

May 2022

OPERATIONS' DEPARTMENT MONTHLY REPORT

PUMPAGE	HIGH LIFT		LOW LIFT		2022 VS 2021
	2021	2022	2021	2022	HL
Total in MG	351.674	375.637	357.138	389.200	6.81%
Daily Average (MG)	11.344	12.138	11.521	12.555	
Max. Day (MG)	14.258	13.912	14.965	15.163	2022 VS 2020
					HL
Gal/KwH	1,184	1,190	5,023	3,623	31.47%
ELECTRICAL COSTS					
A. Pumping:	2021		2022		
	KwH	\$	KwH	\$	
High Lift	293,661	\$21,976.21	313,196	\$24,141.95	
Low Lift	70,606	\$5,283.82	106,483	\$8,207.98	
Wash Pump 1	2,100	\$157.15	2,800	\$215.83	
Georgia St. Bstr.	37,200	\$3,793.15	56,700	\$5,397.34	
Wilgus Ave. Bstr.	2,700	\$332.61	3,000	\$404.10	
EE Pit / Bstr.	4,611	\$538.06	5,272	\$677.73	
Erie Ave. Bstr.	12,400	\$1,901.06	0	\$0.00	\$/KwH
Sub Total	423,278	\$33,982.06	487,451	\$39,044.93	-0.2%
B. Treat/Fiscal/Misc.	2021		2022		
	KwH	\$	KwH	\$	
Office & Maint. Bldg.	7,202	\$800.81	5,239	\$626.28	
Filter Plant / Pump Station / 2nd Service	51,433	\$4,304.23	25,321	\$3,142.56	
Sub Total	58,635	\$5,105.04	30,560	\$3,768.84	\$/KwH
C. Distribution:	2021		2022		
	KwH	\$	KwH	\$	
Taylor Hill Tank	1,030	\$134.53	623	\$96.26	
Kohler Meter Pit	0	\$0.00	0	\$0.00	
EE Tower	409	\$63.14	1,126	\$160.50	
Washington (PRV) Pit	531	\$81.28	256	\$52.03	
Sub Total	1,970	\$278.95	2,005	\$308.79	\$/KwH
Total Electrical Costs	483,883	\$39,366.05	520,016	\$43,122.56	1.9%
Electrical Cost / MG		\$111.94		\$114.61	
NATURAL GAS COSTS	2021		2022		
	CCF Used	Cost	CCF Used	Cost	
Production Facility	491	\$427.41			
South Basin	1,049	\$935.40	985	\$1,214.21	
Georgia St. Bstr.	29	\$40.22			
Erie Ave. Bstr.	51	\$70.06			
Wilgus Ave. Bstr.	0	\$17.33			
Office & Maint. Bldg.	588	\$487.05	452	\$476.06	\$/CCF
Total Natural Gas Costs	1,688	\$1,977.47	1,437	\$1,690.27	0.4%
Natural Gas Cost / MG		\$5.62		\$4.49	
CHEMICAL COSTS	2021		2022		
	Lbs. Used	Cost	Lbs. Used	Cost	
Alum	41,202	\$5,830.08	43,316	\$7,861.85	28.3%
Carbon	0	\$0.00	0	\$0.00	#DIV/0!
Chlorine	4,319	\$2,980.11	6,631	\$9,813.88	114.5%
Fluoride	1,553	\$1,688.11	1,926	\$2,677.14	27.9%
KMnO4	0	\$0.00	0	\$0.00	#DIV/0!
Cationic Polymer	769	\$1,191.95	0	\$0.00	#DIV/0!
Liquid Phosphate	2,983	\$3,943.53	4,583	\$7,231.97	19.4%
Total Chemical Costs		\$15,633.78		\$27,584.85	76.4%
Chemical Cost / MG		\$44.46		\$73.31	
Grand Total		\$56,977.30		\$72,397.68	27.06%
Total Cost / MG		\$162.02		\$192.41	18.76%

YTD HL 2022 vs 2021	2.81%	YTD HL HIGH DAY PUMPAGE	15.163	May 13, 2022	
YTD HL 2022 vs 2020	13.19%	YTD HL LOW DAY PUMPAGE	7.587	January 1, 2022	
					YTD HL Ave Day
					2022
					2021
					2020
					11.879
					11.623
					10.479

