BOARD OF WATERWORKS COMMISSIONERS AGENDA

January 16, 2023 at 3:30 PM

Water Utility Admin Office, 72 Park Avenue, Sheboygan WI

Persons with disabilities who need accommodations to attend this meeting should contact the Sheboygan Water Utility, (920) 459-3805. Persons other than commission, committee, and board members who wish to participate remotely shall provide notice to the Utility at 920-459-3805 at least 24 hours before the meeting so that the person may be provided a remote link for that purpose.

OPENING OF MEETING

1. Pledge of Allegiance

MINUTES

2. Approve minutes from the Dec. 19, 2022 meeting

REPORTS

3. Financial reports and approval of vouchers

4. Superintendent's report including operations, construction-maintenance, and customer relations/fiscal

ITEMS FOR DISCUSSION AND POSSIBLE ACTION

5. Review options for filter rehab/replacement.

6. Request approval to purchase water meters

7. Review of Raw Water Improvements project

8. Request Board approval of 2022 4th Quarter report and transmittal to Council

PERSONNEL

9. Update on Distribution Tech recruitment

NEXT MEETING

10. Next meeting will take place on: February 20, 2023

ADJOURN

11. Motion to Adjourn

In compliance with Wisconsin's Open Meetings Law, this agenda was posted in the following locations more than 24 hours prior to the time of the meeting:

City of Sheboygan
spirit on the lake Water Utility

REPORT OF BILLING

DECEMBER 2022

		2022	2021	Increase or (Decrease)
Quarterly Metered*				
(Dist I - north of Superior Ave)	Residential	236,256.33	216,085.89	20,170.44
	Multi-Family	17,343.03	15,854.53	1,488.50
	Commercial	14,220.73	11,977.26	2,243.47
	Industrial	704.92	568.68	136.24
	Public	5,352.96	4,058.69	1,294.27
	Subtotal	**273,877.97**	**248,545.05**	**25,332.92**

* Billing for scheduled district only for the three preceding months usage.

Public Fire Protection	65,437.87	63,592.75	1,845.12
Flat Rate	32,212.55	31,522.67	689.88
Monthly Metered	340,970.51	325,840.65	15,129.86
Sheboygan Net	**712,498.90**	**669,501.12**	**42,997.78**
Sheboygan Falls	45,506.77	49,220.75	(3,713.98)
Kohler	24,119.09	25,986.25	(1,867.16)
Total	**782,124.76**	**744,708.12**	**37,416.64**

Total accumulative billing for 2022 is $10,210,270.67. An increase of $669,242.74 from 2021 accounted for as follows:

	2022-Total Year to Date
Sheboygan	695,524.27
Sheboygan Falls	(47,955.08)
Kohler	21,673.55
	669,242.74

Total bills mailed December, 2022: 6,937

Residential	6,206				
Multi-Family	86	Multi-Family	9		
Commercial	208	Commercial	20		
Industrial	6	Industrial	66		
Public	34	Public	9	Fire Protection	293
Quarterly	**6,540**	**Monthly**	**104**	**Flat Rate**	**293**

City of Sheboygan
spirit on the lake Water Utility

CASH RESERVE
December 31, 2022

Ending balance on report for November 30, 2022		13,726,280.93
Plus:	Receipts	413,678.56
	Misc Receipts	9,389.80
	Direct Pay Receipts	398,052.03
	Stop Loss Reimbursement	-
	Money Market/CDARs Investment Interest	5,748.75
Minus:		
	Disbursements - vendors and payroll	(568,297.91)
	Bank Service Fees	(345.98)
	Health & Dental Claims/Adm Costs	(78,960.82)
	NSF Checks & Customer Refunds	(744.26)
	Invoice Cloud/Paymentech Deposit Fees	(7,048.67)
	Reallocate Sewer/Garbage - payments	(54.13)
	Reallocate Sewer/Garbage - monthly	1,763.66
	SDWL LSL Reimbursement	24,275.00
	SDWL RWI Reimbursement	1,278,268.30
	Automated Credit Card Payments	(2,775.51)
	Postage	(5,000.00)
	Utility Water Payments	(2,053.78)
Ending Balance	**December 31, 2022**	**$ 15,192,175.97**

Note: The above amount includes:

Bond Reserve Fund	644,319.88
LSL Revolving Loan Fund	188,063.96
Money Market Investment	4,001,800.50
Health Insurance Restricted Reserve Defunded	-
ARPA Money Market Restricted - RWI	5,028,941.17
BAN Funds for Construction	-
Total	**$ 9,863,125.51**

General Unrestricted Operating Cash 5,329,050.46

City of Sheboygan Water Utility
spirit on the lake

APPROVAL OF VOUCHERS

December 31, 2022

Total Of The General Vouchers	$	395,200.05
Gross Payroll	$	186,966.35
Net Payroll	$	111,002.83

BOARD OF WATER COMMISSIONERS

_____
PRESIDENT

_____
SECRETARY

_____
MEMBER

_____
SUPERINTENDENT

December 2022

OPERATIONS' DEPARTMENT MONTHLY REPORT

	HIGH LIFT		LOW LIFT		2022 VS 2021
PUMPAGE	**2021**	**2022**	**2021**	**2022**	HL
Total in MG	340.743	320.275	347.996	330.484	-6.01%
Daily Average (MG)	10.992	10.349	11.226	10.661	
Max. Day (MG)	13.155	12.942	13.636	13.350	2022 VS 2020
					HL
Gal/KwH	1,200	1,203	5,082	4,931	-3.77%

ELECTRICAL COSTS					
	2021		**2022**		
A. Pumping:	**KwH**	**$**	**KwH**	**$**	
High Lift	283,994	$19,661.78	263,621	$21,389.15	
Low Lift	68,481	$4,884.04	66,474	$5,393.43	
Wash Pump 1	3,500	$192.53	4,200	$340.77	
Georgia St. Bstr.	45,900	$4,297.29	50,100	$4,990.07	
Wilgus Ave. Bstr.	2,900	$379.76	2,900	$391.58	
EE Pit / Bstr.	5,693	$413.28	5,612	$719.77	
Erie Ave. Bstr.	0	$2,144.10	15,200	$2,313.56	$/KwH
Sub Total	410,468	**$31,972.78**	408,107	**$35,538.33**	11.8%
B. Treat./Fiscal/Misc.	**KwH**	**$**	**KwH**	**$**	
Office & Maint. Bldg.	5,150	$630.74	4,643	$607.71	
Filter Plant / Pump Station / 2nd Service	56,025	$5,249.50	67,905	$5,984.39	
					$/KwH
Sub Total	61,175	**$5,880.24**	72,548	**$6,592.10**	-5.5%
C. Distribution:	**KwH**	**$**	**KwH**	**$**	
Taylor Hill Tank	1,746	$182.92	2,767	$366.99	
Kohler Meter Pit	0	$0.00	0	$0.00	
EE Tower	1,986	$219.12	1,278	$179.92	
Washington (PRV) Pit	923	$89.89	428	$75.17	
Sub Total	4,655	**$491.93**	4,473	**$622.08**	$/KwH
Total Electrical Costs	**476,298**	**$38,344.95**	**485,128**	**$42,752.51**	9.5%
Electrical Cost / MG		$112.53		$133.26	

	2021		**2022**		
NATURAL GAS COSTS	CCF Used	Cost	CCF Used	Cost	
Production Facility	1,266	$1,034.50	2,241	$2,465.78	
South Basin	3,313	$2,599.44	3,750	$4,171.68	
Georgia St. Bstr.	110	$104.31	84	$99.63	
Erie Ave. Bstr.	386	$324.00			
Wilgus Ave. Bstr.	4	$19.91	48	$66.94	
Office & Maint. Bldg.	1,095	$862.25	1,413	$1,578.12	$/CCF
Total Natural Gas Costs	6,174	**$4,944.41**	7,536	**$8,382.15**	38.9%
Natural Gas Cost / MG		$14.51		$26.13	

