

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



January 2022

Executive Summary

	Green	Yellow	Red
Headworks			
Oxidation Ditch			
Filters			
Generator			
Weather			
Solids Handling			
NPDES Parameters			
Pump Stations			
Personnel			
Safety			
Compliance			

(New information in bold font)

- Headworks- Equalization Pump control panel replacement project moving forward with Keystone and Hills. Keystone to replace the RTU. Waiting on receipt of VFDs. Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline. **Staff discovered the EQ Tank 16" valve cracked and had began leaking on February 3, 2022. The EQ tank was bypassed and the level drawn down. Staff entered the EQ tank and plugged the outlet with a sewer plug. A blank flange was purchased and installed on February 10, 2022.**



- **Filters- De-ragging of the last cassette to UF Train 4 was completed and the cassette was replaced on 12-28-2021. Upon completion, several attempts to start UF Train 4 failed due to high turbidity. On 1-5-2022, staff isolated one of three cassettes to UF Train 4 as it was determined to be malfunctioning. On 2-4-2022, the cause of the issue was determined to be a single module that had not seated properly upon reinstallation after cleaning. The O-rings to module were replaced and the module was reinstalled. Staff returned the cassette to service.**

- Pump Stations-** A proposal to replace the Pump Station 8 Generator Transfer Switch for \$3,690 from Curtis Power Solutions was accepted. A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. Continue to have issues with Pump 1 maintaining prime. Inframark repaired the external check valve on 11-17-2021. Pump continued to lose prime. 11-23-2021 Inframark replaced the Gorman Rupp internal check valve. A back up diesel bypass pump is on standby at PS4. Supplies to replace discharge valves and external check valves for both Pumps 1 and 2 have been received and will be replaced during February. A representative from Hills Electric Motor was onsite to generate proposals for PS3 and PS8 pump rehabilitation or replacement. A proposal from Hill's to rebuild Pump 2 at PS8 was accepted by BPW. **Materials to complete the rebuild are expected in March.** A proposal from Hill's to replace pumps and valves at PS3 has been received. **Inframark is soliciting proposals from alternative vendors.**
- Personnel- Robert Fields, Maintenance Technician 3, was transferred to the Lewes Project. Currently Inframark has 6 fulltime and two parttime employees assigned to the Lewes Facilities.**

Critical Issues

- Covid- Inframark is following CDC recommendations to ensure uninterrupted service to the BPW and the Lewes community.
- Condition of headworks screening equipment is in critical need of repair or replacement to decrease excessive ragging of UF membranes.
- Spare pumps are not in stock for PS11, PS15, PS16, PS17, PS17B, PS18 and PS32. Inframark does not have maintenance records for existing pumps. Based on recommendations made in Severn Trent's 2016 Annual Report, most pumps were in need of replacement within five years. We have found no evidence that these pumps had been replaced during the past five years. Many pump station control panels are in need of repair or replacement including PS1, PS2, PS5, PS6, PS7, PS9, PS10, PS11, PS12, PS13, PS14, PS15, PS16, PS17, PS18, PS33, PS74 and PS83.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Headworks Replacement	In design	High	BPW Project	QTR4 2022
Replace EQ Pump Drives and Control Panel	Keystone is proceeding with replacement of the RTU. Waiting on receipt of VFDs.	High	BPW Project	QTR1 2022
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs	High	BPW Project	QTR2 2022
Replace ATS at PS8	Accepted Proposal; Contractor waiting on receipt of the ATS	High	Received	QTR1 2022
Rehab Pump 2 PS8	Accepted proposal; work to be completed in March	High	Received	March 2022
Rehab Pumps at PS3	Soliciting Proposals	High	Needed	QTR2 2022

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for January 2022. No violations will be reported for January. The DMR will be forwarded upon completion.
- The average daily influent flow for January was 0.693 MGD with a maximum daily flow of 0.910 MGD. Precipitation totaled 8.86 inches for January with a maximum daily total of 3.2 inches.