NOTE:

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

COMPARATIVE SUMMARY OF PLANT OPERATIONS

May 2021

vs

May 2022

Pumping Record

High Lift

Low Lift

	2021	2022	Diff.		2021	2022	Diff.
Tot. Water in MG	351.674	375.637	6.81%	Tot. Water in MG	357.138	389.200	8.98%
Daily Average	11.344	12.138	7.00%	Daily Average	11.521	12.555	8.97%
Maximum Day	14.258	13.912	-2.43%	Maximum Day	14.965	15.163	1.32%
Minimum Day	8.200	9.235	12.62%	Minimum Day	8.319	9.334	12.20%
By Natural Gas	4.061	3.458	-14.85%	By Natural Gas	2.512	3.458	37.66%
Power in KWH	293,661	313,196	6.65%	Power in KWH	70,606	106,483	50.81%
Gals. per KWH	1,184	1,190	0.54%	Gals. per KWH	5,023	3,623	-27.87%
Power \$ / KWH	\$0.07484	\$0.07708	3.00%	Power \$ / KWH	----	----	----
Power \$ / MG	\$62.49	\$64.16	\$1.67	Power \$ / MG	\$14.79	\$21.09	\$6.30
Tot. Power \$/MG	\$106.69	\$115.07	\$8.38	Tot. Power \$/MG	----	----	----

Treatment Chem.

Lbs. Used

Total Lbs.	2021	2022	Diff.
Alum	41,202	43,316	5.13%
Carbon			#DIV/0!
Chlorine	4,319	6,631	53.53%
KMnO4	0		#DIV/0!
Polymer	769		-100.00%
Liquid Phosphate	2,983	4,583	53.64%
Lb/ MG:			
Alum	115.4	111.3	-3.53%
Carbon	0.0	0.0	#DIV/0!
Chlorine	12.1	17.0	40.88%
KMnO4	0.0	0.0	#DIV/0!
Liquid Phosphate	8.4	11.8	40.98%

Cost

Total Cost	2021	2022	Diff.
Alum	\$5,830.08	\$7,861.85	\$2,031.77
Carbon	\$0.00	\$0.00	\$0.00
Chlorine	\$2,980.11	\$9,813.88	\$6,833.77
KMnO4	\$0.00	\$0.00	\$0.00
Polymer	\$1,191.95	\$0.00	(\$1,191.95)
Liquid Phosphate	\$3,943.53	\$7,231.97	\$3,288.44
Cost / MG:			
Alum	\$16.32	\$20.20	\$3.88
Carbon	#DIV/0!	#DIV/0!	#DIV/0!
Chlorine	\$8.34	\$25.22	\$16.87
KMnO4	#DIV/0!	#DIV/0!	#DIV/0!
Liquid Phosphate	\$11.04	\$18.58	\$7.54

Fluoride:	2021	2022	
Total Lbs.	1,553	1,926	24.02%
mg/l applied as F	0.71	0.72	
Av. Res. Plt. Tap	0.71	0.70	

Fluoride:	2021	2022	
Cost	\$1,688.11	\$2,677.14	\$989.03
Cost/MG	\$4.81	\$7.13	\$2.32

Water Quality:

Raw

	2021	2022
Turbidity	3.40	2.00
pH	8.24	8.30
Alkalinity	108.0	111.8
MF (E-Coli)	2.6	0.0
Temperature	44.6	43.6
Wash-H2O % /LL	1.97	1.94
Av. Flt. Run/hrs	132.4	114.4
Av. ROF / MG	1.31	1.12

TAP

	2021	2022
Turbidity	0.029	0.060
pH	7.70	7.72
Alkalinity	102.2	105.1
Plate Count	0.00	0.00
Colilert	0	0
Temp.	46.6	45.5
Cl Res.	0.85	0.84

Natural Gas:

	2021	2022		2021	2022	Diff.
Nat. Gas Heating	1,893	531	Plant & South Basin	\$959.01	#DIV/0!	#DIV/0!
Nat. Gas Pumping	585	454		\$463.44	#DIV/0!	#DIV/0!