	2021		**2022**		
CHEMICAL COSTS	Lbs. Used	Cost	Lbs. Used	Cost	
Alum	66,152	$9,360.51	55,135	$10,007.00	28.3%
Carbon	0	$0.00	0	$0.00	#DIV/0!
Chlorine	5,610	$3,870.90	5,481	$8,111.88	114.5%
Fluoride	1,789	$1,944.64	1,571	$2,183.69	27.9%
KMnO4	0	$0.00	0	$0.00	#DIV/0!
Cationic Polymer	0	$0.00	0	$0.00	#DIV/0!
Liquid Phosphate	2,988	$3,850.14	3,742	$5,904.88	22.5%
Total Chemical Costs		**$19,026.19**		**$26,207.45**	37.7%
Chemical Cost / MG		$55.84		$81.69	
	Grand Total	**$62,315.55**		**$77,342.11**	24.11%
	Total Cost / MG	**$182.88**		**$241.07**	31.82%

YTD HL 2022 vs 2021	**-0.75%**	**YTD HL HIGH DAY PUMPAGE**	**17.388**	**July 19, 2022**	
YTD HL 2022 vs 2020	**4.37%**	**YTD HL LOW DAY PUMPAGE**	**7.102**	**December 25, 2022**	
					YTD HL Ave Day
				2022	**12.253**
				2021	**12.409**
				2020	**11.642**

NOTE:

Electrical costs include an Alliant Energy 8.3% rate increase approved by PSC. **Not all WPS bills available.**

COMPARATIVE SUMMARY OF PLANT OPERATIONS

December 2021 **vs** **December 2022**

Pumping Record	High Lift				Low Lift		
	2021	**2022**	Diff.		**2021**	**2022**	Diff.
Tot. Water in MG	340.743	320.275	-6.01%	Tot. Water in MG	347.996	330.484	-5.03%
Daily Average	10.992	10.349	-5.85%	Daily Average	11.226	10.661	-5.03%
Maximum Day	13.155	12.942	-1.62%	Maximum Day	13.636	13.350	-2.10%
Minimum Day	6.931	7.102	2.47%	Minimum Day	6.815	6.910	1.39%
By Natural Gas	0.000	3.795	#DIV/0!	By Natural Gas	0.000	2.705	#DIV/0!
Power in KWH	283,994	263,621	-7.17%	Power in KWH	68,481	66,474	-2.93%
Gals. per KWH	1,200	1,203	0.22%	Gals. per KWH	5,082	4,931	-2.97%
Power $ / KWH	$0.07346	$0.08114	10.45%	Power $ / KWH	----	----	----
Power $ / MG	$61.23	$66.67	$5.44	Power $ / MG	$14.46	$16.32	$1.86
Tot. Power $/MG	$110.04	$134.52	$24.48	Tot. Power $/MG	----	----	----

Treatment Chem.	Lbs. Used				Cost		
Total Lbs.	**2021**	**2022**	Diff.	Total Cost	**2021**	**2022**	Diff.
Alum	66,152	55,135	-16.65%	Alum	$9,360.51	$10,007.00	$646.49
Carbon			#DIV/0!	Carbon	$0.00	$0.00	$0.00
Chlorine	5,610	5,481	-2.30%	Chlorine	$3,870.90	$8,111.88	$4,240.98
KMnO4	0	0	#DIV/0!	KMnO4	$0.00	$0.00	$0.00
Polymer	0	0	#DIV/0!	Polymer	$0.00	$0.00	$0.00
Liquid Phosphate	2,988	3,742	25.23%	Liquid Phosphate	$3,950.14	$5,904.88	$1,954.74
Lb/ MG:				Cost / MG:			
Alum	190.1	166.8	-12.24%	Alum	$26.90	$30.28	$3.38
Carbon	0.0	0.0	#DIV/0!	Carbon	#DIV/0!	#DIV/0!	#DIV/0!
Chlorine	16.1	16.6	2.88%	Chlorine	$11.12	$24.55	$13.42
KMnO4	0.0	0.0	#DIV/0!	KMnO4	#DIV/0!	#DIV/0!	#DIV/0!
Liquid Phosphate	8.6	11.3	31.87%	Liquid Phosphate	$11.35	$17.87	$6.52

Fluoride:	**2021**	**2022**		Fluoride:	**2021**	**2022**	
Total Lbs.	1,789	1,571	-12.19%	Cost	$1,944.64	$2,183.69	$239.05
mg/l applied as F	0.69	0.72		Cost/MG	$5.27	$6.82	$1.55
Av. Res. Plt. Tap	0.70	0.71					

Water Quality:	Raw			TAP	
	2021	**2022**		**2021**	**2022**
Turbidity	9.90	8.00	Turbidity	0.050	0.033
pH	7.98	8.27	pH	7.57	7.61
Alkalinity	115.9	112.4	Alkalinity	102.6	102.1
MF (E-Coli)	5.5	2.5	Plate Count	0.20	0.00
Temperature	37.9	36.5	Colilert	0	0
Wash-H20 % /LL	2.41	2.94	Temp.	39.4	38.4
Av. Flt. Run/hrs	138.4	91.2	Cl Res.	0.90	0.90
Av. ROF / MG	1.32	1.31			

Natural Gas:

	2021	**2022**		**2021**	**2022**	Diff.
Nat. Gas Heating	4,144	5,402	Plant & South Basin	$3,278.08	$5,988.83	$2,710.75
Nat. Gas Pumping	435	590		$355.88	$648.63	$292.75

	CCF	Cost	**Natural Gas Cost**	**Natural Gas CCF**
#3 Gas Pump	124.0	$136.44	**$6,637.46**	**5,991**
#4 Gas Pump	211.5	$232.71		
#7 Gas Pump	120.0	$132.04		
Electric Generator	134.0	$147.44		
Pumping totals	**589.5**	**$648.63**		

December 2022

		1/1/2023	12/1/2022	
% Run	**Elapsed Time:**			
33.0%	No. 6 Pump	70,373.5	70,127.8	245.7
4.15%	Wash Pump Meter	5,616.86	5,585.98	30.88
0.6%	No. 7 Pump	791.1	786.3	4.8
0.0%	No. 8 Pump	59,540.3	59,540.3	0.0
99.3%	No. 9 Pump	24,753.0	24,014.0	739.0
1.1%	Wash Pump 2	75	67	8
	No. 1 Prime Pump	1,047.1	1,046.2	0.9
	No. 2 Prime Pump	1,122.7	1,121.2	1.5
Kw/Hr run	**Watthour Meters:**			
136.0	Wash Pump 1	1281.1	1275.1	4,200
65.7	No. 9 Pump	5816.38	5767.83	48,554
#DIV/0!	No. 8 Pump	6837.1	6837.1	0
72.9	No. 6 Pump	1353.2	1289.2	17,920
125.1	Wash Pump 2	7.774	6.94	1,001
#DIV/0!	No. 1 Pump	9309.184	9309.184	0
239.0	No. 2 Pump	4838.949	4798.854	40,095
293.7	No. 3 Pump	384.038	272.831	111,207
#DIV/0!	No. 4 Pump			0
479.8	No. 5 Pump	11,033.547	10,921.228	112,319
	Garage (MWatt/Hrs.)	1,079.47	1,076.13	3,340
	Power Co. (Step #3)	38,882	38,546	403,200
	Left Meter - OUTSIDE			
	Volume Used:			
	Nat. Gas (Correct)	45,286,145	45,085,211	252,574
	Elapsed Time:			
	Emer. Generator	1,063.4	1,056.7	6.7
% Run	**Elapsed Time:**			
0.0%	No. 1 Pump	17,263.2	17,263.2	0.0
22.5%	No. 2 Pump	20,650.24	20,482.50	167.74
50.9%	No. 3 Elec. Pump	1,328.1	949.4	378.7
0.5%	No. 3 Nat. Gas Pump	560.2	556.2	4.0
0.0%	No. 4 Elec. Pump	0.00	0.00	0.0
0.6%	No. 4 Nat. Gas Pump	63.7	59.0	4.7
31.5%	No. 5. Pump	23,073.240	22,839.140	234.100
0.7%	UV Building Generator	139.8	134.3	5.5

