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

% Run		1/1/2023	12/1/2022	
	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. I 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

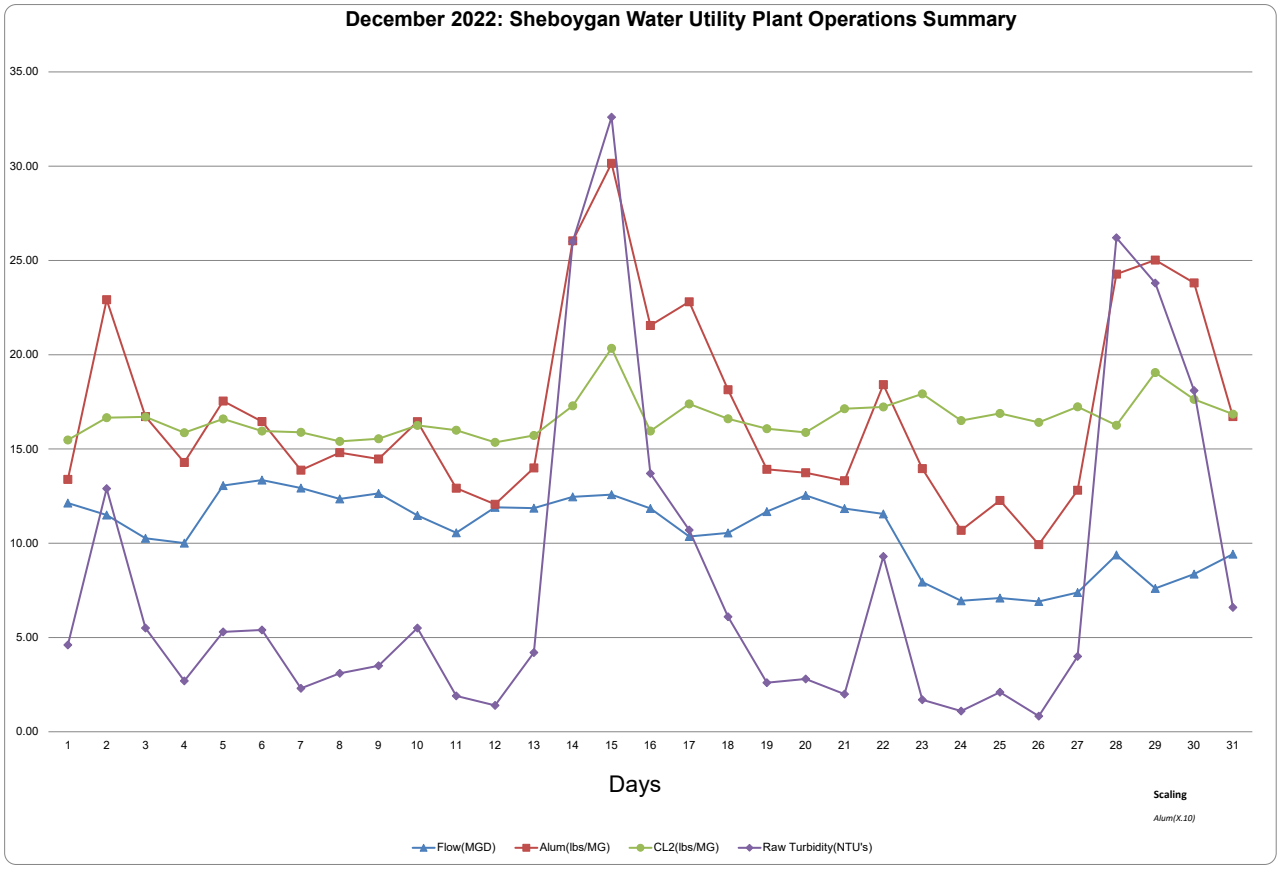
SLUDGE DISPOSAL to WWTP		GALLONS	COST $
	2021	**4,225,349**	**$45,410.11**
	2022	**4,203,119**	**$35,328.38**
	Percent Difference	**-0.53%**	**-22.20%**
STORM WATER CHARGES	**2022**	**NA**	**$0.00**