	CCF	Cost	Natural Gas Cost	Natural Gas CCF
#3 Gas Pump	114.7	#DIV/0!	\$1,214.21	985
#4 Gas Pump	180.0	#DIV/0!		
#7 Gas Pump	95.0	#DIV/0!		
Electric Generator	64.0	#DIV/0!		
Pumping totals	453.7	#DIV/0!		

May 2022

	6/1/2022	5/1/2022	
Elapsed Time:			
No. 6 Pump	66,892.3	66,387.0	505.3
Wash Pump Meter	5,435.45	5,414.29	21.16
No. 7 Pump	754.8	751.0	3.8
No. 8 Pump	59,535.6	59,535.6	0.0
No. 9 Pump	19,663.0	18,919.0	744.0
Wash Pump 2	14	6	8
No. 1 Prime Pump	1,041.2	1,040.3	0.9
No. 2 Prime Pump	1,112.1	1,110.5	1.6

Wathour Meters:			
Wash Pump 1	1254.1	1250.1	2,800
No. 9 Pump	5513.27	5471.18	42,083
No. 8 Pump	6834.4	6834.4	0
No. 6 Pump	556.2	326.2	64,400
Wash Pump 2	1.48	0.693	944
No. 1 Pump	8724.815	8724.815	0
No. 2 Pump	4760.514	4751.552	8,962
No. 3 Pump	9851.064	9789.494	61,570
No. 4 Pump			0
No. 5 Pump	9,904.256	9,661.592	242,664

Garage (MWatt/Hrs.)	1,058.71	1,055.26	3,450
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Power Co. (Step #3)	36,186	35,810	451,200
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Left Meter - OUTSIDE

Volume Used:

Nat. Gas (Correct)	44,680,273	44,622,920	72,093
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Elapsed Time:			
Emer. Generator	1,017.4	1,014.2	3.2
Elapsed Time:			
No. 1 Pump	16,179.5	16,179.5	0.0
No. 2 Pump	20,317.18	20,278.59	38.59
No. 3 Elec. Pump	34,226.4	34,019.4	207.0
No. 3 Nat. Gas Pump	530.2	526.5	3.7
No. 4 Elec. Pump	0.00	0.00	0.0
No. 4 Nat. Gas Pump	8.3	4.3	4.0
No. 5. Pump	20,712.220	20,206.330	505.890
UV Building Generator	123	119.9	3.1

	6/1/2022	5/1/2022	
SLUDGE No. 1 Hour Meter	0.0	0.0	0
SYSTEM No. 2 Mag Meter	4,542,110	4,099,440	442,670
Recycle Meter (Reset to zero each month)			442,670

Power Cost	\$0.0770826	Bill >>>>	\$32,837.17
	0.273138235	KWH >>>	426,000
Init. Chg.	\$34,779.65		
	\$	KWH	
Kohler Pit			
Horizon	\$174.73	1,168	
Taylor	\$96.26	623	
ALT. 72 Park	\$928.67	3,400	
Geo. Ave.	\$5,397.34	56,700	
Wilgus Ave.	\$404.10	3,000	
EE Pit	\$677.73	5,272	
EE Tower	\$160.50	1,126	
Washington	\$52.03	256	
Office	\$626.28	5,239	
Erie Ave.			
Total	\$43,297.29	527,984	

