

November 2023

OPERATIONS' DEPARTMENT MONTHLY REPORT

PUMPAGE	HIGH LIFT		LOW LIFT		2023 VS 2022
	2022	2023	2022	2023	HL
Total in MG	341.292	342.657	355.420	357.309	0.40%
Daily Average (MG)	11.376	11.437	11.847	11.910	
Max. Day (MG)	12.913	12.688	14.122	13.907	2023 VS 2021
					HL
Gal/KwH	1,206	1,207	4,951	4,906	-0.69%
ELECTRICAL COSTS					
		2022		2023	
A. Pumping:		KwH	\$	KwH	\$
High Lift		279,759	\$21,140.83	277,840	\$25,022.97
Low Lift		71,305	\$5,388.38	71,298	\$6,421.31
Wash Pump 1		2,800	\$211.59	2,800	\$252.18
Georgia St. Bstr.		55,800	\$5,209.04	55,800	\$5,952.39
Wilgus Ave. Bstr.		3,200	\$431.30	3,000	\$442.70
EE Pit / Bstr.		5,418	\$697.38	5,088	\$719.59
Erie Ave. Bstr.		16,000	\$2,259.52	16,800	\$2,638.56
Sub Total		434,282	\$35,338.04	432,626	\$41,449.70
					\$/KwH 17.7%
B. Treat./Fiscal/Misc.		KwH	\$	KwH	\$
Office & Maint. Bldg.		4,764	\$621.89	5,729	\$818.91
Filter Plant / Pump Station / 2nd Service		55,736	\$6,530.20	61,862	\$6,592.30
Sub Total		60,500	\$7,152.09	67,591	\$7,411.21
					\$/KwH -7.2%
C. Distribution:		KwH	\$	KwH	\$
Taylor Hill Tank		2,019	\$275.91	1,538	\$233.71
Kohler Meter Pit		0	\$0.00	0	\$0.00
EE Tower		1,232	\$175.77	1,054	\$165.60
Washington (PRV) Pit		301	\$59.90	529	\$96.62
Sub Total		3,552	\$511.58	3,121	\$495.93
					\$/KwH 13.6%
Total Electrical Costs		498,334	\$43,001.71	503,338	\$49,356.84
Electrical Cost / MG			\$126.00		\$143.85
		2022		2023	
NATURAL GAS COSTS		CCF Used	Cost	CCF Used	Cost
Production Facility		2,099	\$2,033.58	3,106	\$1,761.52
South Basin		2,226	\$2,163.29	2,408	\$1,413.34
Georgia St. Bstr.		23	\$34.97		
Erie Ave. Bstr.		282	\$301.72	209	\$148.91
Wilgus Ave. Bstr.		5	\$20.21		
Office & Maint. Bldg.		821	\$791.60	950	\$560.91
Total Natural Gas Costs		5,456	\$5,345.37	6,673	\$3,884.68
					\$/CCF -40.6%
Natural Gas Cost / MG			\$15.66		\$11.32
		2022		2023	
CHEMICAL COSTS		Lbs. Used	Cost	Lbs. Used	Cost
Alum		52,492	\$9,527.30	50,152	\$10,105.63
Carbon		0	\$0.00	0	\$0.00
Chlorine		5,996	\$8,874.06	6,211	\$12,608.33
Fluoride		1,652	\$2,296.28	1,595	\$3,224.29
KMnO4		0	\$0.00	49	\$179.76
Cationic Polymer		0	\$0.00	0	\$0.00
Liquid Phosphate		3,973	\$6,269.39	4,152	\$12,700.97
Total Chemical Costs			\$26,967.03		\$38,818.98
					43.9%
Chemical Cost / MG			\$79.01		\$113.14
		Grand Total		\$75,314.11	
				\$92,060.50	
		Total Cost / MG		\$220.67	
				\$268.31	
				22.24%	
				21.59%	

YTD HL 2023 vs 2022	-0.98%	YTD HL HIGH DAY PUMPAGE	15.876	June 21, 2023
YTD HL 2023 vs 2021	-1.32%	YTD HL LOW DAY PUMPAGE	9.294	January 1, 2023

