

March 2023

OPERATIONS' DEPARTMENT MONTHLY REPORT

PUMPAGE	HIGH LIFT		LOW LIFT		2023 VS 2022
	2022	2023	2022	2023	HL
Total in MG	363.796	357.427	363.783	372.929	-1.75%
Daily Average (MG)	11.735	11.548	11.735	12.030	
Max. Day (MG)	12.938	12.760	13.046	13.100	
					2023 VS 2021
					HL
Gal/KwH	1,192	1,188	4,832	4,886	-3.13%
ELECTRICAL COSTS					
		2022		2023	
A. Pumping:		KwH	\$	KwH	\$
High Lift		302,349	\$22,443.33	299,307	\$24,936.75
Low Lift		74,889	\$5,559.01	75,838	\$6,318.44
Wash Pump 1		2,800	\$207.84	10,500	\$874.81
Georgia St. Bstr.		51,600	\$5,044.52	59,700	\$5,977.28
Wilgus Ave. Bstr.		3,500	\$470.30	3,000	\$428.91
EE Pit / Bstr.		6,357	\$814.50	6,450	\$874.79
Erie Ave. Bstr.		0	\$0.00	16,000	\$2,397.48
Sub Total		441,495	\$34,539.50	470,795	\$41,808.46
					\$/KwH 13.5%
B. Treat./Fiscal/Misc.		KwH	\$	KwH	\$
Office & Maint. Bldg.		3,910	\$407.83	4,858	\$675.38
Filter Plant / Pump Station / 2nd Service		63,362	\$5,197.94	63,155	\$5,924.06
Sub Total		67,272	\$5,605.77	68,013	\$6,599.44
					\$/KwH 16.4%
C. Distribution:		KwH	\$	KwH	\$
Taylor Hill Tank		2,529	\$339.83	2,622	\$370.45
Kohler Meter Pit		0	\$0.00	0	\$0.00
EE Tower		1,957	\$271.43	1,449	\$214.49
Washington (PRV) Pit		1,509	\$223.04	1,096	\$175.48
Sub Total		5,995	\$834.30	5,167	\$760.42
					\$/KwH 13.5%
Total Electrical Costs		514,762	\$40,979.57	543,975	\$49,168.32
Electrical Cost / MG			\$112.64		\$137.35
NATURAL GAS COSTS					
		2022		2023	
		CCF Used	Cost	CCF Used	Cost
Production Facility		2,386	\$1,501.75	1,903	\$1,646.12
South Basin		3,083	\$1,892.74	2,705	\$2,473.37
Georgia St. Bstr.		182	\$135.97	143	\$150.66
Erie Ave. Bstr.		362	\$255.20	315	\$292.53
Wilgus Ave. Bstr.		55	\$50.00	49	\$61.75
Office & Maint. Bldg.		941	\$584.53	1,130	\$1,042.99
Total Natural Gas Costs		7,009	\$4,420.19	6,245	\$5,667.42
					\$/CCF 43.9%
Natural Gas Cost / MG			\$12.15		\$15.83
CHEMICAL COSTS					
		2022		2023	
		Lbs. Used	Cost	Lbs. Used	Cost
Alum		68,226	\$12,383.02	81,009	\$16,323.31
Carbon		0	\$0.00	0	\$0.00
Chlorine		7,018	\$10,386.64	6,776	\$13,755.28
Fluoride		1,856	\$2,579.84	1,643	\$3,321.32
KMnO4		0	\$0.00	0	\$0.00
Cationic Polymer		1,417	\$2,196.97	1,374	\$2,129.70
Liquid Phosphate		3,479	\$5,489.86	4,001	\$12,239.06
Total Chemical Costs			\$33,036.33		\$47,768.68
					44.6%
Chemical Cost / MG			\$90.81		\$133.44
Grand Total			\$78,436.09		\$102,604.42
					30.81%
Total Cost / MG			\$215.60		\$286.62
					32.94%

YTD HL 2023 vs 2022	-4.74%	YTD HL HIGH DAY PUMPAGE	13.403	January 30, 2023
YTD HL 2023 vs 2021	-2.55%	YTD HL LOW DAY PUMPAGE	9.294	January 1, 2023

NOTE:

2023 Electrical costs include an Alliant Energy 8.3% rate increase approved by PSC.

	YTD HL Ave Day
2023	11.448
2022	12.036
2021	11.752

COMPARATIVE SUMMARY OF PLANT OPERATIONS

March 2022

vs

March 2023

Pumping Record

High Lift

Low Lift

	2022	2023	Diff.		2022	2023	Diff.
Tot. Water in MG	363.796	357.427	-1.75%	Tot. Water in MG	363.783	372.929	2.51%
Daily Average	11.735	11.548	-1.59%	Daily Average	11.735	12.030	2.51%
Maximum Day	12.938	12.760	-1.38%	Maximum Day	13.046	13.100	0.41%
Minimum Day	9.904	9.645	-2.62%	Minimum Day	9.979	9.869	-1.10%
By Natural Gas	3.474	2.365	-31.92%	By Natural Gas	1.939	2.365	21.97%
Power in KWH	302,349	299,307	-1.01%	Power in KWH	74,889	75,838	1.27%
Gals. per KWH	1,192	1,188	-0.32%	Gals. per KWH	4,832	4,886	1.12%
Power \$ / KWH	\$0.07423	\$0.08331	12.24%	Power \$ / KWH	----	----	----
Power \$ / MG	\$61.69	\$69.66	\$7.97	Power \$ / MG	\$15.28	\$16.94	\$1.66
Tot. Power \$/MG	\$113.89	\$138.49	\$24.60	Tot. Power \$/MG	----	----	----

Treatment Chem.

Lbs. Used

Cost

	2022	2023	Diff.		2022	2023	Diff.
Total Lbs.				Total Cost			
Alum	68,226	81,009	18.74%	Alum	\$12,383.02	\$16,323.31	\$3,940.29
Carbon			#DIV/0!	Carbon	\$0.00	\$0.00	\$0.00
Chlorine	7,018	6,776	-3.45%	Chlorine	\$10,386.64	\$13,755.28	\$3,368.64
KMnO4	0	0	#DIV/0!	KMnO4	\$0.00	\$0.00	\$0.00
Polymer	1,417	1,374	-3.03%	Polymer	\$2,196.97	\$2,129.70	(\$67.27)
Liquid Phosphate	3,479	4,001	15.00%	Liquid Phosphate	\$5,489.86	\$12,239.06	\$6,749.20
Lb/ MG:				Cost / MG:			
Alum	187.5	217.2	15.82%	Alum	\$34.04	\$43.77	\$9.73
Carbon	0.0	0.0	#DIV/0!	Carbon	#DIV/0!	#DIV/0!	#DIV/0!
Chlorine	19.3	18.2	-5.82%	Chlorine	\$28.55	\$36.88	\$8.33
KMnO4	0.0	0.0	#DIV/0!	KMnO4	#DIV/0!	#DIV/0!	#DIV/0!
Liquid Phosphate	9.6	10.7	12.18%	Liquid Phosphate	\$15.09	\$32.82	\$17.73

Fluoride:	2022	2023		Fluoride:	2022	2023	
Total Lbs.	1,856	1,643	-11.48%	Cost	\$2,579.84	\$3,321.32	\$741.48
mg/l applied as F	0.67	0.74		Cost/MG	\$7.10	\$9.29	\$2.19
Av. Res. Plt. Tap	0.67	0.71					

Water Quality:

Raw

TAP

	2022	2023			2022	2023
Turbidity	7.80	10.10		Turbidity	0.060	0.040
pH	8.24	8.23		pH	7.54	7.52
Alkalinity	114.0	118.2		Alkalinity	102.7	104.9
MF (E-Coli)	4.6	3.9		Plate Count	0.00	0.00
Temperature	35.0	35.8		Colilert	0	0
Wash-H2O % /LL	1.77	2.38		Temp.	36.2	37.6
Av. Flt. Run/hrs	148.9	93.7		Cl Res.	0.84	0.88
Av. ROF / MG	1.32	1.41				

Natural Gas:

	2022	2023		2022	2023	Diff.
Nat. Gas Heating	2,700	4,048	Plant & South Basin	\$5,208.32	\$3,635.34	(\$1,572.98)
Nat. Gas Pumping	383	560		\$51.98	\$484.15	\$432.17

	CCF	Cost	Natural Gas Cost	Natural Gas CCF
#3 Gas Pump	130.2	\$112.62	\$4,119.49	4,608
#4 Gas Pump	198.0	\$171.27		
#7 Gas Pump	107.5	\$92.99		
Electric Generator	124.0	\$107.26		
Pumping totals	559.7	\$484.15		