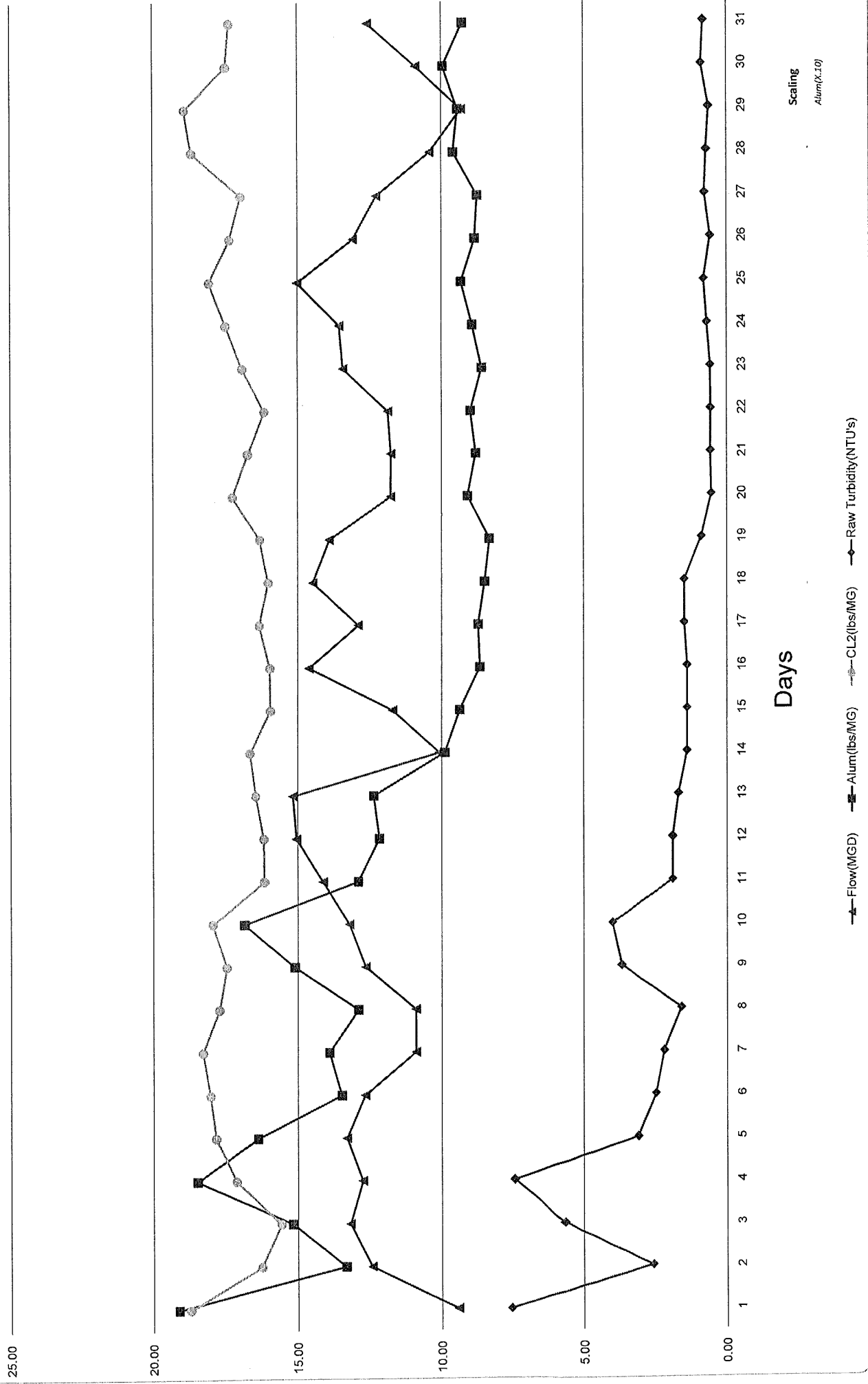
Low L. KWH	106,483
L.L. Cost \$	\$8,207.98
High L. KWH	313,196
H.L. Cost \$	\$24,141.95
Total Cost	\$32,349.93