NOTE:

	YTD HL Ave Day
2023	12.367
2022	12.426
2021	12.537

COMPARATIVE SUMMARY OF PLANT OPERATIONS

November 2022

vs

November 2023

Pumping Record

High Lift

Low Lift

	2022	2023	Diff.		2022	2023	Diff.
Tot. Water in MG	341.292	342.657	0.40%	Tot. Water in MG	355.420	357.309	0.53%
Daily Average	11.376	11.437	0.54%	Daily Average	11.847	11.910	0.53%
Maximum Day	12.913	12.688	-1.74%	Maximum Day	14.122	13.907	-1.52%
Minimum Day	7.138	7.113	-0.35%	Minimum Day	7.230	7.096	-1.85%
By Natural Gas	3.932	7.747	97.02%	By Natural Gas	2.418	7.508	210.50%
Power in KWH	279,759	277,840	-0.69%	Power in KWH	71,305	71,298	-0.01%
Gals. per KWH	1,206	1,207	0.09%	Gals. per KWH	4,951	4,906	-0.91%
Power \$ / KWH	\$0.07557	\$0.09006	19.18%	Power \$ / KWH	----	----	----
Power \$ / MG	\$61.94	\$72.93	\$10.99	Power \$ / MG	\$15.16	\$17.97	\$2.81
Tot. Power \$/MG	\$126.79	\$144.56	\$17.77	Tot. Power \$/MG	----	----	----

Treatment Chem.

Lbs. Used

Cost

	2022	2023	Diff.		2022	2023	Diff.
Total Lbs.				Total Cost			
Alum	52,492	50,152	-4.46%	Alum	\$9,527.30	\$10,105.63	\$578.33
Carbon			#DIV/0!	Carbon	\$0.00	\$0.00	\$0.00
Chlorine	5,996	6,211	3.59%	Chlorine	\$8,874.08	\$12,608.33	\$3,734.25
KMnO4	0	49	#DIV/0!	KMnO4	\$0.00	\$179.76	\$179.76
Polymer	0	0	#DIV/0!	Polymer	\$0.00	\$0.00	\$0.00
Liquid Phosphate	3,973	4,152	4.51%	Liquid Phosphate	\$6,269.39	\$12,700.97	\$6,431.58
Lb/ MG:				Cost / MG:			
Alum	147.7	140.4	-4.96%	Alum	\$26.81	\$28.28	\$1.48
Carbon	0.0	0.0	#DIV/0!	Carbon	#DIV/0!	#DIV/0!	#DIV/0!
Chlorine	16.9	17.4	3.04%	Chlorine	\$24.97	\$35.29	\$10.32
KMnO4	0.0	0.1	#DIV/0!	KMnO4	#DIV/0!	\$0.50	#DIV/0!
Liquid Phosphate	11.2	11.6	3.95%	Liquid Phosphate	\$17.64	\$35.55	\$17.91
Fluoride:	2022	2023		Fluoride:	2022	2023	
Total Lbs.	1,652	1,595	-3.45%	Cost	\$2,296.28	\$3,224.29	\$928.01
mg/l applied as F	0.71	0.74		Cost/MG	\$6.74	\$9.41	\$2.67
Av. Res. Plt. Tap	0.75	0.70					

Water Quality:

Raw

TAP

	2022	2023			2022	2023
Turbidity	4.40	3.20		Turbidity	0.035	0.039
pH	8.26	8.26		pH	7.63	7.70
Alkalinity	112.5	110.4		Alkalinity	102.5	103.0
MF (E-Coli)	6.9	1.3		Plate Count	0.00	0.00
Temperature	41.2	44.1		Colilert	0	0
Wash-H2O % /LL	2.66	2.60		Temp.	43.5	47.3
Av. Flt. Run/hrs	94.5	92.9		Cl Res.	0.88	0.88
Av. ROF / MG	1.40	1.36				

Natural Gas:

	2022	2023		2022	2023	Diff.
Nat. Gas Heating	3,826	2,902	Plant & South Basin	\$3,713.23	\$1,693.22	(\$2,020.01)
Nat. Gas Pumping	499	2,613		\$483.64	\$1,481.64	\$998.00

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	CCF	Cost	Natural Gas Cost	Natural Gas CCF
#3 Gas Pump	0.0	\$0.00	\$3,174.86	5,514
#4 Gas Pump	1314.0	\$745.21		
#7 Gas Pump	722.5	\$409.75		
Electric Generator	576.0	\$326.67		
Pumping totals	2612.5	\$1,481.64		

November 2023

		12/1/2023	11/1/2023	
% Run	Elapsed Time:			
50.5%	No. 6 Pump	75,706.6	75,343.0	363.6
3.17%	Wash Pump Meter	5,900.78	5,877.95	22.83
4.0%	No. 7 Pump	873.9	845.0	28.9
0.0%	No. 8 Pump	59,540.3	59,540.3	0.0
96.1%	No. 9 Pump	32,689.0	31,997.0	692.0
1.4%	Wash Pump 2	177	167	10
	No. 1 Prime Pump	1,056.1	1,054.9	1.2
	No. 2 Prime Pump	1,138.3	1,136.4	1.9

Kw/Hr run	Watt Hour Meters:			
122.6	Wash Pump 1	1324.1	1320.1	2,800
64.6	No. 9 Pump	6294.47	6249.78	44,698
#DIV/0!	No. 8 Pump	6837.1	6837.1	0
73.2	No. 6 Pump	2732.2	2637.2	26,600
127.2	Wash Pump 2	18.624	17.564	1,272
564.6	No. 1 Pump	10037.63	10029.33	8,300
240.8	No. 2 Pump	4965.848	4950.058	15,790
295.0	No. 3 Pump	1101.437	1010.626	90,811
#DIV/0!	No. 4 Pump			0
479.4	No. 5 Pump	12,918.949	12,756.010	162,939

Garage (MWatt/Hrs.)	1,112.85	1,108.50	4,350
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Power Co. (Step #3)	43,064	42,717	416,400
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Left Meter - OUTSIDE

Volume Used:

Nat. Gas (Correct)	46,425,954	46,182,796	305,650
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% Run	Elapsed Time:			
2.0%	Emer. Generator	1,159.4	1,130.6	28.8
9.1%				
42.8%	Elapsed Time:			
0.0%	No. 1 Pump	18,613.2	18,598.5	14.7
0.0%	No. 2 Pump	21,180.58	21,115.00	65.58
4.1%	No. 3 Elec. Pump	3,767.1	3,459.3	307.8
47.2%	No. 3 Nat. Gas Pump	599.3	599.3	0.0
3.5%	No. 4 Elec. Pump	0.00	0.00	0.0
	No. 4 Nat. Gas Pump	155.4	126.2	29.2
	No. 5. Pump	27,012.200	26,672.350	339.850
	UV Building Generator	181.4	156.1	25.3

