to the SandPlus column.

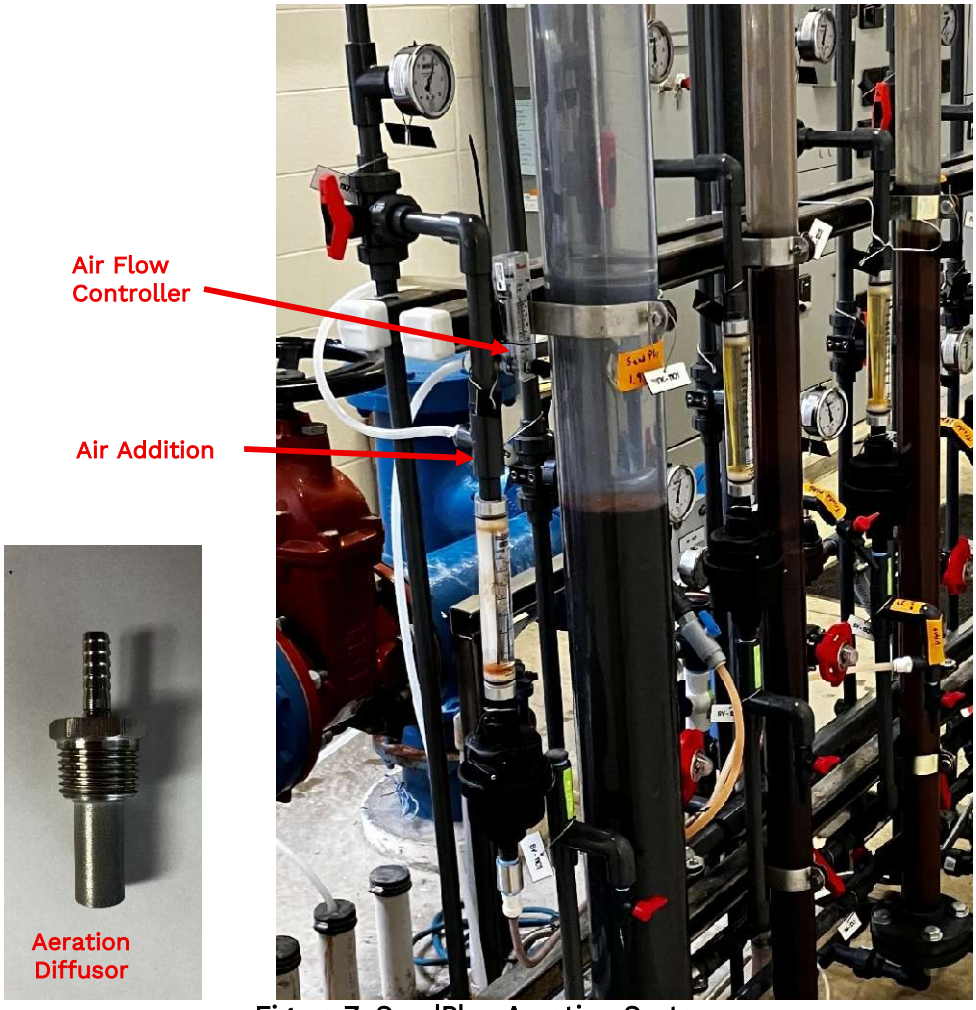


Figure 7. SandPlus Aeration System

5. RESULTS AND DISCUSSION

5.1. PFAS – Well Water

The concentration of PFAS did vary throughout the testing phase but were within the expected concentrations. PFOA, PFOS, PFHxS and the hazard index were all above the EPA regulatory limits. Both Gen X and PFNA were below detection in the untreated water during the duration of the pilot and the concentration of PFBS was low and was only a minor contributor to the hazard index.

Table 4. Well Water PFAS Concentrations

Compound	Units	Regulatory Limit	Inlet Concentration		
			Average	Max	Min
PFOA	ng/L	4	4.9	7.6	2.9
PFOS	ng/L	4	4.1	6.6	2.2
HFPO-DA (Gen X)	ng/L	10	<0.94	---	---
PFHxS	ng/L	10	35	64	13
PFNA	ng/L	10	<0.52	---	---
PFBS	ng/L	---	14	27	5
Hazard index	---	1	3.6	1.3	6.4

5.2. PFAS Removal

For all columns, the PFAS has been reduced to non-detectable concentrations as expected. (Note: Samples for June were not included as there was an error in sampling). EPA method 537.1 was used for PFAS analysis. The complete PFAS analysis results are provided in the appendix.

Table 5. Inlet PFAS Concentrations

		Inlet - Raw Water							
Sample Date	---	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026
Volume	gal	---	---	---	---	---	---	---	---
Bed Volumes	BV	---	---	---	---	---	---	---	---
Days of Operation	days	63	96	139	167	195	217	252	316
PFOA (limit 4 ppt)	ng/L	6.20	3.50	4.20	2.90	7.60	4.30	6.60	3.70
PFOS (limit 4 ppt)	ng/L	5.00	3.10	3.40	2.20	6.60	3.40	5.30	3.80
PFHxS (limit 10 ppt)	ng/L	48	22	30	13	64	25	49	27
Hazard Index (limit 1)	---	4.8	2.2	3.0	1.3	6.4	2.5	4.9	2.7

Table 6. Column 2 – TP108 with No Pretreatment

		C2 - TP108 (No Pretreatment)							
Sample Date	---	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026
Volume	gal	4,710	7,177	7,177	10,200	11,597	12,527	13,942	18,032
Bed Volumes	BV	9,632	14,677	14,677	20,859	23,716	25,618	28,511	36,875
Days of Operation	days	63	96	139	167	195	217	252	316
PFOA (limit 4 ppt)	ng/L	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
PFOS (limit 4 ppt)	ng/L	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
PFHxS (limit 10 ppt)	ng/L	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
Hazard Index (limit 1)	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 7. Column 3 – TP108 with SandPlus Pretreatment

		C3- TP108 (SandPlus Effluent)							
Sample Date	---	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026
Volume	gal	offline	offline	offline	179	901	1,661	2,819	6,595
Bed Volumes	BV				366	1,843	3,397	5,765	13,487
Days of Operation	days	63	96	139	167	195	217	252	316
PFOA (limit 4 ppt)	ng/L				Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
PFOS (limit 4 ppt)	ng/L				Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
PFHxS (limit 10 ppt)	ng/L				Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
Hazard Index (limit 1)	---				0.0	0.0	0.0	0.0	0.0

Table 8. Column 4 – TP108 with OxiPlus[75] Pretreatment

		C4 - TP108 (OxiPlus Effluent)							
Sample Date	---	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026
Volume	gal	8,448	13,326	18,483	22,840	25,290	28,919	33,065	offline
Bed Volumes	BV	17,276	27,252	37,798	46,708	51,718	59,139	67,618	
Days of Operation	days	63	96	139	167	195	217	252	316
PFOA (limit 4 ppt)	ng/L	Non Detect	Non Detect	Non Detect	0.47	0.53	Non Detect	Non Detect	
PFOS (limit 4 ppt)	ng/L	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	
PFHxS (limit 10 ppt)	ng/L	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	
Hazard Index (limit 1)	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

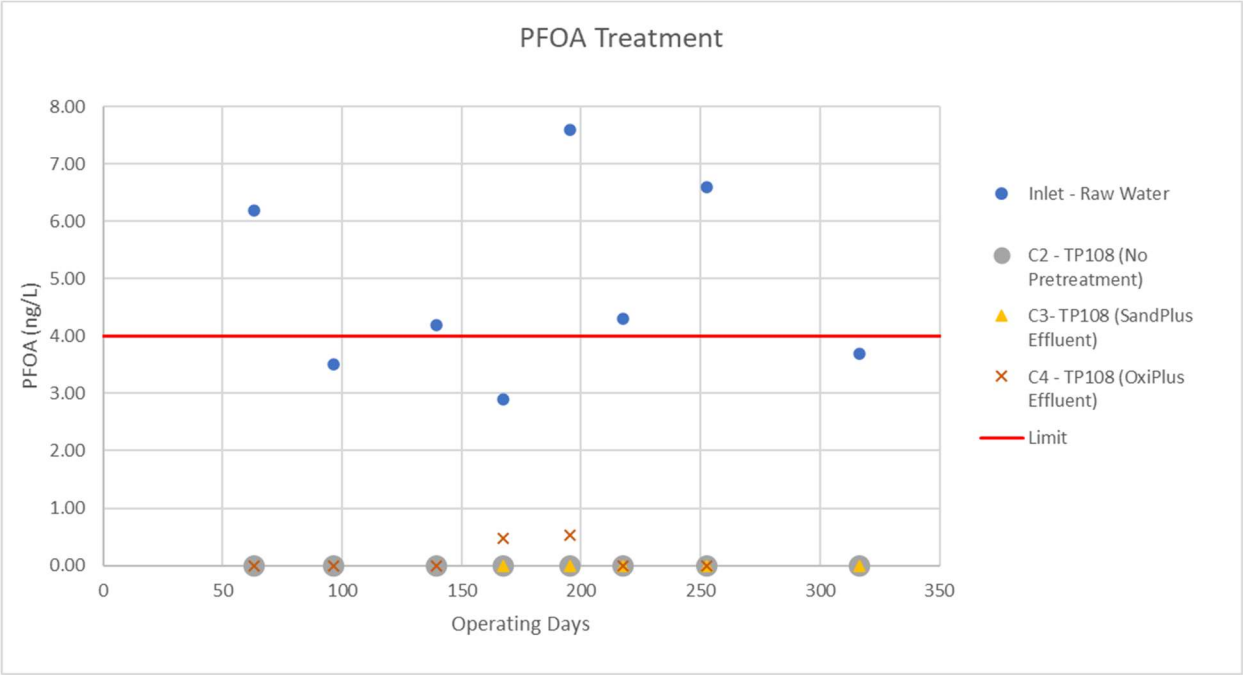


Figure 8. PFOA Concentrations from AIX Media Column Treatment

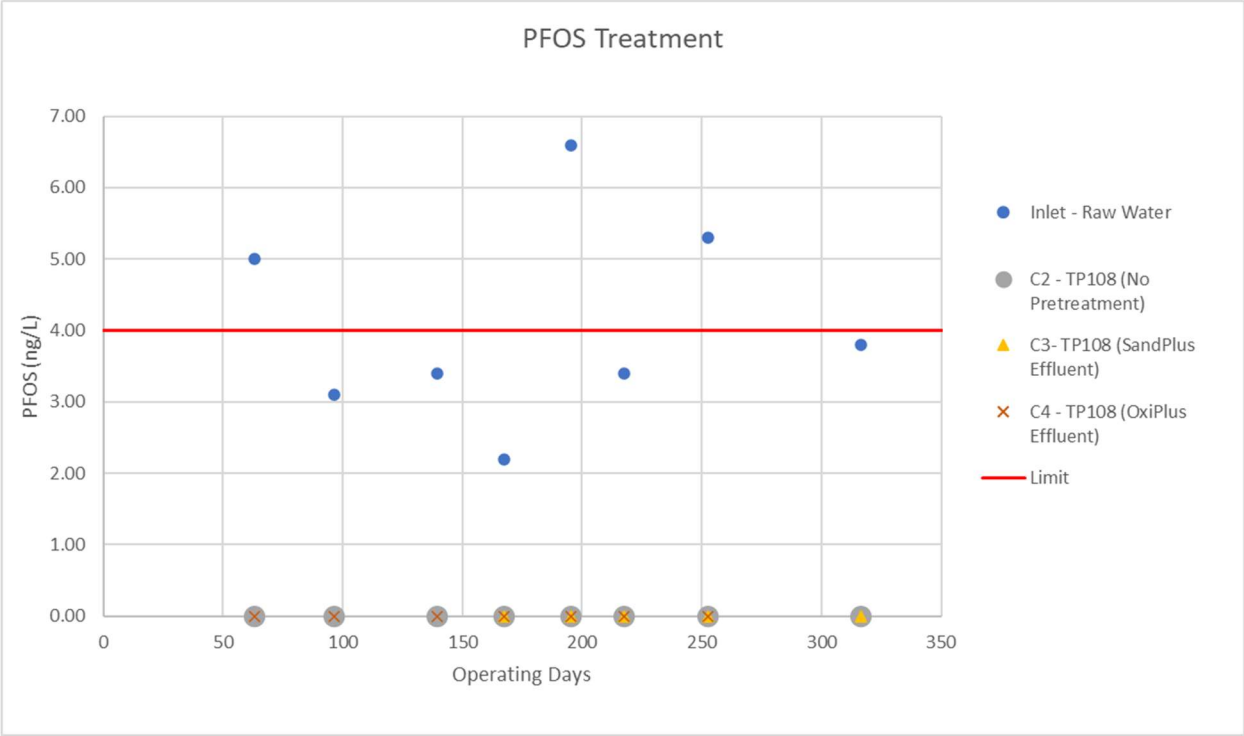


Figure 9. PFOS Concentrations from AIX Media Column Treatment

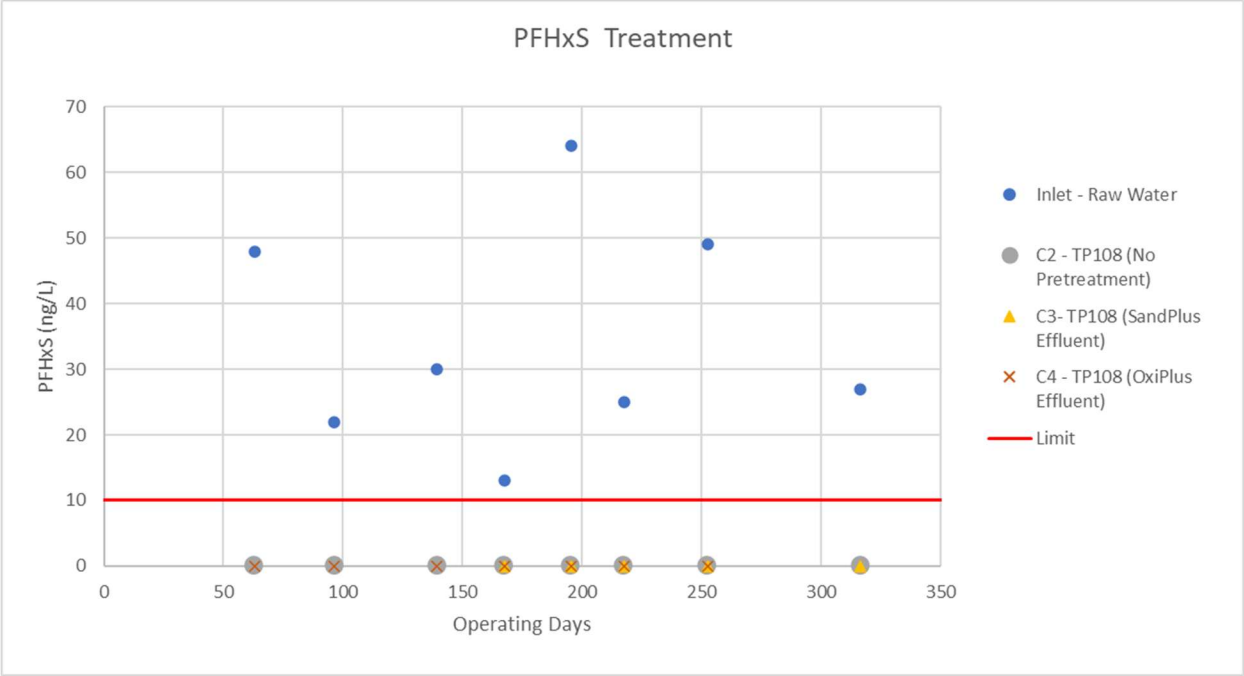


Figure 10. PFHxS Concentrations from AIX Media Column Treatment

5.3. Iron Pretreatment

The initial concern was that due to iron in the water the increase of differential pressure would require frequent backwashing of the AIX media so pretreatment for iron removal was included as part of the pilot. During the pilot test, iron concentrations were monitored throughout the pilot process as it has been previously noted that iron can cause a layer to form on PFAS media that causes an increase in pressure differential. The untreated raw waste contained an average of 0.50 mg/L. The average iron concentration after each technology in the pilot is presented in Table 9.

Table 9. Average Iron Concentrations

	Raw Water	Bag Filter Effluent	AIX Effluent (Column 2)	OxiPlus[75] Effluent	SandPlus Effluent (No Aeration)	SandPlus w/ Aeration Effluent
Fe (Average)	0.50 mg/l	0.39 mg/L	0.16 mg/L	0.07 mg/L	0.23 mg/	0.08 mg/L

As expected, the AIX media in column 2 (only bag filter pretreatment) was removing a significant concentration of the iron in the untreated water. As presented in Figure 11 below, the concentration of iron in the effluent decreased with continued operating time. This is common with this media. The effluent from this column averaged 0.11 mg/L, indicating greater than 75% of the iron in the untreated water was being removed.

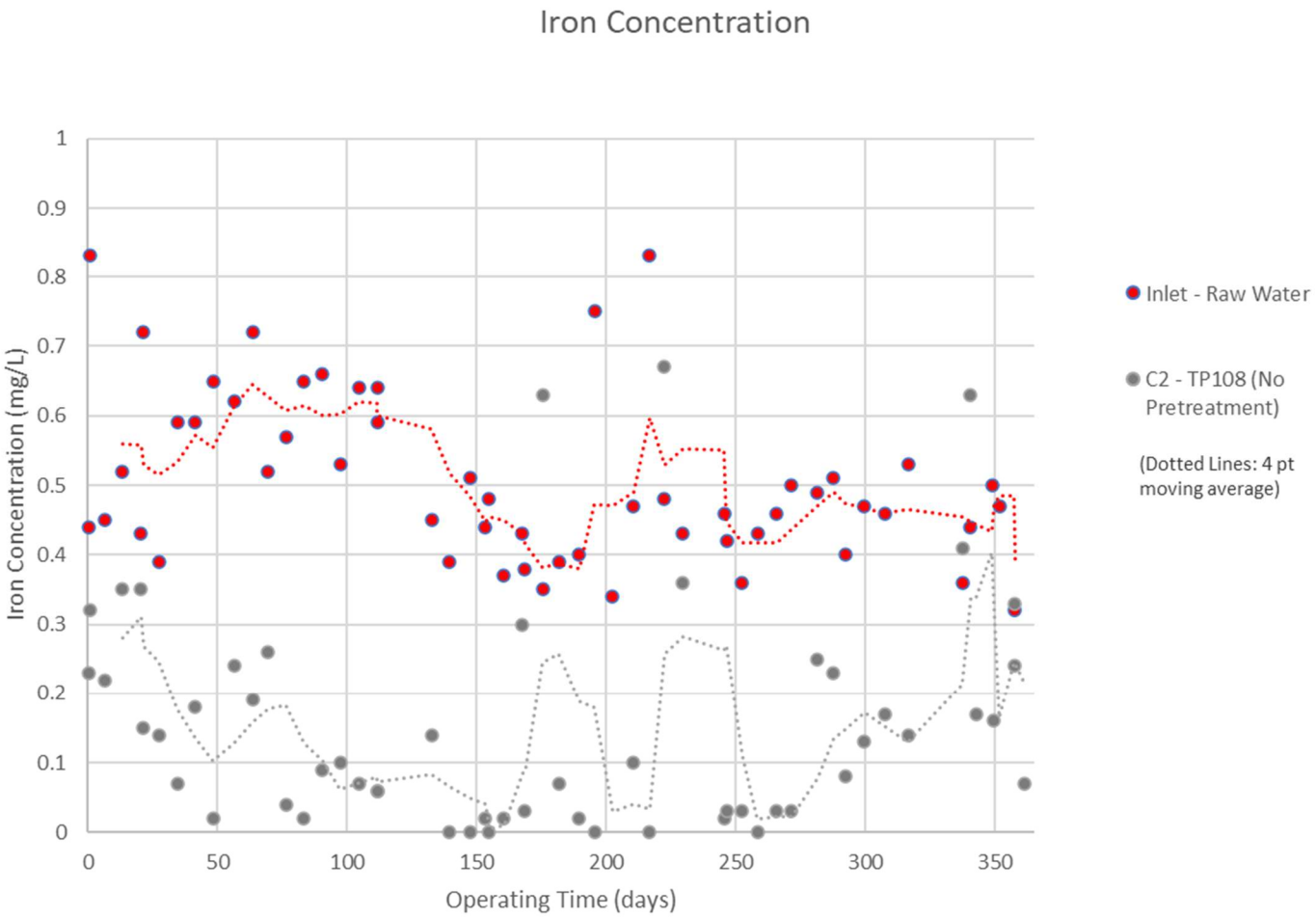


Figure 11. Iron Concentration of Raw Water and Column 2 Effluent

During discussions of the pilot performance, it was determined that the performance of the bag filter should also be evaluated as these initial iron removal concentrations for column 2 included the performance of the bag filter. Starting in Oct, the bag filter effluent (influent to column 2) was also measured. The bag filter was removing approximately 30% of the iron in the water but there was still a significant decrease in iron concentration in the effluent of column 2 indicating that the AIX media was removing a significant concentration of iron.

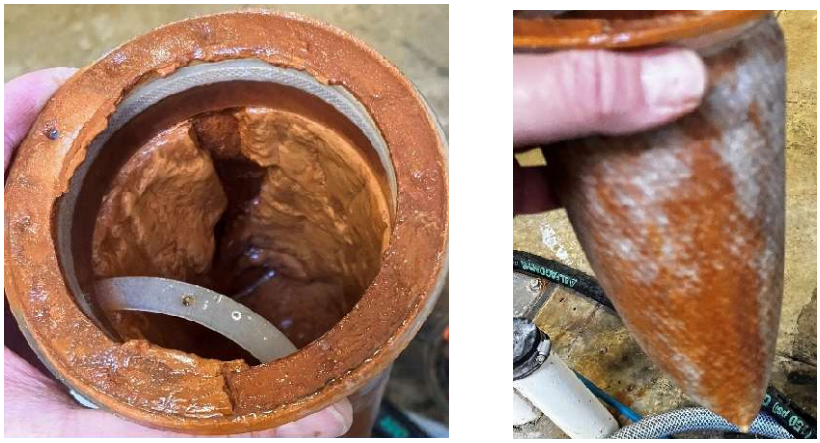


Figure 12. Bag filter at end of study

As presented in Figure 13 below, the OxiPlus[75] filtration system was removing iron and achieving >90% iron removal and reducing iron to low concentrations. This is typical performance for this media. The first month did have elevated iron in the effluent as the backwash was not automatic at that time. A new controller was installed on the pilot unit to perform automated backwashes every 6,500 gallons. It was noted that there was still some breakthrough of iron and the backwash frequency was reduced to 6,000 gallons and was sufficient to eliminate iron breakthrough. However, there was still solids accumulation on the media which was unexpected. (This will be further discussed in the following sections.)

An additional filtration media was added to evaluate if SandPlus can be used for enhanced pretreatment instead of OxiPlus[75]. Previous experience within WaterSurplus has shown that this media is able to remove iron and can be used for pretreatment to the AIX columns. Initially, the media was used without an oxidant being added (refer to Figure 14 for results). The media was able to reduce the iron to <0.1 mg/L. However, it was not consistent with the iron reduction. Aeration was added to enhance the iron removal. This did further reduce the iron and keep the concentration below the target of 0.1 mg/L.