March 2023

% Run

Elapsed Time:

	4/1/2023	3/1/2023	
No. 6 Pump	71,433.3	71,046.8	386.5
Wash Pump Meter	5,694.43	5,666.59	27.84
No. 7 Pump	799.4	795.1	4.3
No. 8 Pump	59,540.3	59,540.3	0.0
No. 9 Pump	26,904.0	26,165.0	739.0
Wash Pump 2	101	92	9
No. 1 Prime Pump	1,049.7	1,048.5	1.2
No. 2 Prime Pump	1,127.2	1,125.3	1.9

Kw/Hr run

Watt-hour Meters:

Wash Pump 1	1306.1	1291.1	10,500
No. 9 Pump	5955.17	5907.61	47,558
No. 8 Pump	6837.1	6837.1	0
No. 6 Pump	1629.2	1528.2	28,280
Wash Pump 2	10.601	9.637	1,157
No. 1 Pump	9443.776	9443.776	0
No. 2 Pump	4874.751	4854.237	20,514
No. 3 Pump	699.804	605.435	94,369
No. 4 Pump			0
No. 5 Pump	11,413.272	11,228.848	184,424

Garage (MWatt/Hrs.)	1,089.30	1,086.45	2,850
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Power Co. (Step #3)	39,969	39,594	450,000
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Left Meter - OUTSIDE

Volume Used:

Nat. Gas (Correct)	45,742,605	45,578,104	206,778
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% Run

Elapsed Time:

Emer. Generator	1,077.3	1,071.1	6.2
No. 1 Pump	17,512.5	17,512.5	0.0
No. 2 Pump	20,800.16	20,714.26	85.90
No. 3 Elec. Pump	2,393.5	2,074.4	319.2
No. 3 Nat. Gas Pump	568.2	564.0	4.2
No. 4 Elec. Pump	0.00	0.00	0.0
No. 4 Nat. Gas Pump	72.1	67.7	4.4
No. 5. Pump	23,865.090	23,480.390	384.700
UV Building Generator	142.4	141.4	1

SLUDGE No. 1 Hour Meter

SYSTEM No. 2 Mag Meter

Recycle Meter (Reset to zero each month)

Power Cost

Init. Chg.

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

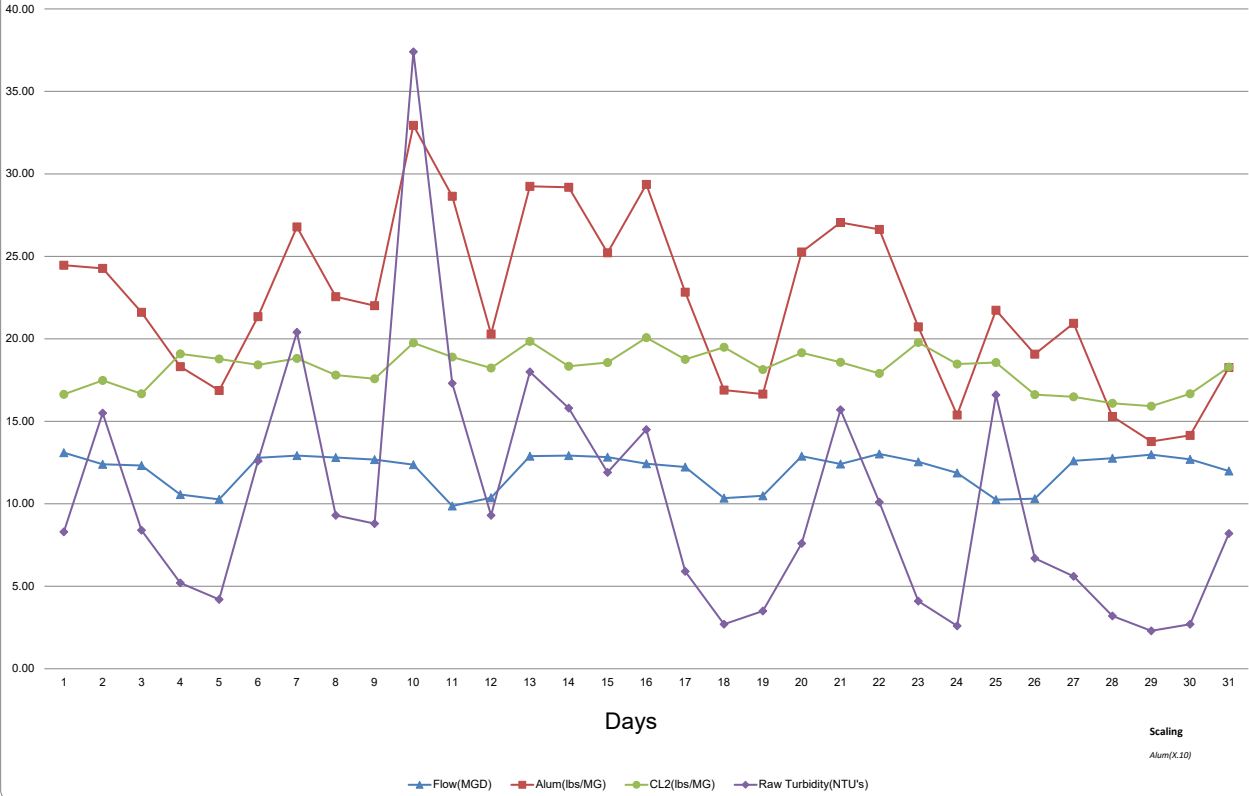
	HIGH LIFT		LOW LIFT	
	2022	2023	2022	2023
Tot. Pump	363.796	357.984	363.783	372.929
Daily Ave.	11.735	11.548	11.735	12.030
Max. Day	12.938	12.760	13.046	13.100
Min. Day	9.904	9.645	9.979	9.869
By Nat. Gas	3.474	2.365	1.939	2.365
Power KWH	302,349	299,307	74,889	75,838
Gals/KWH	1192	1188	4832	4886
Cost/KWH	\$0.07423	\$0.08331	*****	*****
Cost/MG	\$61.69	\$69.66	\$15.28	\$16.94
Tot. Cost/MG	\$113.89	\$138.49	*****	*****