	1/1/2023	12/1/2022	
SLUDGE No. l Hour Meter	0.0	0.0	0
SYSTEM No. 2 Mag Meter	6,794,079	6,720,960	73,119
Recycle Meter (Reset to zero each month)			73,119

Power Cost	$0.0811360	Bill >>>>	$31,350.94	
	0.39372	KWH >>>	386,400	
Init. Chg.	$32,714.02		Low L. KWH	66,474
	$	KWH	L.L. Cost $	$5,393.43
Kohler Pit			High L. KWH	263,621
Horizon	$405.19	2,908	H.L. Cost $	$21,389.15
Taylor	$366.99	2,767		
ALT. 72 Park	$393.72	1,000	Total Cost	$26,782.58
Geo. Ave.	$4,990.07	50,100		
Wilgus Ave.	$391.58	2,900		
EE Pit	$719.77	5,612		
EE Tower	$179.92	1,278	Plant Costs	$5,984.39
Washington	$75.17	428		
Office	$607.71	4,643		
Erie Ave.	$2,313.56	15,200		
Total	$43,157.70	490,036		

SUMMARY

	HIGH LIFT		LOW LIFT	
	2021	2022	2021	2022
Tot. Pump	340.743	320.829	347.996	330.484
Daily Ave.	10.992	10.349	11.226	10.661
Max. Day	13.155	12.942	13.636	13.350
Min. Day	6.931	7.102	6.815	6.910
By Nat. Gas	0.000	3.795	0.000	2.705
Power KWH	283,994	263,621	68,481	66,474
Gals/KWH	1200	1203	5082	4931
Cost/KWH	$0.07346	$0.08114	*******	******
Cost/MG	$61.23	$66.67	$14.46	$16.32
Tot. Cost/MG	$110.04	$134.52	*******	*******

HIGH LIFT DELIVERY QUARTERLY REPORT 2022

I. FIRST QUARTER	Jan - Feb - Mar			
		GALLONS	COST $	$/MG
	2021	1,055,591,000	$181,125.65	$171.59
	2022	1,079,805,000	$233,346.76	$216.10
	Percent Difference	2.29%	28.83%	25.94%

II. SECOND QUARTER	Apr - May - Jun			
		GALLONS	COST $	$/MG
	2021	1,115,306,000	$168,613.25	$151.18
	2022	1,114,560,000	$220,553.73	$197.88
	Percent Difference	-0.07%	30.80%	30.89%

III. THIRD QUARTER	Jul - Aug - Sep			
		GALLONS	COST $	$/MG
	2021	1,275,383,000	$191,262.23	$149.96
	2022	1,253,674,000	$258,395.90	$206.11
	Percent Difference	-1.70%	35.10%	37.44%

IV. FOURTH QUARTER	Oct - Nov - Dec			
		GALLONS	COST $	$/MG
	2021	1,076,367,000	$179,773.03	$167.02
	2022	1,040,483,000	$229,995.97	$221.05
	Percent Difference	-3.33%	27.94%	32.35%

YEAR TO DATE : 2022

ELECTRICITY CHEMICALS NATURAL GAS		GALLONS	COST $	$/MG
	2021	**4,522,647,000**	**$720,774.16**	**$159.37**
	2022	**4,488,522,000**	**$942,292.36**	**$209.93**
	Percent Difference	**-0.75%**	**30.73%**	**31.73%**

YEAR TO DATE : 2022

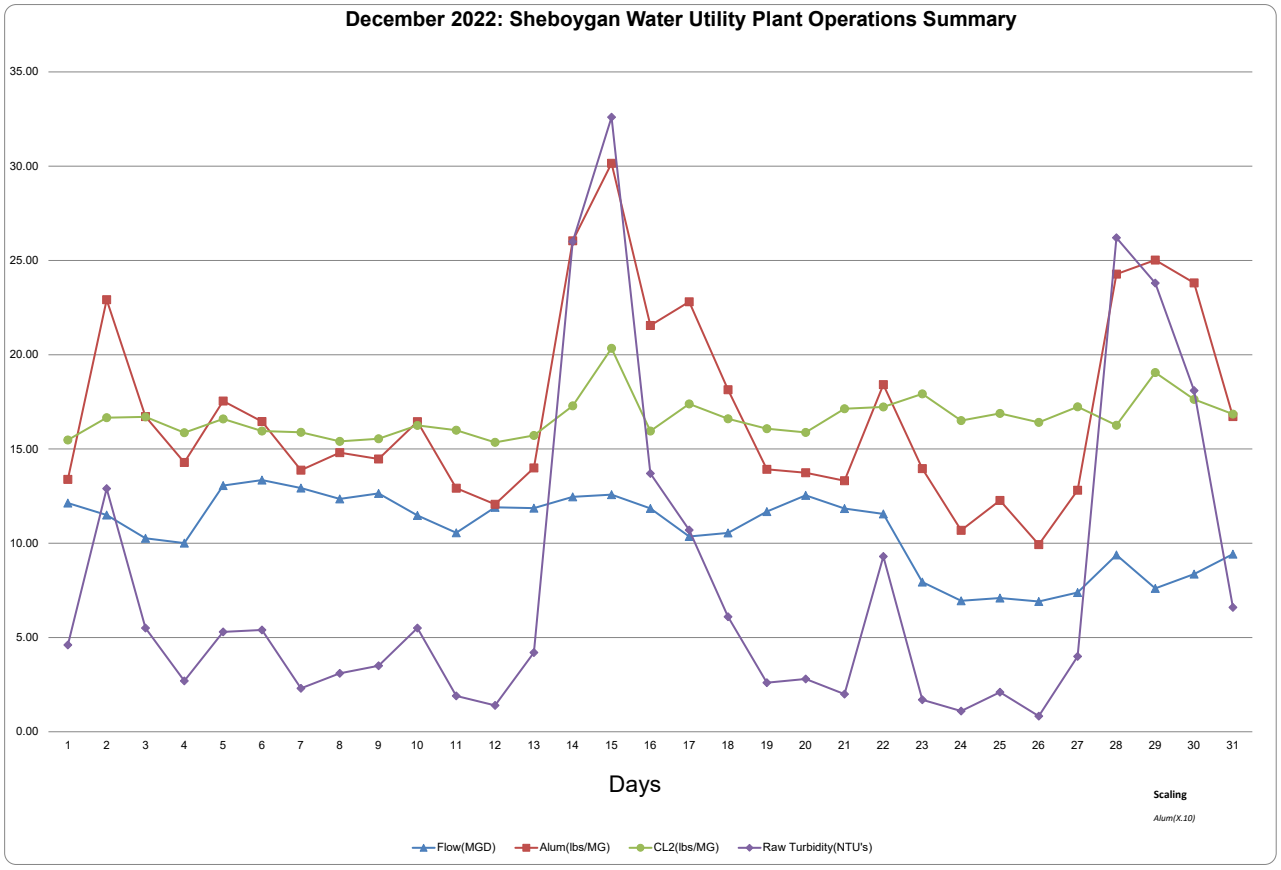
		GALLONS	COST $
SLUDGE DISPOSAL to WWTP	**2021**	**4,225,349**	**$45,410.11**
	2022	**4,203,119**	**$35,328.38**
	Percent Difference	**-0.53%**	**-22.20%**
STORM WATER CHARGES	**2022**	**NA**	**$0.00**

