

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



March 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. Some equipment has been received for this project. Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline.
- Filters- De-ragging of the last cassette to UF Train 4 was completed and the cassette was replaced on 12-28-2021. **Kevin Hunt, Membrane Optimization Manager ESG Forsyth County GA, was onsite the week of April 10, 2022 to review membrane operations. Kevin made several recommendations to Suez that will be implemented during April. Staff pulled the first cassette to UF Train 1 for cleaning on April 11, 2022. 2mm Sieve test results decreased to recommended values compared to a year ago. 1mm Sieve test results still remain high.**

Suez recommendations	4-6-2022 results	5-27-2021 results
2mm <5 mg/l	2mm=3.3 mg/l	2mm=12 mg/l
1mm <10 mg/l	1mm=44 mg/l	1mm=62 mg/l

- **Pump Stations-** A proposal to replace the Pump Station 8 Generator Transfer Switch for \$3,690 from Curtis Power Solutions was accepted. **The ATS has been received and will be scheduled for replacement in May.** A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. A back up diesel bypass pump is on standby at PS4. **Inframark replaced discharge valves and external check valves for both Pumps 1 and 2 at PS4 which appears to have resolved the priming issue with Pump 1. Pump 2 at PS4 suction line became clogged and staff work for weeks to unclog. A proposal from Sprig has been excepted to install a clean out to both pump suction lines at PS4.** A proposal from Hill's to replace pumps and valves at PS3 has been received. Inframark received a proposal from Freemire and Associates for new Classic T8 rotating assemblies for PS3 and forwarded to BPW. **A proposal to install new wet well piping at PS9 was accepted. A proposal to replace wet well piping in PS2 is pending.**

- Personnel- Currently Inframark has 6 fulltime and two part-time 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	ATS Received. Scheduled for May	High	Received	QTR1 2022
Rehab Pump 2 PS8	Complete	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 March 2022. No violations will be reported for March. The DMR will be forwarded upon completion.
- The average daily influent flow for March was 0.641 MGD with a maximum daily flow of 0.806 MGD. Precipitation totaled 3.2 inches for March with a maximum daily total of 0.8 inches.

	Max	Sum
Precipitation (inches)	0.80	3.18

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.641	0.432	0.806	
BOD (mg/L)		227	227	227	
TSS (mg/L)		189	189	189	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.690	0.508	0.862	N
Dissolved Oxygen (mg/L)		6.71	5.80	8.61	N
pH (SU)	Min 6/ Max 9	7.17	6.87	7.51	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	<13	<11	<15	N
BOD Removal (%)		98.9	98.9	98.9	
TSS (mg/L)	Avg 15/ Max 23	<0.9	<0.5	2.0	N
TSS Load (lbs)	Avg 188/ Max 288	<5	<3	12	N
TSS Removal (%)		100	100	100	
Total Nitrogen (mg/L)	Avg 8	3.63	3.63	3.63	N
Total Nitrogen Load (lbs)	Avg 100	19.7	19.7	19.7	N
Total Phosphorous (mg/L)	Avg 2	0.05	0.05	0.05	N
Total Phosphorous Load (lbs)	Avg 25	0.27	0.27	0.27	N
Process					
Bio #1 MLSS (mg/L)		8,220	6,600	9,500	
Bio #2 MLSS (mg/L)		8,700	7,700	9,400	
Train 1 MLSS (mg/L)		9,280	7,200	10,500	
Train 2 MLSS (mg/L)		7,840	5,800	8,700	
Train 3 MLSS (mg/L)		8,260	7,500	9,000	
Train 4 MLSS (mg/L)		9,400	6,500	10,600	
TSS Digester 1 (mg/L)		20,900	17,100	22,500	
TSS Digester 2 (mg/L)		20,267	17,800	22,500	