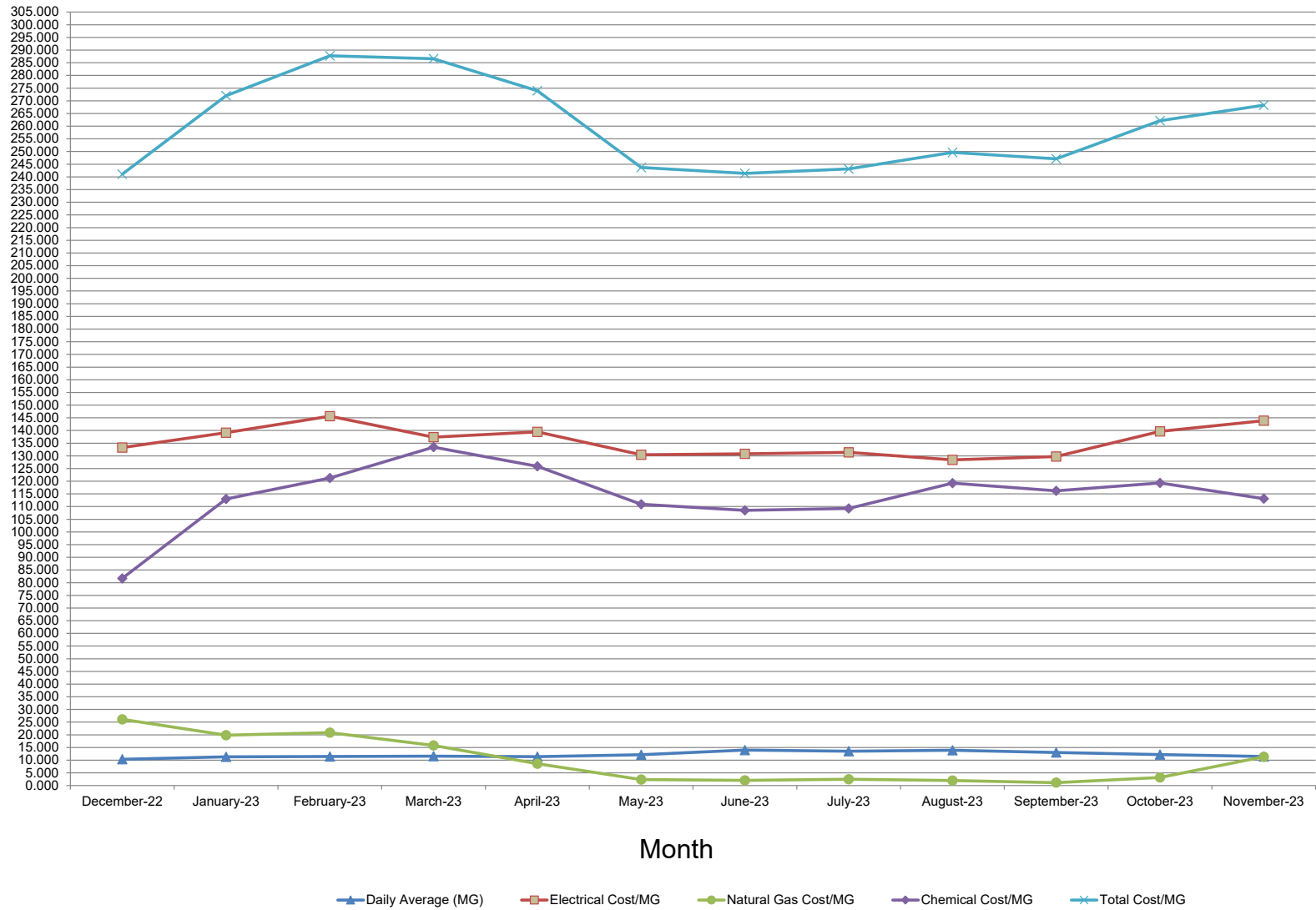
	12/1/2023	11/1/2023	
SLUDGE No. 1 Hour Meter	0.0	0.0	0
SYSTEM No. 2 Mag Meter	509,440	202,400	307,040
Recycle Meter (Reset to zero each month)			307,040

Power Cost	\$0.0900625	Bill >>>>	\$37,934.33
	0.302588462	KWH >>>	421,200
Init. Chg.	\$37,502.03		
	\$	KWH	
Kohler Pit			
Horizon	\$241.90	1,501	
Taylor	\$233.71	1,538	
ALT. 72 Park	\$786.73	2,600	
Geo. Ave.	\$5,952.39	55,800	
Wilgus Ave.	\$442.70	3,000	
EE Pit	\$719.59	5,088	
EE Tower	\$165.60	1,054	
Washington	\$96.62	529	
Office	\$818.91	5,729	
Erie Ave.	\$2,638.56	16,800	
Total	\$49,598.74	510,039	
			Low L. KWH 71,298
			L.L. Cost \$ \$6,421.31
			High L. KWH 277,840
			H.L. Cost \$ \$25,022.97
			Total Cost \$31,444.28
			Plant Costs \$6,592.30