	Max	Sum
Precipitation (inches)	3.20	8.86

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.693	0.429	0.910	
BOD (mg/L)		119	119	119	
BOD Load (lbs)		450	450	450	
TSS (mg/L)		78	78	78	
TSS Load (lbs)		295	295	295	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.748	0.554	0.900	N
Dissolved Oxygen (mg/L)		6.95	3.24	8.37	N
pH (SU)	Min 6/ Max 9	7.17	6.84	7.61	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	<1.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<14	<14	<15	N
BOD Removal (%)		98.0	98.0	98.0	
TSS (mg/L)	Avg 15/ Max 23	<0.8	<0.5	0.9	N
TSS Load (lbs)	Avg 188/ Max 288	<4	<3	5	N
TSS Removal (%)		99	99	99	
Total Nitrogen (mg/L)	Avg 8	3.37	3.37	3.37	N
Total Nitrogen Load (lbs)	Avg 100	15.30	15.30	15.30	N
Total Phosphorous (mg/L)	Avg 2	0.09	0.09	0.09	N
Total Phosphorous Load (lbs)	Avg 25	0.52	0.52	0.52	N
Process					
Bio #1 MLSS (mg/L)		10,675	9,400	12,100	
Bio #2 MLSS (mg/L)		11,000	9,400	12,700	
Train 1 MLSS (mg/L)		14,300	12,600	15,600	
Train 2 MLSS (mg/L)		12,600	10,400	14,200	
Train 3 MLSS (mg/L)		11,367	10,400	12,100	
Train 4 MLSS (mg/L)		13,000	12,600	13,400	

TSS Digester 1 (mg/L)		25,600	22,000	27,400	
TSS Digester 2 (mg/L)					

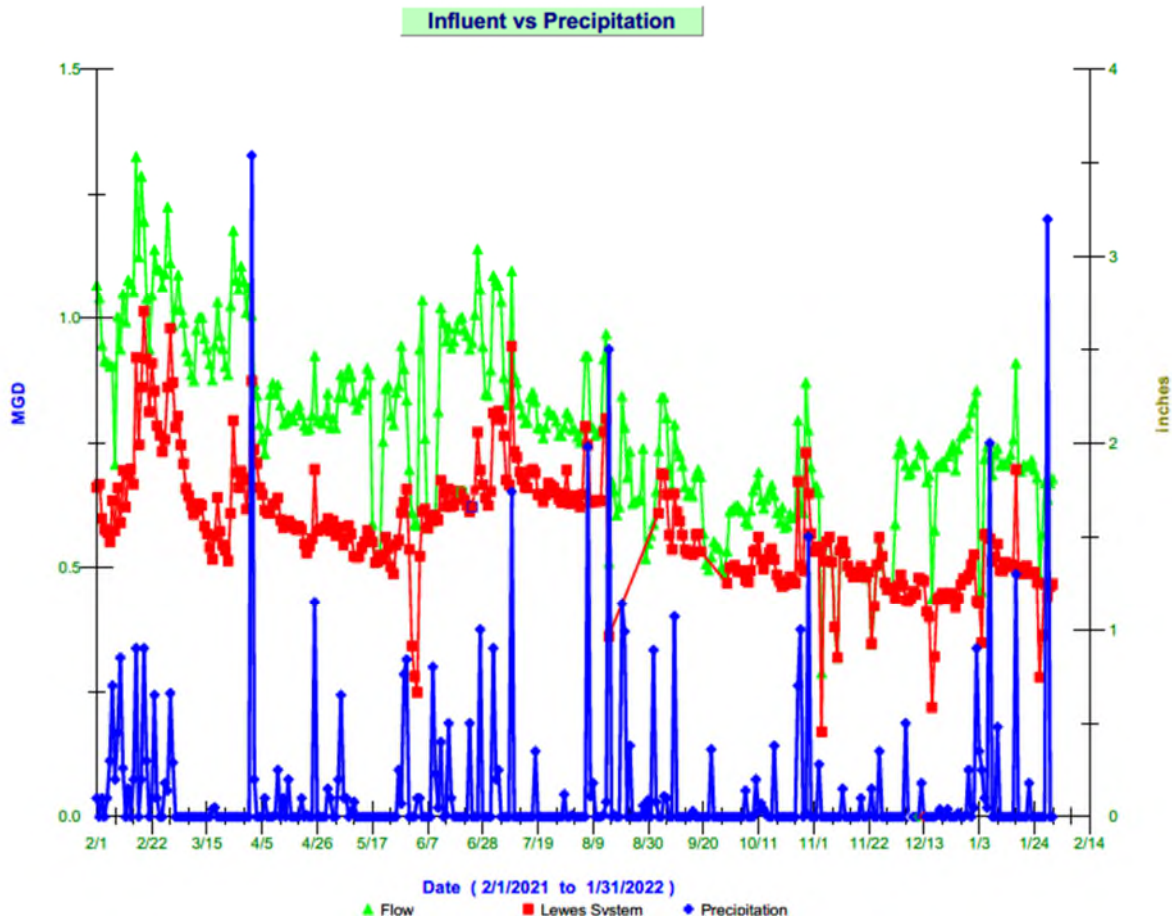
	Average	Max	Sum
Sludge Wasted (gallons)	13,006	24,359	403,180