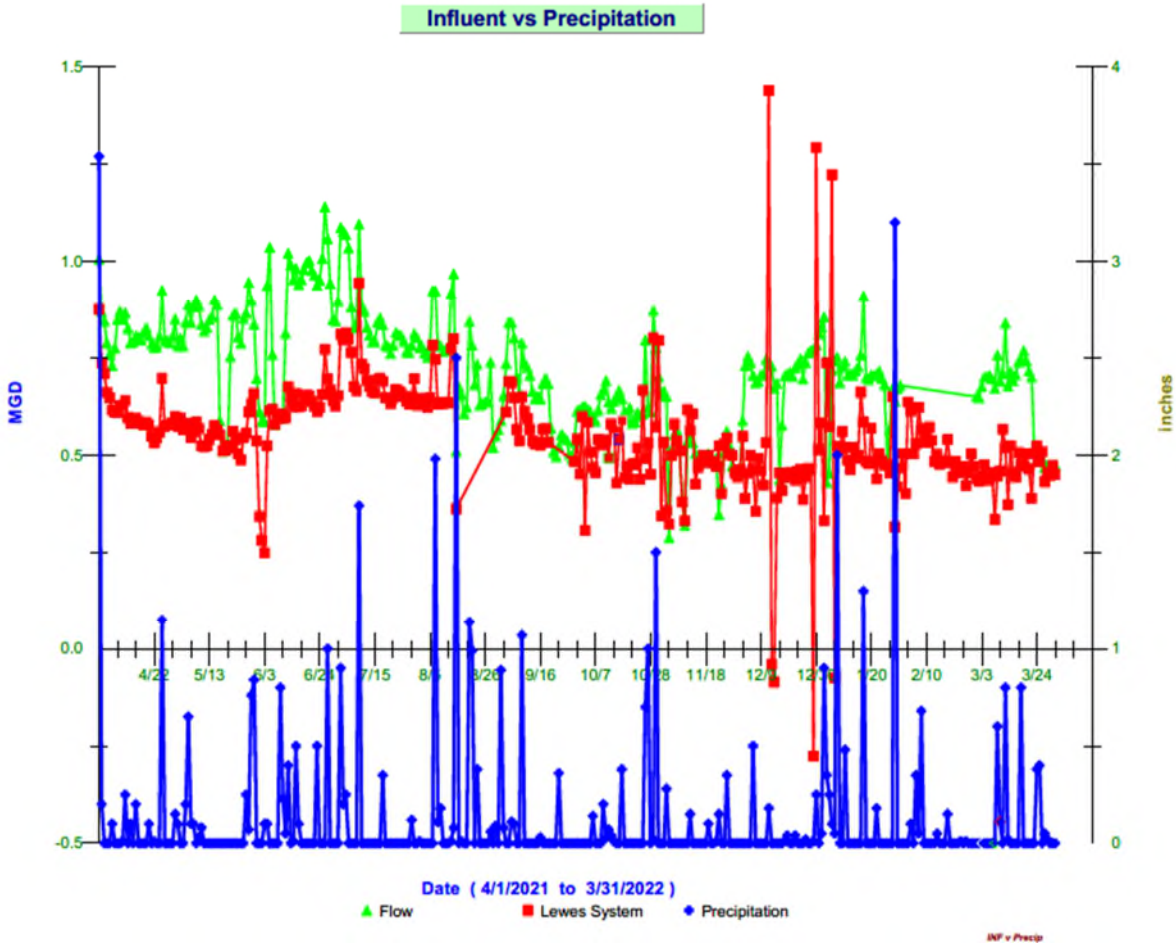
	Average	Max	Sum
Sludge Wasted (gallons)	11,988	23,327	371,639