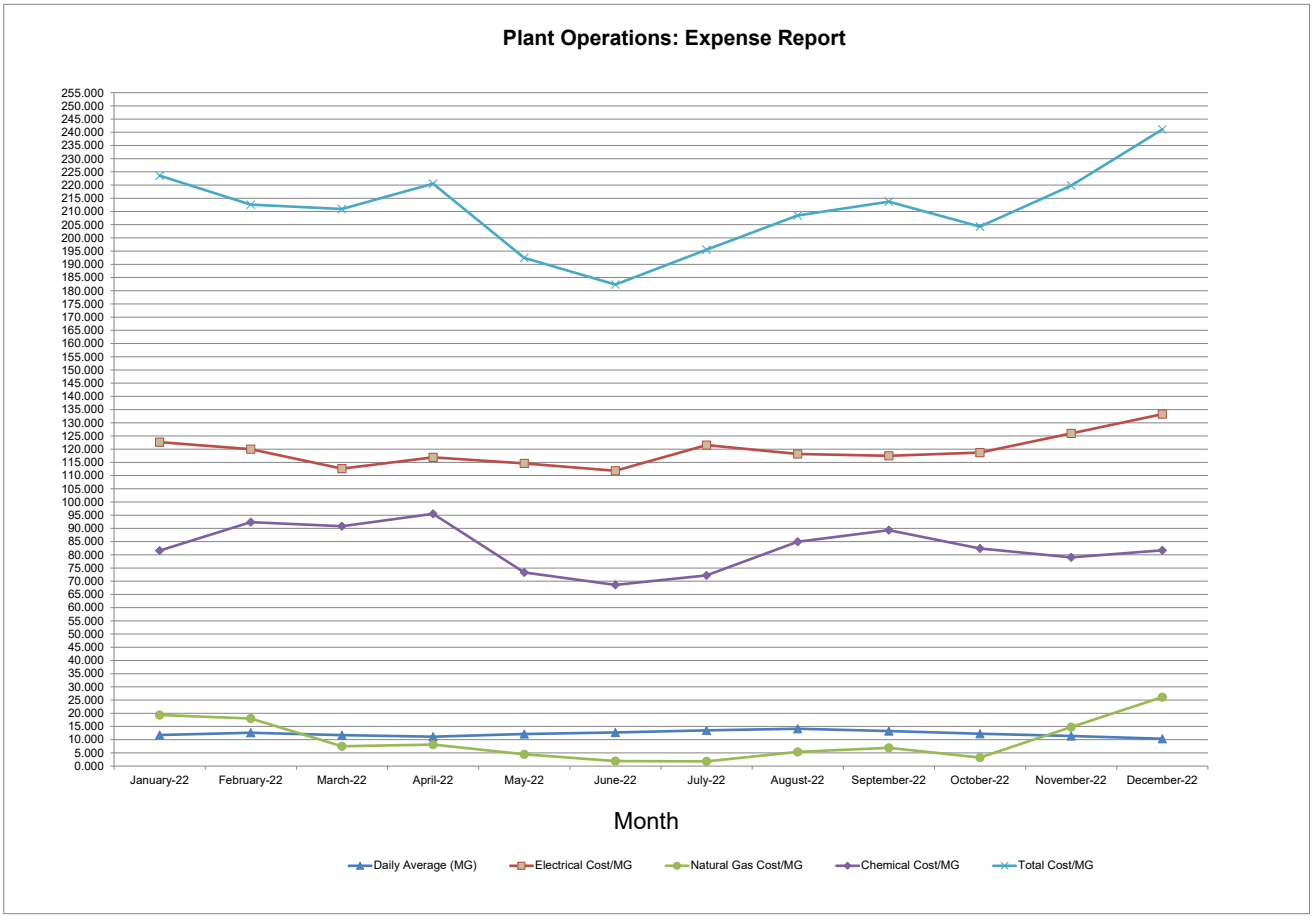
HIGH LIFT SYSTEM DELIVERY :

Maximum Pumpage Day	17,388,000	July 19, 2022
Minimum Pumpage Day	7,102,000	December 25, 2022

	MG	$	$/MG
2021	4,522,647,000	$720,774.16	$159.37
2022	4,488,522,000	$942,292.36	$209.93

NOTE: Monthly sludge disposal costs do not reflect the current actual monthly sludge discharge total to date.
Filtrate discharges from Spring/Fall sludge disposal operations are included in treatment plant sludge disposal costs.
Spring/Fall basin sludge/residual solids volumes and disposal costs are contract work.
Sludge disposal costs are not included in $/MG.


December 2022: Sheboygan Water Utility Plant Operations Summary
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Days
Scaling
Alum(X.10)
Flow(MGD)
Alum(lbs/MG)
CL2(lbs/MG)
Raw Turbidity(NTU's)


Plant Operations: Expense Report
255.000
250.000
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January-22
February-22
March-22
April-22
May-22
June-22
July-22
August-22
September-22
October-22
November-22
December-22
Month
Daily Average (MG)
Electrical Cost/MG
Natural Gas Cost/MG
Chemical Cost/MG
Total Cost/MG

Filter Plant Maintenance Completed For December 2022

Yellow indicates days operating or running labs

Subject	StartDate	EndDate	Description
Filter 5 Grout/Epoxy	1-Dec-22		Apply epoxy and install grout on filter cap-ends.
South Basin Bathroom	2-Dec-22		Clean bathroom
South Alum Pump	2-Dec-22		Replace hose, flush/clean line, and repair roller.
Filter Upgrade	5-Dec-22		Participate in filter upgrade meeting.
East UVT% Meter	5-Dec-22		Diagnose East UVT% meter low lamp fault; needs new cell and cleaning.
Shop and Tools	5-Dec-22		Begin cleaning maintenance shop and tools used during Filter 5 maintenance.
Filter 5	5-Dec-22		Vacuum and check for missing hardware.
UV Quartz Sleeves	6-Dec-22		Receive new sleeves and check for imperfections; ok at this time.
Filter 5 Surface Sweeps	6-Dec-22		Repair filter 5 surface sweep angle iron and install landing shims.
Garbage	7-Dec-22		Remove plant garbage and recycling.
Filter 5	7-Dec-22		Fill with sand and gravel.
UV Reference Check	9-Dec-22		Perform UV reference check.
Filter Plant Tools	12-Dec-22		Organize tools/parts in maintenance shop and repair DeWalt grinder cord.
Garbage	12-Dec-22		Throw away filter 5 media bags and plant garbage.
Filter Hall	12-Dec-22		Clean filter hall, operations floor, and laboratory.
Filter 5 Gauge	12-Dec-22		Install new pressure gauge on filter 5 manifold.
Monday Meeting	12-Dec-22		Topics include filter 5, raw water improvement, pack flange by 1, UV sleeves, coverage, project cleanup, etc.
Valve #14	12-Dec-22		Snug packing flange; leaking by pump 1.
Dan 2nd shift for Glen	13-Dec-22	14-Dec-22	Dan covering 2nd shift for Glen
Georgia Ave.	13-Dec-22		Check doghouse, inspect off-smell (heater INOP), refill agents, and walk grounds; found generator batteries need filling.
EE Tower	13-Dec-22		Check heater, inspect lower level, and walk grounds.
Horizon	13-Dec-22		Fill reagents, calibrate hypo meter, walk grounds, and check heater.
Filter Strategy	14-Dec-22		Discuss filter diagnostic/monitoring strategy.
Dan Covering Laboratory	14-Dec-22	15-Dec-22	Dan covering for Eric's, afternoon reads.
Erie Ave.	14-Dec-22		Check reagents, walk grounds, inspect generator, and make sure heaters work correctly.
Taylor Hill	14-Dec-22		Refill reagents, drain dehumidifier, walk grounds, check heater, and run low level sump.
Wilgus Ave.	15-Dec-22		Check heater, inspect grounds, and collect laboratory sample.
Menards	15-Dec-22		Purchase stainless fitting, rubber gloves, carbon monoxide detector, and large gloves.
Filter 1	15-Dec-22		Drain, rinse, fill, and leak detect.
Filter 1	15-Dec-22		Tap new hole for sample pump and install new pressure gauge.
filter plant cleaning	16-Dec-22		Cleaned filter plant common areas
Self assessment paperwork	19-Dec-22		Dan & Josh completed self-assessment paperwork and sent to supervisor
Dakota supply group	20-Dec-22		Picked up venter motor for Georgia pump station heater
#4 filter tap and pressure guage	20-Dec-22		Taped new line and installed pressure gauge on filter #4
Hall Map	20-Dec-22		Remove pegboard and install temporary system map.
West Basin Valve	20-Dec-22		Tighten packing nuts on West Basin valve in pipe gallery.
Pressure Gauges	21-Dec-22		Deep dive research on quality pressure gauges for plant filters; attempting to receive quotes from Blue Ribbon.
Office and Laboratory	21-Dec-22		Clean floors and counters in office, lunch room, and laboratory.
UV Sleeves	21-Dec-22		Final inspect and organize UV reactor sleeves.
Garbage's	21-Dec-22		Throw out garbage and recycling.
New Hypo feed pump hoses	22-Dec-22		New hypo pump hoses installed east, west, and south hypo pumps
Sample pump A installed	22-Dec-22		Rebuilt sample pump A (west) installed, old pump being rebuyilt
Dan covering 1st shift	23-Dec-22	26-Dec-22	Dan covering 1st shift
Josh covering 3rd shift	23-Dec-22	27-Dec-22	Josh covering 3rd shift operations
Observed Christmas Holiday	23-Dec-22	23-Dec-22	
Christmas holiday	24-Dec-22	25-Dec-22	Christmas holiday
Observed Christmas Holiday	26-Dec-22	26-Dec-22	
Dan off for coverage	27-Dec-22	28-Dec-22	Dan off for coverage
Joshua off for Coverage	28-Dec-22	29-Dec-22	Joshua off for covering 3rd shift.
Dan vacation day	29-Dec-22		Dan on vacation
Observed new years holiday	30-Dec-22	30-Dec-22	Observed new years holiday
New Years Holiday	31-Dec-22	1-Jan-23	New Years holiday