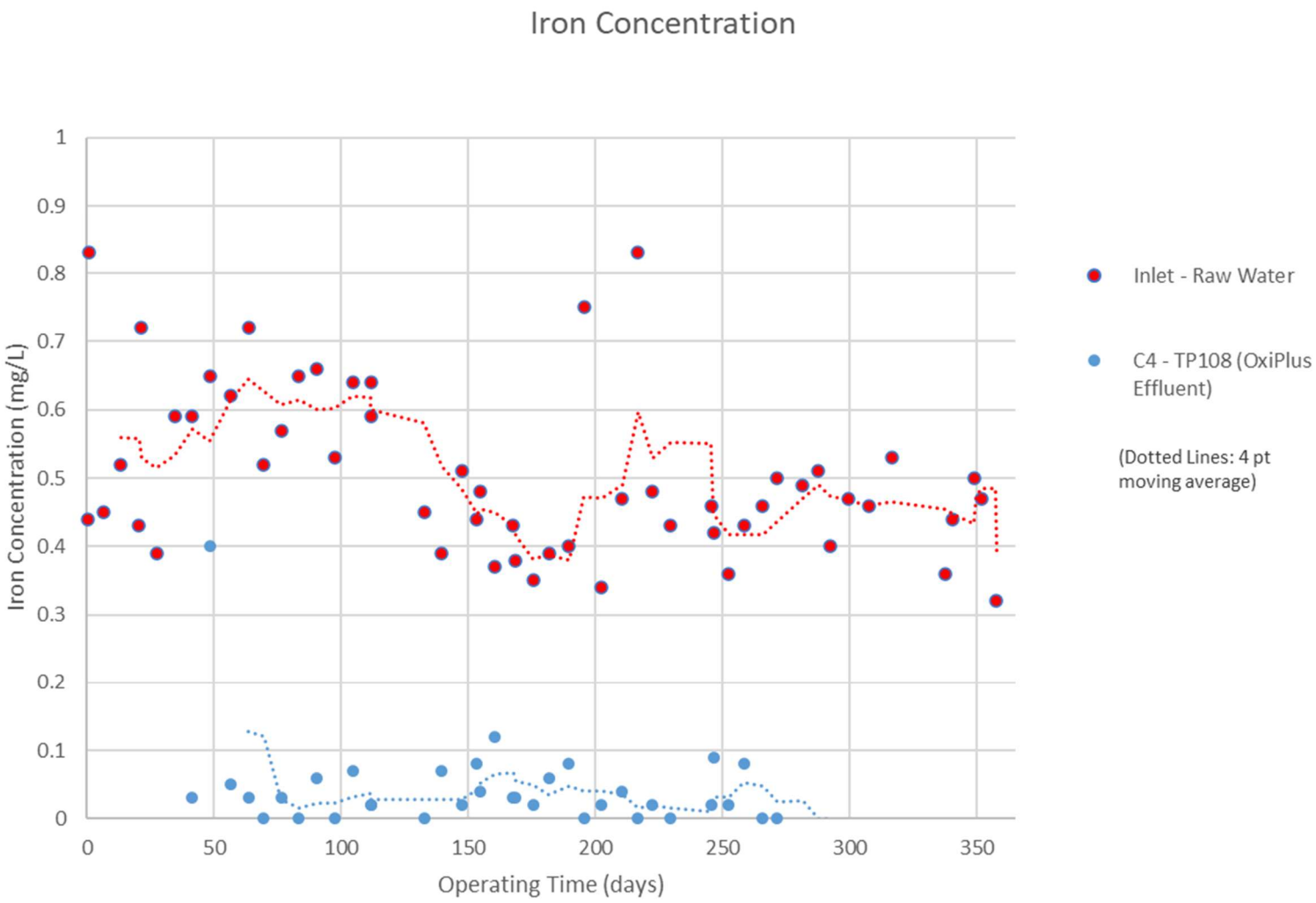


Figure 13. Iron Concentration of Raw Water and OxiPlus[75] Effluent (influent to Column 4)

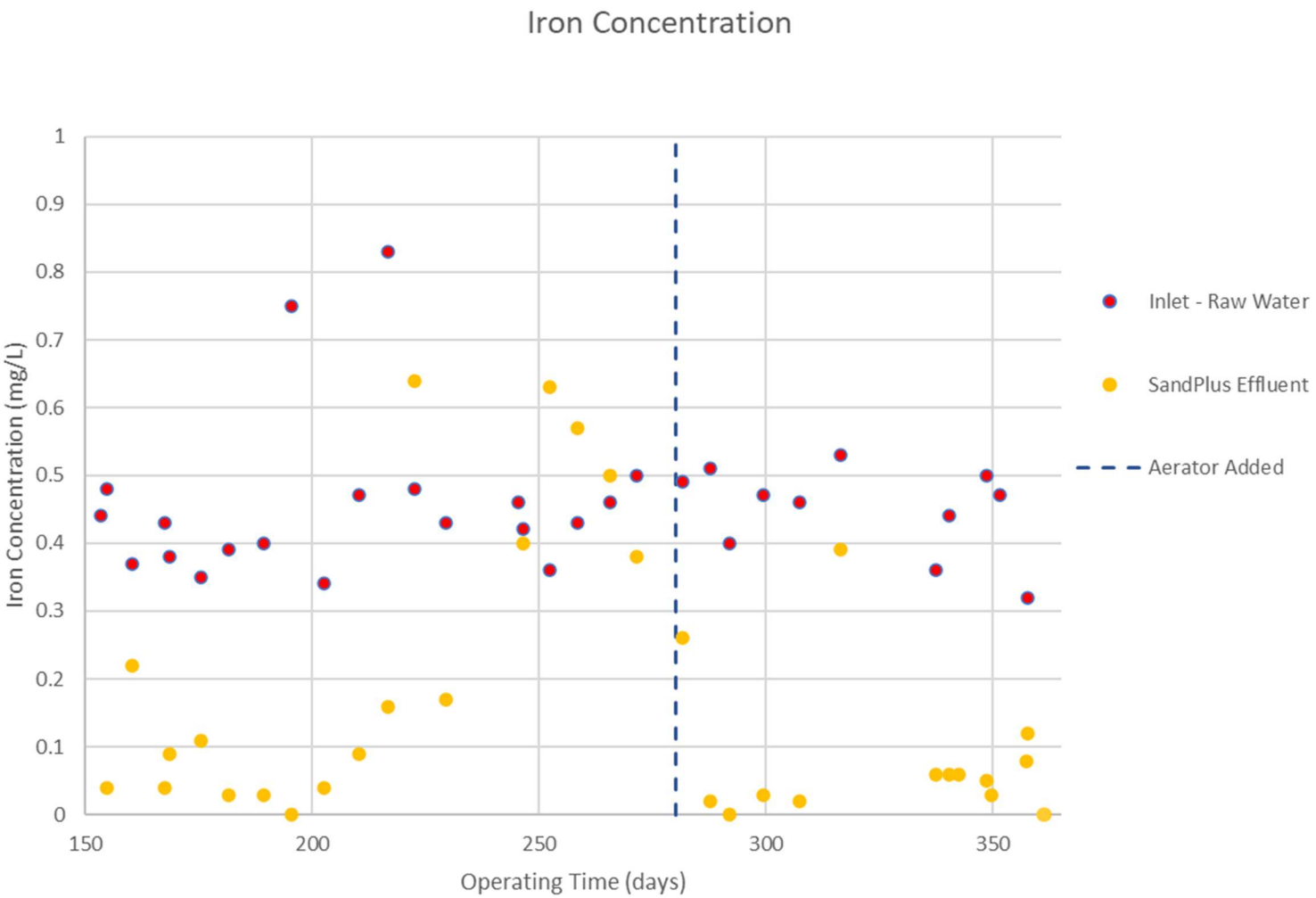


Figure 14. Iron Concentration of Raw Water and SandPlus Effluent (influent to Column 3)

5.4. Differential Pressure

Column 4 that was receiving the OxiPlus effluent required backwash more often than column 2 that had no iron pretreatment (refer to Figure 15). Both of these columns were treating the same flowrate and had 36" of TP108 media. However, column 4 had more hours of operation as the OxiPlus effluent was stored in a tank that could be used when the well was offline. For this reason, comparing backwashing frequency based on days of testing is not a representative comparison. Figure 16 provides a comparison of gallons treated vs differential pressure.

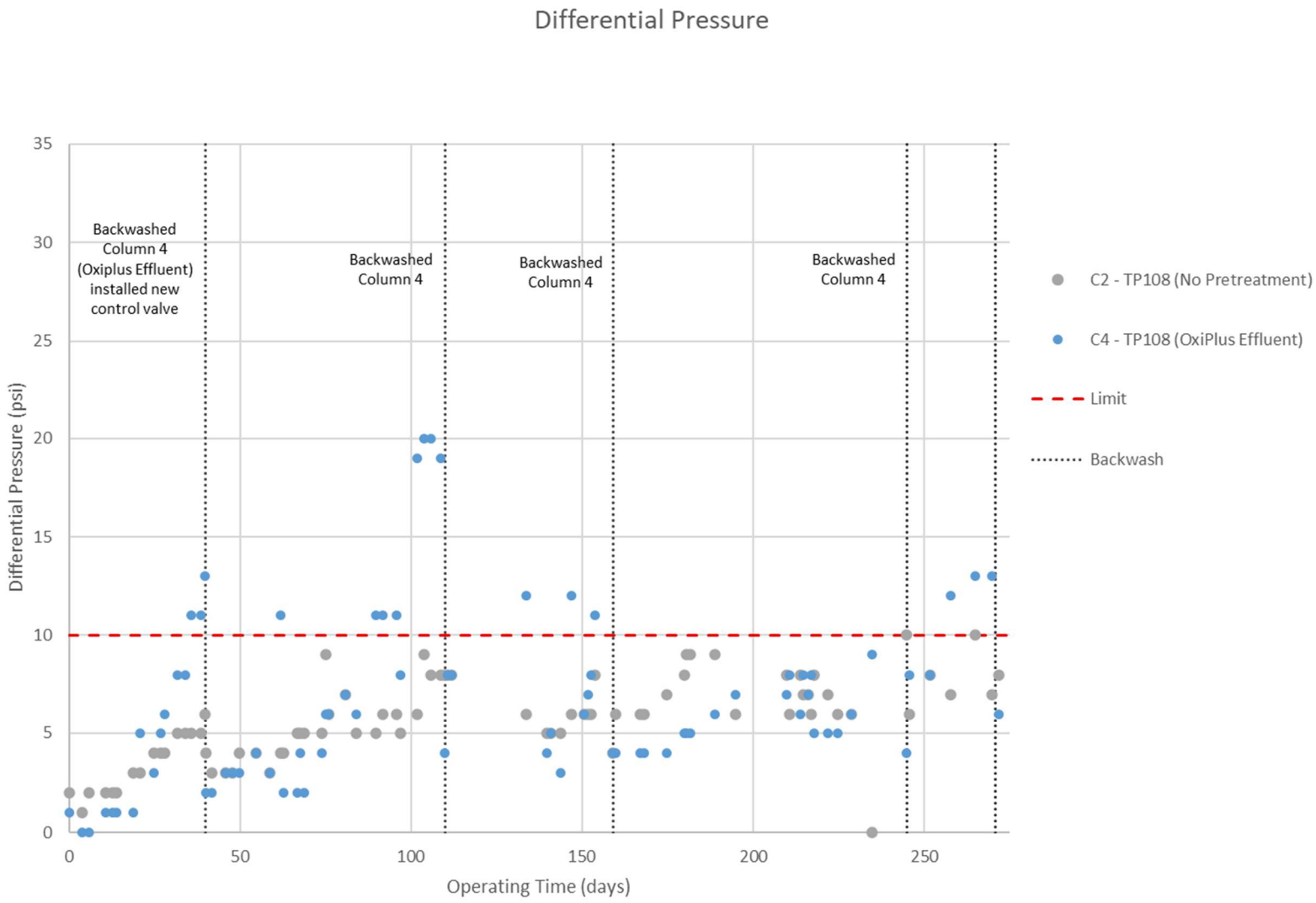


Figure 15. PFAS Columns Differential Pressure (Days of Operation)

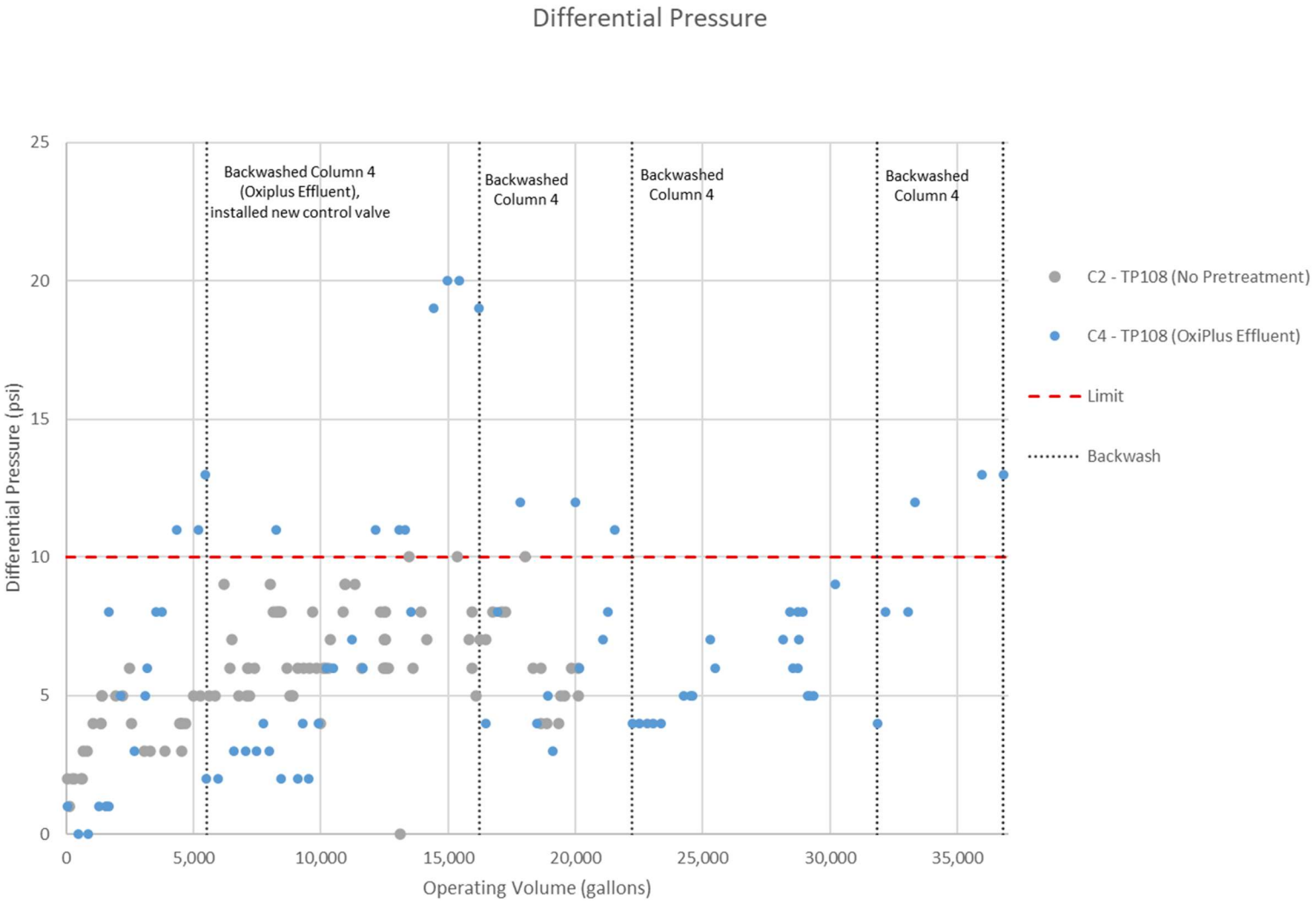


Figure 16. PFAS Columns Differential Pressure (Gallons Treated)

When comparing the increase in differential pressure when treating up to 12,000 gallons of water per column the rate of increase was similar for both columns.

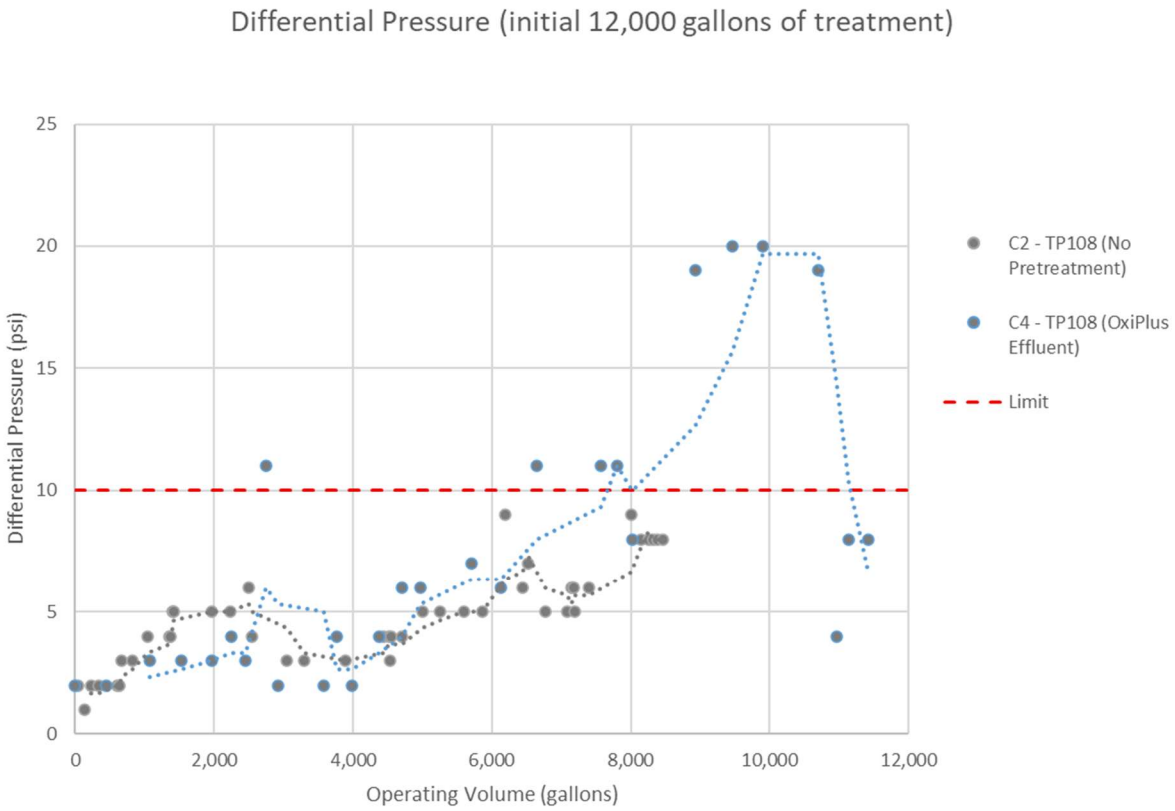


Figure 17. Comparison of DP with and without OxiPlus for initial 12,000 gallons of treatment

During backwash of column 4, there were visible solids that were loosened and backwashed from the column. Following a backwash, column 4 did return to near the initial differential pressure at startup indicating backwashing is sufficient to remove the solids buildup. However, the benefit of having OxiPlus[75] as a pretreatment to reduce backwashing of the AIX PFAS media was limited.

Figure 18. Solids during backwash

Both the no pretreatment AIX column (column 2) and the SandPlus pretreatment column (column 3) were only operated when the well was running so both columns had the same time of operation. Column 3 with the SandPlus pretreatment generally had a lower differential pressure compared to no pretreatment (refer to Figure 19). However, when aeration was added, the column with SandPlus treatment had a significantly lower differential pressure compared to the no pretreatment column. This indicates that the SandPlus with aeration was providing beneficial pretreatment for the AIX media.

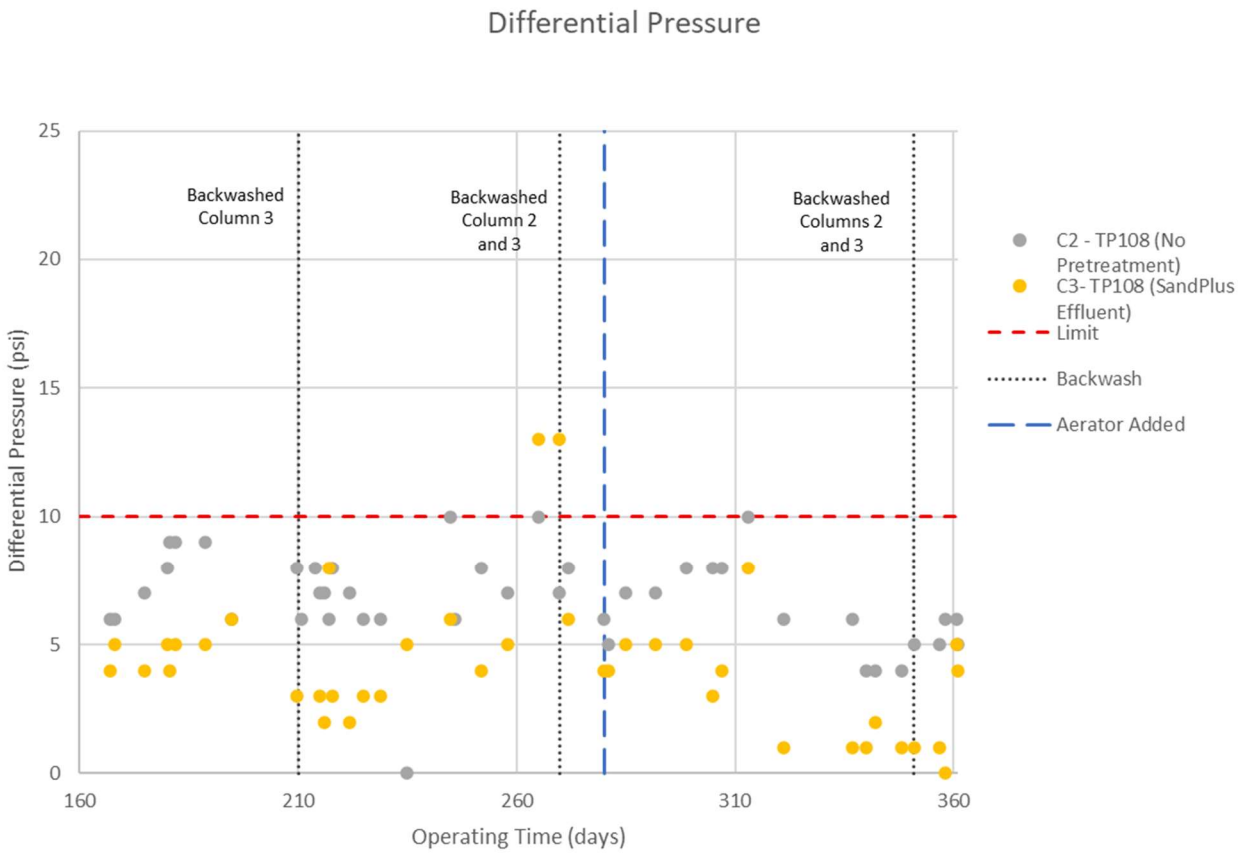


Figure 19. Comparison of DP with and without SandPlus treatment

5.5. SDI Testing

Silt density index (SDI) testing was performed during the pilot to further understand the accumulation of solids. Ideally, a 15 minute SDI of <1 is preferred. The OxiPlus effluent had a higher SDI than the untreated water even though the iron was lower concentration. This supports the hypothesis that fine particles are still present after the OxiPlus filter and are causing the pressure differential that occurs with the resin. An SDI was performed with the SandPlus media which has shown that the effluent had a lower SDI than the untreated water. This was an additional indication that it may be beneficial to reduce the backwash frequency of the AIX media.

Table 10. SDI Analysis Results

Date	Untreated Water	OxiPlus[75] Effluent	SandPlus Effluent
5Jun2025	2.4	6.1	N/A
8Jul2025	---	5.2	N/A
9Oct2025	---	5.2	N/A
23Oct2025	1.5	2.3	0.9

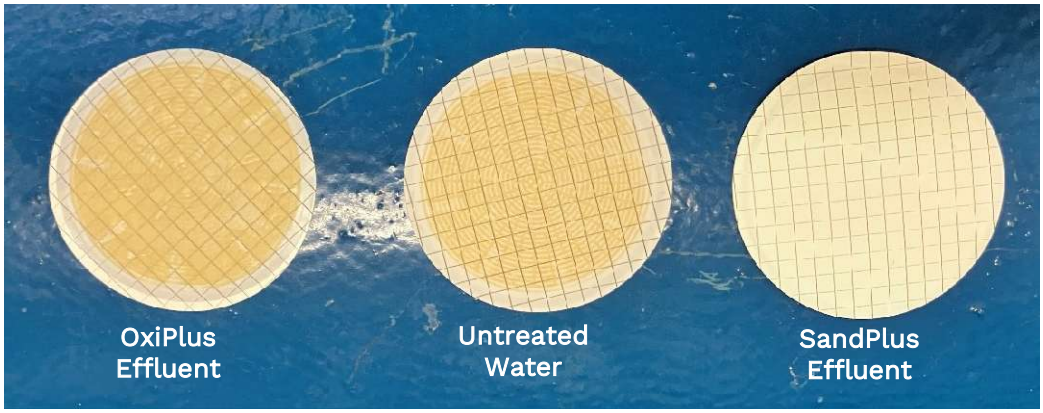


Figure 20. Filter paper from SDI testing (23Oct2025)

5.6. Additional Analytical Results

A few additional parameters were monitored during the pilot test. These included TDS, chloride and arsenic. The average results before and after the AIX columns are provided in Table 11. The TDS and chloride concentrations had very little change during the study and the concentration in the water will not have a significant impact on the removal efficiency of the PFAS compounds. There was no significant change in concentration of these components after being treated by the AIX media. While the AIX media is chloride based, the absorption of PFAS and other compounds is slow so the release of chloride from the media does not change the measurable concentration in the water.

