

COMPARATIVE SUMMARY OF PLANT OPERATIONS

February 2022

vs

February 2023

Pumping Record

High Lift

Low Lift

	2022	2023	Diff.		2022	2023	Diff.
Tot. Water in MG	353.356	320.848	-9.20%	Tot. Water in MG	354.732	330.397	-6.86%
Daily Average	12.620	11.477	-9.06%	Daily Average	12.669	11.800	-6.86%
Maximum Day	13.987	12.848	-8.14%	Maximum Day	13.984	13.127	-6.13%
Minimum Day	9.989	9.477	-5.13%	Minimum Day	9.866	9.843	-0.23%
By Natural Gas	2.433	3.667	50.72%	By Natural Gas	2.433	2.166	-10.97%
Power in KWH	296,051	274,500	-7.28%	Power in KWH	73,034	67,102	-8.12%
Gals. per KWH	1,185	1,157	-2.33%	Gals. per KWH	4,824	4,892	1.40%
Power \$ / KWH	\$0.08080	\$0.08764	8.47%	Power \$ / KWH	----	----	----
Power \$ / MG	\$67.70	\$74.86	\$7.16	Power \$ / MG	\$16.64	\$17.80	\$1.16
Tot. Power \$/MG	\$121.26	\$146.91	\$25.65	Tot. Power \$/MG	----	----	----

Treatment Chem.

Lbs. Used

Cost

Total Lbs.	2022	2023	Diff.	Total Cost	2022	2023	Diff.
Alum	81,457	71,318	-12.45%	Alum	\$14,784.45	\$14,370.58	(\$413.87)
Carbon			#DIV/0!	Carbon	\$0.00	\$0.00	\$0.00
Chlorine	5,729	5,194	-9.34%	Chlorine	\$8,478.92	\$10,543.82	\$2,064.90
KMnO4	0	0	#DIV/0!	KMnO4	\$0.00	\$0.00	\$0.00
Polymer	1,371	0	-100.00%	Polymer	\$2,125.21	\$0.00	(\$2,125.21)
Liquid Phosphate	3,064	3,621	18.18%	Liquid Phosphate	\$4,834.99	\$11,076.64	\$6,241.65
Lb/ MG:				Cost / MG:			
Alum	229.6	215.9	-6.00%	Alum	\$41.68	\$43.49	\$1.82
Carbon	0.0	0.0	#DIV/0!	Carbon	#DIV/0!	#DIV/0!	#DIV/0!
Chlorine	16.2	15.7	-2.66%	Chlorine	\$23.90	\$31.91	\$8.01
KMnO4	0.0	0.0	#DIV/0!	KMnO4	#DIV/0!	#DIV/0!	#DIV/0!
Liquid Phosphate	8.6	11.0	26.88%	Liquid Phosphate	\$13.63	\$33.53	\$19.90

Fluoride:	2022	2023		Fluoride:	2022	2023	
Total Lbs.	1,739	1,474	-15.24%	Cost	\$2,417.21	\$2,979.69	\$562.48
mg/l applied as F	0.67	0.74		Cost/MG	\$6.85	\$9.29	\$2.44
Av. Res. Plt. Tap	0.72	0.71					

Water Quality:

Raw

TAP

	2022	2023
Turbidity	14.10	16.70
pH	8.20	8.26
Alkalinity	119.0	114.5
MF (E-Coli)	0.3	1.3
Temperature	32.7	33.8
Wash-H2O % /LL	1.77	2.32
Av. Flt. Run/hrs	148.3	92.0
Av. ROF / MG	1.43	1.35

	2022	2023
Turbidity	0.050	0.040
pH	7.47	7.55
Alkalinity	103.8	102.0
Plate Count	0.00	0.00
Colilert	0	0
Temp.	33.8	35.7
Cl Res.	0.89	0.93

Natural Gas:

	2022	2023		2022	2023	Diff.
Nat. Gas Heating	6,861	4,729	Plant & South Basin	\$5,208.32	\$4,503.42	(\$704.90)
Nat. Gas Pumping	68	490		\$51.98	\$464.59	\$412.61