City of Sheboygan Water Utility
spirit on the lake

MONTHLY CONSTRUCTION-MAINTENANCE DEPARTMENT REPORT

December 2022

Distribution System Maintenance:
- Repaired water main break on S 17th St north of Washington Avenue.
- Repaired water main break on S 12th St south of Washington Avenue.
- Repaired water main break on South Business Drive north of Ashland Avenue.
- Continued seasonal hydrant checks.
- Installed hydrant flags within system for snowplowing purposes.
- Poured temporary concrete patches and completed water main break site cleanup.
- Hauled in fill to replenish stock.

Building/Grounds Maintenance:
- General shop maintenance and cleaning.
- Clean out and organization of Johnson Shed.
- Aided Operations in repair of underdrain system on #5 Filter.

Water Quality:
- Completed weekly water quality flushing.

Taps:
- 1” tap at 1842 Superior Ave. Lead Service was removed from the system.

Equipment Maintenance:
- Performed routine maintenance and repairs on construction equipment and vehicle fleet.

City of Sheboygan
spirit on the lake Water Utility

Distribution System -- December 2022

Street Valves and Hydrant Valves Installed (including water main projects and others)

Location	Date Installed	Size ("), Jt	Installed By	Type

Total Valves Installed = 0

Street Valves and Hydrant Valves Removed

Location	Installed	Abandoned	Type

Total Valves Removed = 0

Street Valves and Hydrant Valves Abandoned

Location	Installed	Abandoned

Total Valves Abandoned = 0

Street Valves and Hydrant Valves Maintained

Location	Maintained	Size	By

Total Valves Maintained = 0

Hydrants Installed (including water main projects and others)

Location	Installed	Tr Size	Valve	By

Total Hydrants Installed = 0

Hydrants Removed (including water main projects and others)

Location	Installed	Removed	Hyd Valve?

Total Hydrants Removed = 0

Hydrants Abandoned (including water main projects and others)

Location	Installed	Abandoned	Tr Size	Hyd Valve?

Total Hydrants Abandoned = 0

Hydrants Maintained/Moved (including water main projects and others)

Location	Installed	Maintained

Total Hydrants Maintained/Moved = 0

Water Main Breaks

Location	Date	Size
3318 S 17th St.	12/17/2022	8"
3403 S 12th St.	12/19/2022	8"
2223 S. Business Dr.	12/28/2022	8"

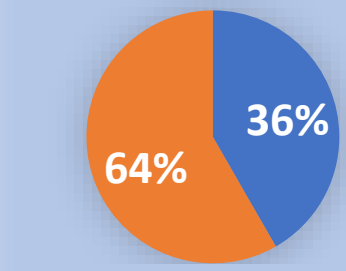
Number of Water Main Breaks= 3

SUMMARY

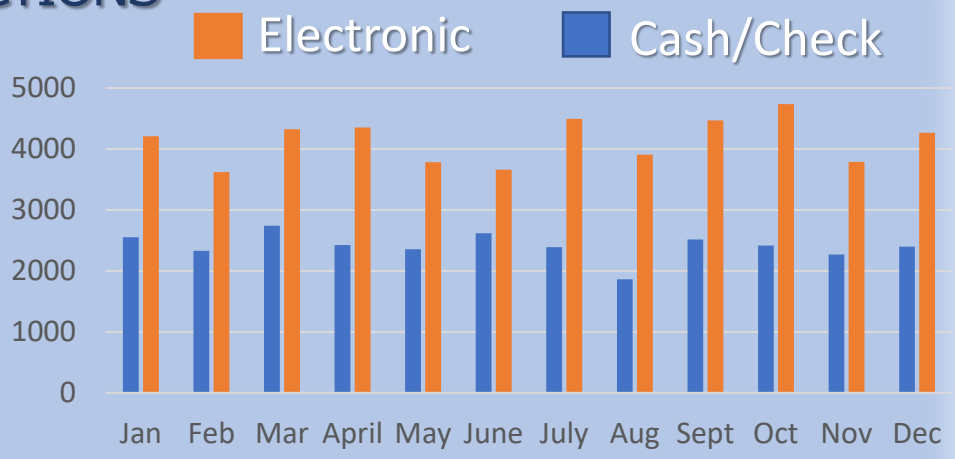
Number of feet of 4 inch water main installed	0.0	water main
Number of feet of 6 inch hydrant lead installed	0.0	
Number of feet of 6 inch water main installed	0.0	
Number of feet of 8 inch water main installed	0.0	
Number of feet of 12 inch water main installed	0.0	
Number of feet of 16 inch water main installed	0.0	
Number of feet of 20 inch water main installed	0.0	
Number of feet of 24 inch water main installed	0.0	
Number of feet of water main abandoned or removed	0	
Number of water main breaks repaired	3	
Number of hydrants installed	0	hydrants
Number of hydrants removed or abandoned	0	
Number of hydrants maintained or moved	0	
Number of street valves installed	0	valves
Number of hydrant valves installed	0	
Number of street valves removed or abandoned	0	
Number of hydrant valves removed or abandoned	0	
Number of valves maintained	0	
Number of water connections installed	1	

Customer Relations & Fiscal Summary

Payment Transactions



6,057
Total # of December Payments Processed



Collections

District 2

$1,100,732
Total Billed

$252,636
Outstanding After Due Date

1254
Past Due Letters Mailed

0
Disconnection Letters Mailed

0
Properties Disconnected

$111,500
Outstanding At Month End

Payments By Source

	December 2021	**December 2022**
Payment Window *(Cash/Check)*	328	**339**
Drop Box Payments	158	**122**
Electronic Payments	4027	4266
Mail Payments	2180	**1936**
Total Payments	6693	**6663**

Payments Returned NSF **15**

Utility Bills

Mailed 5,353

Total Paperless 1,291

Total Emailed Statements 3,162

December 2022

Customer Relations & Fiscal Summary

Property Transactions

	December 2021	**December 2022**
Account Transfers *(Finals)*	197	**177**
Property Data Requests	98	**59**

