

# LEWES BPW

## Howard Seymour Water Reclamation Plant

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### Operation and Maintenance Report



August 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- **Inframark continues to utilize the dewatering roll off container to capture screening while the Lipactor is offline.**
- Filters- De-ragging UF Train 4 was completed during the week of 12-27-2021. De-ragging UF Train 1 was completed during the week of 5-16-2022. UF Train 2 De-ragging completed week of 6-27-2022. **UF Train 3 De-ragging completed 8-24-2022. The VFD to UF Train 2 Permeate Pump failed on 8-30-2022. An emergency replacement of the VDF was completed on 9-1-2022.**
- A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. **Work to install bypass valves at PS3 is underway and will be complete during the week of 9-26-2022. Two pump and valve replacement proposals are being evaluated by BPW Staff. Inframark continues to visit PS3 daily to top off oil to Pump 2 and ensure it has maintained prime.** Approval for a proposal to replace wet well piping in PS2 is required. **Frequent control issues have occurred at PS17 over the past two years. An unusual configuration exists to supply single phase power to the station. Plans to rehabilitate the station should be considered in the immediate future.**
- Personnel- Currently Inframark has 5 fulltime and one 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	???
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs	High	BPW Project	QTR4 2022
Rehab Pumps at PS3	Sprig to cut in bypass valves during September. Proposals to replace pumps under consideration.	High	Received	QTR3/4 2022
Replace wet-well piping PS2	Proposal from Sprig submitted to BPW	High	Needed	QTR4 2022
Rehab PS17 Controls	Planning	High	Needed	
Electric Manhole Sump Pump power and control replacement	Soliciting Quotes	Medium		QTR4 2022
Megger Power Cables	Soliciting Quotes	Predictive		QTR4 2022

## Operations

### NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for August 2022. No violations will be reported for August. The DMR will be forwarded upon completion.
- The average daily influent flow for August was 0.731MGD with a maximum daily flow of 0.880 MGD. Precipitation totaled 0.7 inches for August with a maximum daily total of 0.4 inches.

	Max	Sum			
Precipitation (inches)	0.35	0.74			
Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.731	0.567	0.880	
BOD (mg/L)		189	189	189	
TSS (mg/L)		75	75	75	
Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.743	0.624	0.880	N
Dissolved Oxygen (mg/L)		4.97	4.21	5.42	N
pH (SU)	Min 6/ Max 9	7.33	7.22	7.50	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	<13	<15	N
BOD Removal (%)		98.7	98.7	98.7	
TSS (mg/L)	Avg 15/ Max 23	<0.7	<0.5	1.2	N
TSS Load (lbs)	Avg 188/ Max 288	<4	<3	8	N