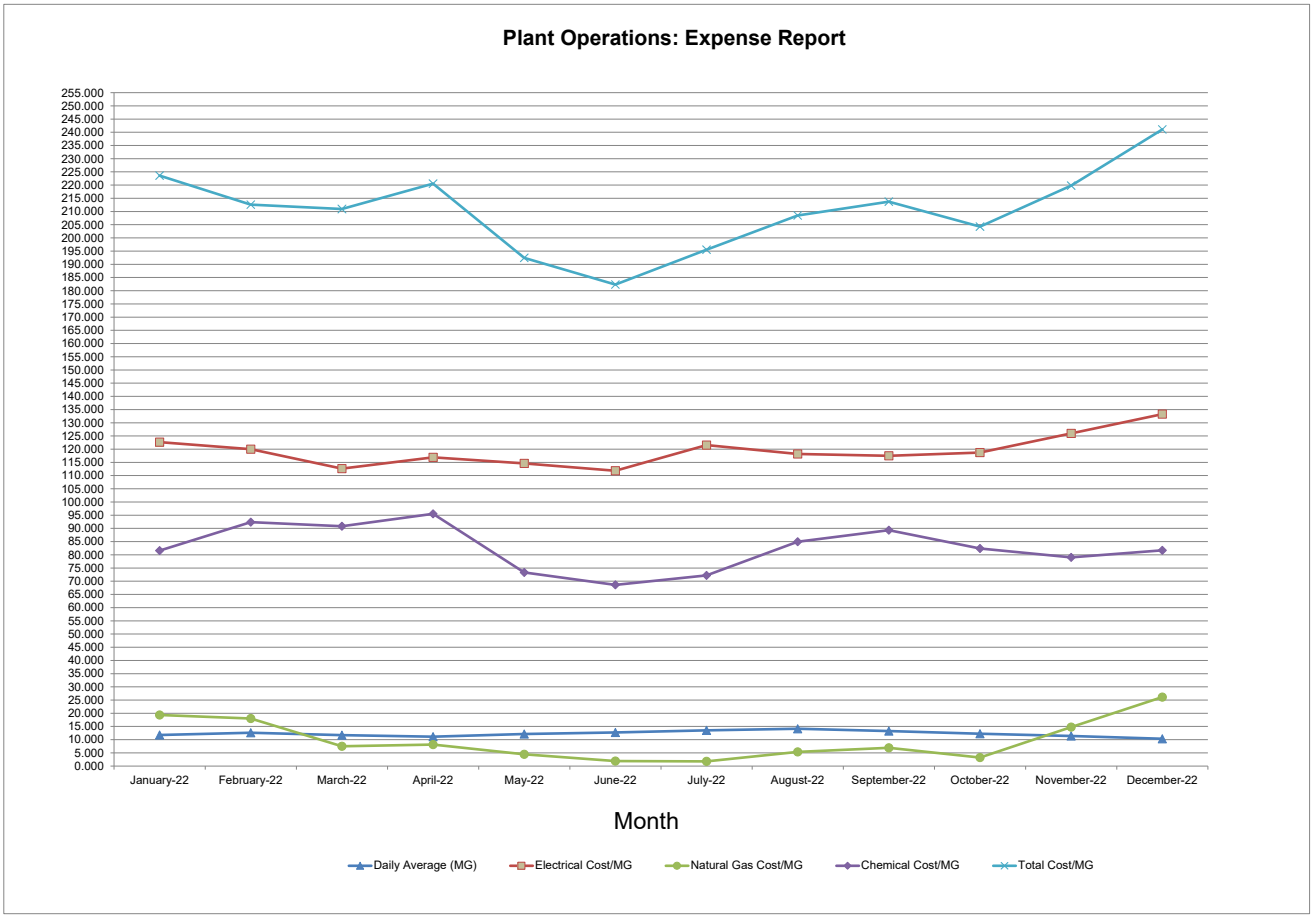
HIGH LIFT SYSTEM DELIVERY :

	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

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

Yellow indicates days operating or running labs