

# LEWES BPW

## Howard Seymour Water Reclamation Plant

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### Operation and Maintenance Report



May 2023

## 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.** A replacement circuit breaker panel for the headworks building lighting has been **received. Work will be scheduled for Q3.**
- Filters- De-ragging UF Train 4 was completed during the week of 4-24-2023. UF Train 1 de-ragging began on 5-4-2023. **Two of three cassettes cleaned.**
- A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. A control panel and level pressure transducer were **received** to replace controls at PS16. **Work to PS16 will be scheduled for Q3.**
- **Electric Manhole Sump Pump Systems and alarms repaired during April, May and June.**

### Critical Issues

- 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, P13, PS14, PS15, PS16, PS17, PS18, PS33, PS74 and PS83.

## Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Headworks Replacement	Out to bid	High	BPW Project	QTR1 2024
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs.	High	BPW Project	
Sump Pump Repairs	Replaced pump electric connections with watertight plugs and replaced or resealed watertight junction boxes. <b>10 of 10 complete</b>	Med	NA	<b>Complete</b>
Electric panel inspections and pump cable megger testing	<b>In Progress/working on Pump Stations</b>	High	NA	Ongoing through 2023
WWTP Building power feed megger testing	<b>Scheduled week of July 10, 2023</b>	High	NA	July 2023
PS16 Control Panel Replacement	<b>Received materials</b>	High	NA	July 2023
Liquid Sludge Loading Connection	<b>GMB working on design</b>	Med	NA	QTR3 2023
Old Drying Bed Valve Replacement (5,6&7)	Received pricing from Harry Caswell. BPW staff were onsite to review project.	Med	Needed	QTR3 2023
Foam Pump Modifications	<b>GMB working on design</b>	Med	NA	QTR3 2023

## Operations

### NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for May 2023. No violations will be reported for May 2023. The May DMR will be forwarded upon completion.
- The average daily influent flow for May was 0.758 MGD with a maximum daily flow of 1.087 MGD. Precipitation totaled 4.6 inches for May with a maximum daily total of 1.8 inches.

	Max	Sum
Precipitation (inches)	1.80	4.62

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.758	0.516	1.087	
BOD (mg/L)		108	108	108	
TSS (mg/L)		142	142	142	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.790	0.554	1.068	N
Dissolved Oxygen (mg/L)		3.12	1.70	4.66	N
pH (SU)	Min 6/ Max 9	7.06	6.83	7.21	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	1.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.6	<2.4	3.5	N
BOD Load (lbs)	Avg 188/ Max 288	<17	<12	20	N
BOD Removal (%)		97.6	97.6	97.6	
TSS (mg/L)	Avg 15/ Max 23	<0.9	<0.5	<2.0	N
TSS Load (lbs)	Avg 188/ Max 288	<6	<2	<12	N
TSS Removal (%)		99	99	99	
Total Nitrogen (mg/L)	Avg 8	4.09	4.09	4.09	N
Total Nitrogen Load (lbs)	Avg 100	26.08	26.08	26.08	N
Total Phosphorous (mg/L)	Avg 2	0.13	0.13	0.13	N
Total Phosphorous Load (lbs)	Avg 25	0.95	0.95	0.95	N

Process	Average	Min	Max
Bio #1 MLSS (mg/L)	6,480	5,100	8,300
Bio #2 MLSS (mg/L)	7,420	6,300	8,700
Train 1 MLSS (mg/L)	9,800	9,800	9,800
Train 2 MLSS (mg/L)	7,740	6,700	9,200
Train 3 MLSS (mg/L)	6,800	5,200	8,800
Train 4 MLSS (mg/L)	7,720	5,600	10,000
TSS Digester 1 (mg/L)	14,625	10,200	17,800
TSS Digester 2 (mg/L)	15,120	12,300	18,100