	CCF	Cost	Natural Gas Cost	Natural Gas CCF
#3 Gas Pump	117.8	\$111.74	\$4,968.01	5,219
#4 Gas Pump	180.0	\$170.74		
#7 Gas Pump	100.0	\$94.85		
Electric Generator	92.0	\$87.26		
Pumping totals	489.8	\$464.59		

February 2023

% Run

49.1%
3.55%
0.6%
0.0%
99.4%
1.0%

Elapsed Time:

	3/1/2023	2/1/2023	
No. 6 Pump	71,046.8	70,716.8	330.0
Wash Pump Meter	5,666.59	5,642.73	23.86
No. 7 Pump	795.1	791.1	4.0
No. 8 Pump	59,540.3	59,540.3	0.0
No. 9 Pump	26,165.0	25,497.0	668.0
Wash Pump 2	92	85	7
No. 1 Prime Pump	1,048.5	1,047.7	0.8
No. 2 Prime Pump	1,125.3	1,123.9	1.4

Kw/Hr run

146.7
64.4
#DIV/0!
73.0
137.8
539.7
237.6
298.8
#DIV/0!
480.7

Wattour Meters:

Wash Pump 1	1291.1	1286.1	3,500
No. 9 Pump	5907.61	5864.59	43,022
No. 8 Pump	6837.1	6837.1	0
No. 6 Pump	1528.2	1442.2	24,080
Wash Pump 2	9.637	8.833	965
No. 1 Pump	9443.776	9314.751	129,025
No. 2 Pump	4854.237	4850.707	3,530
No. 3 Pump	605.435	502.087	103,348
No. 4 Pump			0
No. 5 Pump	11,228.848	11,190.251	38,597

Garage (MWatt/Hrs.)	1,086.45	1,083.07	3,380
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Power Co. (Step #3)	39,594	39,252	410,400
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Left Meter - OUTSIDE

Volume Used:

Nat. Gas (Correct)	45,578,104	45,404,886	217,735
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% Run

35.6%
2.2%
51.5%
0.6%
0.0%
0.6%
11.9%
0.2%

Elapsed Time:

Emer. Generator	1,071.1	1,066.5	4.6
No. 1 Pump	17,512.5	17,273.4	239.1
No. 2 Pump	20,714.26	20,699.40	14.86
No. 3 Elec. Pump	2,074.4	1,728.5	345.9
No. 3 Nat. Gas Pump	564.0	560.2	3.8
No. 4 Elec. Pump	0.00	0.00	0.0
No. 4 Nat. Gas Pump	67.7	63.7	4.0
No. 5. Pump	23,480.390	23,400.090	80.300
UV Building Generator	141.4	139.8	1.6

SLUDGE No. 1 Hour Meter

SYSTEM No. 2 Mag Meter

Recycle Meter (Reset to zero each month)

Power Cost \$0.0876405

0.40407

Init. Chg. \$35,967.66

\$

Kohler Pit

Horizon

Taylor

ALT. 72 Park

Geo. Ave.

Wilgus Ave.

EE Pit

EE Tower

Washington

Office

Erie Ave.