PSC Complaints

0 PSC Complaint(s) Filed

Accounts Payable

175 Invoice Items Paid

Customer Service

91 Customer Service Email Requests Completed

406 USS Calls Answered

21:53 USS Hours On the Phone

60 Lead ST Calls Completed *(Incoming & Outgoing)*

4:28 Lead ST Hours On the Phone

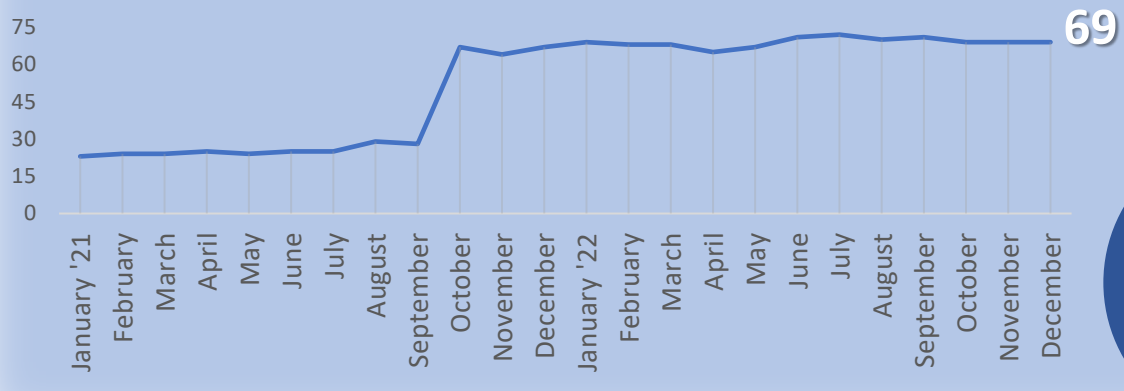
Customer Assistance Payments

Number of Payments Received: **12**

Total Dollars: **$1,670**

*Payments received from Wisconsin Emergency Rental Assistance Program, LIHWAP, Salvation Army, and St. Vincent DePaul for customer benefit.

Lead Service Line Replacement Active Loans

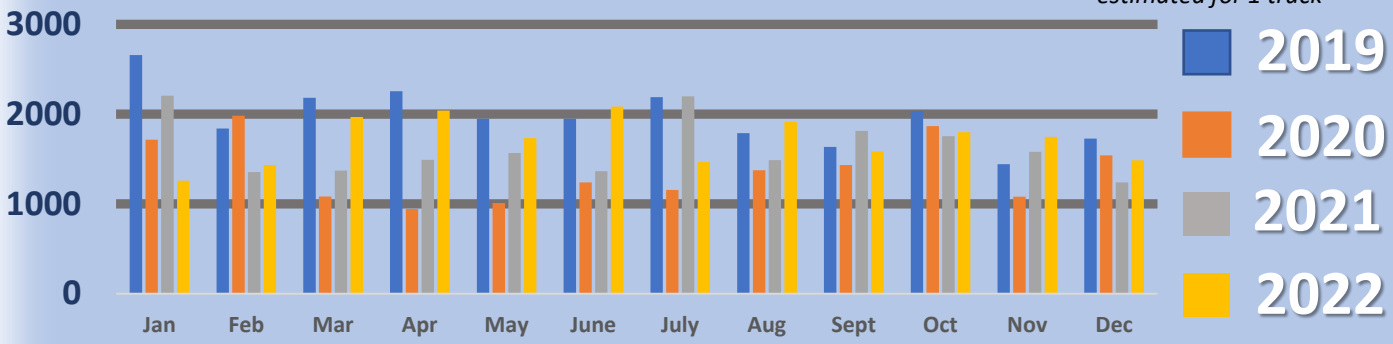


December 2022

Customer Relations & Fiscal Summary

Service Tech Miles Driven

October '22 miles are estimated for 1 truck



Cross Connection

115 Inspections by SWU

0 Inspections by Hydro Corp

3 Facilities with Compliance Issues

Lead Education

15 WDNR Lead in Drinking Water brochures distributed at home visits

Troubleshooting Work Orders Completed

104 Work orders completed for high consumptions, zero/low, and checks.

Leak Allowances Issued

5 Customer Requests

339 CCF Allowed @ Reduced Rate

Service Leaks

2 New Reported Leak(s)

2 Leak(s) Fixed or Off

2 Active Leak(s) Month End

Meters

127 Meters Installed/Replaced

42 Meters Tested

December 2022

Customer Relations & Fiscal Summary

Facebook Page

6 December New Followers

769 Total Followers

Website Visitors

3,125

2021 Visits in December: 3,112
Top Page Viewed: **Pay Your Bill**

Additional CR/F Activities December

- Service Techs continue their work replacing and testing water meters.
- USS issued bills to District 1 and Monthly customers.
- Disconnections for nonpayment were not held in December due to the tax roll process. They will resume in January 2023.
- USS assisted in entering data for the ETF Transition.
- Meter inventory was completed.
- The STs shadowed the USS in the areas of troubleshooting and new account setup.

December 2022

Date: January 12, 2023

To: Joe Trueblood, Utility Superintendent

From: Bill Swearingen, Operations Supervisor

Subject: Filter Underdrain Monitoring and Future Planning Report

Background

An IMS cap failure on filter 5 initiated an emergency response that included an onsite visit from Leopold to which they determined that the underdrain was a good candidate for an IMS cap replacement and conversion to their IMS 200 cap. Utility staff completed all necessary underdrain preparations and IMS cap replacement work. The filter was returned to service on December 12, 2022 and is operating within the manufacturer's specifications and WDNR standards. In parallel to this work, operations staff have also participated in filter underdrain replacement alternatives and review workshops organized by utility engineering consulting firm CDM Smith.

Underdrain Pressure Testing

The Operations Department operates and maintains 11 gravity sand filtrations systems installed by Leopold in the mid-1990s. Based on recommendations, additional filter assessments and pressure monitoring have also been completed by staff. Details are below (oldest to newest):

Filters #9, #8, and #7
Installation year: 1996/1997
Age: 26/25 years
Underdrain Type: S Underdrain with I.M.S Cap media retainer
Modifications: None

Pressure testing across existing I.M.S cap (Head loss):

- Filters 9
    - Pressure reading at high-rate backwash = 9.2 psi
    - Pressure reading at static (water level at trough weir) = 2.7 psi
    - Pressure differential = 6.5 psi
- Filters 8
    - Pressure reading at high-rate backwash = 9.2 psi
    - Pressure reading at static (water level at trough weir) = 3.5 psi
    - Pressure differential = 5.7 psi

- Filter 7
    - Pressure reading at high-rate backwash = 10 psi
    - Pressure reading at static (water level at trough weir) = 3.0 psi
    - Pressure differential = 7.0 psi

Both 8 and 9 filters are experiencing elevated headloss pressure differentials of 6.5 psi and 5.7 psi. The estimated pressure differential on non-clogged system is approximately 2.0 psi.

Like filters 8 and 9, filter#7 is experiencing a higher elevated headloss at a pressure differential of 7.0 psi. The estimated pressure differential on non-clogged system is approximately 2.0 psi.

Plan of Action:
Continue with monitoring and operational contingency planning to further reduce risk of over pressurizing the IMS caps. Filters 7, 8, and 9 should be targeted for replacement within 1-2 years. Replacement underdrain systems would be based on filter underdrain alternatives and review workshops conducted by utility staff and CDM Smith. Total underdrain replacement cost for all three filters is estimated to be $1,275,000 installed with media. This cost would include initial air scour equipment purchase. Recommend scheduling replacement in years 2023/2024.

Filter #6
Installation year: 1997
Age: 25 years
Underdrain Type: S Underdrain with I.M.S Cap media retainer
Modifications: None

Pressure testing across existing I.M.S cap (Head loss):

- Pressure reading at high-rate backwash = 12 psi
- Pressure reading at static (water level at trough weir) = 2.6 psi
- Pressure differential = 9.4 psi

Filter #6 is experiencing extremely high headloss at a pressure differential of 9.4psi. The estimated pressure differential on non-clogged system is approximately 2.0 psi

Plan of Action:
I would recommend that the utility engage Leopold on an IMS cap replacement project as we have done with filter 5. Media would need to be removed to determine that the underdrain is not damaged and make sure it's a good candidate for an IMS cap replacement. Utility staff can complete all necessary underdrain preparations and IMS cap conversion to the IMS 200 cap. Leopold indicates that an IMS cap conversion extends the working life of an underdrain 5-10years. IMS cap replacement project returns the filter to service within 4 months at a total cost of $120,000 plus utility labor. IMS Cap replacement project can be scheduled in year 2023

The utility would then need to look at an underdrain replacement after 5 years. The replacement underdrain would ideally be the same underdrain system installed in other filtrations systems based on the underdrain evaluation report generated by CDM Smith. Total underdrain replacement cost for filter 6 after 5 years is estimated to be $425,000 installed with media. Recommend scheduling replacement in year 2028.