Plant Costs	\$3,142.56
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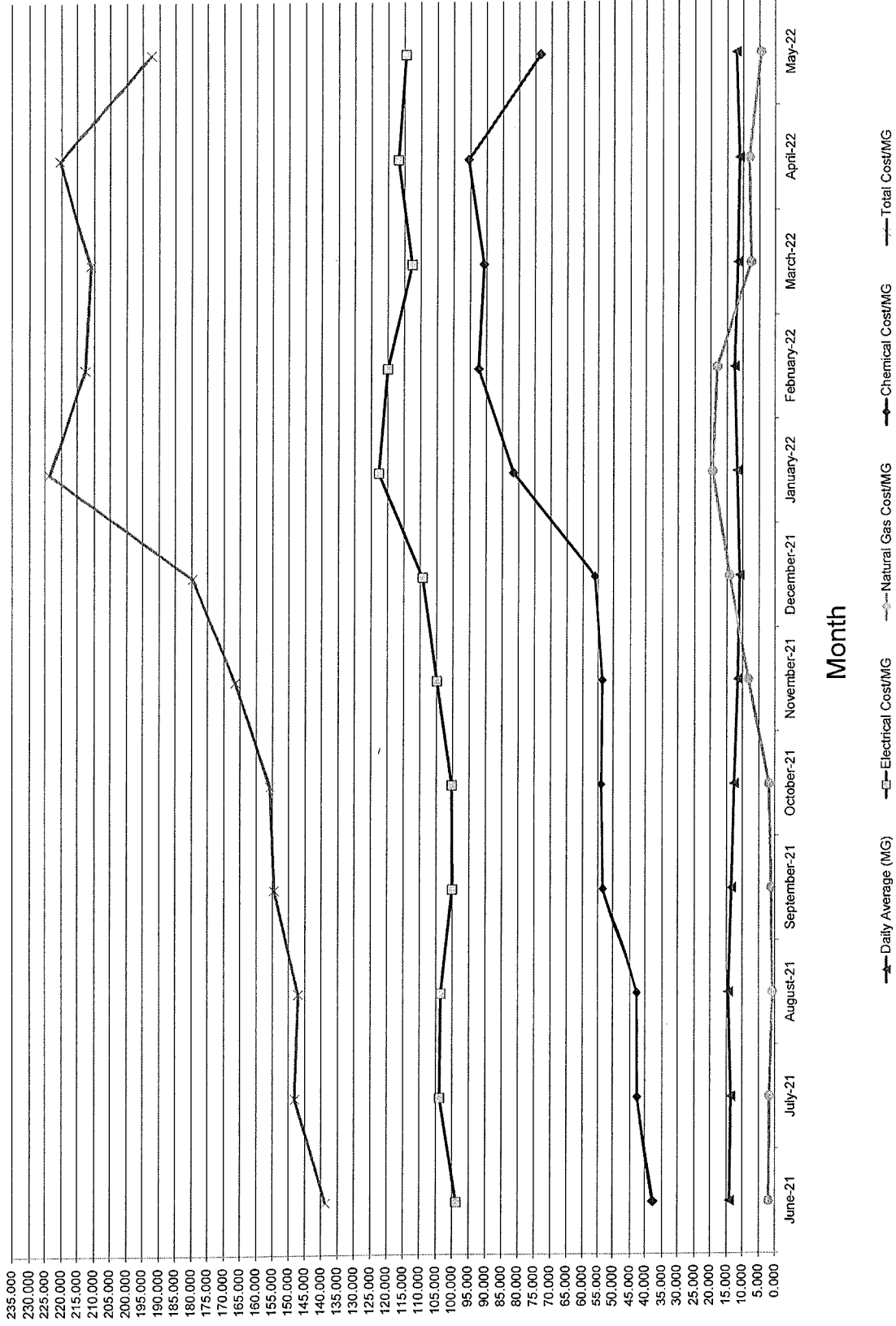
SUMMARY

	HIGH LIFT		LOW LIFT	
	2021	2022	2021	2022
Tot. Pump	351.674	376.271	357.138	389.200
Daily Ave.	11.344	12.138	11.521	12.555
Max. Day	14.258	13.912	14.965	15.163
Min. Day	8.200	9.235	8.319	9.334
By Nat. Gas	4.061	3.458	2.512	3.458
Power KWH	293,661	313,196	70,606	106,483
Gals/KWH	1184	1190	5023	3623
Cost/KWH	\$0.07484	\$0.07708	*****	*****
Cost/MG	\$62.49	\$64.16	\$14.79	\$21.09
Tot. Cost/MG	\$106.69	\$115.07	*****	*****