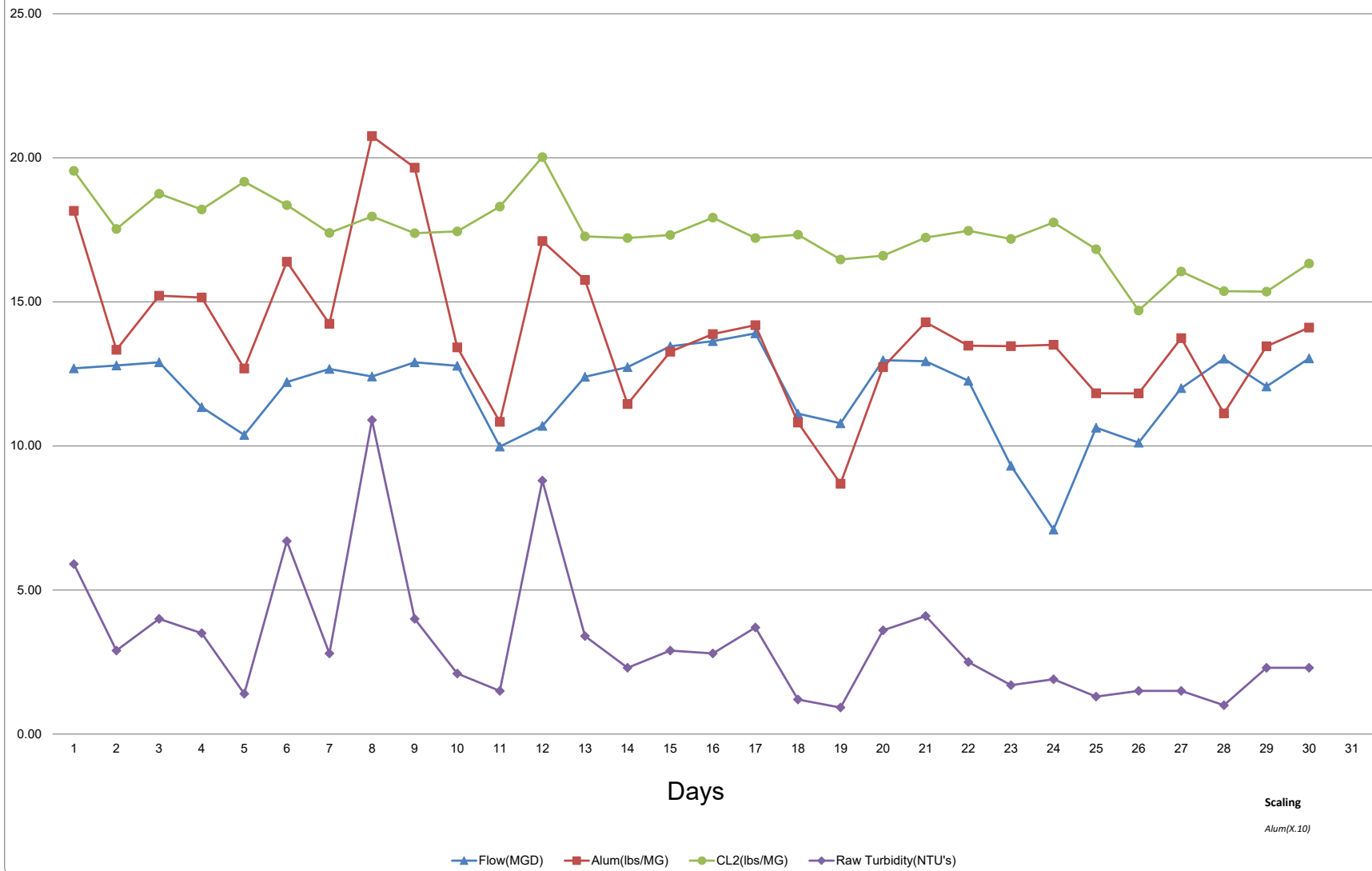
SUMMARY

	HIGH LIFT		LOW LIFT	
	2022	2023	2022	2023
Tot. Pump	341.292	343.111	355.420	357.309
Daily Ave.	11.376	11.437	11.847	11.910
Max. Day	12.913	12.688	14.122	13.907
Min. Day	7.138	7.113	7.230	7.096
By Nat. Gas	3.932	7.747	2.418	7.508
Power KWH	279,759	277,840	71,305	71,298
Gals/KWH	1206	1207	4951	4906
Cost/KWH	\$0.07557	\$0.09006	*****	*****
Cost/MG	\$61.94	\$72.93	\$15.16	\$17.97
Tot. Cost/MG	\$126.79	\$144.56	*****	*****