Table 11. Average Results for Specific Water Components

Analytical Results	Units	Inlet- Raw Water	C2 - TP108 (No Pretreatment)	C3- TP108 (SandPlus Effluent)	C4 - TP108 (OxiPlus Effluent)
TDS	mg/L	854	854	840	879
Chloride	mg/L	319	314	314	323
Turbidity	NTU	<0.5	<0.5	<0.5	<0.5
Arsenic	ug/L	5.6	3.8	3.4	2.2

There was a decrease in the arsenic concentration in the treated effluent. While these treatment technologies are not specifically designed for arsenic removal in this application, it is an added benefit. As discussed above, for all columns there was a decrease in iron concentration either in the media bed (no pretreatment column) or the pretreatment media. The arsenic will bind with the iron that was being removed and is filtered out. This arsenic will be removed from the treatment system along with the iron when the media is backwashed. Similar arsenic reductions are expected in the full-scale system.

6. DISCUSSION OF FULL-SCALE SYSTEM

6.1. System Recommendation

Based on the results of pilot testing, Lanxess TP108 AIX media would meet or exceed the treatment requirements for PFAS and is recommended for the full-scale system for Well 8. Both OxiPlus[75] and SandPlus were able to significantly reduce the iron concentrations. However, the OxiPlus[75] still had a high SDI following treatment and did not significantly improve the time between backwashes of the AIX media but the SandPlus did show improvement in operation for both. Therefore, SandPlus with aeration is recommended as the pretreatment technology to reduce iron in the incoming water and minimize solids accumulating on the PFAS media. These systems are further discussed in the sections below.

6.2. System Sizing

A lead/lag configuration is recommended for this application as this allows for one vessel to be offline for maintenance, backwashing, or media replacement without having to shut down well operation. The system is designed to be able to treat up to 500 gpm.

Table 12. AIX System Design

AIX System		
	Full-Scale	**Pilot**
Type	AIX	AIX
Flowrate	500 gpm	0.21 gpm
EBCT (per vessel)	2.3 min	2.3 min
Vessel Diameter	60”	2”
Vessel Straight Side	72”	60”
Total Number of Vessels	4	1
Configuration	Lead/Lag	Single column
AIX Media Volume (per vessel)	79 ft^3	0.065ft^3
Anthracite Support Volume (per vessel)	12.5 ft^3	0.009ft^3

Table 13. SandPlus System Design

SandPlus System		
	Full-Scale	**Pilot**
Type	SandPlus	SandPlus
Flowrate	500 gpm	1.4 gpm
Hydraulic Loading Rate	13.3 gpm/ft^2	16 gpm/ft^2
Vessel Diameter	48”	4”
Vessel Straight Side	60”	60”
Total Number of Vessels	3	1
Configuration	Parallel	Single column
Media Depth	36”	36”
Aeration Rate	1.25 scfm	30 cc/min

6.3. AIX Media Life

Due to the limited availably of water from the well, breakthrough was not achieved during the pilot. The pilot treated 67,000 bed volumes in a single column with the effluent of the column still at non detectable concentrations. Since breakthrough was not achieved, an estimate of media life was performed based on the water quality. Media life was estimated when the effluent of the lead media bed would be greater than the EPA limits (PFOA >4 ng/L, PFHxS >10 ng/L) and a media changeout in this vessel would be required. These estimates are provided in Table 14.

Table 14. Estimated Media Life of Full-Scale System

	AIX
Bed Volumes	160,000
Volume (Mgal)	190 total (95 per vessel)

6.4. Backwash Frequency

The SandPlus will require periodic backwashing due to the accumulation of iron. The AIX media will need to be backwashed when initially put into service (including media changeouts) or if an increase in differential pressure of 10 psi is obtained. The backwash water volumes are presented in Table 15.

Table 15. Backwash Volumes

	AIX System		SandPlus System
	Media Changeout	Backwash	Backwash
Backwash Flowrate	39 gpm	39 gpm	213 gpm
Loading Rate	2 gpm/ft^2	2 gpm/ft^2	17 gpm/ft^2
Duration	20 min	20-40 min	8 min
Total Number of Vessels	2	2	3
Volume Used per Vessel	780 gal	780-1,560 gal	1,705 gal
Total Volume	1,560 gal(1)	1,560-3,120 gal	5,115 gal

(1) For initial system startup, this volume will be double for the AIX system

It is generally recommended to have a backwash collection tank with sufficient volume to hold two backwash cycles. This would be 10,200 gallons which would accommodate backwashing for both SandPlus and the AIX system as these would not be backwashed at the same time.

It is expected that the full-scale AIX resin system would require a backwash only when the differential pressure is greater than 10 psi. Based on pilot testing, this may occur every 3-6 months. The full-scale SandPlus system is expected to require a backwash every 30 hours of operation or if the differential pressure exceeds 10 psi.

7. RECOMMENDATIONS

Based on pilot test results, these are the recommendations for the full-scale system:

- PFAS System
  - A dual 60” lead/lag vessel system (4 vessels) with Lanxess TP108 AIX media is recommended for the removal of PFAS which will meet state and EPA regulations for PFAS concentrations in drinking water.
  - Breakthrough of the PFAS compounds was not achieved during the pilot, but an estimate was based on other similar studies estimated that the full-scale system can treat 190 Mgal before a media changeout is needed.
  - The PFAS vessels will only require a backwash if the pressure differential exceeds 10 psi. It is estimated that this may occur with 3-6 months of operation. Backwashing was successful to reduce the differential pressure.

- SandPlus System
  - A triplex 48” SandPlus filtration system with pressure aeration is recommended to minimize iron buildup in the AIX system.
  - The SandPlus system will require a backwash every 30 hours of operation or if the differential pressure exceeds 10 psi.

8. APPENDIX

Pilot PFD
PFAS Analytical Results
Onsite Analysis Results
Pilot Readings
SandPlus Data Sheet
Lanxess TP108 Data Sheet

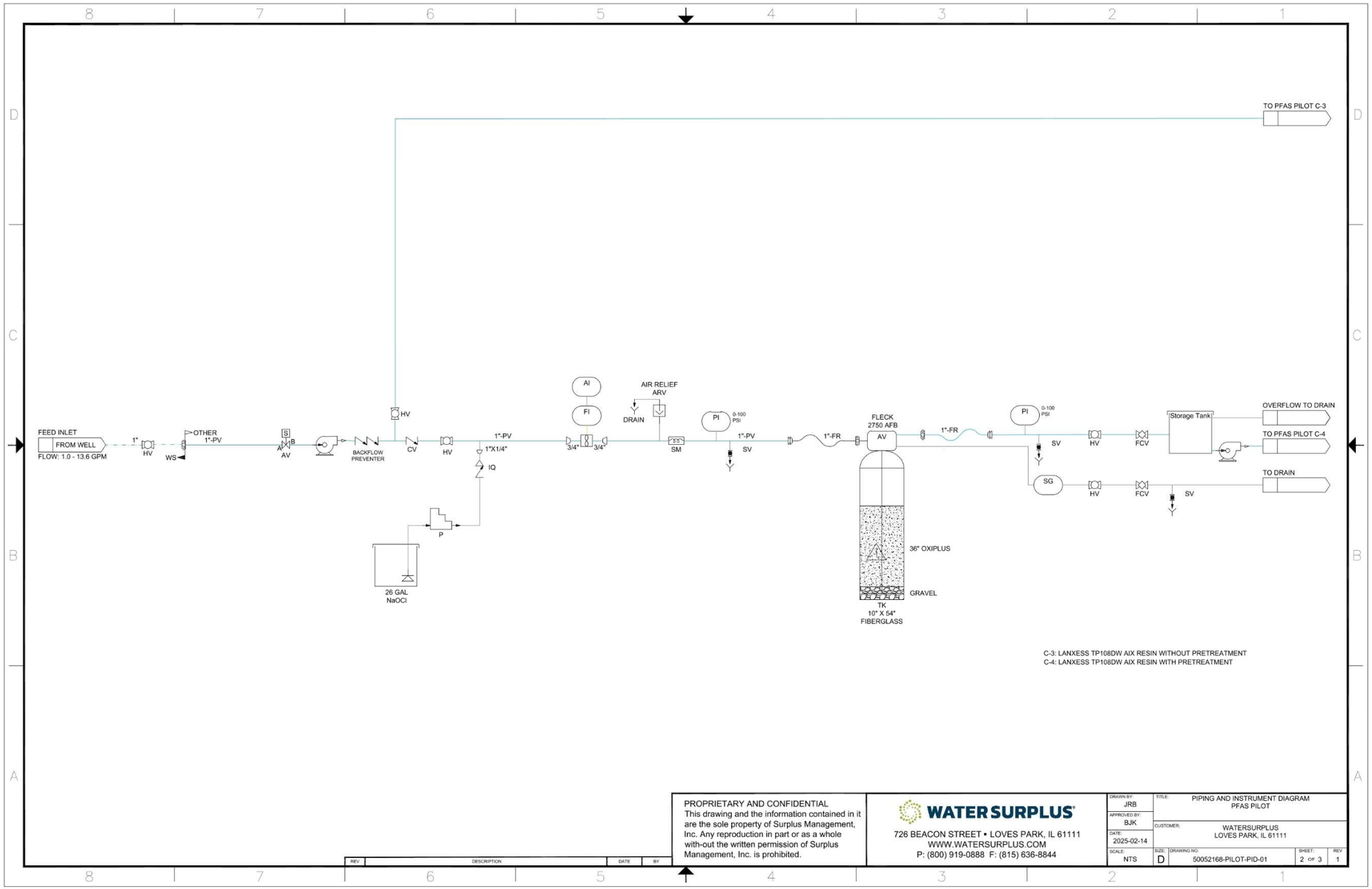


Figure 21. Pilot PFD – OxiPlus System

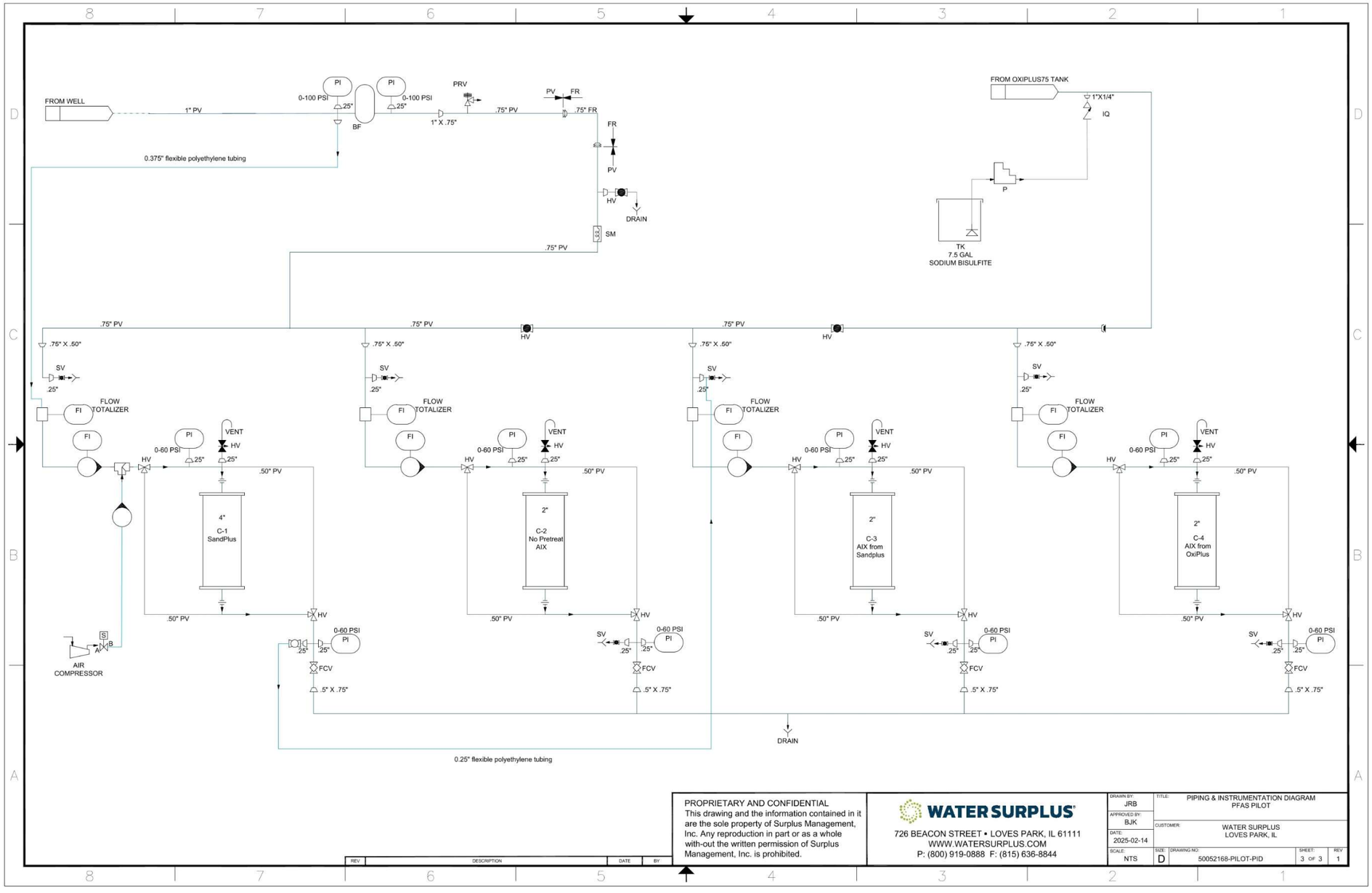


Figure 22. Pilot PFD – PFAS System

Table 16. PFAS Results

		Inlet - Raw Water								C2 - TP108 (No Pretreatment)							
Sample Date	---	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026
Volume	gal	---	---	---	---	---	---	---	---	4,710	7,177	7,177	10,200	11,597	12,527	13,942	18,032
Bed Volumes	BV	---	---	---	---	---	---	---	---	9,632	14,677	14,677	20,859	23,716	25,618	28,511	36,875
Days of Operation	days	63	96	139	167	195	217	252	316	63	96	139	167	195	217	252	316
PFOA (limit 4 ppt)	ng/L	6.20	3.50	4.20	2.90	7.60	4.30	6.60	3.70	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
PFOS (limit 4 ppt)	ng/L	5.00	3.10	3.40	2.20	6.60	3.40	5.30	3.80	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
PFHxS (limit 10 ppt)	ng/L	48	22	30	13	64	25	49	27	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect
Hazard Index (limit 1)	---	4.8	2.2	3.0	1.3	6.4	2.5	4.9	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFAS Results																	
11Cl-PF3OUdS	ng/L	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.30	<0.31	<0.31
9Cl-PF3ONS	ng/L	<0.47	<0.47	<0.48	<0.48	<0.47	<0.47	<0.47	<0.48	<0.47	<0.48	<0.48	<0.48	<0.47	<0.46	<0.47	<0.48
ADONA	ng/L	<0.41	<0.41	<0.42	<0.42	<0.41	<0.41	<0.41	<0.42	<0.41	<0.42	<0.42	<0.42	<0.41	<0.40	<0.41	<0.42
HFPO-DA (Gen X)	ng/L	<0.93	<0.93	<0.95	<0.95	<0.93	<0.93	<0.93	<0.95	<0.93	<0.95	<0.95	<0.95	<0.93	<0.91	<0.93	<0.95
N-EtFOSSA	ng/L	<1.7	<1.7	<1.1	<1.1	<1.7	<1.1	<1.1	<1.1	<1.7	<1.8	<1.1	<1.1	<1.7	<1.7	<1.1	<1.1
N-MeFOSAA	ng/L	<1.9	<1.9	<1.2	<1.2	<1.9	<1.2	<1.2	<1.2	<1.9	<2.0	<1.2	<1.2	<1.9	<1.9	<1.2	<1.2
PFBS	ng/L	19	9.3	12	5	27	9.6	20	11	<0.72	<0.74	<0.74	<0.74	<0.72	<0.71	<0.72	<0.74
PFDA	ng/L	<0.54	<0.54	<0.55	<0.55	<0.54	<0.54	<0.54	<0.55	<0.54	<0.55	<0.55	<0.55	<0.54	<0.53	<0.54	<0.55
PFDoA	ng/L	<0.62	<0.62	<0.64	<0.64	<0.62	<0.62	<0.62	<0.64	<0.62	<0.64	<0.64	<0.64	<0.62	<0.61	<0.62	<0.64
PFHpA	ng/L	5.5	2.7	3.6	1.7	7.5	3.1	6.2	3.2	<0.54	<0.55	<0.55	<0.55	<0.54	<0.53	<0.54	0.65
PFHxA	ng/L	26	11	18	7	36	14	31	14	<0.56	<0.57	<0.57	<0.57	<0.56	6.2	<0.56	9.8
PFHxS	ng/L	48	22	30	13	64	25	49	27	<0.63	<0.65	<0.65	<0.65	<0.63	<0.62	<0.63	<0.65
PFNA	ng/L	<0.52	<0.52	<0.53	<0.53	<0.52	<0.52	<0.52	<0.53	<0.52	<0.53	<0.53	<0.53	<0.52	<0.51	<0.52	<0.53
PFOA	ng/L	6.2	3.5	4.2	2.9	7.6	4.3	6.6	3.7	<0.47	<0.48	<0.48	<0.48	<0.47	<0.46	<0.47	<0.48
PFOS	ng/L	<5.00	3.1	3.4	2.2	6.6	3.4	5.3	3.8	<0.48	<0.49	<0.49	<0.49	<0.48	<0.47	<0.48	<0.49
PFTA	ng/L	<0.54	<0.54	<0.55	<0.55	<0.54	<0.54	<0.54	<0.55	<0.54	<0.55	<0.55	<0.55	<0.54	<0.53	<0.54	<0.55
PFTrDA	ng/L	<0.54	<0.54	<0.55	<0.55	<0.54	<0.54	<0.54	<0.55	<0.54	<0.55	<0.55	<0.55	<0.54	<0.53	<0.54	<0.55
PFUnA	ng/L	<0.52	<0.52	<0.53	<0.53	<0.52	<0.52	<0.52	<0.53	<0.52	<0.53	<0.53	<0.53	<0.52	<0.51	<0.52	<0.53

Table 17. PFAS Results (continued)

		C3- TP108 (SandPlus Effluent)								C4 - TP108 (OxiPlus Effluent)							
Sample Date	---	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026	10-Jul-2025	12-Aug-2025	24-Sep-2025	22-Oct-2025	19-Nov-2025	11-Dec-2025	15-Jan-2026	20-Mar-2026
Volume	gal	offline	offline	offline	179	901	1,661	2,819	6,595	8,448	13,326	18,483	22,840	25,290	28,919	33,065	offline
Bed Volumes	BV				366	1,843	3,397	5,765	13,487	17,276	27,252	37,798	46,708	51,718	59,139	67,618	
Days of Operation	days	63	96	139	167	195	217	252	316	63	96	139	167	195	217	252	316
PFOA (limit 4 ppt)	ng/L				Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	0.47	0.53	Non Detect	Non Detect	
PFOS (limit 4 ppt)	ng/L				Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	
PFHxS (limit 10 ppt)	ng/L				Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	Non Detect	
Hazard Index (limit 1)	---				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PFAS Results																	
11Cl-PF3OUdS	ng/L	offline	offline	offline	<0.31	<0.31	<0.31	<0.31	<0.31	<0.30	<0.31	<0.30	<0.31	<0.31	<0.31	<0.31	offline
9Cl-PF3ONS	ng/L				<0.48	<0.47	<0.48	<0.48	<0.48	<0.46	<0.47	<0.46	<0.48	<0.47	<0.47	<0.48	
ADONA	ng/L				<0.42	<0.41	<0.42	<0.42	<0.42	<0.40	<0.41	<0.40	<0.42	<0.41	<0.41	<0.42	
HFPO-DA (Gen X)	ng/L				<0.95	<0.93	<0.95	<0.95	<0.95	<0.91	<0.93	<0.91	<0.95	<0.93	<0.93	<0.95	
N-EtFOSSA	ng/L				<1.1	<1.7	<1.1	<1.1	<1.1	<1.7	<1.7	<1.7	<1.1	<1.7	<1.7	<1.1	
N-MeFOSAA	ng/L				<1.2	<1.9	<1.2	<1.2	<1.2	<1.9	<1.9	<1.9	<1.2	<1.9	<1.9	<1.2	
PFBS	ng/L				<0.74	<0.72	<0.74	<0.74	<0.74	<0.71	<0.72	<0.71	<0.74	<0.72	<0.72	<0.74	
PFDA	ng/L				<0.55	<0.54	<0.55	<0.55	<0.55	<0.53	<0.54	<0.53	<0.55	<0.54	<0.54	<0.55	
PFDoA	ng/L				<0.64	<0.62	<0.64	<0.64	<0.64	<0.61	<0.62	<0.61	<0.64	<0.62	<0.62	<0.64	
PFHpA	ng/L				<0.55	<0.54	<0.55	<0.55	<0.55	<0.53	<0.54	<0.53	0.86	0.84	1.0	1.1	
PFHxA	ng/L				<0.57	<0.56	6.5	0.9	3.0	<0.55	4.8	6.2	14	14	18	20	
PFHxS	ng/L				<0.65	<0.63	<0.65	<0.65	<0.65	<0.62	<0.63	<0.62	<0.65	<0.63	<0.63	<0.65	
PFNA	ng/L				<0.53	<0.52	<0.53	<0.53	<0.53	<0.51	<0.52	<0.51	<0.53	<0.52	<0.52	<0.53	
PFOA	ng/L				<0.48	<0.47	<0.48	<0.48	<0.48	<0.46	<0.47	<0.46	0.47	0.53	<0.53	<0.52	
PFOS	ng/L				<0.49	<0.48	<0.49	<0.49	<0.49	<0.47	<0.48	<0.47	<0.49	<0.48	<0.48	<0.49	
PFTA	ng/L				<0.55	<0.54	<0.55	<0.55	<0.55	<0.53	<0.54	<0.53	<0.55	<0.54	<0.54	<0.55	
PFTrDA	ng/L				<0.55	<0.54	<0.55	<0.55	<0.55	<0.53	<0.54	<0.53	<0.55	<0.54	<0.54	<0.55	
PFUnA	ng/L				<0.53	<0.52	<0.53	<0.53	<0.53	<0.51	<0.52	<0.51	<0.53	<0.52	<0.52	<0.53	