Total

Bill >>>>

KWH >>>

Low L. KWH

L.L. Cost \$

High L. KWH

H.L. Cost \$

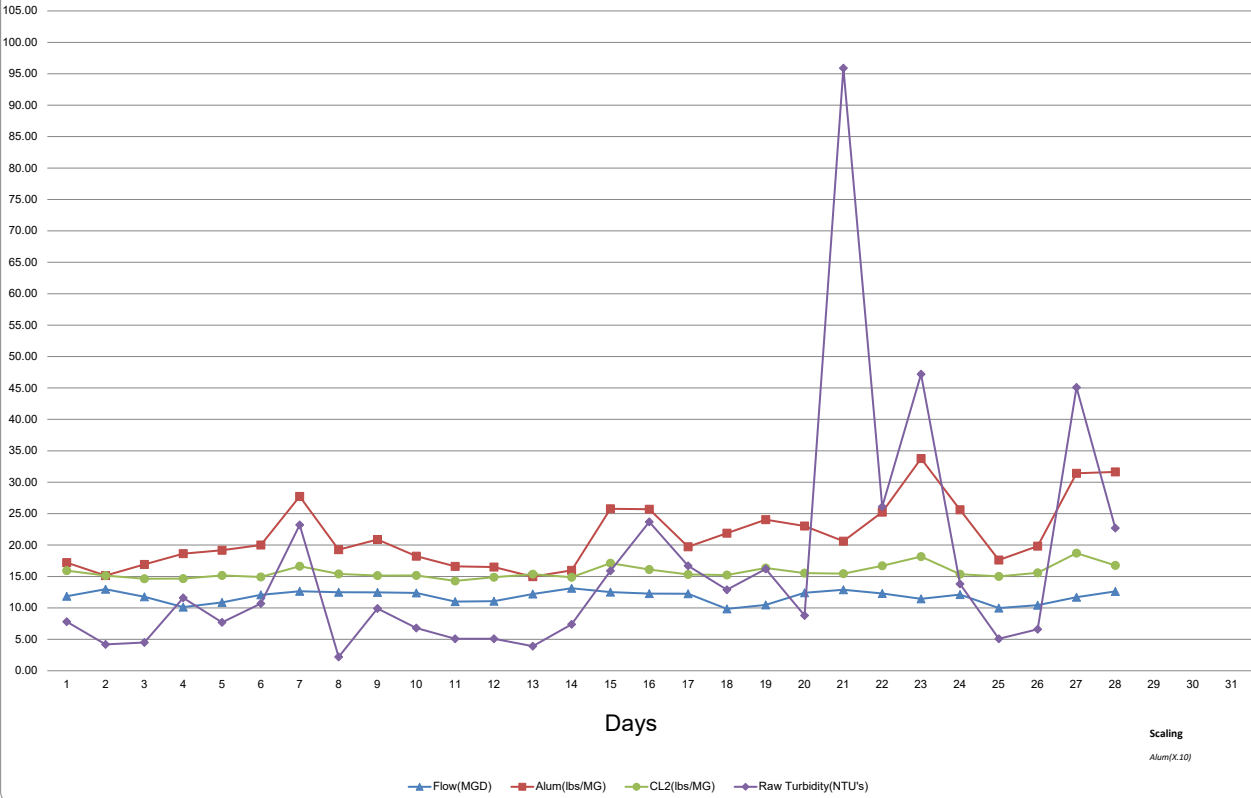
Total Cost

Plant Costs

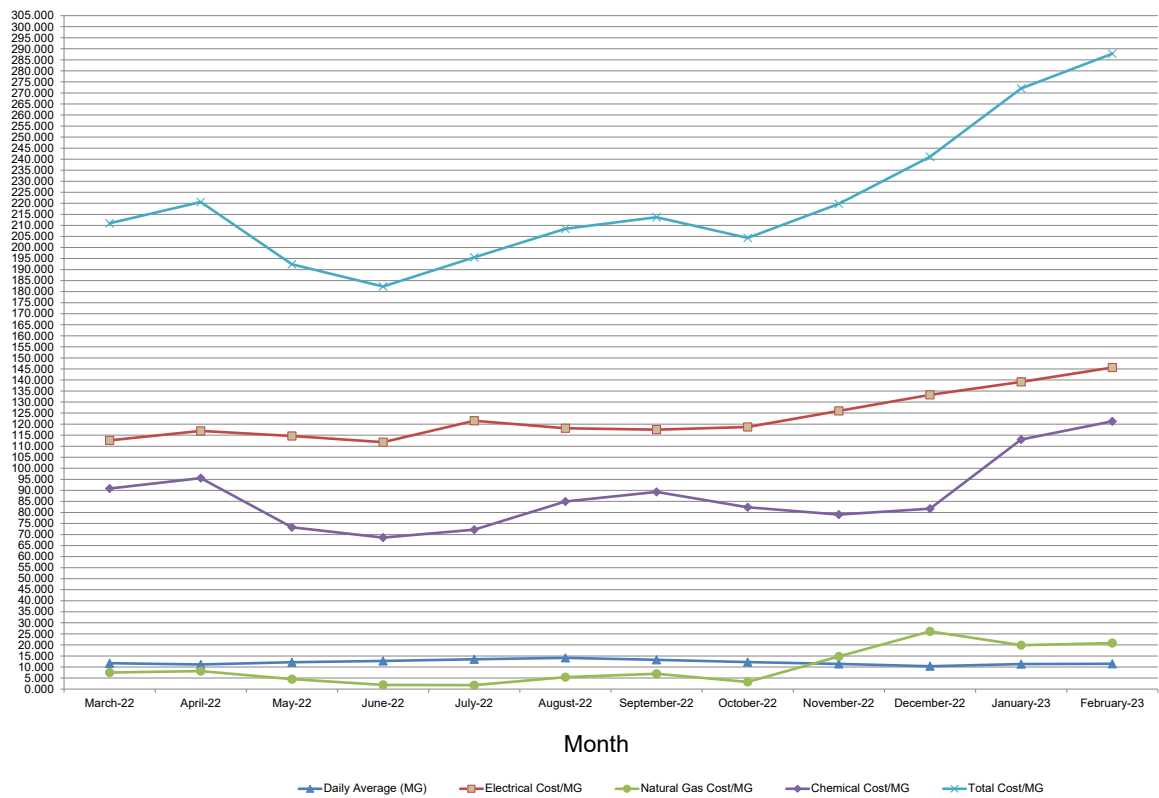
SUMMARY

	HIGH LIFT		LOW LIFT	
	2022	2023	2022	2023
Tot. Pump	353.356	321.356	354.732	330.397
Daily Ave.	12.620	11.477	12.669	11.800
Max. Day	13.987	12.848	13.984	13.127
Min. Day	9.989	9.477	9.866	9.843
By Nat. Gas	2.433	3.667	2.433	2.166
Power KWH	296.051	274.500	73.034	67,102
Gals/KWH	1185	1157	4824	4892
Cost/KWH	\$0.08080	\$0.08764	*****	*****
Cost/MG	\$67.70	\$74.86	\$16.64	\$17.80
Tot. Cost/MG	\$121.26	\$146.91	*****	*****