Sludge Operations and Disposal

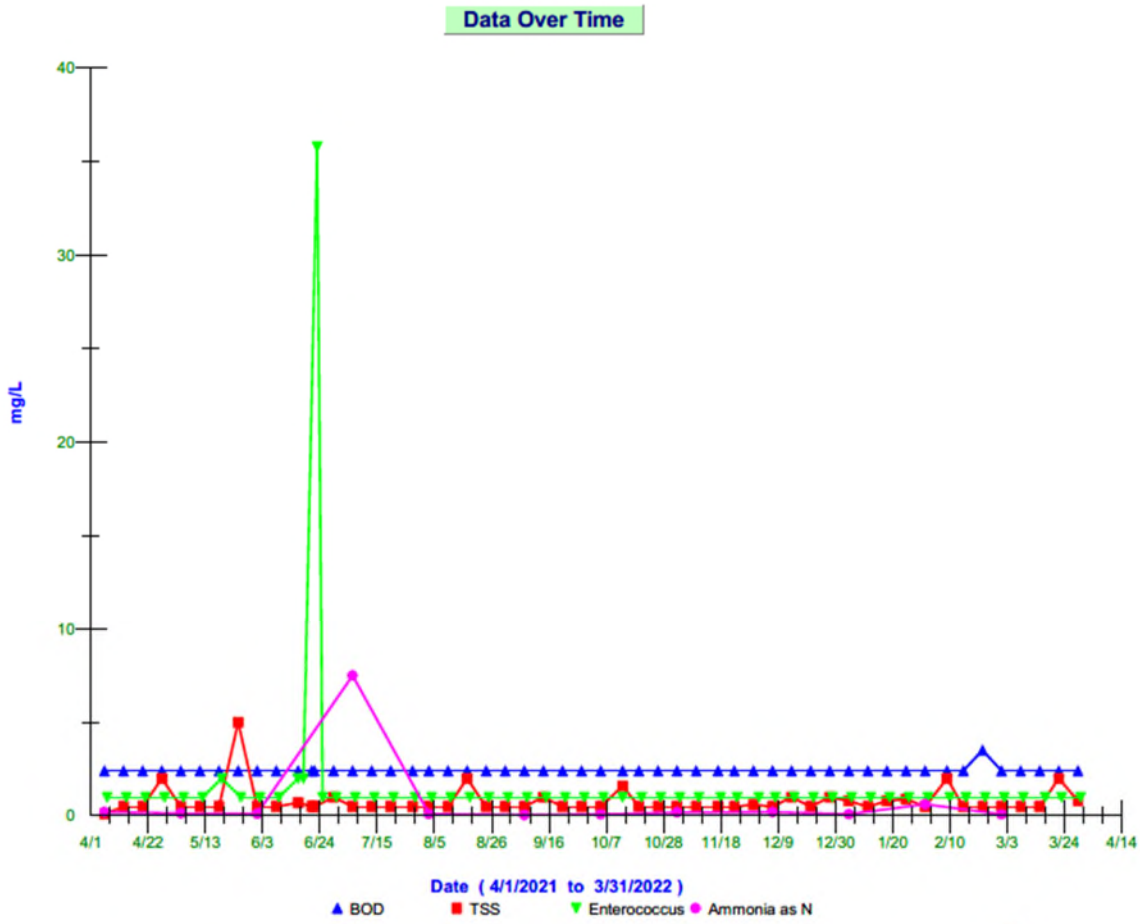
Liquid Hauled	72,800	Gallons	DELCORA
Cake Hauled	102.8	Wet Tons	Sussex County
Dewatering Container Material	9,000	Gallons	DELCORA

Trends

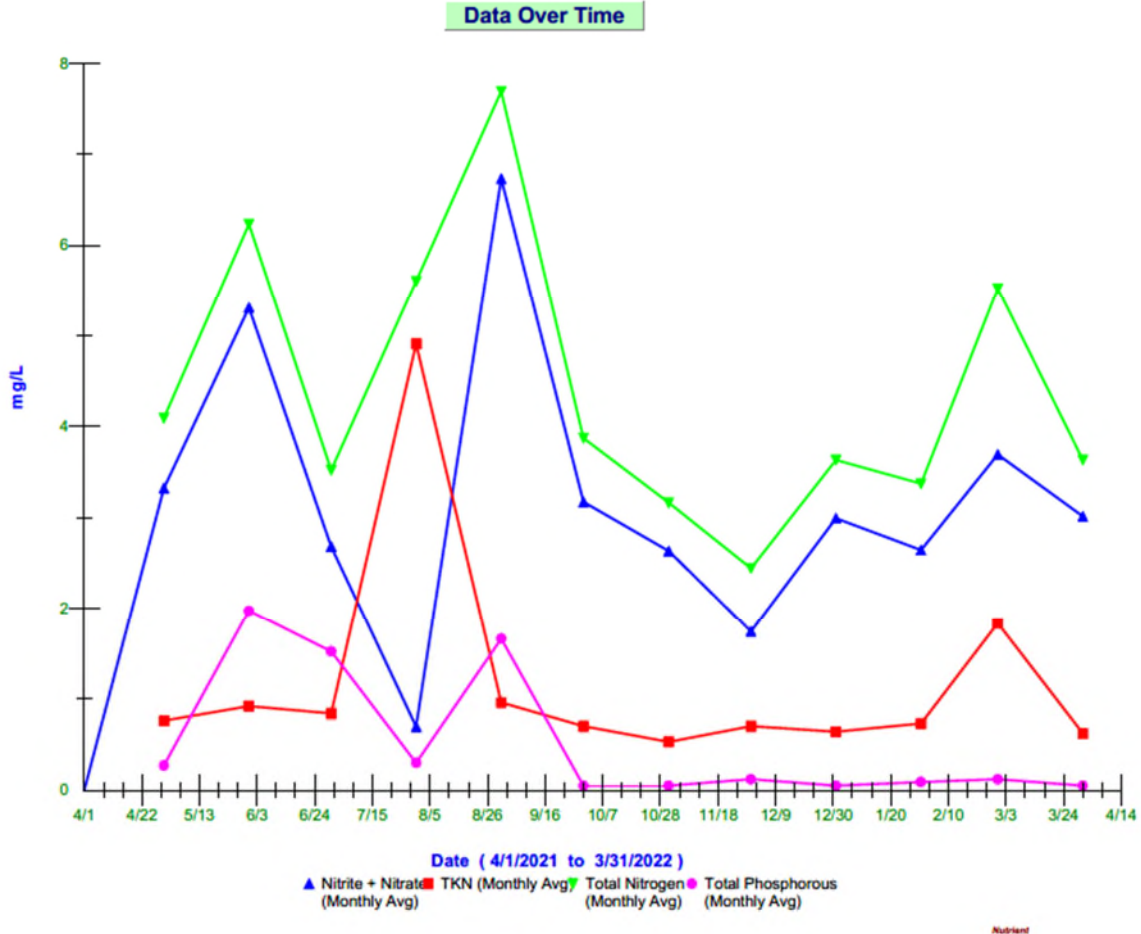
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