HIGH LIFT DELIVERY		QUARTERLY REPORT		2023
I. FIRST QUARTER		Jan - Feb - Mar		
		GALLONS	COST \$	\$/MG
	2022	1,079,805,000	\$233,346.76	\$216.10
	2023	1,028,642,000	\$290,526.13	\$282.44
	Percent Difference	-4.74%	24.50%	30.70%
II. SECOND QUARTER		Apr - May - Jun		
		GALLONS	COST \$	\$/MG
	2022	1,114,560,000	\$220,553.73	\$197.88
	2023	0	\$0.00	#DIV/0!
	Percent Difference	-100.00%	-100.00%	#DIV/0!
III. THIRD QUARTER		Jul - Aug - Sep		
		GALLONS	COST \$	\$/MG
	2022	1,253,674,000	\$258,395.90	\$206.11
	2023	0	\$0.00	#DIV/0!
	Percent Difference	-100.00%	-100.00%	#DIV/0!
IV. FOURTH QUARTER		Oct - Nov - Dec		
		GALLONS	COST \$	\$/MG
	2022	1,040,483,000	\$229,995.97	\$221.05
	2023	0	\$0.00	#DIV/0!
	Percent Difference	-100.00%	-100.00%	#DIV/0!
YEAR TO DATE : 2023				
ELECTRICITY CHEMICALS NATURAL GAS		GALLONS	COST \$	\$/MG
	2022	4,488,522,000	\$942,292.36	\$209.93
	2023	1,028,642,000	\$290,526.13	\$282.44
	Percent Difference	-77.08%	-69.17%	34.54%
YEAR TO DATE : 2023				
SLUDGE DISPOSAL to WWTP		GALLONS	COST \$	
	2022	4,203,119	\$35,328.38	
	2023	1,027,730	\$16,591.70	
	Percent Difference	-75.55%	-53.04%	
STORM WATER CHARGES	2023	NA	\$0.00	
HIGH LIFT SYSTEM DELIVERY :				
	Maximum Pumpage Day	13,403,000	January 30, 2023	
	Minimum Pumpage Day	9,294,000	January 1, 2023	