Table 18. Onsite Analysis Results

		OxiPlus[75] Filter						SandPlus	Column 2 (No pretreatment)		Column 3 (SandPlus Pretreatment)	Column 4 (OxiPlus Pretreatment
Date/Time	Remaining Volume	Iron (mg/L)		Mn (mg/L)		Free Cl (mg/L)		Iron (mg/L)	Iron (mg/L)		Iron (mg/L)	Free Cl (mg/L
	gal	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Outlet	Inlet	Outlet	Outlet	Inlet
8-May-25 12:30		0.39	0.03	0.039	0.038	0.32	0.17			0.23		0.02
8-May-25 14:00		0.44	0.00	---	---	0.83	0.37			0.32		0.06
14-May-25 08:40		0.83	0.00	0.059	0.048	0.65	0.32			0.22		0.03
21-May-25 09:19		0.45	0.01	0.05	0.033	0.88	0.54			0.35		0.00
28-May-25 08:30		0.52	0.36	0.045	0.033	0.88	0.55			0.35		0.00
29-May-25 08:15		0.43	0.16	0.037	0.029	0.67	0.55			0.15		0.07
4-Jun-25 08:30		0.72	0.82	0.125	0.141	0.04	0.19			0.14		0.00
11-Jun-25 13:02		0.39	0.00	0.057	0.053	0.65	0.81			0.07		0.00
18-Jun-25 09:05	509	0.59	0.03	0.043	0.004	0.36	0.46			0.18		0.07
25-Jun-25 08:59	333	0.59	0.40	0.076	0.052	0.06	0.78			0.02		0.00
3-Jul-25 08:21	5240	0.65	0.05	0.091	0.05	0.11	0.53			0.24		0.02
10-Jul-25 12:55	1012	0.62	0.03	0.036	0.043	0.81	0.36			0.19		0.02
16-Jul-25 11:00	170	0.72	0.00	0.055	0.049	0.39	0.05			0.26		0.02
23-Jul-25 11:00	516	0.52	0.03	0.046	0.012	0.49	0.29			0.04		0.00
30-Jul-25 08:55		0.57	0.00	0.038	0.02	0.48	0.30			0.02		0.00
6-Aug-25 09:50	4838	0.65	0.06	0.042	0.013	1.02	0.81			0.09		0.03
13-Aug-25 09:15	1243	0.66	0.00	0.048	0.026	0.98	0.74			0.10		0.03
20-Aug-25 10:00	5299	0.53	0.07	0.041	0.032	0.17	0.05			0.07		0.02
27-Aug-25 13:45	2773	0.64	0.02	0.053	0.031	0.03	0.00			0.06		0.00
27-Aug-25 13:45	2773	0.64	0.02	0.053	0.031	0.03	0.00			0.06		0.00
17-Sep-25 10:50		0.59	0.00	0.056	0.009	0.43	0.24			0.14		0.01
24-Sep-25 09:15		0.45	0.07	0.044	0.029	0.25	0.11			0.00		0.00
2-Oct-25 08:30		0.39	0.02	0.047	0.024	0.27	0.06			0.00		0.00
8-Oct-25 08:20		0.51	0.08	0.066	0.052	0.21	0.14			0.02		0.02
9-Oct-25 14:10		0.44	0.04					0.04	0.51	0.0	0.0	0.00
15-Oct-25 09:15		0.48	0.12	0.049	0.039	0.24	0.11	0.22	0.19	0.02	0.18	0.05
22-Oct-25 12:55		0.37	0.03	0.061	0.044	0.22	0.09	0.04	0.78	0.3	0.01	0.02
23-Oct-25 09:30		0.43	0.03					0.09	0.18	0.03	0.05	
30-Oct-25 08:05		0.38	0.02	0.038	0.055	0.31	0.07	0.11	0.71	0.63	0.03	0.03
5-Nov-25 14:15		0.35	0.06	0.046	0.021	0.18	0.05	0.03	0.21	0.07	0.05	0.04
13-Nov-25 08:40		0.39	0.08	0.053	0.034	0.23	0.07	0.03	0.19	0.02	0.0	0.0
19-Nov-25 09:10		0.4	0.0	0.04	0.032	0.8	0.06	0.0	0.18	0.0	0.0	0.05
26-Nov-25 10:17		0.75	0.02	0.074	0.035	0.39	0.02	0.04			0	0.06
4-Dec-25 08:29		0.34	0.04	0.045	0.051	0	0	0.09	0.2	0.1	0	0
10-Dec-25 13:16		0.47	0	0.07	0.06	0.81	0.02	0.16	0.2	0	0	0.01
16-Dec-25 10:00		0.83	0.02	0.068	0.038	0.23	0.04	0.64	1.04	0.67	0.11	0
23-Dec-25 11:00		0.48	0	0.06	0.011	0.81	0.39	0.17	0.55	0.36	0.13	0.04
8-Jan-26 08:39		0.43	0.02	0.137	0.104	0.46	0.06		0.54	0.02	0.1	0.05
9-Jan-26 08:39		0.46	0.09	0.056	0.041	0.58	0.93	0.4	0.18	0.03	0.08	0
15-Jan-26 08:39		0.42	0.02	0.085	0.043	0.02	0.02	0.63	0.17	0.03	0	0.03
21-Jan-26 08:39		0.36	0.08	0.048	0.09	0.01	0.17	0.57	0	0	0	0.12
28-Jan-26 13:15		0.43	0	0.63	0.39	0	0.13	0.5	0.07	0.03	0.01	0.05
3-Feb-26 08:36		0.46	0	0.67	0.3	0	0.05	0.38	0.29	0.03	0.02	0
13-Feb-26 09:57		0.5						0.26	0.42	0.25	0.06	
19-Feb-26 13:31		0.49						0.02	0.35	0.23	0.03	
24-Feb-26 00:12		0.51						0.0	0.28	0.08	0.0	
3-Mar-26 08:28		0.40						0.03	0.47	0.13	0.02	
11-Mar-26 09:30		0.47						0.02	0.47	0.17	0.07	
20-Mar-26 08:47		0.46						0.39	0.26	0.14	0.42	
10-Apr-26 08:50		0.53						0.06	0.37	0.41	0.05	
13-Apr-26 10:03		0.36						0.06	0.56	0.63	0.13	
15-Apr-26 13:00		0.44						0.06	0.29	0.17	0	
21-Apr-26 14:53								0.05				
22-Apr-26 12:59		0.5						0.03	0.44	0.16	0.33	
24-Apr-26 14:40											0.15	
30-Apr-26 07:53		0.47						0.08	1.38	0.33	0.07	
30-Apr-26 13:56								0.12	0.31	0.24	0.17	
4-May-26 08:23		0.32						0	0.16	0.07	0	

Table 19. Pilot Readings

	OxiPlus[75]				Bag Filter		Column 1 - Sandplus				Column 2 - AIX no Pretreat				Column 3 - AIX Sandplus Pretreat				Column 4 - AIX OxiPlus Pretreat				
Date/Time	Inlet Pressure	Outlet Pressure	Remaining Volume	Flowrate	Inlet	Outlet	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	
	PSI	PSI	gallons	gpm	PSI	PSI	gpm	gallons	PSI	PSI	gpm	gallons	PSI	PSI	gpm	gallons	PSI	PSI	gpm	gallons	PSI	PSI	
8-May-25 12:30	49	46		4.2	50	46					0.2	41	31	29					0.2	46	34	33	
12-May-25 08:30	50	46		3.9	50	48					0.15	133	31	30					0.125	478	34	34	
14-May-25 08:15	50	46		3.6	50	47					0.15	229	31	29					0.125	852	34	34	
19-May-25 09:15	50	47		3.7	51	48					0.155	332	30	28					0.115	1289	29	28	
21-May-25 09:10	41	38		3.6	42	40					0.1	607	20	18					0.11	1563	19	18	
22-May-25 08:30	50	43		3.9	50	48					0.13	630	32	30					0.15	1602	34	33	
27-May-25 08:18	50	43		3.9	51	48					0.125	662	32	29					0.15	1666	34	33	
29-May-25 08:15	50	45		4.2	51	48					0.13	831	32	29					0.15	2133	34	29	
2-Jun-25 09:00	50	42		4.2	50	44					0.13	1041	32	28					0.14	2673	35	32	
4-Jun-25 08:30	50	40		4.2	50	43					0.15	1357	32	28					0.155	3123	35	30	
5-Jun-25 11:00	50	41		4	50	43					0.14	1373	32	28					0.2	3192	34	28	oxi BW
9-Jun-25 06:30	50	45		4.2	52	43					0.22	1397	32	27					0.2	3532	34	26	
11-Jun-25 09:58	50	46		4	50	48					0.22	1426	32	27					0.215	3763	34	26	
13-Jun-25 06:40	50	42		4.2	50	47					0.22	1967	32	27					0.22	4342	34	23	
16-Jun-25 06:40	50	42		4.2	50	44					0.22	2233	32	27					0.22	5188	34	23	
17-Jun-25 06:35	50	42		4.2	50	43					0.22	2496	32	26					0.2	5469	34	21	
17-Jun-25 11:45	49	47	6403	4.2	50	45					0.2	2549	31	27					0.2	5522	34	32	BW Oxi + C
19-Jun-25 08:45	49	42	4380	4.2	50	43					0.22	3052	31	28					0.2	5967	34	32	
23-Jun-25 09:45	0:00	49	5957	4.2	50	46					0.2	3290	31	28					0.2	6600	34	31	
25-Jun-25 08:17	50	45	333	3.7	50	46					0.2	3891	31	28					0.2	7042	34	31	
27-Jun-25 07:50	49	43	786	4.2	50	43					0.2	4442	31	27					0.2	7483	34	31	
2-Jul-25 08:16	49	43	5422	4.2	50	42					0.2	4522	31	27					0.2	7763	34	30	
6-Jul-25 08:13	50	48	5240	4.2	52	48					0.2	4530	31	28					0.2	7971	34	31	
9-Jul-25 07:44	50	47	2812	3.8	52	46					0.2	4545	31	27					0.125	8267	34	23	
10-Jul-25 07:22	50	45	1012	2.6	52	4.6					0.225	4701	31	27					0.125	8448	34	32	
14-Jul-25 07:15	50	42	1413	4.2	50	46					0.21	5005	32	27					0.125	9105	34	32	
15-Jul-25 06:45	50	42	2602	4.2	50	45					0.21	5258	32	27					0.125	9283	36	32	
16-Jul-25 08:00	50	43	170	4.3	50	44					0.21	5604	32	27					0.13	9514	34	32	
21-Jul-25 09:30	50	42	1639	4.2	48	43					0.225	5869	32	27					0.2	9899	34	30	
22-Jul-25 11:30	48	43	748	4.2	50	43					0.225	6190	34	25					0.2	10234	34	28	
23-Jul-25 10:10	49	45	516	4	50	45					0.21	6441	33	27					0.2	10497	34	28	
28-Jul-25 07:15	49	43	5230	4.2	50	43					0.21	6519	32	25					0.2	11226	34	27	
31-Jul-25 09:45	50	49	4753	4.2	50	49					0.21	6778	32	27					0.2	11647	34	28	
6-Aug-25 09:50	50	48	4838	4.2	50	49					0.2	7084	32	27					0.2	12169	34	23	
8-Aug-25 09:15	50	46	2598	4.2	50	45					0.2	7141	32	26					0.2	13092	34	23	
12-Aug-25 10:40	48	44	1795	4.2	50	44					0.2	7177	32	26					0.2	13326	34	23	
13-Aug-25 09:15	51	47	1243	4	53	49					0.2	7199	32	27					0.18	13548	34	26	
18-Aug-25 07:15	50	44	3600	4.2	50	43					0.2	7394	32	26					0.2	14448	34	15	
20-Aug-25 07:05	50	43	5299	4.2	50	43					0.2	8015	32	23					0.2	14989	34	14	
22-Aug-25 06:35	50	49	2155	4.2	50	43					0.2	8150	32	24					0.2	15423	34	14	
25-Aug-25 06:35	50	47	5807	4.2	50	43					0.2	8253	32	24					0.2	16218	34	15	bw c4
26-Aug-25 06:35	50	47	4275	4.2	50	43					0.2	8317	32	24					0.2	16483	34	30	
27-Aug-25 06:40	50	48	2773	4.2	50	43					0.2	8378	32	24					0.2	1666	34	26	
28-Aug-25 06:35	50	48	789	4.2	50	43					0.2	8455	32	24					0.2	16934	34	26	
19-Sep-25 08:35	50	44	2223	4.2	50	43					0.2	8689	33	27					0.2	17845	34	22	
25-Sep-25 09:10	50	44	5625	4.2	53	48					0.2	8795	32	27					0.2	18483	34	30	
26-Sep-25 06:35	50	45	3924	4.2	50	47					0.2	8866	32	27					0.2	18934	34	29	
29-Sep-25 06:35	50	44	2584	4.2	50	45					0.2	8921	32	27					0.2	19130	35	32	

Table 20. Pilot Readings (continued)

	OxiPlus[76]				Bag Filter		Column 1 - Sandplus				Column 2 - AIX no Pretreat				Column 3 - AIX Sandplus Pretreat				Column 4 - AIX OxiPlus Pretreat				
Date/Time	Inlet Pressure	Outlet Pressure	Remaining Volume	Flowrate	Inlet	Outlet	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	Flow	Total Vol.	Inlet Pressure	Outlet Pressure	
	PSI	PSI	gallons	gpm	PSI	PSI	gpm	gallons	PSI	PSI	gpm	gallons	PSI	PSI	gpm	gallons	PSI	PSI	gpm	gallons	PSI	PSI	
2-Oct-25 08:25	50	43	4373	4.2	50	44					0.2	9099	33	27					0.2	20008	35	23	
6-Oct-25 06:35	50	44	5163	4.2	50	43					0.2	9317	32	26					0.2	20152	34	28	
7-Oct-25 07:35	43	42	5281	4.2	48	42					0.2	9551	32	26					0.2	21097	34	27	
8-Oct-25 06:35	45	43	3059	4.2	50	43					0.2	9829	32	26					0.2	21266	35	27	
9-Oct-25 08:35	51	47	1162	4.2	51	46					0.2	9696	33	25					0.2	21530	35	24	
14-Oct-25 14:35	50	43	5838	4.2	50	43	1.4	1445	45	43	0.2	10004	32	28	0.025	94	38	38	0.2	22241	42	38	BW 4
15-Oct-25 09:10	50	43	3595	4.2	50	43	1.4	2057	46	44	0.2	10097	32	26	0.2	95	38	34	0.2	22516	42	38	
22-Oct-25 14:35	38	36	1106	4.2	42	38	1.4	2721	34	30	0.2	10200	32	26	0.2	179	24	20	0.2	22840	42	38	
23-Oct-25 13:30	44	42	4098	4.3	50	42	1.4	3746	44	42	0.2	10311	32	26	0.2	292	36	31	0.2	23064	42	38	
30-Oct-25 08:05	50	43	1803	4.2	50	43	1.4	4327	45	42	0.2	10393	32	25	0.2	386	36	32	0.2	23355	42	38	
4-Nov-25 14:45	50	43	4100	4.2	50	43	1.1	7150	47	38	0.2	10887	32	24	0.2	822	33	28	0.2	24251	42	37	
5-Nov-25 02:15	50	44	2431	4.2	50	44	1.3	7557	48	40	0.2	10956	33	24	0.2	890	33	29	0.2	24515	42	37	
6-Nov-25 08:15	50	43	2304	4.2	50	44	1.3	7586	48	38	0.2	10962	33	24	0.2	895	33	28	0.2	24615	42	37	BW SandP
13-Nov-25 08:35	50	43	375	4.2	50	43	1.4	9926	49	48	0.2	11341	33	24	0.2	900	43	38	0.2	25488	42	36	
19-Nov-25 09:45	50	43	1087	4.2	50	43	1.4	11367	49	46	0.2	11597	32	26	0.2	901	40	34	0.2	25290	43	36	BW 3
4-Dec-25 08:30	50	44	5034	4.2	50	43	1.4	14327	49	44	0.2	12361	32	24	0.2	1516	23	20	0.2	28144	43	36	
5-Dec-25 08:21	52	48	2938	4.1	50	43	1.4	14655	48	44	0.2	12451	32	26	0.19	1603	21	23	0.2	28417	42	34	
8-Dec-25 11:20	51	48	1785	4.1	50	43	1.4	14655	49	44	0.2	12503	32	24	0.2	1645	22	24	0.2	28527	42	36	
9-Dec-25 08:34	51	48	1771	4.2	52	44	1.4	14655	49	44	0.2	12504	32	25	0.15	1645	20	17	0.2	28729	42	34	
10-Dec-25 13:15	52	48	1670	4	52	46	1.4	14655	48	47	0.2	12508	32	25	0.125	1648	17	15	0.2	28788	42	35	
11-Dec-25 10:39	52	48	1243	4.2	50	44	1.4	14655	48	48	0.2	12527	32	26	0.2	1661	10	2	0.2	28919	42	34	BW 1 & 3
12-Dec-25 09:50	50	43	971	4.2	50	43	1.4	14682	46	51	0.2	12538	32	24	0.2	1651	45	42	0.2	29133	42	37	
16-Dec-25 09:57	50	43	943	4.2	50	43	1.4	14769	46	51	0.2	12539	32	25	0.2	1661	46	44	0.2	29213	42	37	
19-Dec-25 09:28	52	44	802	4.2	50	43	1.4	14728	53	49	0.2	12545	32	26	0.2	1673	46	43	0.2	29345	42	37	
23-Dec-25 10:00	50	43	4097	4.2	50	43	1.4	15680	50	47	0.2	12672	32	26	0.2	1835	43	40	0.2	28750	42	36	
29-Dec-25 09:28	48	42	5984	4.2	48	42	1.4	18952	44	32	0.2	13133	26	26	0.2	2133	32	27	0.2	30198	42	33	
8-Jan-26 09:28	28	24	5980	4.2	30	22	1.4	20191	28	24	0.2	13459	28	18	0.2	2340	26	20	0.2	31850	42	38	BW 1 & 4
9-Jan-26 09:28	50	44	1806	4.2	50	43	1.4	20198	50	45	0.2	13620	32	26	0.2	2485	48	49	0.2	32177	42	34	
15-Jan-26 09:28	44	40	5926	4.2	42	38	1.4	20834	48	42	0.2	13942	32	24	0.2	2819	38	34	0.2	33065	42	34	
21-Jan-26 09:28	44	42	5859	4.2	43	38	1.4	22287	43	38	0.2	14182	32	25	0.2	3034	43	38	0.2	33334	43	31	
28-Jan-26 13:15	44	42	1238	4.2	45	42	1.4	32073	44	48	0.2	15362	32	22	0.2	4283	43	30	0.2	35972	43	30	
2-Feb-26 08:30	44	42	5555	4.2	48	42	1.4	33882	43	48	0.2	15843	32	25	0.2	4676	43	30	0.2	36797	43	30	BW 3&4
4-Feb-26 11:20	44	43	2136	4.2	52	43	1.4	36390	49	54	0.2	15923	31	23	0.2	4753	48	42	0.2	37003	43	37	
12-Feb-26 11:15	offline				42	40	1.4	36491	36	34	0.2	15939	31	25	0.2	4756	34	30	offline				BW 1, 2, ar
13-Feb-26 09:50					42	38	1.4	37989	37	35	0.2	16088	31	26	0.2	4919	34	30					
17-Feb-26 13:35					42	40	1.4	39184	37	35	0.2	16245	31	24	0.2	5157	35	30					
24-Feb-26 09:30					42	40	1.4	40845	37	34	0.2	16467	31	24	0.2	5375	33	28					
3-Mar-26 08:30					42	40	1.4	42915	37	30	0.2	16737	31	23	0.2	5634	28	23					
9-Mar-26 10:53					42	40	1.4	45593	35	30	0.2	17090	31	23	0.2	5875	28	25					BW 1
11-Mar-26 09:30					42	40	1.4	46724	36	28	0.2	17239	31	23	0.2	6043	26	22					
17-Mar-26 12:30					34	33	1.4	52135	31	21	0.2	18032	31	21	0.2	6595	36	28					
25-Mar-26 12:30					44	40	1.4	53104	38	36	0.2	18335	31	25	0.2	7437	36	35					
10-Apr-26 08:50					44	38	1.4	55216	34	32	0.2	18629	32	26	0.2	7753	32	31					BW C1
13-Apr-26 09:58					42	38	1.4	55246	34	32	0.2	18633	30	26	0.2	7758	32	31					
15-Apr-26 13:00					42	38	1.4	56664	34	32	0.2	18874	30	26	0.2	7977	32	30					
21-Apr-26 14:56					42	38	1.4	59909	34	30	0.2	19334	30	26	0.2	8406	28	27					
24-Apr-26 14:40					42	38	1.4	60571	34	32	0.2	19436	31	26	0.2	8509	30	29					BW 1,2,3
30-Apr-26 07:50					42	38	1.4	61652	35	30	0.2	19561	31	26	0.2	8652	29	28					
1-May-26 13:45					43	38	1.4	63326	35	20	0.2	19831	31	25	0.2	8884	20	20					BW 1,2,3
4-May-26 08:20					42	38	1.4	65412	34	25	0.2	20117	31	25	0.2	9186	25	20					BW 1,2,3
4-May-26 08:50					42	38	1.4	65452	35	33	0.2	20123	31	26	0.2	9194	32	28					

SandPLUS™

WATER SURPLUS POWERED BY HAWKINS

SandPlus™

High Flow Rate Filter Media Series

NSF Certified to NSF/ANSI/CAN 61

Media Overview

SandPlus™ is a high flow rate filter media with improved filtration performance when compared to other media. The hardness, stability, uniformity and microporous characteristics all help the media perform well in both water and wastewater applications. While most filtration media filters down to 8–15 micron nominal size, SandPlus can filter down to 3–5 micron particle removal.

Media Applications

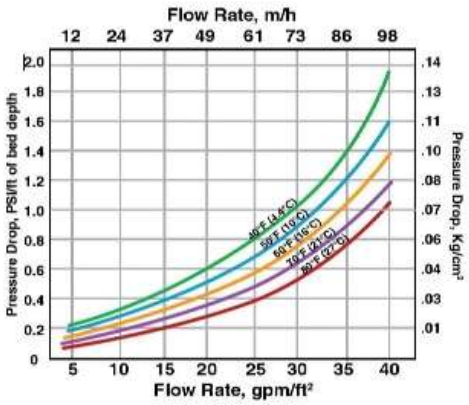
SandPlus can be used for industrial applications like cooling tower turbidity removal or pretreatment prior to reverse osmosis. It can be used in gravity or pressure filters with lower pressure drops and improved filtration performance. It can also be used in potable and irrigation applications or in storm water or wastewater reuse applications.

Physical Properties

- Composition: High-purity Alumino-Silicate
- Bulk Density: 55 lb/ft³ (0.67 kg/L)
- Specific Gravity: 2.6 g/cm³
- Mesh Sizes: 14 x 40 mesh
- Effective Size: (0.4–1.4mm)
- Uniformity Coefficient: Less than 1.70
- Packaging: 1ft³ bags, 1m³ supersacks
- Porosity: 55%

Operation

- pH: 1.0–12.0
- Bed Depth: 24"–48" depending on application
- Freeboard: 40% of bed depth (min)
- Typical Treatment Loading Rate: 10–20 gpm/ft²
- Backwash Rate: 13–22 gpm/ft², 5–15 minutes
- Service Flow: 2–20 gpm/ft²
- Particle Removal: 3–5 micron
- Conditioning: Requires chlorine oxidant



Backwash Flow Requirements					
Flow	80°F (27°C)	70°F (21°C)	60°F (16°C)	50°F (10°C)	40°F (4.5°C)
gpm/ft²	22.3	19.8	17.2	14.8	12.5
m/h	54.5	48.4	42	36.2	30.6
+40% Bed Expansion					

PRODUCT INFORMATION
LEWATIT® TP 108

Lewatit®

Lewatit® TP 108 is a gel-type polystyrene-based strong base anion exchange resin with a heterodisperse particle size distribution. In comparison with conventional strong base anion exchange resins its modified functional group facilitates a very selective uptake of per- and polyfluoralkyl substances (PFAS) from industrial waste water with a high background of chloride and sulphate.

Thus **Lewatit® TP 108** is particularly applicable for the removal of short and long chain PFAS to very low levels, including PFOA, PFOS, PFNA, PFHxA, PFHxS, PFBS and PFBA.

Lewatit® TP 108 can be used as well for the removal of other emerging contaminants that have an anionic amphiphilic character, e.g. synthetic hormones and pesticides.

The special properties of this product can only be fully utilized if the technology and process used correspond to the current state-of-the-art. Further advice in this matter can be obtained from Lanxess Corporation.

PRODUCT INFORMATION
LEWATIT® TP 108

Lewatit®

Common Description

Delivery form	Cl⁻
Functional group	quarternary ammonium
Matrix	styrenic
Structure	gel
Appearance	white, opaque

Specified Data

Uniformity coefficient		max.	1.7
Effective size	d10	mm	0.46-0.61
Fines	less than 0.315 mm	max. vol %	1
Total capacity (delivery form)		min. eq/L	0.7

PRODUCT INFORMATION
LEWATIT® TP 108

Lewatit®

Typical Physical and Chemical Properties

	Metric Units	
Bulk density for shipment	g/L	690
Water retention (delivery form)	approx. weight %	33-43
Stability pH range		0-14
Stability temperature range	°C	1-80
Storage time (after delivery)	max. years	2
Storability temperature range	°C	-20 - +40

Operation

			Metric Units	
Operating temperature			max. °C	80
Bed depth for single column			min. mm	800
Back wash bed expansion per m/h (20°C)			%	4
Specific pressure loss (15°C)			kPa*h/m²	1.2
Max. pressure loss during operation			kPa	250
Freeboard	during backwash		min. vol. %	80-100

PRODUCT INFORMATION
LEWATIT® TP 108

Lewatit®

Additional Information & Regulations

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE OF PRODUCTS MENTIONED HEREIN IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING ANY PRODUCT, ALWAYS READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION.