Sludge Operations and Disposal

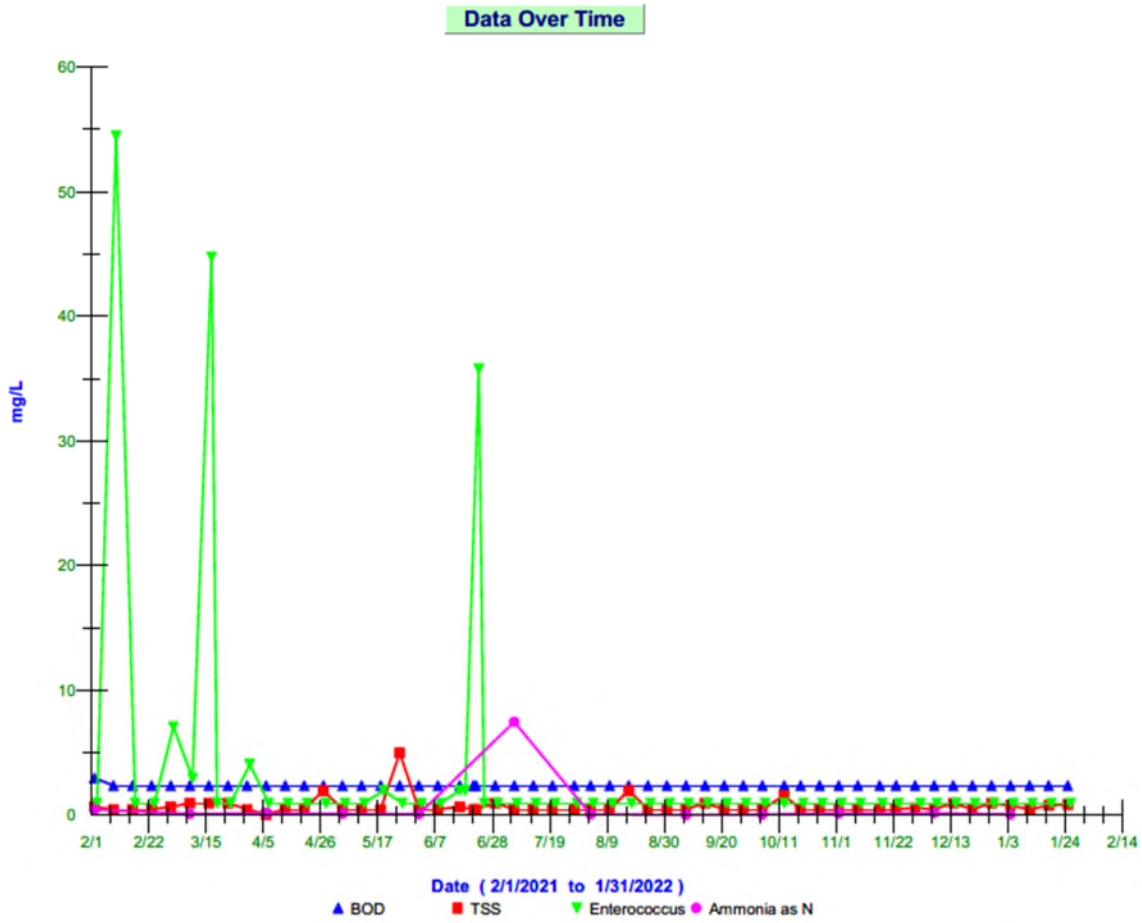
Liquid Hauled	81,300	Gallons	DELCORA
Cake Hauled	6,000	Wet Tons	Sussex County
Dewatering Container Material	6,000	Gallons	DELCORA