Filter #5
Installation year: 1998
Age: 24 years
Underdrain Type: S Underdrain with I.M.S Cap media retainer
Modifications: Original IMS cap fail in 2022. Completed IMS cap replacement in 2022 (IMS cap conversion to the IMS 200)

Pressure testing across existing I.M.S cap (Head loss):

- Pressure reading at high-rate backwash = 4.8 psi
- Pressure reading at static (water level at trough weir) = 2.9 psi
- Pressure differential = 1.9 psi

Filter #5 is not seeing significant increased pressures. The estimated pressure differential on non-clogged system is approximately 2.0 psi

Plan of Action:
After Leopold's onsite inspection, Leopold's recommendation for this filter was removal of the I.M.S Cap and replacing with I.M.S 200 media retainer. Media was removed to determine that the underdrain was not damaged and to make sure it's a good candidate for an IMS cap replacement. Utility staff completed all necessary underdrain preparations and IMS cap conversion to the IMS 200 cap. Leopold indicates that an IMS cap conversion extends the working life of an underdrain 5-10years. The utility would then need to look at an underdrain replacement after 5 years. The replacement underdrain would ideally be the same underdrain system installed in other filtrations systems based on the underdrain evaluation report generated by CDM Smith. Total underdrain replacement cost for filter 5 after 5 years is estimated to be $425,000 installed with media. Recommend scheduling replacement in year 2028.

Filters #3 and #4
Installation year: 1998
Age: 23/24 years
Underdrain Type: S Underdrain with I.M.S Cap media retainer
Modifications: None

Pressure testing across existing I.M.S cap (Head loss):

- Filter 3
    - Pressure reading at high-rate backwash = 8.4 psi
    - Pressure reading at static (water level at trough weir) = 3.5 psi
    - Pressure differential = 4.9 psi
- Filter 4
    - Pressure reading at high-rate backwash = 9.2 psi
    - Pressure reading at static (water level at trough weir) = 3.4 psi
    - Pressure differential = 5.8 psi

Filters 3 and 4 are experiencing elevated headloss at pressure differentials of 4.9 psi and 5.8 psi. The estimated pressure differential on non-clogged system is approximately 2.0 psi.

Plan of Action:
Continue with monitoring and operational contingency planning to further reduce risk of over pressurizing the IMS caps. Filters 4 and 3 should be targeted for replacement within 2-3 years. Replacement underdrain systems would be based on filter underdrain alternatives and review workshops conducted by utility staff and CDM Smith. Total underdrain replacement cost for both filters is estimated to be $800,000 installed with media. Recommend scheduling replacement in year 2025.

Filters #1 and #2
Installation year: 1998
Age: 23 years
Underdrain Type: S Underdrain with I.M.S Cap media retainer
Modifications: None

Pressure testing across existing I.M.S cap (Head loss):

- Filter 1
    - Pressure reading at high-rate backwash = 7.8 psi
    - Pressure reading at static (water level at trough weir) = 3.2 psi
    - Pressure differential = 4.6 psi
- Filter 2
    - Pressure reading at high-rate backwash = 7.5 psi
    - Pressure reading at static (water level at trough weir) = 2.5 psi
    - Pressure differential = 5.0 psi

Filters 1 and 2 are experiencing slightly elevated headloss at pressure differentials of 4.6 psi and 5.0 psi. The estimated pressure differential on non-clogged system is approximately 2.0 psi.

Plan of Action:
Continue with monitoring and operational contingency planning to further reduce risk of over pressurizing the IMS caps. Filters 1 and 2 should be targeted for replacement within 3-4 years. Replacement underdrain systems would be based on filter underdrain alternatives and review workshops conducted by utility staff and CDM Smith. Total underdrain replacement cost for both filters is estimated to be $800,000 installed with media. Recommend scheduling replacement in year 2026.

Filters #10 and #11
Installation year: 2018/2007
Age: 4 years and 15 years
Modifications: Original S Underdrain with I.M.S Cap media retainer replaced due to failures

- 2007 – Filter #11 underdrain failure. Replaced with Type SL underdrain with I.M.S Cap media retainer
- 2018 – Filter #10 underdrain failure. Replaced with Type XA underdrain with I.M.S 200 media retainer

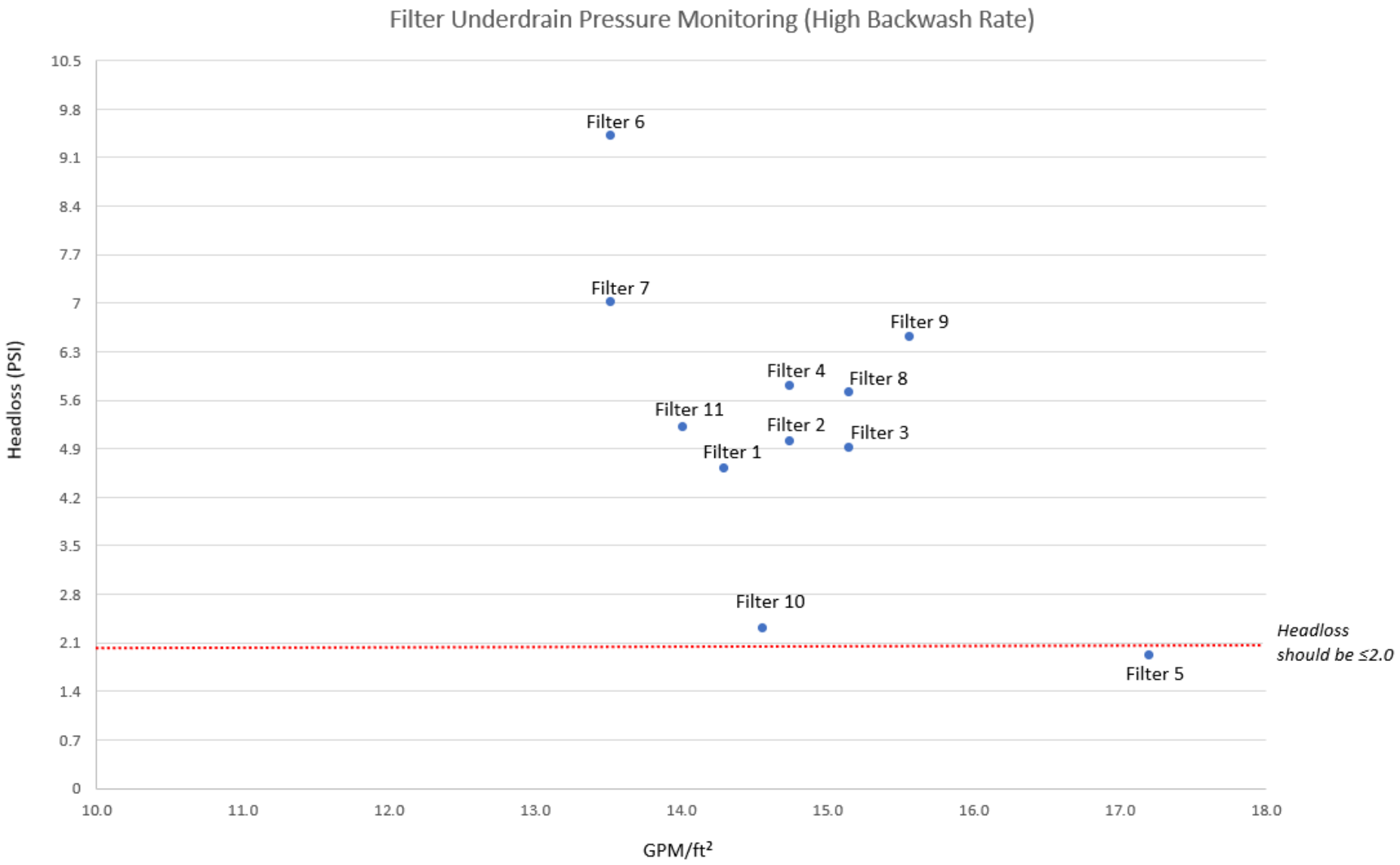
Pressure testing across existing I.M.S cap (Head loss):

- Filter 10
    - Pressure reading at high-rate backwash = 4.8 psi
    - Pressure reading at static (water level at trough weir) = 2.5 psi
    - Pressure differential = 2.3 psi
- Filter 11
    - Pressure reading at high-rate backwash = 8.5 psi
    - Pressure reading at static (water level at trough weir) = 3.3 psi
    - Pressure differential = 5.2 psi

Filters 10 is not seeing significant increased pressures. Filter 11 is experiencing slightly elevated headloss at a pressure differential of 5.2 psi. The estimated pressure differential on non-clogged system is approximately 2.0 psi.