May 2022: Sheboygan Water Utility Plant Operations Summary



Plant Operations: Expense Report



Filter Plant Maintenance Completed For May 2022

Subject	Start Date	End Date	Description	Yellow indicates days operating or running labs
Dan covering 3rd shift	1-May-22	1-May-22	Dan covering 3rd shift for Tyler	
Taylor Hill	2-May-22		Turn off heaters, check reagents, drain sub-level, walk grounds, etc.	
Washington Pit, Wilgus Ave, Erie Ave.	2-May-22		Turn off heaters, walk grounds, inspect interior, check reagents, etc.	
EE Tower, EE Pit, and Horizon	2-May-22		Turn off heaters, inspect grounds, check reagents, etc.	
Monday Meeting	2-May-22		New water improvement project, large sump, reservoir run, coverage, training, etc.	
UV Room	2-May-22		New dehumidifier pack on west UV7% meter, clean North mezzanine, organize shelves, etc.	
Large Sump Pump	2-May-22		Gameplan large sump pump install for Tuesday morning.	
Dan off for coverage	2-May-22		Dan off for coverage	
High Lift Large Sump	3-May-22	3-May-22	Install large sump pump in high lift	
High Lift Large Sump	3-May-22		Bring new spool piece, Propeller, and volute into high lift.	
High Lift	4-May-22		Sweep and scrub floors	
Maintenance Shop	4-May-22		Bring tools up from high lift, sweep floors, organize, and mop.	
Hypo Bulk Room	4-May-22		Check for leaks and clean.	
Polymer Feed Room	4-May-22		Sweep, scrub floors, squeegee, and dust	
UV Reference Check	4-May-22		Perform UV reference check.	
UV Room	4-May-22		Glue seam covers into place.	
UV Room	4-May-22		Wash floors, clean windows, and vacuum ledge.	
Dan covering 1st shift	4-May-22	6-May-22	Dan covering 1st shift operations	
High Lift	5-May-22		Clean pipes and apply paint to rusted areas.	
Bathroom and Hypo Feed Room	5-May-22		Scrub and wash floor.	
High Lift Floor	5-May-22		Sweep, scrub, and wash floor.	
East Basin Decant	6-May-22		Decant East basin; turn off floccs, close valves, etc.	
Filter Hall	6-May-22		Final clean tables, dust windows, check heaters, etc.	
Filter Hall, Maintenance shop, Sample Trough	6-May-22		Clean filter hall floor, rapid mix windows, doors, sample trough, and maintenance shop.	
Old Rapid Mix	6-May-22		Move boxes, clean grating, reposition step, etc.	
Rapid Mix Mat	6-May-22		Install new matting on old rapid mix grating.	
East Basin	9-May-22		Swap hill valves, switch pumps 2/1, open hatch covers, etc.	
East Basin	9-May-22		Open sluice gates, place sample barrel outside, open sewer cover, attach press plug, etc.	
East Basin	9-May-22		Finish decant, close lake outfall, open drain valves, and open 12" sludge valve.	
Trillings	9-May-22		Purchase o-rings for sump pump oiler.	
Sump Oil Pot	9-May-22		Completely rebuild unit, install new o-rings, remove paint, CLR rust, etc.	
Dan Operating 1st Shift	9-May-22	12-May-22	Dan covering first shift for Wayne and Jeff.	
Large Sump Pump	9-May-22		Remove oil pot and begin cleaning/restoration.	
Updating Contacts and Research	10-May-22		Updated email contacts and researched membrane filtration.	
Plant Garbage	10-May-22		Throw away trash and recycling.	
Large Sump Pump	10-May-22		Install rebuilt oiler, clean left over grease, and add 75w90.	
Pipe Gallery Maintenance	10-May-22		Perform pipe gallery monthly maintenance check.	
High Lift Sump	11-May-22		Re-inspect high lift large sump after overnight operation; good at this time.	
East Basin	12-May-22		Inspection, close valves, and begin filling.	
East Basin	12-May-22		Assist FSO in basin valve throttling for sludge removal.	
Dan on vacation	13-May-22	17-May-22	Dan on vacation	
Joshua Off Sick Time	13-May-22	13-May-22	Joshua seven hours sick time; right MCL, lare.	
East Basin	13-May-22		Complete East basin mechanical check.	
West Basin Decant	16-May-22		Lift boxes, swap over backwash basin to receive sludge, send decant water to city, etc.	
West Basin Decant	16-May-22		Decant West basin and prepare for decant box lift.	
Monday Meeting	16-May-22		Topics include West basin cleaning, raw water project, buffalo pit work, parking, coverage, etc.	
The Shipping Mill	17-May-22		Return incorrect DRB000; ordered and received models are not the same.	
Batteries Plus	17-May-22		Purchase batteries for plant/reservoir UPCs.	
West Basin Decant	17-May-22		Open valves in lunchroom, laboratory, and outside, swap hill valves, place sludge pump 1 in service, etc.	
UV Maintenance Check	17-May-22		Perform UV room maintenance check, filled UV7% meters with CLR, checked reagents, and placed calibrated reference sensor on mezzanine.	
Replaced UPS batteries	18-May-22		Replaced UPS batteries throughout filter plant	
ENE pump station UPS	18-May-22		Repaired and replaced battery in Battery back-up, installed improved wiring for battery hookup	
Batteries Plus	18-May-22		Batteries plus for additional batteries	
UPS Update	19-May-22		Continued loading, verifying, and tabulating UPS information throughout the Water Treatment Plant.	
Raw Water Improvement Electrical	19-May-22		After getting 480v switched back on walked the plant, primed pumps, locate bad UPS(s), check chemical feed components, started floccs, closed discharge on 5, fired pump 5 and 9 up.	
Raw Water Improvement Electrical	19-May-22		Prepare facility for 480v power down; turn off south basin floccs, have FSO stop operations, double check OPS status, etc.	
Raw Water Improvement	19-May-22		Inspect trailer locations for valve access interference and UV generator obstruction.	
West Basin	19-May-22		Collect laboratory samples, engage sludge pump, open valves, etc.	
Front Planters	20-May-22		Plant flower in front of filter plant.	
Filter UPS	20-May-22		Install new filter table UPS batteries	
EE Pit	20-May-22		Check for electrical draw: heater, exhaust fan, dehumidifier normal.	
Horizon Ave.	20-May-22		Check reagents, walk grounds, and install new UPS battery.	