Trends

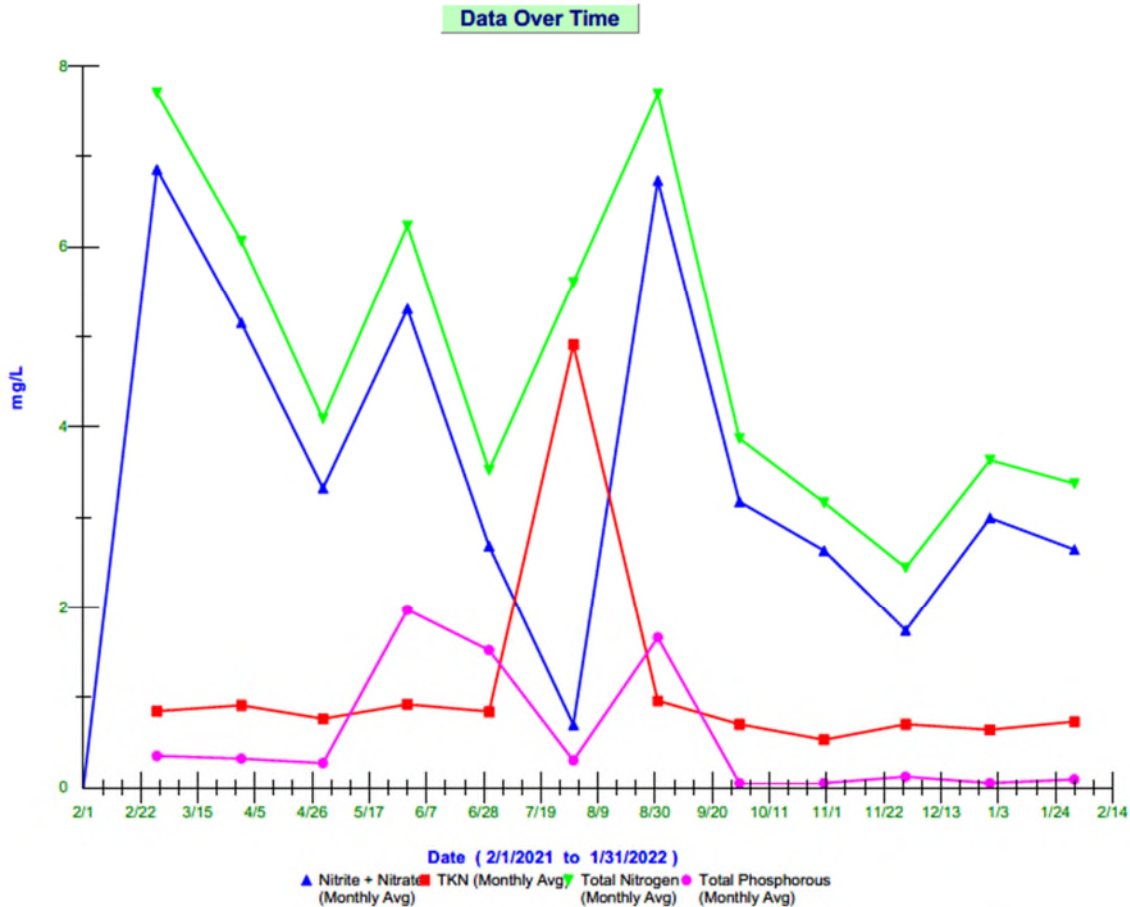
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