Safety precautions
Strong oxidants, e.g. nitric acid, can cause violent reactions if they come into contact with ion exchange resins.

Disposal
In the European Community Ion exchange resins have to be disposed, according to the European waste nomenclature which can be accessed on the internet-site of the European Union.

Packaging
The experience has shown that the packaging stability for reliable resin containment is limited to 24 months under the storage conditions described within the product safety information. It is therefore recommended to use the product within this time frame; otherwise the packaging condition should be checked regularly.

PRODUCT INFORMATION
LEWATIT® TP 108

Lewatit®

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and application. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change with notice. It is expressly understood and agreed that you assume and hereby expressly release us from liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

Health and Safety Information: Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS Corporation products mentioned in this publication. For materials mentioned which are not LANXESS Corporation products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, *e.g., safety data sheets and product labels*. Consult your LANXESS Corporation representative or contact the Product Safety and Regulatory Affairs Department at LANXESS Corporation

Regulatory Compliance Information: Some of the end uses of the products described in this publication must comply with applicable regulations, such as the FDA, BfR, NSF, USDA, and CPSC. If you have any questions on the regulatory status of these products, contact - for business in the USA - the LANXESS Corporation Regulatory Affairs and Product Safety Department in Pittsburgh, PA, USA or for business outside US the Regulatory Affairs and Product Safety Department of LANXESS Deutschland GmbH in Germany.

Note: The information contained in this publication is current as of the date of edition. Please contact LANXESS Corporation Inc. to determine if this publication has been revised.

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This document contains important information and must be read in its entirety.

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LANXESS Energizing Chemistry

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and possible action regarding the 2025 Annual Consumer Confidence Report [Mueller/Kincaid]

Sub Item Agenda Language:

Background Provided By:
Jane Mueller

Background:
Included for your review is the Annual Consumer Confidence Report. The EPA and DNR require all municipal water suppliers to provide an annual water quality report to their customers. This water quality report is made available to Water Utility customers through the City website.

Beginning in 2027, the Consumer Confidence Report will be required to be issued semi-annually, with reports due by June 30th and December 31st each year.

Fiscal Impact:

Recommended Motion:
Recommend staff to present the Consumer Confidence Report to the Common Council

2025 CONSUMER CONFIDENCE REPORT DATA

PEWAUKEE CITY WATER AND SEWER UTILITY, PWS ID: 26802149

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda. Dlaim ntawv tshaabzu nuav muaj lug tseemceeb heev nyob rua huv kws has txug cov dlej mej haus. Kuas ib tug paab txhais rua koj, los nrug ib tug kws paub lug thaam. (This report contains information about your drinking water. Have someone translate it for you or talk to someone who understands it.)

Water System Information

If you would like to know more information about the information contained in this report, please contact Jane E. Mueller, Utility Manager at (262) 691-0804, or email *publicworks@pewaukee.wi.us*. The City of Pewaukee provides an opportunity for public input on decisions affecting your water quality at City of Pewaukee Common Council meetings, held on the first and third Monday of the month at 6:30 p.m. at Pewaukee City Hall, Common Council Chambers, W240N3065 Pewaukee Road, Pewaukee, WI 53072, unless otherwise noted.

Health Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as those with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS, or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available by calling the EPA 's Safe Drinking Water Hotline at (800) 426-4791.

Source(s) of Water

Source ID	Source	Depth (in feet)	Status
1	Groundwater	1200	Active
2	Groundwater	1075	Active
3	Groundwater	340	Active
4	Groundwater	350	Active
5	Groundwater	1000	Active
6	Groundwater	1415	Active

Source ID	Source	Depth (in feet)	Status
7	Groundwater	1344	Active
8	Groundwater	180	Active
9	Groundwater	1400	Active
10	Groundwater	182	Active
11	Groundwater	1180	Active
12	Groundwater	154	Active

To obtain a summary of the source water assessment, please contact Jane Mueller at (262) 691-0804.

Educational Information

The sources of drinking water, both tap water and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which shall provide the same protection for public health.

Definitions

Term	Definition
AL	Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
HA and HAL	HA: Health Advisory. An estimate of acceptable drinking water levels for a chemical substance based on health effects information. HAL: Health Advisory Level is a concentration of a contaminant that, if exceeded, poses a health risk and may require a water system to post a public notice. Health Advisories are determined by the U.S. Environment Protection Agency (US EPA).

Term	Definition
HI	HI: Hazard Index is used to assess the potential health impacts associated with mixtures of contaminants. Hazard Index guidance for a class or mixture of contaminants may be determined by the US EPA or Wisconsin Department of Health Services (WDHS). If a Health Index is exceeded, a system may be required to post a public notice.
Level 1 Assessment	A Level 1 assessment is a study of the water system conducted to identify potential problems and determine, if possible, why total coliform bacteria have been found in the water system.
Level 2 Assessment	A Level 2 assessment is a very detailed study of the water system conducted to identify potential problems and determine, if possible, why an E. coli MCL violation has occurred, why total coliform bacteria have been found in the water system, or both, on multiple occasions.
MCL	Maximum Contaminant Level: The highest level of contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MFL	million fibers per liter
MRDL	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary to control microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of using disinfectants to control microbial contaminants.
mrem/year	Millirems per year (a measure of radiation absorbed by the body)
NTU	Nephelometric Turbidity Units
pCi/l	Picocuries per liter (a measure of radioactivity)
ppm	Parts per million, or milligrams per liter (mg/l)
ppb	Parts per billion, or micrograms per liter (ug/l)
ppt	Parts per trillion, or nanograms per liter
ppq	Parts per quadrillion, or picograms per liter
PHGS	Public Health Groundwater Standards are found in NR 140 Groundwater Quality. The concentration of a contaminant that, if exceeded, poses a health risk and may require a system to post a public notice.
RPHGS	Recommended Public Health Groundwater Standards. Groundwater standards proposed by the WDHS. The concentration of a contaminant that, if exceeded, poses a health risk and may require a system to post a public notice.
SMCL	Secondary drinking water standards, or Secondary Maximum Contaminant Levels (SMCLs), are established for contaminants that affect the taste, odor, or appearance of the drinking water. SMCLs do not represent health standards.
TCR	Total Coliform Rule
TT	Treatment Technique: A required process intended to reduce the level of contaminant in drinking water.

Detected Contaminants

Your water was tested for many contaminants last year. We are allowed to monitor some contaminants less frequently than once a year. The following tables list only those contaminants that were detected in your water. If a contaminant was detected last year, it will appear in the following tables without a sample date. If a contaminant was not monitored last year, but was detected within the last five years, it will appear in the tables below along with the sample date.

Disinfection Byproducts

Contaminant (units)	Site	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2025)	Violation	Typical Source of Contaminant
HAA5 (ppb)	MDBP - 2	60	60	3	3		No	By-product of drinking water chlorination
TTHM (ppb)	MDBP - 2	80	0	18.5	18.5		No	By-product of drinking water chlorination

Inorganic Contaminants

Contaminant (units)	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2025)	Violation	Typical Source of Contaminant
ARSENIC (ppb)	10	n/a	7	0-7	3/15/2023	No	Erosion of natural deposits, runoff from orchards; runoff from glass and electronics production wastes
BARIUM (ppm)	2	2	0.190	0.010-.0190	3/15/2023	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
FLUORIDE (ppm)	4	4	0.4	0.3-0.4	3/15/2023	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
NICKEL (ppb)	100		5.9000	0.1000-5.9000	3/15/2023	No	Nickel occurs naturally in soils, groundwater, and surface water and is often used in electroplating, stainless steel, and alloy products

Contaminant (units)	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2025)	Violation	Typical Source of Contaminant
NITRATE (N03-N) (ppm)	10	10	0.23	0.00 - 0.23		No	Runoff from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
NITRITE (N02-N) (ppm)	1	1	0.042	0.000-0.042	3/15/2023	No	Runoff from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
SODIUM (ppm)	n/a	n/a	130.0	14.00-130.00	3/15/2023	No	N/A

Contaminant (units)	Action Level	MCLG	90th Percentile Level Found	Range	# of Results	Sample Date (if prior to 2025)	Violation	Typical Source of Contaminant
COPPER (ppm)	AL=1.3	1.3	0.1500	0.0200-0.1800	0 of 20 results were above the Action Level	8/1/2023	No	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
LEAD (ppb)	AL=15	0	2.60	0.00-34.00	1 of 20 results were above the Action Level	9/14/2023	No	Corrosion of household plumbing systems; erosion of natural deposits

PFAS Contaminants with a Recommended Health Advisory Level

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a large group of human-made chemicals that have been used in industry and consumer products worldwide since the 1950s. The following table lists PFAS contaminants which were detected in your water and that have a Recommended Public Health Groundwater Standard (RPHGS) or Health Advisory Level (HAL). There are no violations for detections of contaminants that exceed the RPHGS or HAL. The RPHGS are levels at which concentrations of the contaminant present a health risk and are based on guidance provided by the Wisconsin Department of Health Services (WDHS).

Note: The recommended health-based levels in the table below were in effect in 2024. These levels were revised by WDHS in 2025. They can be found here: *https://www.dhs.wisconsin.gov/water/gws.htm*.

Typical Source of Contaminant	Drinking water is one way that people can be exposed to PFAS. In Wisconsin, two-thirds of people use groundwater as their drinking water source. PFAS can get in groundwater from places that make or use PFAS and release from consumer products in landfills.			
Contaminant (units)	RPHGS or HAL (ppt)	Level Found	Range	Sample Date (if prior to 2025)
PFBS (ppt)	450000	17.47	0.00-24.00	
PFHXS (ppt)	40	41.00	0.00-65.00	
PFOS (ppt)	20	13.45	0.00-27.00	
PFOA (ppt)	20	5.63	0.00-8.00	
PFHXA (ppt)	150000	23.40	0.00-32.00	
PFOA and PFOS Total (ppt)	20	18.10	0.00-35.00	

Radioactive Contaminants

Contaminant (units)	MCL	MCLG	Level Found	Range	Sample Date (if prior to 2025)	Violation	Typical Source of Contaminant
GROSS ALPHA, EXCL. R & U (pCi/l)	15	0	20.0	0.0-25.8		Yes, Ongoing	Erosion of natural deposits
RADIUM (226 + 228) (pCi/l)	5	0	3.6	0.5-4.1		Yes, Ongoing	Erosion of natural deposits
GROSS ALPHA, INCL. R & U (n/a)	n/a	n/a	23.0	-2.2-29.0		No	Erosion of natural deposits
COMBINED URANIUM (ug/l)	30	0	4.5	0.3-4.7		No	Erosion of natural deposits

Unregulated Contaminants

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. The EPA required us to participate in this monitoring.

Within the last 12 months we conducted Unregulated Contaminant Monitoring in accordance with US EPA rules. We are required to inform you of this sampling. We are only required to include results showing detections in this report; however, if you would like a copy of all results, please contact our office at (262) 691-0804.

Contaminant (units)	Level Found	Range	Sample Date (if prior to 2025)
ISOPROPYLBENZENE (ppb)	0.25	0.25	5/9/2023

Health Effects for any Contaminants with MCL Violations/Action Level Exceedances/SMCL Exceedances/PHGS or HAL Exceedances

Contaminant	Health Effects
GROSS ALPHA, EXCL. R&U	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of developing cancer.
PFHXS	Scientists are still learning about the health effects that various PFAS can have on the body. To date, studies among people have shown that high levels of certain PFAS can increase cholesterol levels, decrease antibody levels in response to vaccines, and decrease fertility in women. People can reduce their risk of health effects by reducing their exposure to PFAS.
PFOA AND PFOS TOTAL	Scientists are still learning about the health effects that various PFAS can have on the body. To date, studies among people have shown that high levels of certain PFAS can increase cholesterol levels, decrease antibody levels in response to vaccines, and decrease fertility in women. People can reduce their risk of health effects by reducing their exposure to PFAS.
PFOS	Scientists are still learning about the health effects that various PFAS can have on the body. To date, studies among people have shown that high levels of certain PFAS can increase cholesterol levels, decrease antibody levels in response to vaccines, and decrease fertility in women. People can reduce their risk of health effects by reducing their exposure to PFAS.
RADIUM (226 + 228)	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of developing cancer.

Additional Health Information

While your drinking water meets the US EPA's standard for arsenic, it does contain low levels of arsenic. The US EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The US EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects, such as skin damage and circulatory problems.

Lead can cause serious health problems, especially pregnant women and young children. Lead in drinking water primarily comes from materials and components associated with service lines and home plumbing. The City of Pewaukee Water & Sewer Utility is responsible for providing high-quality drinking water and removing lead pipes, but cannot control the variety of materials used in plumbing components in your home.

You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can do this by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry, or a load of dishes. You can also use a filter certified by an American National Standards Institute-accredited certifier to reduce lead in drinking water.

If you are concerned about lead in your water and wish to have your water tested, contact Jane Mueller at the City of Pewaukee Water & Sewer Utility at (262) 691-0804. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at: *https://www.epa.gov/safewater/lead*.

Additional Information on Service Line Materials

We were required to develop an initial inventory of service lines connected to our distribution system by October 16, 2024, and to make the inventory publicly accessible. You can access the service line inventory on the City of Pewaukee website at: *https://portal.laserfiche.com/j9152/forms/pipeinventory*. (Please type your address using this example: W240N3065 PEWAUKEE RD).

Corrective Actions Taken

The City of Pewaukee will be constructing a water main loop to facilitate the abandonment of Well #5, which is contaminated with radionuclides, including Gross Alpha and Radium.

The City has recently completed a pilot treatment study for PFAS removal at Well #8. The building and treatment plant design is currently underway.

Construction of both projects is anticipated to begin in late 2026 or early 2027. Once construction begins, the water treatment plant and water main loop projects are expected to take approximately 18 months to two years to complete.

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and possible action regarding the 2025 Compliance Maintenance Annual Report [Mueller/Kincaid]

Sub Item Agenda Language:

Background Provided By:
Magdelene Wagner

Background:
Compliance Maintenance Annual Report (CMAR) rule is for publicly and privately owned domestic wastewater treatment works required by Wisconsin Statute NR208. The CMAR is a self-evaluation tool that promotes the owner's awareness and responsibility for wastewater collection and treatment needs, measures the performance of a wastewater treatment works during a calendar year, and assesses its level of compliance with permit requirements.

Attached is the draft CMAR which indicates a grade of A for our collection system.

Fiscal Impact:

Recommended Motion:
Committee recommend approval to the Common Council.

Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: 6/8/2026 Reporting For: **2025**

Financial Management

1. Provider of Financial Information

Name: Jane E. Mueller

Telephone: (262)691-0804 (XXX) XXX-XXXX

E-Mail Address (optional): jem@pewaukee.wi.us

2. Treatment Works Operating Revenues

2.1 Are User Charges or other revenues sufficient to cover O&M expenses for your wastewater treatment plant AND/OR collection system ?

- ● Yes (0 points) ☐☐
- ○ No (40 points)

If No, please explain:

2.2 When was the User Charge System or other revenue source(s) last reviewed and/or revised?

Year: 2025

- ● 0-2 years ago (0 points) ☐☐
- ○ 3 or more years ago (20 points)☐☐
- ○ N/A (private facility)

2.3 Did you have a special account (e.g., CWFP required segregated Replacement Fund, etc.) or financial resources available for repairing or replacing equipment for your wastewater treatment plant and/or collection system?

- ● Yes (0 points)
- ○ No (40 points)

0

REPLACEMENT FUNDS [PUBLIC MUNICIPAL FACILITIES SHALL COMPLETE QUESTION 3]

3. Equipment Replacement Funds

3.1 When was the Equipment Replacement Fund last reviewed and/or revised?

Year: 2025

- ● 1-2 years ago (0 points)☐☐
- ○ 3 or more years ago (20 points)☐☐
- ○ N/A

If N/A, please explain:

3.2 Equipment Replacement Fund Activity

3.2.1 Ending Balance Reported on Last Year's CMAR		$ 2,853,023.73
3.2.2 Adjustments - if necessary (e.g. earned interest, audit correction, withdrawal of excess funds, increase making up previous shortfall, etc.)	+	$ 121,492.30
3.2.3 Adjusted January 1st Beginning Balance		$ 2,974,516.03
3.2.4 Additions to Fund (e.g. portion of User Fee, earned interest, etc.)	+	$ 3,187.00

3.2.5 Subtractions from Fund (e.g., equipment replacement, major repairs - use description box 3.2.6.1 below*) - $ 0.00

3.2.6 Ending Balance as of December 31st for CMAR Reporting Year $ 2,977,703.03

All Sources: This ending balance should include all Equipment Replacement Funds whether held in a bank account(s), certificate(s) of deposit, etc.

3.2.6.1 Indicate adjustments, equipment purchases, and/or major repairs from 3.2.5 above.

3.3 What amount should be in your Replacement Fund? $ 2,728,600.08 **0**

Please note: If you had a CWFP loan, this amount was originally based on the Financial Assistance Agreement (FAA) and should be regularly updated as needed. Further calculation instructions and an example can be found by clicking the SectionInstructions link under Info header in the left-side menu.

3.3.1 Is the December 31 Ending Balance in your Replacement Fund above, (#3.2.6) equal to, or greater than the amount that should be in it (#3.3)?

- ● Yes
- ○ No

If No, please explain.

4. Future Planning

4.1 During the next ten years, will you be involved in formal planning for upgrading, rehabilitating, or new construction of your treatment facility or collection system?

- ● Yes - If Yes, please provide major project information, if not already listed below.☐☐
- ○ No

Project #	Project Description	Estimated Cost	Approximate Construction Year
1	Kopmeier sanitary sewer relay/replace. We have an approximately 400ft section of truss pipe (we think) that lies at the bottom of a bay in Pewaukee Lake. There are some major sags in the line, and the upstream manhole needs some rehab. Our consultant has recommended pipe bursting this section of sewer. We are currently preparing plans & specifications in 2025 with bidding late summer for winter 2025 - 2026 construction.	$850,000	2026
2	Sewer line repairs. Includes repairs to areas in which the City will be reconstructing the roadway. Also to include other repairs as needed.	$150,000	2026
3	Pipe Lining I-94 easement	$200,000	2027
4	Engineering study Gun Club Lift station service area and pipe condition evaluation study.	$30,000	2027
5	Rehabilitation of the Spice Creek lift station including upgrades of controls and pumps. Also evaluate collection system improvements to remove lift station.	$250,000	2027
6	Evaluate collection system improvements to consolidate flow basins to eliminate/consolidate sewage flows to one central lift station.	$50,000	2027

5. Financial Management General Comments

The Utility reviewed the rates in 2025 which determined a need to increase the rates. A rate study is currently being completed to determine the new sewer rate which is anticipated to be implemented in fall of 2026.

ENERGY EFFICIENCY AND USE

6. Collection System

6.1 Energy Usage

6.1.1 Enter the monthly energy usage from the different energy sources:

COLLECTION SYSTEM PUMPAGE: Total Power Consumed

Number of Municipally Owned Pump/Lift Stations: 12

	Electricity Consumed (kWh)	Natural Gas Consumed (therms)
January	19,252	60
February	21,133	71
March	19,704	58
April	18,087	58
May	15,991	61
June	15,291	81
July	11,862	56
August	13,258	70
September	15,057	78
October	12,349	60
November	13,453	55
December	19,824	99
Total	**195,261**	**807**
Average	**16,272**	**67**

6.1.2 Comments:

6.2 Energy Related Processes and Equipment

6.2.1 Indicate equipment and practices utilized at your pump/lift stations (Check all that apply):

- ☐ Comminution or Screening
- ☐ Extended Shaft Pumps
- ☒ Flow Metering and Recording
- ☐ Pneumatic Pumping
- ☒ SCADA System
- ☐ Self-Priming Pumps
- ☒ Submersible Pumps
- ☒ Variable Speed Drives
- ☒ Other:

Our new Gun Club Lift Station was set up with the most updated control logic to run with flow pacing with the level indicator.

6.2.2 Comments:

6.3 Has an Energy Study been performed for your pump/lift stations?

- ○ No
- ● Yes

Year:
2021

By Whom:
Wisconsin Rural Water Association

Describe and Comment:

The study recommended implementing variable speed drive units on the pump motors and upgrade the light fixtures to LED.

6.4 Future Energy Related Equipment

6.4.1 What energy efficient equipment or practices do you have planned for the future for your pump/lift stations?

The Utility will consider the installation of VFD's and other energy efficient fixtures in future lift station construction or lift station upgrades.

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	**A**

Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: 6/8/2026

Reporting For: **2025**

Sanitary Sewer Collection Systems

1. Capacity, Management, Operation, and Maintenance (CMOM) Program

1.1 Do you have a CMOM program that is being implemented?

- ● Yes
- ○ No

If No, explain:

1.2 Do you have a CMOM program that contains all the applicable components and items according to Wisc. Adm Code NR 210.23 (4)?

- ● Yes
- ○ No (30 points)
- ○ N/A

If No or N/A, explain:

1.3 Does your CMOM program contain the following components and items? (check the components and items that apply)

☒ Goals [NR 210.23 (4)(a)]

Describe the major goals you had for your collection system last year:

Clean 33% of all sewers and manhole inspections. Compile and create a comprehensive list of pipe and manhole lining and repairs needed.

Did you accomplish them?

- ● Yes
- ○ No

If No, explain:

☒ Organization [NR 210.23 (4) (b)]☐☐

Does this chapter of your CMOM include:

- ☒ Organizational structure and positions (eg. organizational chart and position descriptions)
- ☒ Internal and external lines of communication responsibilities
- ☒ Person(s) responsible for reporting overflow events to the department and the public

☒ Legal Authority [NR 210.23 (4) (c)]

What is the legally binding document that regulates the use of your sewer system?

Sewer Use Ordinance

If you have a Sewer Use Ordinance or other similar document, when was it last reviewed and revised? (MM/DD/YYYY) 1996-09-23

Does your sewer use ordinance or other legally binding document address the following:

- ☒ Private property inflow and infiltration
- ☒ New sewer and building sewer design, construction, installation, testing and inspection
- ☐ Rehabilitated sewer and lift station installation, testing and inspection
- ☒ Sewage flows satellite system and large private users are monitored and controlled, as necessary
- ☒ Fat, oil and grease control
- ☒ Enforcement procedures for sewer use non-compliance

☒ Operation and Maintenance [NR 210.23 (4) (d)]

Does your operation and maintenance program and equipment include the following:

- ☐ Equipment and replacement part inventories
- ☒ Up-to-date sewer system map

☒A management system (computer database and/or file system) for collection system information for O&M activities, investigation and rehabilitation
☒ A description of routine operation and maintenance activities (see question 2 below)
☒ Capacity assessment program
☒ Basement back assessment and correction
☐ Regular O&M training

☒ Design and Performance Provisions [NR 210.23 (4) (e)]☐☐

What standards and procedures are established for the design, construction, and inspection of the sewer collection system, including building sewers and interceptor sewers on private property?

☒ State Plumbing Code, DNR NR 110 Standards and/or local Municipal Code Requirements
☒ Construction, Inspection, and Testing
☒ Others:

City of Pewaukee Construction Standards.

☒ Overflow Emergency Response Plan [NR 210.23 (4) (f)]☐☐

Does your emergency response capability include:

☒ Responsible personnel communication procedures
☒ Response order, timing and clean-up
☒ Public notification protocols
☐ Training
☐ Emergency operation protocols and implementation procedures

0

☒ Annual Self-Auditing of your CMOM Program [NR 210.23 (5)]☐☐

☐ Special Studies Last Year (check only those that apply):

☐ Infiltration/Inflow (I/I) Analysis
☐ Sewer System Evaluation Survey (SSES)
☐ Sewer Evaluation and Capacity Managment Plan (SECAP)
☐ Lift Station Evaluation Report
☒ Others:

Phase 1 evaluation of the sewer utility's finances. Phase 2 will be identifying the new sewer rate.

2. Operation and Maintenance

2.1 Did your sanitary sewer collection system maintenance program include the following maintenance activities? Complete all that apply and indicate the amount maintained.