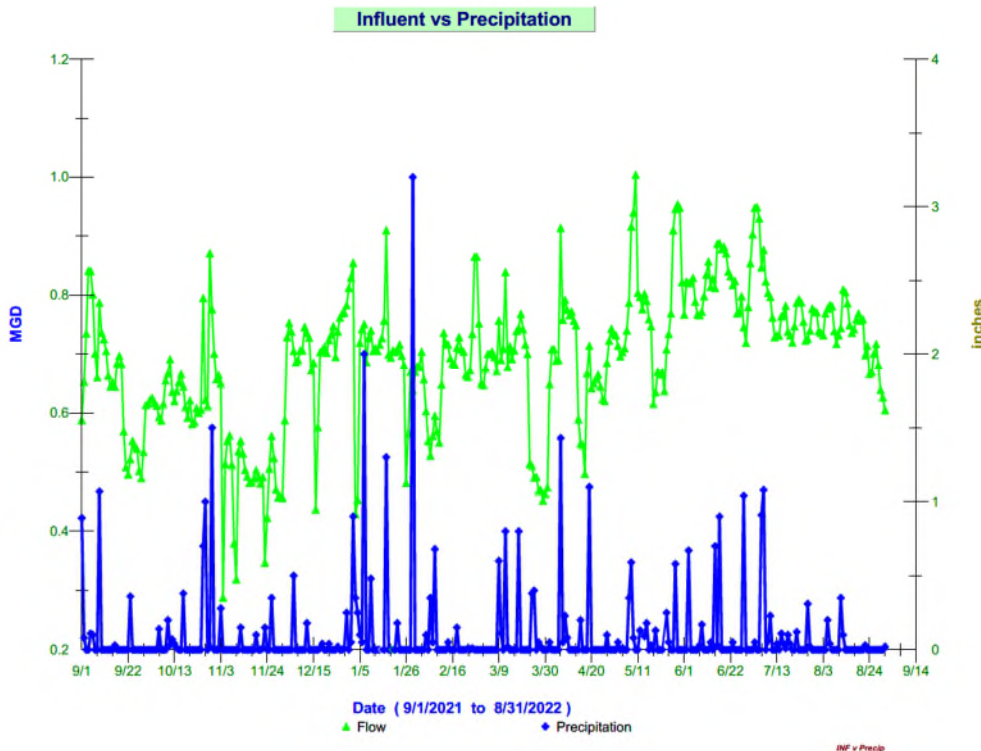
TSS Removal (%)		99	99	99	
Total Nitrogen (mg/L)	Avg 8	4.24	4.24	4.24	N
Total Nitrogen Load (lbs)	Avg 100	22.80	22.80	22.80	N
Total Phosphorous (mg/L)	Avg 2	0.54	0.54	0.54	N
Total Phosphorous Load (lbs)	Avg 25	3.36	3.36	3.36	N
<b>Process</b>		<b>Average</b>	<b>Min</b>	<b>Max</b>	
Bio #1 MLSS (mg/L)		9,560	8,100	11,700	
Bio #2 MLSS (mg/L)		9,800	8,600	10,500	
Train 1 MLSS (mg/L)		10,040	8,500	12,000	
Train 2 MLSS (mg/L)		9,275	8,500	9,700	
Train 3 MLSS (mg/L)		6,550	6,000	7,100	
Train 4 MLSS (mg/L)		9,680	8,800	10,400	
TSS Digester 1 (mg/L)		17,400	17,000	17,800	
TSS Digester 2 (mg/L)		17,575	16,600	18,300	
		<b>Average</b>	<b>Max</b>	<b>Sum</b>	
Sludge Wasted (gallons)		14,397	20,510	446,321	