Plant Operations: Expense Report



November 2023: Sheboygan Water Utility Plant Operations Summary



Filter Plant Maintenance Completed For November 2023

Subject	StartDate	EndDate	Description	
Dakota Supply Group	1-Nov-23		Purchase new SD Hammer drill and battery combo.	
Horizon Ave.	1-Nov-23		Turn on/test heating system, check reagents, walk grounds, etc.	
Taylor Hill	1-Nov-23		Turn on/test heating system, check reagents, walk grounds, etc.	
Georgia Ave.	1-Nov-23		Turn on/test heating system, check reagents, walk grounds, etc.	
Erie Ave.	1-Nov-23		Turn on/test heating system, check reagents, walk grounds, etc.	
EE Tower	1-Nov-23		Turn on/test heating system, walk grounds, etc.	
EE and Washington Pits	1-Nov-23		Turn on/test heating system, walk grounds, etc.	
Kohler Meeting	2-Nov-23		Generator switch gear and general operation training.	
BW 20" Actuator	2-Nov-23		Replace actuator fuses.	
2" B.W. Basin Line	3-Nov-23		Begin installing new 2I filter basin rinse line.	
2" B.W. Basin Line	3-Nov-23		Begin disassembling old 2I line used to rinse the filter backwash basin.	
Dakota Supply Group	3-Nov-23		Purchase 60' of schedule 80, elbows, 90s, male connectors, and hangers.	
Menards	3-Nov-23		Purchase strut connectors and price check 2I plumbing components.	
security cams Ethernet line	3-Nov-23		Crimped new end on plant security camera ethernet cable in ops office closet	
Ops office chair	3-Nov-23		Assembled new operations office chair	
Operator Chair	3-Nov-23		Assemble new operators chair.	
Generac Georgia Ave.	6-Nov-23		Install new generator screen.	
2" Backwash Basin Line	6-Nov-23		Continue installing new 2I backwash basin line.	
Monday Meeting	6-Nov-23		Topics include raw water tie in, FSO basin cleaning, Georgia Ave. touch screen, winter prep, and filter maintenance.	
Horizon Ave.	6-Nov-23		Check reagents, verify heater operations, walk grounds, etc.	
Georgia Ave.	7-Nov-23		Verify new generator touch screen operates correctly.	
2" Backwash Basin Line	7-Nov-23		Begin fabricating new 2I ball valve bracket.	
2" Backwash Basin Line	7-Nov-23		Continue install 2I line; added inside gate valve and bracketry.	
Erie Ave.	7-Nov-23		Perform maintenance and run generator: no load.	
2" Backwash Basin Line	8-Nov-23		Finish fabricating the 2I ss ball valve bracket out of aluminum.	
West Basin Cleaning Setup	8-Nov-23		Assist FSO setting up for West Basin service.	
Sheboygan Glass	8-Nov-23		Went to Sheboygan falls glass to check on keying new building locks, have to return with key set	
South Basin SWAN	8-Nov-23		Remove mixing components and begin deep clean.	
South Basin Bathroom	9-Nov-23		Clean south basin bathroom.	
Sheboygan Glass	9-Nov-23		Drop off new lock cylinders.	
Erie Ave.	9-Nov-23		Check reagents and lower heater temperature.	
Dakota Supply Group	9-Nov-23		Acquire new 1/4" bur bit set.	
2" Backwash Basin Line	9-Nov-23		Finish installing new ball valve and outside plumbing.	
South Basin	10-Nov-23		Begin filling South basin: turn on chemicals, open influent, etc.	
Dan Covering Laboratory	10-Nov-23	11-Nov-23	Dan covering laboratory for Eric.	
New Construction Colilert Sample	10-Nov-23		Collect 2 samples for new construction project on 14th and Illinois.	
Valve Turner	10-Nov-23		Diagnose/repair turn counter inop.	
Menards	10-Nov-23		Purchase winter gloves, batteries, cleaning supplies, stainless washers, etc.	
Office Chair	10-Nov-23		Assemble new office chair.	
West Basin Service	10-Nov-23		Begin decanting West basin: close ball valves, open sluice gates, bypass filter backwash basin, etc.	
South Basin Valve #43	10-Nov-23		Open valve #43 after raw water improvement tie in; 110 full turns.	
Dan medical appointment	13-Nov-23		Dan medical Appointment	
East Basin	13-Nov-23		Open drain valves.	
Raw Sample Pump	13-Nov-23		Run a temporary line from the south poly feed point to the raw water sample pump.	
Sample Trough	13-Nov-23		Clean sample trough and add another Rubatex layer to the sink bottom.	
West Basin FSO	13-Nov-23		Switch over ball valves, open drains, turn on sludge pump 1, etc.	
East Basin	13-Nov-23		Begin decanting east basin for sludge removal.	
Dan vacation	14-Nov-23	17-Nov-23	Dan on vacation	
Raw Water Sample Line	14-Nov-23		Re-connect raw water sample line.	
Pipe Gallery	14-Nov-23		Sweep the floor by filters 7-9, throw away plastic sheeting by filter 3, and tighten leaking interconnect fitting.	
East and West Post Hypo	14-Nov-23		Repair both East and West post hypo feed lines: broken fitting and broken hose clamp.	
Old Rapid Mix Room	14-Nov-23		Sweep, replace East sample line 1/4" fitting, and scrub/rinse floor.	
West SWAN Analyzer	14-Nov-23		Deep clean the West SWAN analyzer.	
East SWAN Analyzer	14-Nov-23		Deep clean the East SWAN analyzer.	
East Basin	14-Nov-23		Begin filling East basin after closing decants.	
East Basin Inspection	14-Nov-23		Enter East basin and inspect door, manhole covers, etc.	