Cleaning	36	% of system/year
Root removal	0	% of system/year
Flow monitoring	95	% of system/year
Smoke testing	0	% of system/year
Sewer line televising	5	% of system/year
Manhole inspections	38	% of system/year
Lift station O&M	18	# per L.S./year
Manhole rehabilitation	.1	% of manholes rehabbed
Mainline rehabilitation	0	% of sewer lines rehabbed
Private sewer inspections	0	% of system/year

Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: 6/8/2026 Reporting For: **2025**

Private sewer I/I removal	0	% of private services
River or water crossings	0	% of pipe crossings evaluated or maintained

Please include additional comments about your sanitary sewer collection system below:

3. Performance Indicators

3.1 Provide the following collection system and flow information for the past year.

39.87	Total actual amount of precipitation last year in inches
32.26	Annual average precipitation (for your location)
67.7	Miles of sanitary sewer
12	Number of lift stations
0	Number of lift station failures
0	Number of sewer pipe failures
0	Number of basement backup occurrences
0	Number of complaints
1.5	Average daily flow in MGD (if available)
5.	Peak monthly flow in MGD (if available)
	Peak hourly flow in MGD (if available)

3.2 Performance ratios for the past year:

0.00	Lift station failures (failures/year)
0.00	Sewer pipe failures (pipe failures/sewer mile/yr)
0.00	Sanitary sewer overflows (number/sewer mile/yr)
0.00	Basement backups (number/sewer mile)
0.00	Complaints (number/sewer mile)
3.3	Peaking factor ratio (Peak Monthly:Annual Daily Avg)
0.0	Peaking factor ratio (Peak Hourly:Annual Daily Avg)

4. Overflows

LIST OF SANITARY SEWER (SSO) AND TREATMENT FACILITY (TFO) OVERFLOWS REPORTED **			
Date	Location	Cause	Estimated Volume
None reported			

** If there were any SSOs or TFOs that are not listed above, please contact the DNR and stop work on this section until corrected.

5. Infiltration / Inflow (I/I)

5.1 Was infiltration/inflow (I/I) significant in your community last year?

○ Yes

● No

If Yes, please describe:

5.2 Has infiltration/inflow and resultant high flows affected performance or created problems in your collection system, lift stations, or treatment plant at any time in the past year?

○ Yes

- No

If Yes, please describe:

5.3 Explain any infiltration/inflow (I/I) changes this year from previous years:

NA

5.4 What is being done to address infiltration/inflow in your collection system?

The Utility televises a portion of the sanitary sewer annually. Efforts are being made to put together a plan to repair leaking manholes and sewer lines.

Total Points Generated	0
Score (100 - Total Points Generated)	100
Section Grade	**A**

Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: 6/8/2026

Reporting For: **2025**

Grading Summary

WPDES No: 0047341

SECTIONS	LETTER GRADE	GRADE POINTS	WEIGHTING FACTORS	SECTION POINTS
Financial	A	4	1	4
Collection	A	4	3	12
TOTALS			**4**	**16**
GRADE POINT AVERAGE (GPA) = 4.00				

Notes:
A = Voluntary Range (Response Optional)
B = Voluntary Range (Response Optional)
C = Recommendation Range (Response Required)
D = Action Range (Response Required)
F = Action Range (Response Required)

Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: 6/8/2026

Reporting For: **2025**

Resolution or Owner's Statement

Name of Governing Body or Owner: City of Pewaukee

Date of Resolution or Action Taken: 2026-06-15

Resolution Number: 2026-06-14

Date of Submittal:

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO SPECIFIC CMAR SECTIONS (Optional for grade A or B. Required for grade C, D, or F):

Financial Management: Grade = A

Current rate study will determine new rate for 2026 Q3.

Collection Systems: Grade = A

(Regardless of grade, response required for Collection Systems if SSOs were reported)

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO THE OVERALL GRADE POINT AVERAGE AND ANY GENERAL COMMENTS

(Optional for G.P.A. greater than or equal to 3.00, required for G.P.A. less than 3.00)

G.P.A. = 4.00

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and Possible Action regarding Adoption of Sewer Ordinance Chapter 3XX

Sub Item Agenda Language:

Background Provided By:
Jane Mueller & Stan Riffle

Background:
Utility staff has been working with City Attorney Riffle to update the Sewer Utility Ordinance. Included for your review is the most recent draft of the ordinance. Staff has already identified a few items to include in the next forthcoming revision.

Fiscal Impact:

Recommended Motion:
Public Works Committee to recommend approval to the Common Council to adopt the Sewer Ordinance

TABLE OF CONTENTS

SUBCHAPTER I. – GENERAL

§300-1 - **Scope**
The City of Pewaukee Sewer System consists of the collection system (as hereinafter defined), waste collection and disposal operations, system of sewerage and all other appurtenances and equipment used for such purposes or Wastewater Works (as hereinafter referred to as the "Sewer Utility").

§300-2 - **Title**
The ordinance shall be known and cited as the Sanitary Sewer Service Ordinance.

§ 300-3 – **Adoption of Administrative Codes**
The following Wisconsin Administrative Codes, their referenced codes and standards, and subsequent revisions are hereby made a part of this document by reference and adopted for enforcement by the City:

Chapters SPS 381-387	Plumbing Code
Chapters NR 100-199	Environmental Protection General
Chapters NR 200-299	Wisconsin Pollutant Discharge Elimination System

§ 300-4 - **Definitions**
A. As used in this Ordinance the following terms shall have the meanings indicated:

(1) "ACT" means the Federal Water Pollution Control Act as amended, 33 U.S.C. 1251 et seq. as implemented or supplemented by Wis. Admin. Code NR 200.
(2) "Administrative Expenses" means any and all expenses associated with the administration of the Sewer Utility as defined by the Public Service Commission's Uniform System of Accounts.
(3) "Approving Authority" means the City of Pewaukee Common Council or its duly authorized deputy, agent or representative.
(4) "BOD" (biochemical oxygen demand) means the quantity of oxygen expressed in milligrams per liter (mg/l), utilized in the bio-chemical oxidation of organic matter under standard laboratory conditions for five days at a temperature of 20 degrees centigrade. The laboratory determinations shall be made in accordance with procedures set forth in "Standard Methods".
(5) "Building Sewer", "Lateral", or "Service Pipe" means a sewer which carries only Sewage and Industrial Wastes from the building plumbing to the Public Sanitary Sewer. The private sewer is that portion the building sewer up to the connection to the mainline sewer. This portion of the sewer line is the responsibility of the property owner to maintain.
(6) "Collection System" means the system of sewers and appurtenances for the collection, transportation and pumping of domestic wastewater and industrial waste.
(7) "CMAR" Compliance Maintenance Annual Report" means the annual report required to be submitted by the Sewer Utility to the WDNR under Wis. Admin.

Code NR 208, documenting the condition, operation and financial states of the wastewater collection system.

(8) "Debt Retirement" means all annual principal and interest requirements and obligations of the Sewer Utility for the Wastewater Works.

(9) "Domestic Wastewater" means water-borne wastes normally being discharged from the sanitary conveniences of dwellings, institutions, free of industrial wastes and in which the average concentration of suspended solids is established at or below 200/mg/l and the BOD is established at or below 250 mg/l.

(10) "Flow Proportional Composite Sample" means a sample consisting of portions of waste taken in proportion to the volume of flow of said wastes.

(11) "Industrial Cost Recovery" means recovery by the City from the industrial users of Wastewater Works of the amount allowable to the treatment of wastes from such users pursuant to Section 204(b) of the Federal Water Pollution Control Act, 33 U.S.C. Section 1284(b).

(12) "Industrial User" means any non-governmental, non-residential user of publicly owned Wastewater Works which discharges more than the equivalent of 2,000 gallons per day (GPD) of sanitary wastes and whose activities are identified in the Standard Industrial Classification Manual, 1972, Office of Management and Budget, as amended and supplemented, under the following divisions:

Division A. Agriculture, Forestry and Fishing
Division B. Mining
Division D. Manufacturing
Division E. Transportation, Communications, Electric Gas and Sanitary Services
Division I. Services

In determining the amount of a user's discharge for purposes of industrial and cost recovery, the Sewer Utility may exclude domestic wastes or discharges from sanitary conveniences. After applying the sanitary waste exclusion, dischargers in the above divisions that have a volume exceeding 2,000 GPD or the weight of biochemical oxygen demand (BOD) or suspended solids (SS) equivalent to that weight found in 2,000 GPD of sanitary waste are considered industrial users. Sanitary wastes, for purposes of this calculation of equivalency, are the wastes discharged from residential users. Any non-governmental user of a publicly-owned Wastewater Works which discharges wastewater to the Wastewater Works which contains toxic pollutants or poisonous solids, liquids or gases in sufficient quantity either singly or by interaction with other wastes, to contaminate the sludge of any municipal systems, or to injure or to interfere with any sewage treatment process, or which constitutes a hazard to humans or animals, creates a public nuisance, or creates any hazard in or has an adverse effect on the waters receiving any discharge from the treatment works, shall be an industrial user, even if it does not discharge the equivalent of 2,000 gallons per day of sanitary wastes.

(13) "Industrial Waste" means any water-borne solids, liquids or gaseous wastes other than domestic wastewater, resulting from discharging from, flowing from or escaping from any commercial, industrial, manufacturing or food processing operation or process or from the development of any natural resource, or any mixture of these with water or domestic wastewater.

(14) "Infiltration" means water other than wastewater that enters the sewage system (including laterals) from the ground through such sources as defective pipes, pipe joints, connections or manhole walls. Infiltration does not include and is distinguished from inflow.

(15) "Inflow" means water other than wastewater that enters a sewerage system (including laterals) from sources such as roof leaders, cellar drains, yard drains, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters or drainage. Inflow does not include and is distinguished from infiltration.

(16) "Intercepting Sewer" means a sewer constructed to receive the dry water flow of untreated or inadequately treated sewage from one or more existing sanitary Sewer System terminals other than from a dwelling or building that presently discharges or formerly discharged flow directly into any waters of the slate, and convey the flow to a treatment works, or is to serve in lieu of an existing or proposed treatment works.

(17) "May" is permissive.

(18) "Natural Outlet" means any outlet into a watercourse, pond, ditch, lake or other body of surface or ground water.

(19) "Normal Sewage" means sanitary sewage in which BOD, Suspended Solids, or phosphorus concentrations do not exceed normal concentrations of:

(a) A 5-day 20-degree Celsius BOD of not more than 250 parts per million;
(b) A Suspended Solids concentration of not more than 200 parts per million; or
(c) Phosphorus not more than 5 parts per million.

(20) "Operation and Maintenance Cost" means the actual sums spent by the Department in the operation and maintenance of its Wastewater Works consisting of but not limited to, each and all of the following purposes:

(a)Wages and salaries and employee-related expenses of operating, maintenance, clerical, laboratory and supervisory personnel, together with fringe benefits and premiums paid on such wages and salaries for the State of Wisconsin Workmen's Compensation coverage.

Electrical power.

Chemicals, fuel and other operating supplies.

(a) Repairs to and maintenance of the Sewer System.
(b) Premiums for hazard insurance.
(c) Premiums for insurance providing coverage against liability for the injury to persons (d)and/or property.
(e) Rents and leasing costs.
(f) Operation, licensing and maintenance costs for trucks and heavy equipment.
(g) Consultant and legal fees.
(e) Wastewater treatment, processing and transportation charges.

(21) "Parts Per Million" means a weight-to-weight ratio; the parts per million value multiplied by the factor of 8.34 shall be equivalent to pound per million gallons of water. Parts per million (ppm) is equivalent to milligrams per liter (mg/l).

(22) "Persons" means any and all persons, natural or artificial, including any individual, firm, company, municipal or private corporation, association, governmental agency or other entity and agents, servants or employees.

(23) "pH" means the logarithm (base 10) of the reciprocal of the hydrogen ion concentration expressed in moles per liter. It shall be determined by one of the procedures outlined in the "Standard Methods".

(24) "Pretreatment" means an arrangement of devices and structures, for the preliminary treatment or processing of wastewater required to render such wastes acceptable for admission to the public sewers

(25) "Public Sewer" means a sewer in which all owners or abutting properties have equal rights and is controlled or owned by a public authority.

(26) "Replacement" means expenditures for obtaining and installing mechanical equipment, accessories and appurtenances or major repairs to mechanical equipment which are necessary during the useful life of the Wastewater Treatment Facilities, Wastewater Pumping Stations, Flow Metering Devices, and Standby and Auxiliary Pumping Equipment to maintain the capacity and performance for which such items were designed, constructed or purchased.

(27) "Reserve Capacity Assessment" is the flow proportional share of the capital costs expended for the sanitary sewer collection system.

(28) "Residential Equivalent Connection/Unit" is the wastewater flow to the system equivalent to that contributed by an average residential family. One household equals 2.9 people x 68 gallons used per person per day per capita or 200 gal/day/household = 72,000 gallons per year.

(29) "Sanitary Sewer" means a sewer that conveys domestic wastewater or industrial waste or a combination of both, and into which storm, surface and ground waters or unpolluted industrial wastewater are not intentionally passed.

(30) "Sewer Service Charge" means the charges levied on users for the Operation and Maintenance and Administrative costs of providing sanitary sewer service.

(31) "Sewer System" means all facilities for collecting, pumping, treating, and disposing of domestic wastewater and industrial wastes.

(32) "Shall" is mandatory.

(33) "Slug" means any discharge of water or wastewater which in concentration of any given constituent or in quantity of flow exceeds for any period longer than 15 minutes more than 5 times the average 24-hour concentration or flows during normal operation and shall adversely affect the collection system and/or performance of the wastewater treatment works.

(34) "Standard Methods" means the examination and analytical procedures set forth in the latest edition of "Standard Methods for the Examination of Water and Wastewater" as prepared, approved and published jointly by the American Public Health Association and the Water Pollution Control Federation.

(35) "Storm Sewer" means a sewer which carries storm and surface drainage but excludes domestic wastewater and industrial wastes.

(36) "Suspended Solids" means solids that either float on the surface of, or are in suspension in water, sewage or other liquids, and which are removable by a laboratory filtration device. Quantitative determination of suspended solids shall be made in accordance with procedures set forth in "Standard Methods".

(37) "Unpolluted Water" is water of quality equal to or better than the effluent criteria in effect or water that would not cause violation of receiving water quality standards and would not be benefited by discharging to the sanitary sewers and wastewater treatment facilities provided.

(38) "User" means any person discharging domestic wastewater or industrial wastes into the collection system.
(39) "Utility Manager" means the Superintendent of the wastewater treatment or conveyance facilities who shall oversee and supervise the operations and functions of the wastewater treatment or conveyance facilities.
(40) "Sewer Utility" means the City of Pewaukee Water & Sewer Utility established by this Chapter.
(41) "Waste" means any solids, liquid or gaseous material or combination thereof discharged from any residences, business building, institutions and industrial establishments into the collection system or storm sewer.
(42) "Wastewater" means a combination of the water-carried waste discharged into the collection system from residences, business buildings, institutions and industrial establishments, together with such ground surface and storm water as may be present.
(43) "Wastewater Pumping Station" means a pumping facility utilized to pump wastewater within the collections system.
(44) "Wastewater Treatment Facilities" means any facilities, devices and structures used for receiving and treating wastewater from the Sewer Utility's collection system.
(45) "WPDES Permit" means a permit to discharge pollutants obtained under the Wisconsin Pollutant Discharge Elimination System (WPDES) pursuant to Wis. Stat. Chapter 283.
(46) "Wastewater Works" means any facilities, devices and structures used for receiving wastewater from the Sewer Utility's collection system.

§ 300-5 – **Management**

A. The operation, management and control of the Sewer Utility is hereby vested in the Common Council of the City of Pewaukee and is referred to as the "Sewer Utility" or the "Approving Authority". All records of the Sewer Utility shall be kept by the City Clerk and Utility Manager in the Sewer Utility Office or other officially designated place. The Sewer Utility shall have all the powers of a utility commission under Wis. Stat. §66.076.

B. The Utility Manager shall have, except where otherwise provided, the general management and control of all matters pertaining to the sanitary system and shall enforce all state laws, ordinances and lawful orders relating to the construction, alteration, repair, removal, discharge and safety of sewer system infrastructure, buildings and structures associated with the system.

C. In case of the absence, workloads or the inability of the Utility Manager to act, the City may appoint one or more assistants who shall assist in the daily functions of the City as necessary for the efficient enforcement of this chapter.

D. The rules, regulations and rates hereinafter set forth shall be considered part of the contract with every individual or entity connected to the Sewer System. Said rules, regulations and rates may be changed from time to time as determined by the Common Council and the right is reserved to make special rates and contracts in all proper cases.

E. The Utility Manager or authorized agent(s) may at all reasonable hours, for any proper purpose, enter upon any public or private premises and make inspection, and may require the repair of the private system, removal of any illegal discharges into the system, the production of the permit for any plumbing lateral work being done, or the required license to conduct such work. No person shall interfere with or refuse to permit access to any such premises to the representatives of the City while in the performance of their duties.

§ 300-6 - **Application**

The application of this Chapter, its rules, regulations and rates shall apply to all individuals, firms, corporations and institutions residing within the Sewer Service limits of the City of Pewaukee, and any person, firm or corporation, by attachment to the Sewer System or otherwise by contract or agreement coming within the City of Pewaukee sewer service area subsequent to the effective date hereof.

§ 300-7 – **Rules and Regulations**

A. Declaration of Policy
The Common Council of the City of Pewaukee finds and declares that public health, comfort and safety is preserved and enhanced by the provisions of the Sewer System in the promotion of a clean and healthful environment and that the failure to connect to the Sewer System is contrary to minimum health standards.

B. The City of Pewaukee has entered into agreements for wastewater treatment with the City of Waukesha, and as co-owner of the regional wastewater treatment facility, Fox River Water Pollution Control Center in the City of Brookfield. The Sewer Utility hereby adopts by reference herein the City of Waukesha and the City of Brookfield's sewer use ordinances. All City of Pewaukee Sewer Utility Customers shall comply with Sewer Use ordinance requirements of these ordinances in addition to this ordinance together with any revisions or updates to these respective ordinances that may be enacted from time to time.

C. Connection

(1) To assure preservation of public health, comfort and safety, the owner of any houses, buildings, or properties used for human occupancy, employment, recreation, or other habitations, situated within the City of Pewaukee and adjacent to a Public Sewer or in a block through which a Public Sewer extends, or is otherwise reasonably available, is hereby required at his/her expense to install suitable toilet facilities therein, and to connect such facilities directly to the proper Public Sewer in accordance with the provisions of this Ordinance.

(a) Sanitary sewer main that is extended in an area with existing buildings. Sanitary sewer connection is required upon septic system failure, if the property is on a holding tank or if an immediate health hazard exists within 30 days upon receipt

of notice from the County Health Officer or City of Pewaukee Plumbing Inspector, or 15 years from the "notice of sanitary sewer availability".

(b) Non-residential properties are required to connect at the end of the 5-year period from the date of the "notice of availability".

(c) Mandatory sewer connections for new buildings that are erected where sanitary sewer is available.

(d) Mandatory connections for parcels approved for development or subdivision where land division is proposed for development of residences of less than 2 acres, and all non-residential developments.

(2) If a property owner fails to comply with the said notice to connect within the given period of time, the Sewer Utility may, at its option:

(a) Cause such connection to be made and bill the property owner for such costs. If such costs are not paid within 30 days, the delinquent costs shall be assessed as a special tax lien against the property. The entire amount of the delinquent costs shall be placed upon the property owner's tax bill unless the owner, within 30 of receipt of the bill, files a written notice with the Sewer Utility selecting the option for a levy not to exceed 5 equal annual installments, with interest at the rate of 10% per annum. Full payment shall be due at time of sale of property.

(b) Impose a standby charge for the period in excess of 12 months that such failure continues after the date the Public Sewer first becomes operational, following 10 days written notice to any owner failing to make a connection to the Sewer System, for an amount equal to 150% of the Sewer Service Equivalency Charge, payable quarterly for the period in which the failure to connect continues. Upon failure to make such payment, all charges shall be levied as a tax against the lot or parcel to which sewerage service was furnished.

D. Alternative Disposal Prohibited No person shall construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended to be used for the disposal of domestic wastewater, if a Public Sewer is available.

E. No person shall discharge to any Natural Outlet within the Sewer Utility in any area under the jurisdiction of the Sewer Utility, sewage or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this Ordinance.

(1) Plumbers
No plumber or other person will be permitted to engage in or work at any plumbing in connection with the Wastewater Works without first receiving a license from the State of Wisconsin, Department of Safety and Professional Service.

(2) Maintenance of Services
All sewer services within the limits of the Sewer Utility at the point of connection to the street main and all street mains, shall be maintained and repaired by the Sewer Utility without expenses to the property owner, except

when damaged by negligence, carelessness or intentional acts on the part of the property owner or occupant, in which case they will be repaired at the expense of the property owner. All Building Sewers from the point of connection at the street main to and throughout the premises served must be maintained free of defective conditions by and at the expense of the owner or occupant of the property served.

(3) Users

(a) Application for Service: Every person requesting connection to the Sewer System shall file an application in writing to the Sewer Utility, in such form as is prescribed for that purpose. The application must state fully and truly all the uses which will be presently made. If any change in use from that set forth is contemplated, the user must obtain further application and permission from the Sewer Utility. If the applicant is not the owner of the premises, the written consent of the owner must accompany the application.

(b) Applications for service for a property with more than one building, or more than one building with multiple units through one service connection will require separate applications.

(c) If it appears that the service applied for cannot be provided by the Sewer Utility, the Sewer Utility may reject the application. If the Sewer Utility approves the application, it shall issue a permit for services as shown on the application.

(d) All expenses relating to the connection to the Wastewater Works shall be paid by the applicant or owner.

(e) Tap Permits: No connections to the sewer main shall be made without a Tap Permit. Tap Permit applications must be completed prior to issuance of the Plumbing permit and payment of all applicable fees. Notification to the Sewer Utility must be made 48 hours prior to the tapping to allow for Utility/Engineering inspection of service tap. Obtaining a Tap Permit does not relieve a permittee of its duty to obtain all other necessary permits, or pay fees required by any city, county, state and federal laws, including those required by the State of Wisconsin Plumbing Code. After sewer connections have been installed into any building or upon any premises, no plumber shall make any alterations, extensions, or attachments, unless the party ordering such tapping or other work shall obtain and exhibit the proper permit for the same from the Sewer Utility.

(f) User to Keep in Repair: All users shall, at their own risk and expense, keep their service pipes in good repair and protected from frost, and shall prevent any unnecessary overburdening of the Sewer System. The

user is responsible for their service pipe from the street main through their facility.

(g) User's Use Only: No user shall allow other persons to connect to, or permit other uses to be made of, the Sewer System through his/her lateral.

(h) User to Permit Inspection: Every user shall permit the Sewer Utility or its duly authorized agent, at all reasonable hours of the day, to enter their premises or building to examine the pipes and fixtures, and the manner in which the drains and sewer connections operate; and they must at all times, frankly and without concealment, answer all questions put to them relative to its use.

(i) Responsibility: No claim shall be made against the Sewer Utility or its agents or employees by reason of the breaking, clogging, stoppage, or freezing of any service pipe; nor from any damage arising from repairing mains, making connections or extensions or any other work that may be deemed necessary by the Sewer Utility, absent legal liability. The Sewer Utility may cut off the service at any time for the purpose of repairs or any other necessary purpose, any permit granted or regulation to the contrary notwithstanding.

(j) Whenever it becomes necessary to shut off the sewer service within an area of the Sewer Utility, the Sewer Utility shall, if practicable, give reasonable notice to each affected user.

F. Excavations

Excavation requirements in the public right-of-way shall be as specified and required by the Sewer Utility over said right-of-way. In all cases, a permit is required.

(1) Laterals

(a) All laterals on private property shall be installed in accordance with State of Wisconsin Administrative Code as amended from time to time.

(b) The Building Sewer shall be inspected by the City Plumbing Inspector or his/her designee upon completion of placement of the pipe and before backfilling and tested before and after backfilling. The City Plumbing Inspector or his/her designee may order any pipes exposed and removed if said pipes were covered before inspection.

(2) Tapping the Main

(a) No person(s), except those having special permission from the Utility Manager or its designee, or persons in their service and approved by them, shall be permitted under any circumstances to tap the Public Sanitary Sewers. The kind and size of the connection to the Public Sanitary Sewers shall be that specified in the Sewer Tap Permit or order from the Sewer Utility**.** A minimum 48-hour notice shall be given to

the Sewer Utility prior to tapping any main to coordinate inspection of the tap on the Public Sewer Main.

(b) Pipes should always be tapped at the side, and not within 6 inches of the joint, or within 24 inches of another lateral connection.

(c) When any Building Sewer service is to be re-laid and there are two or more buildings on such service, each building shall be disconnected from such service, and a new and separate Building Sewer shall be installed for each building. Each non-residential building shall install an inspection manhole.