### Sludge Operations and Disposal

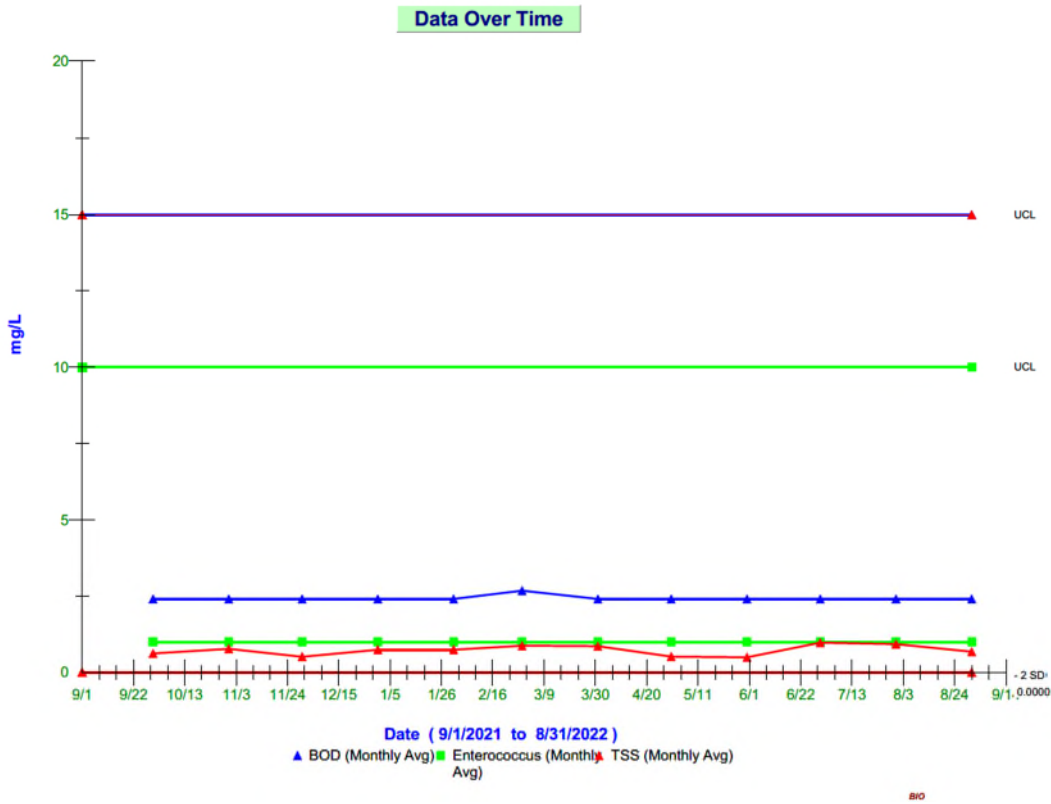
Liquid Hauled	42,000 Gallons	DELCORA
Cake Hauled	119 Wet Tons	Sussex County
Dewatering Container	16,000 Gallons	DELCORA

### Trends

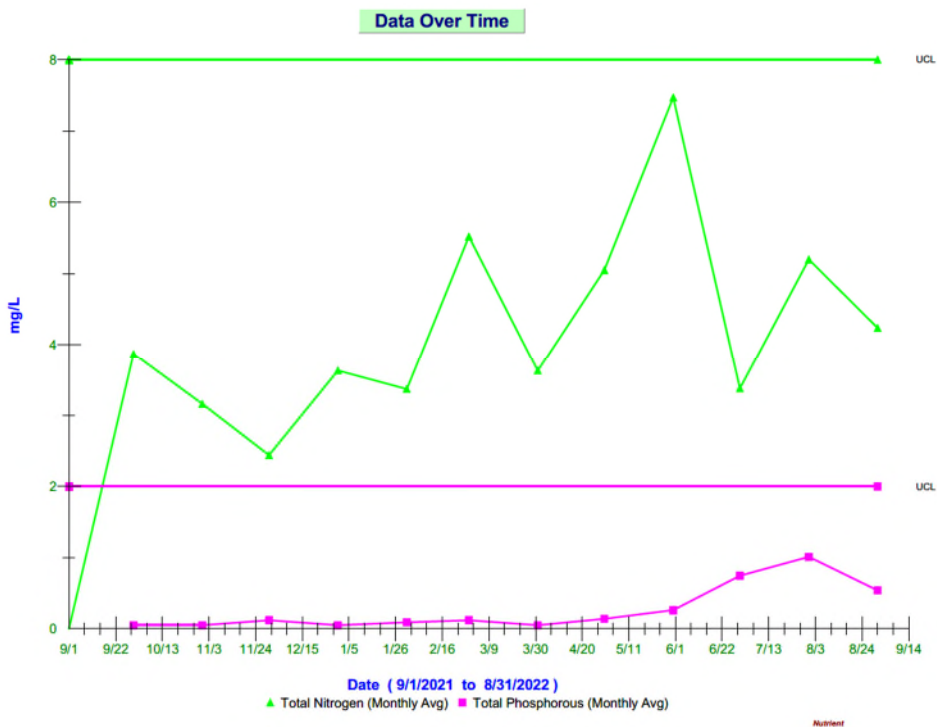
#### Influent vs Precipitation Trend Previous 12 Months