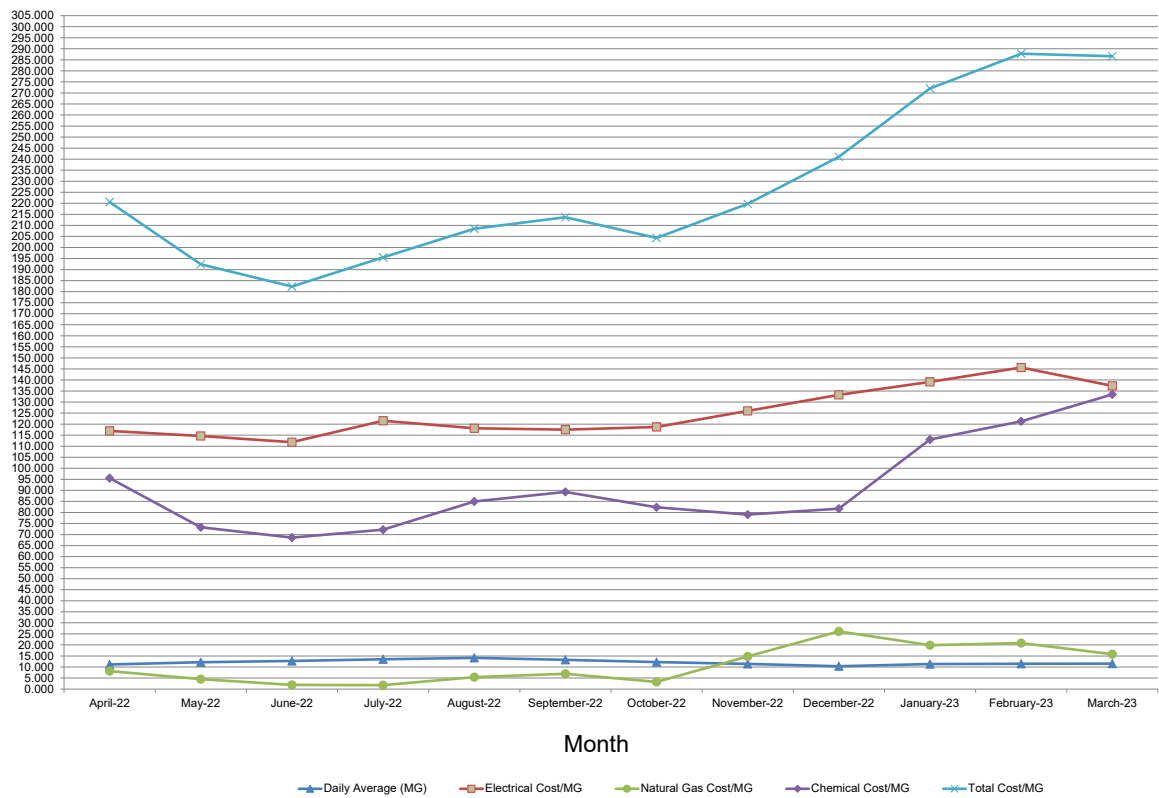
	MG	\$	\$/MG
2022	4,488,522,000	\$942,292.36	\$209.93
2023	1,028,642,000	\$290,526.13	\$282.44

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.