February 2023: Sheboygan Water Utility Plant Operations Summary



Plant Operations: Expense Report



Filter Plant Maintenance Completed For February 2023

Subject	StartDate	EndDate	Description
Intake Icing operations	1-Feb-23		Suction well/intake icing operations
Intake valves	1-Feb-23		Got intake valves 30 I 36 free and working. Powered actuators, exercised valves in manual and remote
Greased south flocs	1-Feb-23		Greased south basin floc 1 -2 I 3
South basin effluent analyzer	1-Feb-23		Cleaned south basin analyzer, flushed lines, flushed pump and recalibrated
South basin turbidity meter	1-Feb-23		Cleaned south basin turbidity meter
#6 filter vacuum	2-Feb-23		Vacuumed out #6 filter with crew vacuum trailer, lot of wet filter media under caps
Rate of flow decant valve	2-Feb-23		Rate of flow decant valve is sticking closed when running south basin sludge cycle and blowing fuses
Filter garbage and cardboard	2-Feb-23		Removed filter plant garbage and cardboard
BW basin rate of flow	3-Feb-23		BW basin rate of flow valve failing to open and not fully opening when decanting.
Horizon reagents	3-Feb-23		Replaced reagents at Horizon tower
Taylor hill	3-Feb-23		Brought reagents to taylor hill reservoir, checked dog house and pumped water from pipe gallery below
Georgia pump station	3-Feb-23		Maintenance checks and new reagents, checked emergency generator for proper coolant temp
Erie pump station	3-Feb-23		Maintenance checks at Erie pump station, need to bring new reagents following week
8 inch sludge valve	6-Feb-23		8 inch sludge valve stuck, pit had frozen layer on top, exercised valve and flushed valve 2 times, working again
Rate of flow valve sticking	6-Feb-23		Rate of flow valve on back wash basin stuck closed again, exercised valve in manual and placed back in remote, working as intended
East UV Ballast alarms	6-Feb-23		East UV ballast alarms going off, failure to communicate, trouble shooting issue
Tools for filter #6 inspection	6-Feb-23		Gathering equipment and tools needed for filter #6 inspection
January maintenance report	6-Feb-23		January maintenance report sent to Bill
Erie reagents	7-Feb-23		Replaced Erie reagents and pump station maintenance checks
Fueled plant truck	7-Feb-23		Fueled plant truck
Set up for filter #6 inspection	7-Feb-23		Set up for filter #6 inspection
Josh sick time	7-Feb-23		Josh sick time
East UV ballast #1	8-Feb-23		East UV ballast #1 located in main UV PLC cabinet failed and was replaced
#5 filter new pressure gauge	8-Feb-23		Installed new pressure gauge on filter #5
trouble shoot east UV	8-Feb-23		Trouble shooting issues with east UV SCADA screen, faults and alarms, waiting for reply from Trojan company
Dan operate 1st shift	9-Feb-23	9-Feb-23	Dan covering 1st shift operations
Filter pressure gauges	10-Feb-23		Installed filter pressure gauges 1 - 8
Filter plant Garbage	10-Feb-23		Removed filter plant garbage and cardboard
Menards	10-Feb-23		Menards for pipe fittings for pressure gauges
Dakota supply group	10-Feb-23		Dakota supply group for braided rubber hose
Erie reservoir	10-Feb-23		Erie reservoir changed reagents and maintenance checks on equipment and building
Fluoride bulk feed hose	10-Feb-23		Fluoride bulk tank pump feed hose replaced
Fluoride pump hose	10-Feb-23		Fluoride feed pump NP hose changed
Filter #4 pressure test	13-Feb-23		Filter #4 pressure test
Filter #5 pressure test	13-Feb-23		Filter #5 pressure test
Filter #7 Pressure test	13-Feb-23		Filter #7 pressure test
#11 filter influent actuator	13-Feb-23		#11 filter influent actuator trouble shooting, powered actuator and exercised, actuator working, will continue to monitor
Filter Gauge Install	14-Feb-23		Install new pressure gauges on filters 9, 10, and 11.
Filter #9 Pressure Test	14-Feb-23		Perform filter #9 pressure test.
Menards	14-Feb-23		Purchase 3/8I and 1/4I stainless steel plumbing supplies.
Filter #1 Pressure Test	14-Feb-23		Filter #1 pressure test.
Filter #2 Pressure Test	14-Feb-23		Filter #2 pressure test.
Filter #3 Pressure Test	14-Feb-23		Perform filter #3 pressure test.
Light by wash pump 1	14-Feb-23		Replaced light by wash pump 1
Light in new flash mix area	14-Feb-23		Replaced light in new flash mix area
Filter #5 pressure test	15-Feb-23		Filter #5 pressure test
Filter #8 pressure test	15-Feb-23		Filter #8 pressure test
Filter #10 pressure test	15-Feb-23		Filter #10 pressure test
Sludge Pump #1	15-Feb-23		Look for water leaking into sludge pit; found 1/2 elbow leaking into sludge pit. Recommend pipe repair and inspect check valve.
Pressure Test Filter #11	15-Feb-23		Perform pressure test on filter #11.
Tap Feed Line	16-Feb-23		Flush and clean tap water sample feed line.
Wash Line Flow Meter	16-Feb-23		Begin designing wash line flow meter brackets.
Maintenance Shop	16-Feb-23		Organize tools, shelve parts, and clean bench.
Dan Operating 1st Shift	16-Feb-23	17-Feb-23	Dan covering first shift for Tyler.