§ 300-8 – **Right of Entry** The Sewer Utility, its' agents and employees, shall be permitted to gain access to such properties as may be necessary for the purpose of inspection, observation, measurement, sampling and testing, in accordance with provisions of this Ordinance, pursuant to Wis. Stat. § 66.121 through § 66.125.

§ 300-9 - **Permits**

A. PERMITS REQUIRED (DOMESTIC WASTEWATER) - No connection, disconnection or reconnection shall be made to any of the sewers of the City from any building, premises, excavation place or property of any kind whatsoever by any building drain, tap or building sewer intended or designed to, or capable of, discharging any matter whether fluid or solid, into the sewers of the City unless a permit has first been issued.

(1) APPLICATION FOR PERMITS - Application for a permit shall be made in writing upon a form to be furnished by the City and shall state the name and address of the owner of the building and the owner of the land on which it is to be erected, the name and address of the contractor, the location of the building, the house number thereof and such other information as the Utility Manager may require. With such application there shall be submitted to the City a complete set of plans or a copy of a survey or site plan detailing the proposed location of the sanitary sewer.

(2) WAIVER OF REQUIREMENTS - At the option of the Utility Manager, plans, data, specifications and survey need not be submitted with an application for permit to execute minor alterations and repairs to any sewer lateral, private sewer main or private equipment, provided the proposed construction is sufficiently described in the application for permit.

(3) REVOKING PERMITS

(a) The Utility Manager may revoke any permit issued under the regulations of this code and may stop construction for any of the following reasons:

1. Whenever there is a violation of any regulation of this code or of any other ordinance, law, and orders, Wisconsin Statute or Wisconsin Administrative Code relating to the same subject matter;

2. Whenever the continuance of any construction becomes dangerous to life or property;
3. Whenever there is any violation of any condition or provision of the application for permit or of the permit;
4. Whenever any false statement or misrepresentation has been made in the application for permit, plans, drawings, data, specifications or plot plan on which the issuance of the permit or approval was based;

(b) Whenever there is a violation of any of the conditions of an approval for the use of any new materials, equipment, methods of construction devices or appliances.

(c) The notice to revoke a permit, certificate of compliance or approval shall be in writing and shall be served upon the applicant for the permit, owner of the premises and his agent, if any, and on the person in charge of construction. A "stop work order" shall be posted on the construction site.

(d) After the notice is served upon the persons and posted, it shall be unlawful for any person to proceed thereafter with any construction operation whatsoever on the premises and the permit which has been so revoked shall be null and void. Before any construction or operation is again resumed, a new permit, as required by this code, shall be procured and fees paid therefore and thereafter the resumption of any construction or operation shall be in compliance with the regulation of this code.

(4) FEES – All applications for a permit must be accompanied by the proper fee. Permit fees shall be set from time to time by resolution of the Commission.

(5) EXPIRATION OF PERMIT

(a) The permit shall become void unless construction is commenced within six (6) months from the date the permit is issued or if the work authorized by such permit is suspended at any time after work is commenced, for a period of more than sixty (60) days. The permit shall expire twelve (12) months from the date the permit is issued. Time periods referenced herein may be extended by the Utility Manager if the delay was due to conditions beyond the control of the applicant. No additional permits for the same work shall be issued unless a timetable of completion is agreed upon by the Utility Manager.

(b) Before commencing or recommencing work after the expiration of a permit, a new application and appropriate fee shall be submitted and issued.

B. WASTEWATER DISCHARGE PERMIT (NONDOMESTIC WASTEWATER)

(1) Wastewater Discharge Permit: A wastewater discharge permit is required under this section if a person's discharge into the Sewer Utility's Wastewater Works has any of the following components or is otherwise required by the Brookfield or Waukesha Ordinance:

(a) A BOD greater than 250 mg/l
(b) A total suspended solids concentration greater than 300 mg/l.
(c) A volume of 25,000 gallons per day or greater is discharged by any user at one or more points of discharge.
(d) Any of the characteristics listed under Section _____.
(e) Phosphorus 5mg/l.
(f) Ammonia nitrogen NH3N 25mg/l

Any person planning to discharge, changing the characteristics of discharge or whose discharge permit has expired shall make application to the Utility Manager or its designee within 60 days prior to the discharge. All persons currently discharging shall make application to the Utility Manager or its designee within 60 days after passage of this Ordinance and must have an executed permit within 60 days of application to discharge or shall discontinue discharging. A discharge permit shall be required for each separate point of discharge into the Sewer Utility's Wastewater Works. No person shall discharge waste or wastewater into the Sewer Utility Wastewater Works without a wastewater discharge permit, if required by the section.

(2) Permit Application: Users seeking a wastewater discharge permit shall complete and file an application with the Sewer Utility office on the form prescribed by the Sewer Utility. In support of this application, the user shall submit the following information:

(a) Name, address, and standard industrial classification number of applicant.
(b) Average daily volume of wastewater to be discharged.
(c) Wastewater constituents and characteristics as determined by a method approved by the Utility Manager or its designee.
(d) Time and duration of discharge.
(e) Average and peak wastewater flow rates, including daily, monthly and seasonal variations, if any.
(f) Site plans, floor plans, mechanical and plumbing plans and details to show all sewers and appurtenances by size, location and elevation.
(g) Description of activities, facilities and plant processes on the premises including all materials and types of materials which are, or could be, discharged.
(h) Each product produced by type, amount and rate of production.
(i) Number and type of employees and hours of work.
(j) Any other information as may be deemed by the Sewer Utility to be necessary to evaluate the permit application.

(3) Permit Conditions: Wastewater discharge permits shall be expressly subject to all provisions of this Ordinance and all other regulations, user charges and fees established by the Approving Authority. The conditions of wastewater discharge permits shall be uniformly enforced by the Sewer Utility in accordance with this Ordinance, and applicable State and Federal regulations. Permit conditions shall include the following:

(a) The Residential Equivalency Charge, Sewer Use Charge and Schedule for Surcharge fees for the wastewater to be discharged to the Wastewater Works.
(b) The average and maximum wastewater constituents and characteristics.
(c) Limits on rate and time of discharge or requirements for flow regulations and equalization.
(d) Requirements for installation of control manholes.
(e) Pretreatment requirements.
(f) Requirements for maintaining plant records relating to wastewater discharges as specified by the Sewer Utility and affording the Sewer Utility access thereto.
(g) Average and maximum pollutant concentrations and total daily average, and maximum pollutant discharges for all pollutants subject to limitations and prohibitions which are present in the user's wastewater discharge.
(h) Entering into a contractual agreement with the Sewer Utility. The contractual agreement shall contain the conditions set forth in the discharge permit, requirements for industrial cost recovery charges and other items deemed necessary by the Approving Authority.
(i) Other conditions as deemed appropriate by the Sewer Utility to ensure compliance with this Ordinance.

(4) Duration of Permits: A permit shall be issued for 1 year, or on a case-by-case basis, and shall be automatically renewed on a year-to-year basis thereafter, unless the person is notified by the Utility Manager or its designee within 60 days prior to the expiration of the permit or any renewal thereof. After such notification by the Utility Manager or its designee, the permit shall expire at the end of that year. The terms and conditions of the permit shall be subject to modification and change by the Utility Manager or its designee or the Fox River Water Pollution Control Center during the life of the permit, if required because of any Ordinances, statutes or rules and regulations of the Approving Authority of any applicable state or federal body. The person shall be informed of any proposed changes in his/her permit at least 60 days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

(5) Transfer of a Permit: Wastewater discharge permits are issued to a specific user for a specific operation. A wastewater discharge permit shall not be reassigned or transferred or sold to a new owner, new user, different premises, or a new or changed operation.

(6) Revocation of Permit: Any user who violates any of the conditions of their permit contractual agreement, or this Ordinance; or the Brookfield Industrial Wastes Code 13.20 as updated from time to time; or of applicable State and Federal regulations, is subject to having their permit revoked.

§ 300-10 - **Prohibited Discharges**

A. No person shall discharge or cause to be discharged any storm water, ground water, roof runoff, yard drainage, yard fountain, swimming pool or pond overflow into the collection system. Unpolluted water or waste shall be discharged to only storm sewers or to a natural outlet.

B. No person shall discharge or cause to be discharged to the collection system either directly or indirectly any of the following described wastes or wastewater:

(1) Any liquid having a temperature higher than 140 degrees Fahrenheit (60 degrees Celsius). Using test methods specified in 40 CFR Section 261.121.
(2) Any wax, grease, or oil, plastic or any other substance that will solidify or become discernibly viscous at temperatures between 32 degrees to 150 degrees Fahrenheit (0 degrees to 65 degrees Celsius).
(3) Any solids, liquids or gases which by themselves or by interaction with other substances may cause fire, explosion, hazards, create toxic fumes or in any other way be injurious to persons or property involved in the operation or maintenance of the Sewer System.
(4) Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the Wastewater Works, such as, but not limited to, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails, paper dishes, cups, milk containers, etc., either whole or ground by garbage grinders.
(5) Any premoistened non-woven disposable wipe marketed as a baby wipe or diapering wipe; any premoistened non-woven disposable wipe that is composed entirely of or in part of petrochemical-derived fibers and is marketed as cleaning wipes, disinfecting wipes, hand sanitizing wipes, antibacterial wipes, personal care wipes, or hygiene wipes. Additional care should be taken to avoid washing human and pet hair down the drain.
(6) Any garbage that has not been properly comminuted or shredded to such a degree that all particles will be carried freely in suspension in the municipal sewers (100% passing ½ inch screen, 90% passing ¼ inch screen).
(7) Any noxious or malodorous substance, which either singly or by interaction with other substances is capable of causing odors objectionable to persons of ordinary sensitivity.
(8) Any wastes or wastewater having a pH lower than 5.5 or higher than 9.0 or having any corrosive property capable of causing damage or hazards to the Sewer System.
(9) Any wastes or wastewater of such character and quantity that unusual attention or expense is required to handle them in the Sewer System.
(10) Any wastewater or wastes containing a toxic or poisonous substance such as plating or heat treating wastes in sufficient quantity to injure or interfere with wastewater treatment process, to constitute a hazard to humans or animals, to

create any hazard in the Sewer System, or which would cause the Sewer Utility wastewater treatment facilities to discharge any of the following pollutants in quantities in excess of the limitations established in the Wisconsin Administrative Code or WPDES Permit: cyanide, hexavalent chromium, trivalent chromium, copper, nickel, cadmium, zinc, phenols, iron and tin.

(11) Any radioactive wastes greater than allowable releases as specified by the current United States Bureau of Standards Handbooks dealing with the handling and release of radioactivity.

(12) Free or emulsified oil and grease exceeding on analysis an average of 300 mg/L of either or both of combinations of free or emulsified oil and grease, if, in the opinion of the Utility Manager it appears probable that such wastes or wastewater: See Section § 300-13 Fats, Oils, and Grease and sand trap installations.

(13) Any cyanides or cyanogen compounds capable of liberating hydrocyanic gas or acidification in excess of 0.5 mg/l by weight as cyanide in the wastes.

(14) Wastes or wastewater which:

(a) Cause unusual concentrations of solids or composition; as for example, in total suspended solids of inert nature (such as Fuller's Earth) and/or in total dissolved solids (such as sodium chloride, or sodium sulfate).

(b) Cause excessive discoloration in the wastewater treatment facilities discharge.

(c) Has BOD in excess of "normal strength" defined as waste not exceeding 250 mg/l, 300mg/l of Total Suspended Solids (TSS), 5 mg/l of Phosphorous or 25mg/l of ammonia nitrogen (NH3N) based upon a 24-hour composite sample.

(d) Is discharged without application for a wastewater discharge permit or contractual agreement.

(e) Cause damage to the collection system or impair the treatment process.

C. No person shall allow the discharge of slugs of water or wastes to the collection system which may be harmful to the operation of the Sewer System. Where, in the opinion of the Utility Manager, slugging does occur, each person producing such a discharge into the collection system shall construct and maintain at his/her own expense, a storage reservoir of sufficient capacity with flow control equipment to ensure an equalized discharge over a 24-hour period.

(1) No person shall discharge any waste or wastewater which would cause the wastewater treatment facilities to be in violation of any of the requirements of their WPDES permit.

(2) No person shall connect to and discharge to the collection system, unless there is capacity available in all downstream components of the Sewer System as determined by the Sewer Utility.

§ 300-11 - **Accidental Discharges**

Any person who accidentally discharges wastes or wastewater prohibited into the sanitary sewers or storm sewers shall immediately report such discharge to the Sewer Utility.

§ 300-12 - **Pretreatment Facilities**

A. The Approving Authority may require pretreatment facilities of any person discharging or planning to discharge industrial waste, if the waste or wastewater:

(1) Could cause damage to the collections system.
(2) Impair the treatment process.
(3) Cause the Utility to incur treatment costs exceeding those of domestic wastewater.
(4) Have any of the characteristics of the "Prohibited Discharges" described in Ordinance Section _____.
(5) Cause the wastewater treatment facilities to exceed its total design loading for volume BOD, suspended solids or pollutant.
(6) Cause a particular industry to exceed its design allocation for volume, BOD, suspended solids or any other pollutant.

B. Construction, operation and maintenance of pretreatment facilities shall be at the expense of the person discharging the industrial waste.

C. Plans, specifications and any other pertinent information relating to proposed pretreatment facilities shall be submitted for review of the Utility Manager prior to the start of construction.

D. In accordance with Wis. Admin. Code NR 114, all pretreatment facilities shall be operated by qualified personnel holding certificate of the proper class issued by the WDNR.

§ 300-13 - **Grease, Oil, Sand Traps and Inspection Manholes**
All Commercial Establishments and other users as described in this Section shall comply with the provisions set forth herein.

A. Commercial Establishments are those involved in the preparation of food for commercial purposes (i.e., preparing, serving or otherwise making available for consumption foodstuffs) and that use one of the following preparations activities: cooking by frying, baking, grilling, sautéing, rotisserie cooking, broiling, blanching, roasting, poaching, infrared heating, searing, barbecuing, and other food preparation activities that produce a hot, non-drinkable food product in or on a receptacle that requires washing. These facilities include, but are not limited to restaurants, bakeries, cafeterias, hotels, motels, hospitals, nursing homes, grocery stores, schools, churches, caterers, convenience stores, movie theaters, and other users as determined by the City of Pewaukee who discharge applicable waste. Commercial Establishments also include those that discharge grease and/or oil to the sanitary drain system such as oil change garages, car washes automobile repair facilities or any facility engaged with petroleum or mineral based materials.

B. Any new or existing Commercial Establishments or a facility that produces Fats, Oils, and Grease (FOG) shall be required to submit a FOG control plan that will effectively control the discharge of undesirable materials into the wastewater collection system. This will include but not be limited to best management practices (BMP) and grease and/or sand interceptors. Existing facilities will not be exempt nor "grandfathered" from this requirement. Grease, oil,

and sand interceptors or traps shall be provided for the proper handling of liquid wastes containing fats, oils or grease in excessive amounts, sand and other harmful ingredients except that such interceptors or traps shall not be required for private living quarters or residential dwelling units.

C. Installation Requirements

(1) All interceptors or traps shall be of a type and capacity approved by the WDNR and Wis. Admin. Code SPS 382.34 and shall be located so as to be readily and easily accessible for cleaning and inspection, and to be effective in capturing fats, oils, and grease to cool enough for these to be trapped. They shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperatures and shall be of substantial construction, gas tight, watertight, and equipped with easily removable covers.
(2) All sewer flows from toilets, urinals, lavatories, etc., shall not be discharged into the grease interceptor. These flows shall be conveyed separately to the sanitary sewer service lateral.
(3) Only floor drains which discharge or have the potential to discharge grease shall be connected to a grease interceptor.
(4) Garbage disposals if used must be connected to the grease interceptor.
(5) Commercial dishwashers must be connected to grease interceptors. Interceptors must be sized to allow enough detention time to allow water to cool and solidify and float to the top of the interceptor.
(6) Grease interceptors shall be constructed and sized in accordance with the State of Wis. Admin. Code SPS 382.34.
(7) Approval of proposed facilities or equipment by the WDNR or the Wisconsin Department of Safety and Professional Services does not in any way guarantee that these facilities or equipment will function in the manner described by their constructor or manufacturer nor shall it relieve a Fats, Oils or Grease Producing facility of the responsibility of enlarging, relocating or otherwise modifying such facilities to accomplish the intended purposes.
(8) Access to grease interceptors shall be available at all times to allow for proper maintenance and inspection.

D. Multi-tenant buildings shall have constructed and maintained means for access for sampling and measure flow of all discharges to the sanitary sewer for each tenant to the satisfaction of the City of Pewaukee. This includes but is not limited to the construction of a sampling manhole for each tenant. All monitoring facilities shall be constructed and maintained in accordance with all applicable state and local construction standards and specifications. Plans for the installation of monitoring facilities and related equipment shall be submitted for review and approved by the Utility Manager prior to the beginning of construction.

E. All grease, oil, and sand interceptors or traps shall be maintained by the user at his/her expense in continuously efficient operation and meet the discharge limits at all times. Grease interceptors must be pumped out completely at a minimum of every 90 days. Some interceptors

may require pumping on a more frequent basis. Maintenance of grease trap shall include the complete removal of floating and settled solids and inspecting and/or repairing any portion of the interceptor that is not functioning properly. Grease hauling shall be performed by a qualified licensed hauler.

F. Users must provide documentation with the following information at the request of city inspectors.

(1) Date
(2) Condition of interceptor after pumping, including needed repairs
(3) Name and license number of haulers
(4) Phone number of haulers
(5) Quantity pumped (volume)
(6) Waste disposal site location and contact information
(7) A copy of the original manifest for the waste hauler

Documentation must be retained for a period of no less than 3 years and made available upon request by the City of Pewaukee.

G. The City of Pewaukee shall have the right to inspect grease interceptors and traps to determine compliance with the requirements of this title. The discharger shall allow the Utility Manager or his/her designee to enter upon the premises of the discharger at all reasonable hours for purposes of inspection, sampling or records examination. Upon written notification by the City of Pewaukee, the facility shall be required to perform maintenance and submit a remediation report to the City of Pewaukee within a timeframe deemed reasonable by the Sewer Utility Manager. Upon inspection by the City of Pewaukee, the facility may be required to install at their expense, additional controls to provide a complete system that prevents discharges of undesirable materials into the wastewater collection system.

H. Chemical treatments such as drain cleaners, acid or other chemical additives to emulsify or remove grease are strictly prohibited. The introduction of grease or fat into a grease interceptor shall be prohibited per Wis. Admin. Code 382.34(5)(e).

§ 300-14 - **Wastewater Measurement and Sampling**

A. Wastewater flows shall be assigned in accordance with the Residential Equivalency Connection Table provided in Section § 300-23 unless:

(1) Any lot, parcel of land, building or premises discharging domestic wastewater or industrial waste into the collection system, the owner or occupant of such property installs necessary metering equipment as approved by the Sewer Utility Manager to measure the quantity of water pumped or discharged to the collection system. The user charge shall be based on the quantity of water so measured. Whenever the person fails to install such metering equipment, or where it is not practicable to measure the water consumed on any premises by a meter or meters, the Sewer Utility Manager shall determine the estimated volume of water discharged into the Wastewater Works.

(2) The City of Pewaukee may require the installation of devices for metering the volume of waste discharged if those volumes cannot otherwise be determined or if the user discharges over 25,000 gallons on any day for significant industrial users. The metering devices shall be owned and maintained by the property owner or user and may not be removed without consent of the Sewer Utility Manager.

(3) Control Manholes/Inspection Manholes: All persons discharging non-residential wastes into the Wastewater Works shall construct and maintain control manholes in suitable and accessible positions on public property, public right-of-way or easement to facilitate the observation, measurement and sampling of all wastes or wastewater. Control manholes shall be located and constructed in a manner approved by the Sewer Utility Manager. Plans shall be submitted to the Sewer Utility Manager prior to construction.

(4) Multi-tenant, non-residential buildings must have constructed and maintained means for access for sampling and measuring flow of all discharges to the sanitary sewer for each tenant to the satisfaction of the Sewer Utility Manager. All monitoring facilities shall be constructed and maintained in accordance with all applicable state and local construction standards and specifications. Plans for the installation of monitoring facilities and related equipment shall be submitted for review and approval to the Sewer Utility Manager prior to the beginning of construction.

§ 300-15 - **Industrial Waste Analysis**

A. The City of Pewaukee, Fox River Water Pollution Control Center or it's designee shall collect samples and perform laboratory tests on industrial waste discharges as necessary to verify quantity of flow and character and concentration of an industrial waste. The test results shall be used to determine the applicable surcharge.

B. Waste or wastewater discharge may be sampled manually or by the use of mechanical equipment as necessary to obtain a representative 24-hour composite sample. Samples shall be taken at intervals as determined by the Sewer Utility Manager or the Fox River Water Pollution Control Center.

C. When Wis. Admin. Code NR 202 requires the submittal of the character, and concentration of wastes, waste volume and production information to the City of Pewaukee or Fox River Water Pollution Control Center or WDNR, the user shall have the waste character and concentration determined by a WDNR certified testing laboratory. A copy of the test results and WDNR reports shall be submitted to the Sewer Utility Manager.

D. All measurements and test analysis of the characteristics of industrial wastes shall be determined in accordance with "Standard Methods".

§ 300-16 – **Sewer Service Charges and Reserve Capacity Assessment**

A. Basis for Sewer Service Charges - The sewer service charge imposed under this section shall generate sufficient revenues to pay the total operation and maintenance costs necessary to the proper operation and maintenance (including replacement) of the Sewer System. Such system of sewer service charges shall maintain the proportional distribution of operation and maintenance costs among user classes.

B. Sewer Service Charge

(1) A Sewer Service Charge is hereby imposed upon each building or premise (user) served by the Sewer System or otherwise discharging sewage, including non-domestic and industrial wastes, into the system. The annual Sewer Service Charge shall be the sum of the following components, rounded to the nearest 10th of a dollar when computed on a quarterly basis:
   (a) One Administrative Component;
   (b) The product of the Operation and Maintenance Component times the number of residential equivalent connections assigned to a user; and
   (c) The product of the Debt Service Component times the number of residential equivalent connections assigned to the user.

(2) The Administrative Component shall be the product of 50% of the Utility's budgeted administration costs divided by the base number of sewer users.

(3) The Operation and Maintenance Component shall be the product of the budgeted sewer system operating and maintenance costs divided by the base number of residential equivalent connections. Depreciation expense shall be included in the Operation and Maintenance Component of the Sewer Service Charge. The depreciation expense included in the Utility's budget for operation and maintenance shall be computed on a basis consistent with generally accepted accounting principles. At a minimum, depreciation included in the Operation and Maintenance Component of the Sewer Service Charge shall equal the yearly replacement costs as defined by Wis. Admin. Code NR 128.3, and 40 CFR 35.2005(30)(i) and (ii) of the Federal Register.

(4) The Debt Service Component shall be the product of the debt service requirement necessary to make the subsequent year's payments on the Wisconsin Clean Water Fund Loan, or any other financing used to upgrade and expand the Fox River Water Pollution Control Center, Interceptors with shared flow between the Lake Pewaukee Sanitary District, Town of Brookfield Sanitary District No. 4 and the City of Brookfield, and the Village of Pewaukee's force main and lift stations, and any other costs as assigned by the Common Council of the City of Pewaukee divided by the base number of residential equivalent connections.

(5) The Debt Service Component is intended to accumulate, by the end of each calendar year, funds sufficient to meet the subsequent year's debt service needs. The Utility has established a Reserve Capacity Assessment (RCA) to finance, among other projects, the costs of new, upgraded, and existing capacity in the Fox River Water Pollution Control Center. Any and all funds collected through the RCA may be used to offset the Debt Service Component of the Sewer Service Charge. The Common Council shall determine, in conjunction with the approval of the annual Sewer Service Charge, the amount, if any, of accumulated RCA funds to be used to offset the Debt Service Component of the Sewer Service Charge.

(6) The Base Number of Residential Equivalent Units shall be the number of residential equivalent connections serviced by the Utility as of the last day of the preceding fiscal year.

(7) The Base Number of Sewer Users shall be the number of sewer users serviced by the Utility as of the last day of the preceding fiscal year.

C. Quarterly Billings: Users shall be billed quarterly for one quarter of the annual Sewer Service Charge. Such bills become due and payable on the 10th of the month following the period for which service is rendered. A late payment charge of 1.0% per month shall be added to bills not paid within 20 days of issuance. The late payment charge shall be applied to the total unpaid balance for utility service, including unpaid late payment charges. The late payment charge is applicable to all customers.