March 2023: Sheboygan Water Utility Plant Operations Summary



Plant Operations: Expense Report



Filter Plant Maintenance Completed For March 2023

Subject	StartDate	EndDate	Description	Yellow indicates days operating or running labs
Low Lift Vacuum System	1-Mar-23		Clean low lift vacuum pot and install new gaskets.	
Sample customer water	1-Mar-23		Samples taken for water quality complaint	
Order battery backups	1-Mar-23		Count and type of battery backups needed for office personnel, backups ordered	
New hose #10 filter	1-Mar-23		New wash down hose installed on #10 filter	
Dan 2nd shift for Tyler	2-Mar-23	2-Mar-23	Dan covering 2nd shift for Tyler	
Filter 6 Tool	2-Mar-23		Fabricate a plug Allen to be used for installing 1 1/2 caps.	
Filter 11 Switches	2-Mar-23		Install new 480v switches on each actuator circuit.	
Dakota Supply Group	2-Mar-23		Purchase 3 x 480v switches to be installed on filter 11.	
Truck 6	2-Mar-23		Check SES light/code; knock sensor issue. Schedule appointment for next Friday at Genuine Mechanics.	
Battery backups in office	3-Mar-23		Battery backups installed in administration office	
Pipe Gallery	3-Mar-23		Gameplan pipe gallery with crew.	
Filter plant trash	3-Mar-23		Removed filter plant trash and cardboard	
Trillings	3-Mar-23		Trillings for filter plant maintenance parts	
Trilling's	3-Mar-23		Purchase more fasteners to be used during filter 6 maintenance.	
Dan Lab operations	6-Mar-23	6-Mar-23	Dan covering lab operations	
UV Reference Information	6-Mar-23		Calculate and enter UV reference information into Excel.	
UV Reactor Switch	6-Mar-23		Switch UV from West to East reactor.	
UV Reference Check	6-Mar-23		Perform UV reference check on West UV reactor.	
Monday Meeting	6-Mar-23		Topics include UV reference, UV switch from West to East, Pipe gallery maintenance with crew, Lab coverage, and Truck 6 service.	
Pipe Gallery	6-Mar-23		Install stainless steel strut, 3/8" rod, clevis hangers, and fasteners to hold electrical conduit and pipe in pipe gallery; between 7 and 9.	
Taylor hill heaters	7-Mar-23		Taylor hill reservoir to adjust heaters	
Dakota supply group	7-Mar-23		Dakota supply group for pipe gallery pipe hangers	
Filter 6 Tap	8-Mar-23		Fabricate a 1 1/2" tap for filter 6 maintenance.	
Menards	8-Mar-23		Purchase cleaning supplies, 1 1/2" iron pipe, beam clamps, gloves, and misc.	
Dakota Supply Group	8-Mar-23		Purchase MAP gas and 1/2" concrete drill bits; order 6" and 8" clevis hanger.	
Sodium Hypo South Feed	9-Mar-23		Replace hose and fittings on South basin hypo feed line.	
Filter Plant Trash removal	9-Mar-23		Filter Plant trash removal	
Filter 5	9-Mar-23		Replace filter 5 backwash actuator switch.	
Joshua 2 hours Sick Time	9-Mar-23		Joshua 2 hr. PT session.	
Fabricate brackets flow meter	10-Mar-23		Fabricate brackets for wash tank flow meter	
Install flow meter brackets	10-Mar-23		Installed flow meter brackets for wash tank flow meter in pit	
Filter plant truck	10-Mar-23		Dropped off filter plant truck for repairs	
Filter plant snow removal	10-Mar-23		Filter plant snow removal	
Replace raw water pump	11-Mar-23		Dan came in on weekend to replace leaking raw water pump	
East UV Reactor	13-Mar-23		Diagnose low flow at UVT% meter and misc. alarms triggered when put into manual UVT% mode; estop, high flow, etc.	
Snow Removal	13-Mar-23		Shovel sidewalk, door areas, and chemical delivery sites.	
Monday Meeting	13-Mar-23		Topics include UV alarms. Wash tank flow meter, truck 6, H.L. 3, coverage, and snow removal.	
Flow Meter	13-Mar-23		Continue installing strut hardware and cleanup.	
H.L. Pump 3	13-Mar-23		Begin trouble shooting gear oil leak; need to remove north cap.	
H.L. Pump 3	13-Mar-23		Check North bearing gear lube level; 1/2 quart low.	
Roberts Filter Group	14-Mar-23		Meet with Rachel and Gary from Roberts Filter Group.	
Dakota Supply Group	14-Mar-23		Purchase sample pump rebuild kit, 3/8" threaded rod, Clevis hangers, and 6" electrical box.	
Flow Meter	14-Mar-23		Install 1 1/2" conduit into floor, wall bracket, move sluice handles, and 6" electrical box.	
Filter 4	14-Mar-23		Perform filter pressure test.	
Filter 1	14-Mar-23		Perform filter pressure test.	
Filter 7	14-Mar-23		Perform pressure test using flow meter data.	
Flow Meter	14-Mar-23		Core 2" hole in floor for flow meter wiring.	
Sample Pump	14-Mar-23		Rebuild sample pump.	
Wash Tank Flow Meter	15-Mar-23		Complete flow meter wiring installation in south foyer vault.	
Truck 6	15-Mar-23		Approve repair and pickup vehicle.	
Maintenance Shop	15-Mar-23		Sharpen drill bits, clean floor, and organize.	