3-02-2022-WWTP	Change oil on UF Train 2 Permeate Pump
3-02-2022-WWTP	Replace digester return pump
3-02-2022-WWTP	Replace broken ball check valve and unclog Maci Pump
3-14-2022-PS3	Clean Wet Well
3-15-2022-PS83	Pull and clean Pump 1
3-16-2022-WWTP	Repair Micro C Pump B
3-16-2022-WWTP	Repair leak on Micro C Pump A
3-28-2022-WWTP	Raised sump pump float in dewatering dumpster to prevent syphoning
3-29-2022-PS3	Added Oil to Pump 2
3-29-2022-WWTP	Dolphin Electric onsite to access electrical issue with grit system. It was determined that the motor contactor was malfunctioning. The contactor was replaced.
3-29-2022-WWTP	Repaired caustic lines and fittings in Process Building
3-29-2022-WWTP	Repaired belt and fan motor in Solids Barn
3-29-2022-WWTP	Replaced oil and filter to Bio Blower C and completed PM inspection
3-29-2022-WWTP	Replaced LCD Screen on SC 200

Maintenance Budget

Monthly Budget	March 2022	Contract Year to Date	Over
\$6,667	\$13,031	\$109,539	\$29,538.97

Maintenance Expenditures

Vendor	Description	Expense
K & Z Mechanical, Inc.	Electrician-2/16/2022 Reconnect Grit Pump Motor, troubleshoot controls PS2-contactors and overloads were past end of useful life, Return to install contactors with overloads.	1,452.40
BESTS ACE HDWE	PS4 Bypass pump drain valve repair parts	20.95
BILLY WARREN & SON LLC	SS hardware for PS 8 valve & check valve replacement	476.32
WM TRACKER	Lamp Tracker Disposal Box 4ft lamps	99.00
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HARBOR FREIGHT TOOLS	Replaced leaking air hose real for garage compressor.	21.99
THE HOME DEPOT	Returned warranted sampler refrigerator and submersible pump	(478.00)
THE HOME DEPOT	Caustic Chemical feed pump installation parts	15.89
BILLY WARREN & SON LLC	SS Hardware for PS4 valve replacement	500.00
THE HOME DEPOT	winterizing ps4 bypass pump equipment	151.84
AUTOZONE	BPW vehicle maintenance replaced failing battery and wipers	241.97
HORNEY INDUSTRIAL ELEC	Troubleshooting of aeration basin 2B LDO probe	500.00
Ferguson	Plumbing repair parts Station 11 force main connection failure.	103.11
Bakers Hardware	Plumbing repair parts Station 11 force main connection failure	38.97
RE MICHEL 023 LEWES	Parts for PS17 Pump 1&2 motor capacitors.	13.26
GRAINGER	Repair polymer injection for drying bed dosing	61.00
LOWES	Sawzall blades for plumbing repairs	50.31
HACH COMPANY	Replacement pH probe for daily monitoring	558.67
HACH COMPANY	pH probe spare for daily monitoring requirement	273.19
HARBOR FREIGHT TOOLS	Allen key socket set for Borger pump breakdown	34.98
DOVER ELECTRIC SUPPLY	Parts for station 17 controls repair	35.56

LOWES	Repair parts for PS4 window and EQ aerator snorkel	102.32
LOWES	Parts for Pista Grit volute installation	26.75
AMAZON.COM	RTV gasket sealer restocking supplies from EQ aerator assembly	22.36
HACH COMPANY	Aeration basin DO probe replacement of failed equipment 1A and 2	4,305.96
United Rentals North America Inc	PS4 bypass rental March	5,056.25
Hill's Electric Motor Service Inc	Sludge Pump rebuild kits	1,240.80

Health & Safety

- As of March 31, 2022, Inframark staff have worked 528 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations
 - GHS Hazard Communication

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

- March County Flow Totals
- February DMR
- Zenon InSight Report- 004-06-2022
- Zenon InSight Report- 03-23-2022