Plan of Action:
Continue with monitoring and operational contingency planning to further reduce risk of over pressurizing the IMS caps. Filter 10 should have a working lifetime of 20-25 years based on previous replacement work and assessments. The replacement underdrain would ideally be the same underdrain system installed in other filtrations systems. Total underdrain replacement cost is estimated to be $600,000 installed with media. Recommend scheduling replacement in year 2038.

Filter 11 should be targeted sooner because it is still operating under the same style underdrain system (Type SL underdrain with I.M.S Cap media retainer) that failed in 2007. The replacement underdrain would ideally be the same underdrain system installed in other filtrations systems. Total underdrain replacement cost is estimated to be $550,000 installed with media. Recommend scheduling replacement in year 2027 when the underdrain is at 20-year life expectancy.



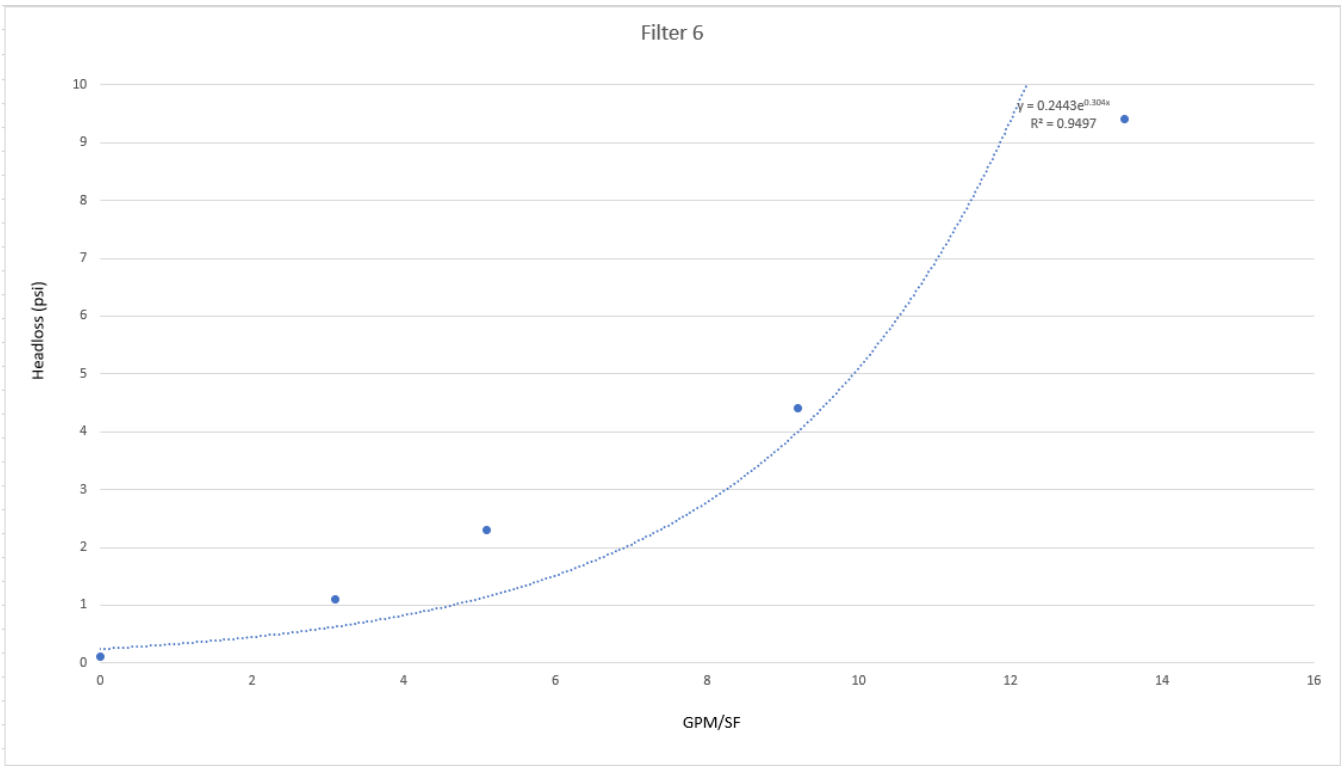
NOTE:
13-15gpm/ft² backwash rate used to minimize over pressurizing
Typical backwash rate is 15-20gpm/ft²

Contingency Planning

The Operations department has implemented the following changes to backwashing operations to further reduce risk of over pressurizing the IMS caps:

- Filter Run Hours: Filters are to be washed every 100hrs or one per shift. This action is to prevent any further clogging of the IMS cap.
- Wash Operations: To help reduce the pressure across the IMS cap, staff will wash at a lower rate. Typically, the wash valve is set to wash at a high wash rate of 15-20gpm/ft^2. Washing operations have been adjusted to 13-15gpm/ft^2.
- Operations staff have installed pressure gauges on the filters to monitor pressure across the caps. Monitoring the pressure vs gpm/ft^2 during wash operations is ongoing. Any change in pressure over time will help determine whether the underdrain IMS cap is clogging at rapid rate.

Individual Filter Underdrain Headloss Curve Example:



Replacement and Cost Schedule

Underdrain Replacement and Cost Schedule			
Year	Filter #	Cost	Total Cost
2024	9	$ 425,000.00	$ 1,275,000.00
	8	$ 425,000.00	
	7	$ 425,000.00	
2025	4	$ 400,000.00	$ 800,000.00
	3	$ 400,000.00	
2026	2	$ 400,000.00	$ 800,000.00
	1	$ 400,000.00	
2027	11	$ 550,000.00	$ 550,000.00
2028	5	$ 425,000.00	$ 850,000.00
	6	$ 425,000.00	
2038	10	$ 600,000.00	$ 600,000.00

These are initial cost estimates provided by filter underdrain manufacturers. Updated cost estimates to be included in the underdrain replacement alternatives and review report provided by CDM Smith. Design services and bidding documents would also need to be provided by CDM Smith. WDNR and PSC approvals will be required, with estimated lead times of 4-6 months. I would recommend that no more than 3 filters be out of service for replacement to maintain plant filter capacity for an average day demand. Under this replacement schedule, 54% of the filters will be either new and/or rehabilitated by spring 2024, this includes the filter 10 underdrain replacement in 2018.

REQUISITION

SHEBOYGAN WATER UTILITY

REQUISITION DATE 01/11/2023

VENDOR: BADGER METER INC
4545 W BROWN DEER RD
P. O. BOX 245036
MILWAUKEE WI 53224

SHIP TO 72 Park Ave Sheboygan WI 53081

DATE REQUESTED BY 01/17/2023

REQUISITION NO. 4969

QTY	ITEM #	INVENTORY #	DESCRIPTION	UNIT PRICE	TOTAL PRICE
360			M25 Plastic disc meter 5/8" x 7 1/2"--5/8" bore, bare	57.73	20,782.80
			Total Freight \Misc		
NOTE:			TOTAL		20,782.80

☐ CALL IN PURCHASE ORDER NUMBER

PHONE NO. 800-616-3837

☐ FAX PURCHASE ORDER

FAX NUMBER: 888-371-5982

☐ SEND ORIGINAL PURCHASE ORDER TO VENDOR

☐ ALREADY ORDERED

PREPARED BY davew

REQUESTED BY DW

APPROVED BY