South Foyer	15-Mar-23		Vacuum and mop area.
Filter 11	16-Mar-23		Perform filter pressure test.
Joshua 2 hrs. Sick Time	16-Mar-23		Joshua 2 hrs. sick time for shoulder PT.
Filter 9	16-Mar-23		Pressure test filter 9.
Filter 3	16-Mar-23		Pressure test filter 3.
Joshua Covering 3rd Shift	17-Mar-23	17-Mar-23	Joshua covering 3rd shift for Mark.
Off loaded filter media	20-Mar-23		Off loaded filter media off semi-trucks
Menards	20-Mar-23		Purchase drill bits and counter/desk plugs.
Sodium Thio Eyewash Station	20-Mar-23		Flush sodium thio eyewash station.
DR5000 UPS Shelf	20-Mar-23		Install new shelf for DR5000 UPS.
Dan 2nd shift for Glen	21-Mar-23	21-Mar-23	Dan covering 2nd shift for Glen
H.L. Pump 4 Leak	21-Mar-23		Diagnose water leak effluent side of H.L. pump 4.
Filter 10	21-Mar-23		Begin cleaning up old/redundant wiring.
Filter 11	21-Mar-23		Remove old/redundant wiring, clean connections, and reroute wiring.
Filter 11 Diagnose	21-Mar-23		Diagnose possible wiring issue causing intermittent 0% rate of flow alarm; bad wire splice 2 feet from actuator.
Filter 11 Wiring	21-Mar-23		Pull new wire from table to rate of flow actuator.
Dan vacation	22-Mar-23	27-Mar-23	Dan on vacation
Filter 6	22-Mar-23		Begin removing Leopold caps.
Laboratory Upgrade	22-Mar-23		Begin contacting laboratory cabinet installer.
Filter 5	22-Mar-23		Perform pressure test.
East Basin South West Floc	22-Mar-23		Repair broken wire, check all other terminals, and reset system.
Raw Water Sample Pump	22-Mar-23		Install new bearings and hoses.
Wash Tank Flow Meter UPS	23-Mar-23		Install wash tank flow meter UPS.
Plant Garbage	23-Mar-23		Dispose of plant garbage and recycling.
Joshua Operate First Shift	23-Mar-23	23-Mar-23	Joshua operating first shift for Tyler.
Filter 11	23-Mar-23		Perform pressure test.
Dakota Supply Group	24-Mar-23		Purchase schedule 80 1/2 couplings, 3/4" adapters, and Milwaukee grinder.
H.L. Balcony Light	24-Mar-23		Install new L.E.D light above H.L. balcony.
Meter/H.L. Balcony	24-Mar-23		Sweep and mop floor.
Filter 6	27-Mar-23		Begin removing center grout and gasket sealant.
Front Gate	27-Mar-23		Repair gate
Dakota Supply Group	27-Mar-23		Purchase 1/2" pressure reduction valve and order 4 bearings for sample pump repairs.
West Basin UVT%	27-Mar-23		Recalibrate unit
Gas Engine 3	27-Mar-23		Setup H.L. 3 to run on natural gas.
H.L. South Exhaust Fan	27-Mar-23		Diagnose and repair louver control arm issue.
Filter Backwash Actuator	27-Mar-23		Install new fuses.
Floor Scrubber	27-Mar-23		Remove drive button, lubricate, re-install, and check operation.
Filter 6 Leopold Port	28-Mar-23		Port fifteen 1 13/16 holes into Leopold bottoms.
Filter 6 Wash 1	28-Mar-23		Wash filter; 6.5 psi @ 60%.
Filter 6 Wash 2	28-Mar-23		Wash filter; 6.5 psi @ 60%.
Vac Truck	28-Mar-23		Empty vacuum housing, fill with gasoline, and add oil to engine.
Filter 6 Port Plug	28-Mar-23		Plug mid filter openings and 7 end ports; chambers looked to be clear of media.
Filter 6 Vacuum 4	28-Mar-23		Vacuum filter.
Filter 6 Vacuum 3	28-Mar-23		Vacuum filter.
Filter 6 Wash 3	28-Mar-23		Wash filter; 7.3 psi @ 62% with pump 1.
Leopold Matt Filter 6	29-Mar-23		Matt on site to assist in underdrain flushing.
Filter 6 Vacuum 5	29-Mar-23		Vacuum filter.
Flow Meter Wiring	29-Mar-23		Finish running flow meter wiring to box above meter.
Filter 6 Wash 5	29-Mar-23		Wash filter.
South Basin Bathroom	29-Mar-23		Clean toilet, scrub sink, and wash floor.
Tap Reagents	29-Mar-23		Fill SWAN hypo meter reagents.
Filter Hall	29-Mar-23		Sweep filter hall floor and organize work table by 6.
Josh 1st shift operating	30-Mar-23	30-Mar-23	Josh covered 1st shift operations
Filter #6 filter rehab	30-Mar-23		Filter #6 filter rehab
Filter #6 filter rehab	31-Mar-23		Filter #6 rehab work