## Effluent Biological Contaminants Trend Previous 12 Months



## Effluent Nutrient Trends Previous 12 Months





## Maintenance, Repair and Activities

8-1-2022	THPS-Pump 1 Fail
8-2-2022	WWTP-Staff replaced exhaust fan in the Chemical Room
8-2-2022	WWTP-BPW half ton pickup truck serviced.
8-3-2022	WWTP-Repaired Sodium Hypochlorite feed Pump B
8-3-2022	WWTP-Installed fill valve on Sodium Hypochlorite feed line
8-3-2022	PS8-Replaced drive belts to Pump 1 and Pump 2
8-3-2022	PS4-Replaced drive belts to Pump 1 and Pump 2
8-4-2022	WWTP-DNREC onsite for annual inspection
8-4-2022	WWTP-Hitchens onsite to replace all four tires on the Skid Steer
8-9-2022	PS17-CDI onsite to clean wet well
8-16-2022	PS8-Changed out rotating assembly to Pump 2. Found ½ inch diameter ball bearing in failed rotating assembly. Sent to Hills for repair evaluation.
8-17-2022	WWTP-Staff observed effluent flow meter volumes not aligning with influent volumes. The Effluent Flow Meter was intermittently drifting. HIE onsite to diagnose and changed head on meter. HIE let us know the power supply to the meter was unstable. KZ Mechanical onsite to install an UPS to protect the meter.
8-17-2022	WWTP-Staff relocated all four UF Train Turbidimeter taps per direction from Suez.
8-18-2022	WWTP-Staff sealed cracks in Sodium Hypochlorite Feed Pumps
8-19-2022	WWTP-Staff replace chemical actuator valves to all four UF Trains.
8-19-2022	WWTP-Staff replaced 2" hose from 5MM Screener to solids dewatering dumpster.
8-23-2022	WWTP Staff replaced pump packing to Digester Effluent Sludge Pump 1.

## Maintenance Budget

Monthly Budget	August 2022	Contract Year to Date	Over
\$6,667	\$10,322.15	\$203,924.47	\$123,924.47

## Maintenance Expenditures

Vendor	Description	Expense
Fidelity Power Systems	Emergency service PS#8 Generator. Replaced the main control board.	2,258.81
Carter Machinery Co Inc	PS4 Generator Rental	1,768.68
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THE HOME DEPOT	Sealants to repair leaking chemical pump Zenon building	43.52
ENVIREP INC	Part for PS4 water bubbler level indicator	647.21
HILL'S INDUSTRIAL	Digester return pump	246.91
GRAINGER	Belt for annual maintenance of pumps and blowers	98.47
GRAINGER	Belts for annual service of pumps and blowers	347.36
GRAINGER	Belt for annual maintenance pumps and blowers	98.47

GRAINGER	Replacement for bad transducer on 2mm screen	892.14
AMAZON	Plug ends for pumps	87.04
GRAINGER	Belts for annual pumps and blower maintenance	898.99
AMAZON	Pump plug ends	95.88
LOWES	Parts for spare 2mm screen pump	31.76
BESTS ACE HDWE	Hardware for repair of valve wheel PS8	1.30
LOWES	Replacement of broken torque wrench for Zenon equipment	241.93
K & Z Mechanical, Inc.	Troubleshoot Pista Grit Pump not working. Check power, found contactor not closing. Moved wires to other half of contactor. PS4 light replacement.	415.00
K & Z Mechanical, Inc.	Process Building Effluent Flow Meter power issue. Install male and female cord ends to tie in new UPS. Check power.	408.00

## Health & Safety

- As of August 31, 2022, Inframark staff have worked 681 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations -Cyber Security Training

## 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	Lead Operator	DE Class II OIT WW
Kurt Brittingham	Operator II	NA
Michael Mazzetti	Maintenance Technician III	NA
David Weed	PT Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

## Attachments

- August Sussex County Flow Totals
- July DMR
- Zenon Report