Lower Level Bathroom	16-Feb-23		Clean lower level bathroom and shower.
Low Lift Vacuum Pumps	17-Feb-23		Check small water leak by vacuum/prime system.
Wilgus Ave.	17-Feb-23		Check pump drives, walk grounds, and inspect heater operation.
Taylor Hill	17-Feb-23		Replace reagents, walk grounds, and inspect heater operation.
Erie Ave.	17-Feb-23		Check reagents, walk grounds, and inspect heater operation.
Georgia Ave.	17-Feb-23		Check reagents, walk grounds, and inspect heater operation.
Horizon Ave.	17-Feb-23		Check reagents, walk grounds, and inspect heater operation.
Filters 7 and 8	20-Feb-23		Clean influent solenoid valves and exercise for validation; everything worked okay today.
Fluoride feed hose	20-Feb-23		Fluoride feed hose on blue/white pump replaced
Greased #5 engine HL	20-Feb-23		Grease #5 high lift motor and pump
Garbage/Metal	20-Feb-23		Throw out qarbage and metal.
Reservoirs camera installation	21-Feb-23		Linked up with JSM security to check reservoirs for possible security camera installation, all reservoirs except horizon
Repaired pressure relief #3 HL	21-Feb-23		Repaired cooling water line pressure relief by #3 high lift pump
#1 High Lift greased	21-Feb-23		#1 high lift and pump greased
#3 high lift greased	21-Feb-23		#3 High lift pump and motor greased
#2 High Lift Pump Greased	21-Feb-23		Grease high lift #2, install new pressure gauge, and clean cooling water feed lines.
Small Sump	22-Feb-23		Grease motor, inspect coupling, and clean case.
Large Sump	22-Feb-23		Grease motor, add bearing oil, and clean area.
High Lift 5	22-Feb-23		Check cooling water, grease pump/motor, and clean case.
High Lift Pump 4	22-Feb-23		Check engine oil, grease pump, inspect battery, etc.
snow day	23-Feb-23		Snow day
Dakota Supply Group	24-Feb-23		Purchase 1 13/16I plugs, 1 ½I hole saw, hole saw drill, and price check stainless strut, threaded rod, nuts, washers, and clevis brackets.
Vacuum Pumps	24-Feb-23		Add grease to motor/pump, replace grease fitting on 2, inspect cooling water system, label, bleed gauges, and document maintenance performed; needs air vent rebuild.
Low Lift 9	24-Feb-23		Add grease to motor/pump, inspect cooling water system, label, bleed gauges, and document maintenance performed.
Low Lift 8	24-Feb-23		Add grease to motor/pump, inspect cooling water system, label, bleed gauges, and document maintenance performed.
Low Lift 7	24-Feb-23		Check oil in motor/pump/transmission, inspect cooling water system, label, bleed gauges, and document maintenance performed.
Low Lift 6	24-Feb-23		Add grease to motor/pump, inspect cooling water system, label, bleed gauges, and document maintenance performed.
Dakota Supply Group	24-Feb-23		Purchase/pickup low lift vacuum pump air vent repair kit.
Replaced Phosphate swan hoses	27-Feb-23		Replaced phosphate swan analyzer hoses in lab
Replaced phosphate reagents	27-Feb-23		Replaced phosphate swan analyzer reagents
trouble shoot DR5000	27-Feb-23		Trouble shoot on DR5000 lightbulb issue
Pipe gallery hanger project	27-Feb-23		Assessment and recon on pipe gallery pipe hanger replacement.
Plant back in AUTO	27-Feb-23		Put plant back in auto, put pumps back in flow pace
Erie Ave.	27-Feb-23		Inspect roof leak; removed ice damn, placed catch buckets, inspect when safe/possible.
Fire Extinguisher Pickup	27-Feb-23		Pickup all remote station fire extinguishers for inspection.
CVMIC Excavation Training	28-Feb-23		Attend CVMIC excavation training.
Dorner Filter 8	28-Feb-23		Moved wash valve open/closed setpoints (was looking like 40% open on indicator), moved physical stop ¼ turn, suspect butterfly valve has pin issue.
Filter Backwash Basin Valve Dorner	28-Feb-23		Jason diagnosed fuse blowing issue possibly related to voltage: current read 472v, suspect generator causes spikes, moved pins from 460v to 480v.
Plant Operations	28-Feb-23		Discuss filter 8 wash valve replacement, actuator installs, UPS installations, DR5000 service, UV battery update, and filter wash flow meter.
Dakota Supply Group	28-Feb-23		Purchase 1 ½I tap and acquire pricing for pipe gallery maintenance; stainless strut, threaded rod, and clevis pipe hanger.
Fire Extinguishers	28-Feb-23		Drop-off all remote station fire extinguishers for inspection.