Taylor Hill	20-May-22	Check reagents, inspect grounds, and install new UPS battery.
Menards	20-May-22	Purchase paint, brushes, gloves, flowers, etc.
Monday Meeting	23-May-22	Raw water project update, west basin work, coverage, parking, etc.
West Basin	23-May-22	Trouble shoot valve issue, grease bearing blocks, and game plan repairs with Farmer.
West Basin	23-May-22	Inspect basin for required repairs and drop decant boxes, found south west bonnet bad in 1939 addition and wall backed off in 1939 corridor by hypo bulk room.
West Basin	23-May-22	Open drain valves, decant, and bypass.
South Basin Influent Pump	24-May-22	Install new south basin influent sample pump.
West basin valve repair	24-May-22	West basin drain valve repairs on 2 valves on flocs side
West basin wood wall repair	24-May-22	Wood wall in west basin 1st chamber repaired, wall was repaired with new lumber and screws
West basin grease fittings	24-May-22	Grease fittings repaired on both floc drives coming out of west basin wall
West basin cleanup	24-May-22	Cleaned up equipment for west basin cleaning and repairs
Dakota supply group	24-May-22	Dakota supply group for replacement south basin sample pump
South Basin 1st Floc	25-May-22	Lock out, remove motor, disassemble, and install two new bearings.
UPS Sheet	25-May-22	Continue entering UPS upgrade information.
West Basin	25-May-22	Turn on flocs, drop sluice gates, install hatch/covers, inspect chemical pumps, etc.
Joshua Operating 1st	25-May-22	Open effluent valves, turn on sample pumps, and double check drain/decant valves.
Dan comp time	26-May-22	Joshua operating 1st shift for Glen.
South Basin 1st Floc	26-May-22	Dan on vacation, comp time
Maintenance Shop	26-May-22	Finish motor assembly, scrub/prime fan cover, and install.
Menards	26-May-22	Clean area, put tools/hardware away, organize paint cabinet, work on UPS install, etc.
Horizon Ave.	26-May-22	Snap-ring pliers, rust penetrant, and brake clean.
Memorial Day	30-May-22	New reagents, walk grounds, prime system, etc.
Utility observed holiday	30-May-22	Memorial day holiday
Filter 11	31-May-22	Utility observed Holiday
Pipe Gallery Maintenance	31-May-22	Begin diagnosing filter 111 wash valve issue; buttons inop and valve difficult to manually/physically operate.
Filter 6	31-May-22	Bleed air out of all head loss and rate of flow meters in pipe gallery.
Filter 6	31-May-22	Install used rate of flow meter (Rosemont) on filter 6.
Order SWAN Phosphate Reagents	31-May-22	Begin diagnosing 4-20 issue on filter 6 rate of flow meter; reads 3,3 MGD with valves closed.
	31-May-22	Track down and order new phosphate reagents/acid.