1-01-2022-WWTP	Staff replaced wiper to UF Train 4 Turbidimeter.
1-01-2022-WWTP	Staff installed a vacuum break to the 5MM Pump Discharge into the dewatering container.
1-11-2022-WWTP	Staff repaired screenings dumpster bracket.
1-11-2022-PS3	Pump 2 maintenance: staff removed shaft from housing cleaned and reassembled. Oil still leaking for bearing seal.
1-13-2022-WWTP	EQ Aerator reassembled coordinating with BPW to set in place.
1-19-2022-WWTP	Digester Membrane OIT failed. Keystone working to install control logic into SCADA.
1-19-2022-WWTP	Caustic line became clogged. Staff bypassed hard piping and connected pump directly to discharge tubing.
1-20-2022-PS4	Staff installed heat tape to the discharge line of the bypass pump.
1-24-2022-PS17	Staff replaced the rebuilt Pump 1.
1-24-2022-WWTP	Staff repaired DO controller 2A.
1-27-2022-PS4	Contractor, Sprig Inc., replaced air relief valve.
1-28-2022-PS4	Switched out rental generator.

After Hours Callouts

1-01-2022-WWTP 5MM Maci-pump failure alarm
 1-02-2022-WWTP 5MM Maci-pump failure alarm
 1-12-2022-WWTP High Level Bioreactor Alarm
 1-12-2022-PS13 High Wet Well Level

Maintenance Budget

Monthly Budget	January 2022	Contract Year to Date	Remaining Balance
\$6,667	\$15,533.29	\$74,405.61	\$5,594.39

Maintenance Expenditures

Vendor	Description	Expense
K & Z Mechanical, Inc.	Electrical Work PS17- First call 8 am 12/21/21 Pumps would operate in manual but cube relays would chatter in auto, replaced float tree, replaced voltage monitor. Second call 9:30 PM 12/21/21 Pumps were tripping the thermal overload. Pump amp draw was noted at 24 amps and thermal overload was set at 9.6, found capacitor overloaded. Third call 7:30 AM 12/22/21-New capacitor ordered and moved parts around to make Pump 2 work. TOTAL: 12 hours labor for the three calls	1,140.00
THE HOME DEPOT	3/4 HP Sewage Pump/ Combo wrench set/miscellaneous hand tools	505.63
USA BLUE BOOK	2 LDO Probe cap replacement/Hach IntelliCal Rugged LDO Probe	1,417.00
LOWES	Supplies for PS4 Pump 1 suction repair	57.93
ADVANCE AUTO PARTS	Gasket Maker for PS 4 pump repair	17.98
LOWES	100ft HD hose, tubing, fittings, valve for air compressor and dewatering dumpster.	120.62
LOWES	Maci Pump Vacuum break repair	82.79
LOWES	Materials to heat trace screening dumpster	429.22
USA BLUE BOOK	LDO Probe cap replacement	137.24
LOWES	Sand and Ice melt for walking surfaces	123.62
GRAINGER	Maci Pump Vacuum break repair	106.11
BESTS ACE HDWE	Materials PS19 lighting repair	26.58
GRAINGER	Master Tool Set, SAE/Metric,204 pieces/ Cogged V-belts/ cable ties/pvc fittings	439.52
FISHER AUTO PARTS	EQ aeration pump repair	20.99

PENCO CORPORATION	Pipe insulation for screenings dumpster	186.32
LOWES #02248	Pipe insulation for screenings dumpster	60.16
SQ *AMERICRANE INSPECT	Overhead crane inspections	500.00
GRAINGER	Chemical feed pump	1,607.66
Hill's Electric Motor	Anoxic tank Flyght Mixer Rebuild	3,911.06
Hill's Electric Motor	Rebuild Pump 17	3,051.25
Hill's Electric Motor	Influent EQ Tank Aerator Motor Rebuild	2,868.50

Health & Safety

Inframark Training and Presentations

- COVID Prevention-Handwashing

Personnel

Name	Title	DE Certification
Jerry Shupe Jr.	Regional VP	NA
Michael Wolgemuth	Regional Manager	DE Class IV WW
Richard Plack	Project Manager	DE Class IV WW
Paul Smith	Operator II	DE Class II WW
Vince Catalano	Operator II	DE Class II OIT WW
Kurt Brittingham	Operator II	NA
Michael Mazzetti	Maintenance Technician III	NA
Robert Fields	Maintenance Technician III	NA
David Weed	PT Operator III	DE Class IV WW
Loran George	PT Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- January County Flow Totals
- December DMR
- Zenon InSight Report- 02-09-2022
- Zenon InSight Report- 01-26-2022
- Pump Station Flow vs Rain Graphs