Sludge Sample	14-Nov-23		Collect sludge sample for laboratory.
FSO Startup	14-Nov-23		Open backwash basin influent valve, throttle sludge valve, and ensure sludge pump is operating as normal.
West Basin Inspection	15-Nov-23		Begin setting up for West basin inspection tomorrow.
East Basin Sample Pumps	15-Nov-23		Clean lines, prime pumps, and put into service.
East Basin	15-Nov-23		Put East basin back into service.
FSO Startup	15-Nov-23		Open backwash basin influent valve, throttle sludge valve, and ensure sludge pump is operating as normal.
West Basin	16-Nov-23		Begin filling West basin: turn on chemical feed pumps, ensure drain valves are shut, etc.
Joshua Covering 1st Shift	16-Nov-23		Joshua covered first shift for Tyler.
Leak Check	17-Nov-23		Leak check all basin drain valves.
Basin Service Tools	17-Nov-23		Clean and place basin service tools/equipment in respective storage locations.
East Basin	17-Nov-23		Check East basin drain valves for leaks.
West Basin	17-Nov-23		Put SWAN unit back online, prime effluent sample pump, and ensure chemical feed pumps are operating properly.
West Basin	17-Nov-23		Put West basin back into service.
East UV Reference Check	20-Nov-23		Perform reference check on East UV train: ¼ slots need diagnostic work.
East UV Reactor	20-Nov-23		Replace 4 sleeves, clean 2, and reassemble.
UV Room	20-Nov-23		Install 8 L.E.D. bulbs.
West UV Train	20-Nov-23		Fire up West train, clean orthophosphate feed line, and turn East reactor off.
West Alum Feed	21-Nov-23		Replace West alum feed hose, clean area, and fabricate new replacement hose.
East Alum Feed	21-Nov-23		Flush East alum feed line.
East Alum Feed	21-Nov-23		Pull alum feed quill and flush line: pressure had risen again and removing the injector quill helped remove sand/grit blockage.
South Basin Cabinet	21-Nov-23		Fabricate and install new wood shelving inside plastic cabinet.
Garbage	21-Nov-23		Throw out garbage and recycling.
Menards	21-Nov-23		Purchase 2x4s and ¾" plywood for South basin cabinet.
South Basin Bathroom	22-Nov-23		Clean South basin bathroom and operator floor.
Joshua Operating 1st	22-Nov-23	22-Nov-23	Joshua covering 1st shift for Wayne.
Thanksgiving Holiday	23-Nov-23		Thanksgiving holiday
Utility observed holiday	23-Nov-23		
Dan covering 1st shift	23-Nov-23	23-Nov-23	Dan covering 1st operations for thanksgiving holiday
Lower Hall and Stairs	27-Nov-23		Clean floor and steps.
Engine 7+10	27-Nov-23		Top off engine oil and coolant: engine 7 took 4 quarts oil, engine 10 took 5 quarts oil.