D. Prorated Billings: Quarterly billings of the Sewer Service Charge shall be prorated for new service connections based upon the number of months of service during the quarter. Service starting on or before the 15th day of the month shall be treated as occurring on the first day of that month. Service starting after the 15th day of the month shall be treated as occurring on the 1st day of the subsequent month.

(1) Excess Revenues: Excess Revenues collected from a user class within a fiscal year shall be applied to that user class for the Operation and Maintenance Component of the Sewer Service Charge in the subsequent year. Excess revenues shall be computed by the end of the second quarter of the subsequent fiscal year and shall be applied equally to the Sewer Service Charge for the second, third and fourth quarter of the fiscal year. Excess Revenues shall be defined as that amount of revenue generated by the Sewer Service Charge in excess of the sum of:

(a) Actual Operation and Maintenance Costs, including 100% of actual depreciation expense computed on a basis consistent with generally accepted accounting principles,
(b) Administrative Costs allocated to the sewer utility,
(c) All debt service costs allocated to the sewer utility, and
(d) A rate of return of 8.5% on the sewer utility’s Net Investment Rate Base.

(2) Net Investment Rate Base: shall be the larger of zero or the average net book value of sewer system assets, including assets constructed jointly with other governmental agencies, individuals, or other organizations, less the average of contributions in aid of construction.

(3) Notification: Users shall be notified annually of the portion of the Sewer Service Charge attributable to wastewater treatment services.

E. Industrial and Commercial Charges for Other Than Domestic Wastewater and Surcharge for Discharging Conventional Pollutants.

(1) Charges for Wastewater other than Domestic Wastewater shall be based on Flow, BOD, Suspended Solids, Phosphorus and such other constituents which affect the cost of the collection and treatment. All persons discharging wastes into the Sewer System are subject to a surcharge, in addition to any other wastewater service charge, if their wastewater has a concentration greater than Domestic Wastewater concentrations. The volume of flow used for computing waste surcharges shall be the metered water consumption, or the actual volume of waste as determined by an industrial waste meter in installation. The amount of surcharge shall reflect the cost incurred by the Sewer Utility in removing BOD, Suspended Solids, Phosphorus, and other pertinent constituents. The surcharge shall be computed on the basis of Model No. 2, Federal Register, Vol. 39, No. 29, Feb. 11, 1974, p. 5270.

$$\text{Surcharge} = [B\ (B) + S\ (S) + P\ (P)]\ V$$

(2) Surcharge for Discharge of Toxic Pollutants
Users discharging toxic pollutants prohibited by this ordinance, shall in addition to any fines or penalties levied by the Sewer Utility pay for any increased operating, maintenance, including depreciation, and administrative costs attributable to such discharge.

F. Reserve Capacity Assessments

The City has levied and assessed upon each lot or parcel of land currently within the Sewer Utility, but not having an existing connection to the Sewer System and upon land subsequently attached to the Sewer Utility, a Reserve Capacity Assessment (RCA). Each RCA charge shall be payable as herein provided and shall be on the basis of one RCA charge for each Residential Equivalent Connection connected to the Sewer System.

(1) Schedule of Charges: The Reserve Capacity Assessment for a single-family residence shall be as determined by resolution by the Common Council which shall also be the unit of charge for a Residential Equivalent Connection. The Director of Public Works/City Engineer shall determine the residential equivalency units for all other categories of buildings. Special charges may be

determined by the Approving Authority for large commercial or industrial users. The RCA charge shall be increased as required from time to time by the Sewer Utility.

(2) Payments: Payments of the RCA charge for future connections shall be made in full prior to the issuance of a building or plumbing permit.

G. Special Rates: The approving authority may at any time hereafter, set special rates for any large commercial service, industrial use of any other unique user that does not readily fit into other categories of users.

H. Special Assessments - Nothing contained in this Ordinance shall prohibit or preclude the City from levying, from time to time, special assessments in the manner provided by law.

§ 300 –17 - **Annual Budget and Method of Payment of Charges**

A. Annually, before November 1st, the Sewer Utility shall prepare a budget for the subsequent fiscal year which shall be separated into the following sections, 1) Operation, 2) General Maintenance and Administration, and 3) Debt Service.

B. Billing: The property owner is held responsible for all sewer bills on premises that they own. All sewer bills and notices of any nature, relative to the sewer service, shall be addressed to the owner and/or occupant and delivered to the addressee by first class mail.

C. Failure to Receive Bill No Penalty Exemption: Reasonable care shall be exercised in the proper delivery of sewer bills. Failure to receive a sewer bill, however, shall not relieve any person of the responsibility for payment of sewer rates within the prescribed period, nor exempt any person from any penalty imposed for delinquency in the payment thereof.

D. Delinquent Bills: On the 15th day of October each year, notice shall be given to the owner or occupant of all lots or parcels of real estate to which service has been furnished prior to October 1 and payment for which is owing and in arrears at the time of giving such notice. The Utility Clerk shall furnish the City Treasurer with a list of all such lots or parcels of real estate, and the notice shall be given by the City Treasurer. The Utility Clerk shall notice all delinquent accounts. Notice shall be in writing and shall state the amount of such arrears, including any penalty assessed pursuant to the rules of such Sewer Utility; that unless the same is paid by the 31st day of October, the same shall be assessed a 10% penalty. Any remaining arrears as of November 15th shall be levied as a special charge on the real estate tax bill against the lot or parcel of real estate to which service was furnished and for which payment is delinquent as above specified. Such notice may be served by delivery to either such owner or occupant personally, or by letter addressed to such owner or occupant at the post office address of such lot or parcel of real estate. On the 16th day of November, the City Treasurer

issuing the notice shall certify and file with the Sewer Utility a list of all lots or parcels of real estate, giving the legal description thereof and the amount of unpaid arrears and penalty. Each such delinquent amount, including such penalty, shall thereupon become a lien upon the lot or parcel of real estate to which the service was furnished and payment for which is delinquent, and the Sewer Utility shall insert the same as a tax against such lot or parcel of real estate pursuant to Wis. Stat. § 66.0809. All proceedings in relation to the collection of general property taxes and special assessments and to the return and sale of property for delinquent taxes and special assessments shall apply to said tax if the same is not paid within the time required by law for payment of taxes upon real estate.

§ 300 –18 - **Equipment Replacement Account**

A. The Sewer Utility shall establish a segregated replacement account for the purpose of accumulating cash reserves. Such reserves shall be available for the Replacement Costs of the Sewer System as necessary for the purpose of extending the useful life of mechanical equipment. The account was initially funded with cash in an amount equal to the depreciation accumulated on all mechanical equipment associated with the operation and maintenance of the Sewer System incurred through December 31, 1988.

B. The Sewer Utility shall periodically, but at least annually, deposit cash in the Equipment Replacement Account equal to the yearly depreciation computed on mechanical equipment associated with the Sewer System.

C. Depreciation for this purpose shall be computed using the half year convention on the straight-line method over the estimated useful life of the mechanical equipment.

§ 300-19 – **Records**

The City shall keep a record of all applications for connections, disconnection or reconnection permits, and each permit shall be regularly numbered in the order of its issue, and a record showing the number, description, and size of all laterals installed indicating the kind of materials used and the location of such lateral shall be kept. In addition, the City shall keep a record of all inspections made, the removal of buildings or their laterals, and a record of all fees collected showing the date of their receipt.

§ 300-20 **Confidentiality of Critical Information**

When requested by the user furnishing a report or permit application or questionnaire, the portions of the report, or other document, which might disclose trade secrets or secret processes shall, to the extent legally permissible, remain confidential.

§ 300-21 **Violations**

A. Any person who fails to comply with any of the provisions of this Ordinance or with an order of the Approving Authority issued in pursuance of this Ordinance, or shall tamper with metering or sampling, shall be liable to the Utility for any expense, loss or damage occasioned by such violation including reasonable attorney fees and other expenses of litigation and upon conviction of any violation of this Ordinance, shall be

fined not less than $200 nor more than $5,000 per violation, plus damages. Each day a condition is allowed to exist which is contrary to all, or any part of this Ordinance shall constitute a new violation. Change of ownership or occupancy of premises delinquent under the provisions of this Ordinance shall not be cause for reducing or eliminating charges due and penalties for violations

B. If any user shall discharge waste or wastewater with a BOD concentration of 900 mg/l or greater, said user shall pay a penalty of $1,000 per violation. Each day a violation occurs shall constitute a separate violation. Said penalty shall be added to the monthly or quarterly billing statement.

C. In addition to the Court proceedings and penalties described in the foregoing sections of this Ordinance, whenever a person violates any provision of this Ordinance or fails to comply with any order of the Approving Authority, the Approving Authority may order that an action be commenced on behalf of the Utility/City of Pewaukee in the Circuit Court for Waukesha County for the purpose of obtaining an injunction restraining the person violating the Ordinance or failing to comply with the Order, from making any further discharges into the Sewer System of the Utility.

D. Any existing or new FOG-producing facility not submitting a FOG and food waste control plan within the timeframe determined by the Utility Manager or its designee shall be fined no more than $50 per day for each day the plan is late.

E. Any FOG producing facility, after inspection by the City of Pewaukee, that has not made the necessary repairs or remediation and submitted a remediation report as ordered by the City of Pewaukee within the designated timeframe shall be fined no more than $100 per day for each day the plan is late.

F. Any FOG producing facility found using chemical and/or biological additives to emulsify or remove grease shall be fined no more than $100 for the 1st offense, $200 for the 2nd offense, $1,000 for 3rd offense and $2,000 for each offense thereafter.

G. Any user exceeding the maximum daily concentration of 300 mg/l of grease shall be fined no more than $500 per offense.

H. Facilities whose discharge causes a deposit or obstruction or in any manner causes damage to or impairs the public sewerage collection system and wastewater treatment facility shall be liable for any expense, loss caused by such violation or discharge. The Utility shall bill the user for the cost incurred for any cleaning, repair, and replacement of the public sewerage collection system or restoration of receiving water damaged by any discharges from the public sewerage collections system.

I. Facilities found guilty of falsifying maintenance and manifest records shall be fined $500 for 1st offense, $1,000 for 2nd offense, $2,000 for 3rd offense and $5,000 for each subsequent offense. In addition, further criminal charges and penalties may be applicable.

J. REMEDIES CUMULATIVE - All remedies provided for in this Ordinance and in the City of Pewaukee Sewer Use Ordinance are distinct and cumulative to any other right or remedy under this Ordinance or any other City of Pewaukee Ordinance or afforded by law or equity; and may be exercised by the Commission concurrently, independently, or successively.

§ 300.22 – **Miscellaneous**

(1) SUPERSEDING PREVIOUS SEWER SERVICE CHARGE ORDINANCES - This Ordinance establishing sewer service charges and user regulations shall supersede and replace all previous sewer service ordinances of the City.

§ 300.23 – **Residential Equivalency Connection Table**

The following list of users will be assigned R.E.C.'s as listed:

A. RESIDENTIAL

Description	R.E.C.
Single Family	1
Duplex	2 (1 per Unit)
2 Units and Up to 7 Units	0.8 (per Unit)
Multi-Family (8 or More Units)	0.75 (per Unit)
Vacant Lot	0

B. COMMERCIAL / INDUSTRIAL

SIC CODE	DESCRIPTION	GALLONS PER EMPLOYEE HOURS
0742	Veterinary Services for Animal Specialties	20.0
0752	Animal Specialty Services	16.0
0782	Lawn and Garden Services	10.0
1446	Industrial Sand	5.0
1521	General Contractors – Residential	2.3
1541	General Contractors - Industrial Bldgs. & Warehouses	2.3
1611	General Contractors - Public Works	2.3
1711	Plumbing, Heating & Air Conditioning	2.3
1731	Electrical Work	2.3
1761	Roofing and Sheet Metal Work	2.3
1799	Special Trade Contractors, N.E.C.	2.3
2013	Sausage & Other Prepared Meats	110.0
2065	Candy and Other Confectionary Products	50.0
2087	Flavoring Extracts & Syrups, N.E.C.	75.0
2394	Canvas and Related Products	2.3
2431	Millwork	5.0

2434	Wood Kitchen Cabinets	5.0
2522	Metal Office Furniture	2.3
2721	Periodicals: Publishing & Printing	10.0
2731	Books: Publishing & Printing	10.0
2751	Commercial Printing, Letterpress & Screen	10.0
2752	Commercial Printing, Lithographic	10.0
2789	Bookbinding and Related Work	10.0
2795	Lithographic Platemaking & Related Services	25.0
2819	Industrial Inorganic Chemicals, N.E.C.	10.0
2834	Pharmaceutical Preparations	10.0
2841	Soap & Other Detergents	15.0
2893	Manufacturing of Printing Ink	30.0
2899	Chemicals & Chemical Preparations, N.E.C.	10.0
3079	Miscellaneous Plastics Products	85.0
3111	Leather Tanning & Finishing	345.0
3272	Concrete Products, Except Block & Brick	35.0
3273	Ready-Mixed Concrete	90.0
3293	Gaskets, Packings and Sealing Devices	2.3
3325	Steel Foundries, N.E.C.	115.0
3341	Secondary Smelting & Refining of Non-ferrous Metals	2.7
3441	Fabricated Structural Metal	25.0
3442	Metal Doors, Sash, Frames, Molding and Trim	2.3
3444	Sheet Metal Work	40.0
3451	Screw Machine Products	10.0
3462	Iron and Steel Forgings	5.0
3469	Metal Stampings, N.E.C.	5.0
3471	Electroplating, Plating, Polishing, Anodizing, etc.	50.0
3479	Coating, Engraving and Allied Services, N.E.C.	100.0
3495	Wire Springs	2.3
3498	Fabricated Pipe and Fittings	2.3
3499	Fabricated Metal Products, N.E.C.	25.0
3531	Construction Machinery and Equipment	5.0
3544	Specialty Dies & Tools, Die Sets, Jigs & Fixtures, Molds	10.0
3562	Ball and Roller Bearings	5.0
3565	Industrial Patterns	5.0
3569	General Industrial Machinery & Equipment, N.E.C.	4.0
3576	Scales and Balances, Except Laboratory	2.3
3599	Machinery, Except Electrical, N.E.C.	10.0
3613	Switchgear and Switchboard Apparatus	5.0
3632	Household Refrigerators, Home & Farm Freezers	2.3
3694	Electrical Equipment for Internal Combustible Engines	2.3
3714	Motor Vehicle Parts and Accessories	75.0
3999	Manufacturing Industries, N.E.C.	2.3
4141	Local Passenger Transportation Charter Service	2.3
4151	School Busses	2.3
4212	Local Trucking Without Storage	10.0

4213	Trucking, Except Local	2.3
4225	General Warehousing and Storage	2.3
4311	U.S. Postal Service	2.3
4722	Travel Agency	2.3
4811	Telephone Communication	2.3
4832	Radio Broadcasting	2.3
5042	Toys and Hobby Goods and Supplies	2.3
5063	Electrical Apparatus and Equipment	2.3
5064	Electrical Appliances	2.3
5072	Hardware – Wholesale Distribution	2.3
5082	Construction and Mining Machinery and Equipment	2.3
5084	Industrial Machinery and Equipment	2.3
5142	Frozen Foods	10.0
5149	Wholesale Groceries & Related Products, N.E.C.	10.0
5199	Wholesale Non-durable Goods, N.E.C.	10.0
5211	Lumber & Other Building Materials Dealers	2.3
5231	Paint, Glass, Wallpaper	2.3
5251	Hardware – Retail Sales	2.3
5261	Retail Nurseries, Lawn & Garden Supply Stores	10.0
5271	Mobile Home Dealers	2.3
5311	Department Stores	2.3
5331	Variety Stores	2.3
5411	Grocery Stores with Meat & Produce Departments	16.0
5412	Grocery Stores without Meat & Produce Departments	6.0
5441	Candy, Nut and Confectionery Stores	10.0
5462	Retail Bakeries – Baking and Selling	10.0
5499	Miscellaneous Food Stores	2.3
5511	Motor Vehicle Dealers	5.0
5531	Auto and Home Supply Stores	2.3
5541	Gasoline Service Stations	15.0
5551	Boat Dealers	5.0
5611	Clothing Stores	2.3
5661	Shoe Stores	2.3
5681	Furriers and Fur Shops	5.0
5711	Furniture, Floor Coverings, Appliances	2.3
5812	Eating Places (Restaurants)	20.0
5813	Drinking Places (Taverns)	45.0
5912	Drug Stores and Proprietary Stores	2.3
5921	Liquor Stores	2.3
5931	Used Merchandise Stores	2.3
5941	Sporting Goods Stores and Bicycle Shops	2.3
5942-9	Miscellaneous Stores	2.3
5992	Florists	10.0
5999	All Other Retail Stores	2.3
6022-59	Banks	2.3
6122-63	Savings and Loans	2.3
6311	Insurance Companies	2.3

6411	Insurance Agents	2.3
6512	Operators of Non-residential Buildings	2.3
6515	Operators of Residential Mobile Home Sites	2.3
6531	Real Estate Agents and Managers	2.3
6553	Cemetery Subdividers and Developers	2.3
6722	Management Investment Offices	2.3
7211	Power Laundries, Family and Commercial	105.0
7212	Cleaning and Laundry Pick-up Stations	2.3
7215	Factory Coin-Op Laundries and Dry Cleaning	910.0
7221	Photographic Studios	2.3
7231	Beauty Shops	16.0
7241	Barber Shops	10.0
7261	Funeral Service and Crematories	15.0
7299	Miscellaneous Services, N.E.C.	2.3
7311	Advertising Agencies, Employment Services	2.3
7332	Blueprinting and Photocopying Services	2.3
7361	Employment Agencies	2.3
7391	Research and Development Laboratories	10.0
7395	Photofinishing Labs	10.0
7512	Passenger Car Rental and Leasing, w/o Drivers	10.0
7531	Top and Body Repair Shops	5.0
7534	Tire Retreading and Repair Shops	20.0
7538	General Automotive Repair Shops	5.0
7542	Car Washes	115.0
7622	Radio and Television Repair	2.3
7699	Repair Shops and Related Services, N.E.C.	2.3
7814	Motion Picture and Tape Production	10.0
7832	Motion Picture Theaters, not Drive-Ins	20.0
7911	Dance Halls, Studios and Schools	20.0
7922	Theatrical Producers	20.0
7933	Bowling Alleys	50.0
7992	Public Golf Courses	45.0
7997	Membership Sports and Recreation Clubs	75.0
7999	Roller Rinks, Gymnasiums, Museums	20.0
8011	Offices of Physicians	10.0
8021	Offices of Dentists	10.0
8031	Offices of Osteopaths	10.0
8041	Offices of Chiropractors	10.0
8051	Skilled Nursing Care	20.0
8091	Health and Allied Services, N.E.C.	10.0
8111	Attorneys	2.3
8211	Elementary and Secondary Schools	20.0
8221	Colleges, Universities and Professional Schools	25.0
8231	Libraries and Information Centers	20.0
8249	Vocational Schools, N.E.C.	20.0
8421	Arboreta, Botanical and Zoological Gardens	45.0
8621	Professional Membership Organizations	2.3

8641	Civic, Social and Fraternal Associations	15.0
8661	Religious Organizations (hours occupied only)	20.0
8699	Membership Organizations, N.E.C.	2.3
8911	Engineering, Architectural & Surveying Services	2.3
8931	Accountants	2.3
9199	General Government, N.E.C.	2.3
9221	Police Protection	2.3
9224	Fire Protection	2.3
9451	Administration of Veteran's Affairs	2.3
9999	All Offices, N.E.C.	2.3

NOTE: Minimum R.E.C. per user shall be 1 R.E.C. Any category of user not listed shall be assigned an R.E.C. by the Common Council after recommendation of the Director of Public Works/City Engineer. All R.E.C.'s shall be established to the nearest 0.25 R.E.C.

NOTE: Parsonages should be regarded as single family residences.

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and possible action regarding Mandatory Sewer Connections on Various Assessment Districts [Wagner/Mueller]

Sub Item Agenda Language:

Background Provided By:
Magdelene Wagner

Background:
The City has several assessment districts in which the 15-year mandatory connection to the municipal sanitary sewer system has expired, is due to expire, or will expire in the near future. There are a number of properties within these assessment districts that have not yet connected. The impacted areas include:

Rolling Ridge Subdivision
Arrowhead Trails Subdivision
Green Road
Duplainville Road
Still River/Bluemound Corridor
Valleyview
Sunnyridge

Property owners have 15 years from the date of the final resolution to connect to the municipal sanitary sewer system and abandon their existing private system. This requirement was established by the City as its policy and has been included in final resolutions since the early 2000s. All resolutions were mailed to the affected property owners at the time the assessments were levied.

If connection is not made in accordance with our ordinance, a standby change of 150% of the quarterly sewer charge will be sent to each property owner on their quarterly utility bill. The current quarterly sewer rate is $141. Therefore, a quarterly standby charge of $211.50 will be added to the utility bill of any property that has not connected by the applicable deadline.

When sanitary sewer is extended into an area, the City typically installs the sewer main and a lateral to the property line. Most affected properties will be able to connect to this lateral. The Bluemound/Still River area is an exception because it was constructed as a developer-financed project and they were not required by the Common Council to install the full laterals. All properties in this area have a wye connection installed at the sewer main, but only a handful of property owners opted for the optional lateral to be installed at the time of the sewer installation. Most properties in this area will need to install the

entire lateral from the building to the sewer main.

It should be noted that properties along Bluemound Road (CTH JJ) will be required to obtain a permit from Waukesha County because work will occur within the County right-of-way to make the sewer connection. All remaining properties will be required to obtain the City's right-of-way permit.

The property owners will need to pay a private plumber to connect the system, abandon their existing private system, obtain any required permits, and pay reserve capacity assessments (RCA) and/or interceptor capacity assessments (ICA). Costs will vary depending on the area in which they are located and each individual connection scenario. Many of the special assessments should be paid in full at the 15-year mandatory connection time.

Staff would like to send notices to the affected property owners and provide one year from the date of the notice to connect, which will exceed the deadline to connect for a few of the assessment districts. We understand that many of these residents will have likely forgotten, or are not the original owners of the property, and desire to give them some time to make these connections and plan for the expenses. After one year from this notice, the standby charge would be enacted for each property.

Fiscal Impact:
RCA = $3,767
Waukesha Connection = varies by property size
Bluemound ICA = $888.08
Green Road ICA - $7,234
City ROW permit = $75 plus $1,000 1 yr. deposit, $10,000 deposit if in pavement
County Permit = $410, estimated
Plumbing Permits = $140, estimated
Plumbing Costs = varies for each property

Recommended Motion:
Public Works Committee recommends that the Council allow affected residents one year to connect from the date of the City's reminder notice to the residents, or the date of the resolution, whichever is later, and if connection is not made by the deadline, to enact the 150% quarterly sewer charge.

City of Pewaukee - New Agenda Item

Agenda Language:
Discussion and possible action regarding whether to continue battery recycling at the DPW Recycling Center. [Stevens]

Sub Item Agenda Language:

Background Provided By:
Magdelene Wagner/Matthew Stevens

Background:
The City of Pewaukee currently accepts used batteries for recycling at the DPW Recycling Center. However, staff is recommending discontinuing this service for the following reasons:

1. It takes approximately 1.5 years to collect enough batteries to fill a recycling bin and warrant a trip to the recycling facility.
2. Each full bin generates only approximately $200 in recycling revenue.
3. Due to the long collection period, contamination is a frequent occurrence. Contamination issues include leaking batteries, the disposal of improper battery types, and water contamination from rain and snow melt mixing in. Staff is spending time in a caustic environment to correct these issues.
4. The storage at the recycle yard needs to be updated to meet current Wisconsin Department of Natural Resources standards including containment structure and protection from the elements.
5. It is very simple to recycle your old battery when you replace it. Most businesses that sell batteries also accept used batteries for recycling, and in many cases, provide a credit or rebate when the used battery is returned. This is a more efficient method of proper battery disposal.

Given the low usage, minimal financial return, and inefficiency of the current collection program, staff recommends discontinuing battery recycling services at the DPW Recycling Center.

Fiscal Impact:
The City will lose approximately $200 every 1.5 years if battery collection services are discontinued. However, eliminating this program will also remove staff exposure to caustic materials while reducing the labor costs associated with cleaning up contamination.

Recommended Motion:
Public Works Committee recommends to the Common Council to eliminate battery

recycling at the DPW Recycling Center.