Gas Engine 3+4	27-Nov-23		Top off oil and coolant: engine 3 took 5 gallons oil, engine 4 took 2 gallons oil + 1 gallon coolant.
Dan Covering Laboratory	27-Nov-23	27-Nov-23	Dan covering laboratory for Eric.
Sodium Thio	27-Nov-23		Replace feed hose.
Fluoride Hose	27-Nov-23		Replace fluoride feed pump hose and lube rollers.
SWAN Tap Hypo Meter	27-Nov-23		Clean unit with CLR, fine brush mixing orifices, and adjust flow.
SWAN Fluoride Meter	27-Nov-23		Clean with CLR and attempt process calibration.
SWAN Orthophosphate Meter	27-Nov-23		Replace reagents, clean unit, and run fill cycle.
Monday Meeting	27-Nov-23		Topics include filter maintenance, plant running on gas engines Tuesday-Thursday, coverage, reservoir run, sodium hypochlorite repair, etc.
Georgia reagents	27-Nov-23		Replaced reagents at Georgia pump station
Taylor hill reagents	27-Nov-23		Replaced reagents at Taylor Hill reservoir
Hang cold weather curtains	28-Nov-23		Hung cold weather curtains in front entrance for vac truck hoses
Menards	28-Nov-23		Plastic sheeting and filter plant maintenance items
Put away valve keys	28-Nov-23		Put away valve keys for interconnect by Johnson shed
Hypo Storage Tanks	28-Nov-23		Repair 21 fill line.
Laboratory Stand	28-Nov-23		Fabricate new stand for Bunsen burner.
Lab ceiling tiles	29-Nov-23		Replaced ceiling tiles in lab
bathroom supplies to office	29-Nov-23		Brought bathroom supplies to main office
Filter to waste filter 3 and 4	29-Nov-23		Got filter to waste valves on filter 3 and 4 operating
Menards	29-Nov-23		Menards for filter plant maintenance items
Bulk Alum Storage Light	29-Nov-23		Install new L.E.D light bulb in bulk alum storage area.
Smoke and Carbon Monoxide Detectors	29-Nov-23		Replace smoke and carbon monoxide detectors in Lab and generator room.
Ortho Feed Hoses	29-Nov-23		Replace hoses, lube rollers, reset tube timers, and clean area.
Dan lab operations	30-Nov-23	30-Nov-23	Dan lab operations
Filter 3 Filter to Waste	30-Nov-23		Install new filter to waste indicator.
Filter 4 Filter to Waste	30-Nov-23		Install new filter to waste indicator.
Filter 4 Filter to Waste	30-Nov-23		Diagnose inop open indicator: found blue wire disconnected in filter table PLC box.
Maintenance Shop	30-Nov-23		Clean maintenance shop and tools.
Horizon and EE Pit	30-Nov-23		Double check SCADA faults related to power outage.
Filter 3+4 Filter to Waste	30-Nov-23		Remove old indicator boxes, brackets, and wiring.