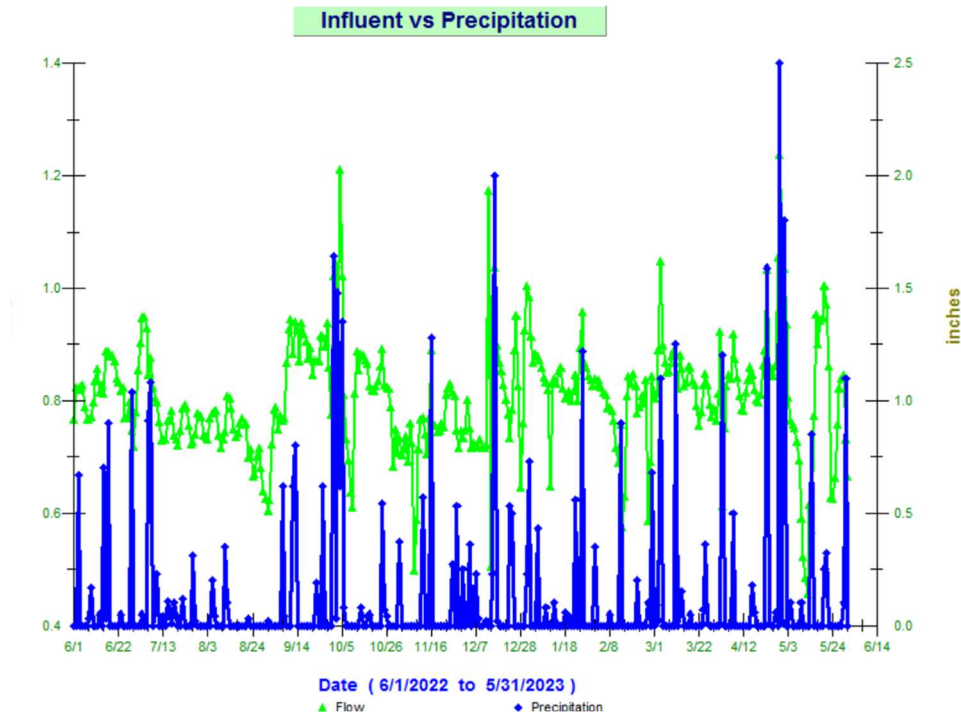
	Average	Max	Sum
Sludge Wasted (gallons)	14,129	16,000	438,000

## Sludge Operations and Disposal

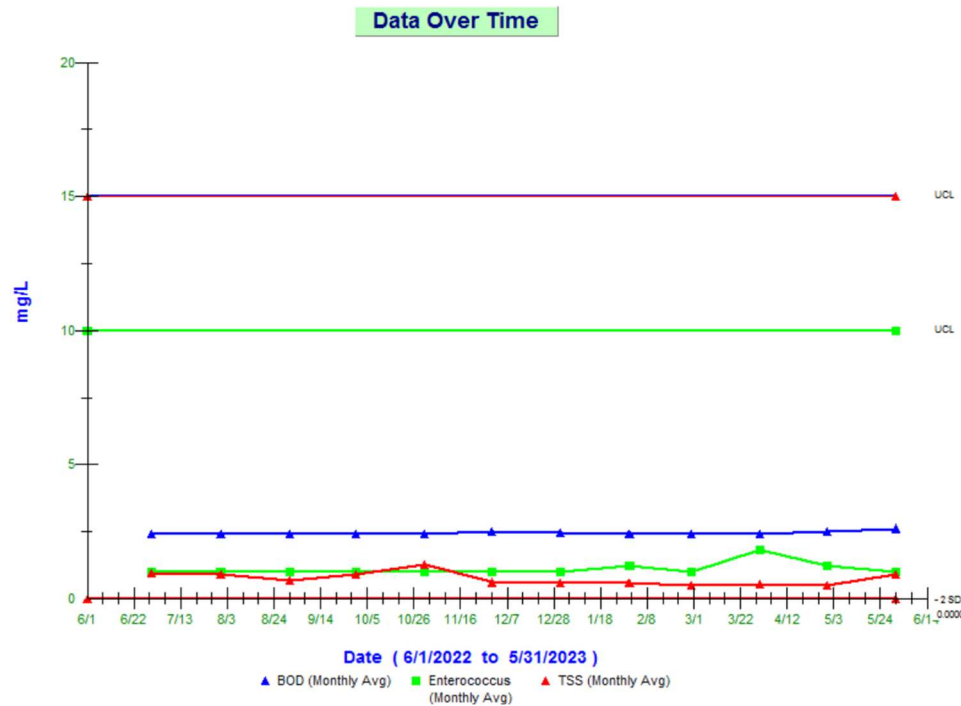
Liquid Hauled	Gallons 247,200	DELCORA
Cake Hauled	Wet Tons 33.2	Sussex County
Dewatering Container	Gallons 18,000	DELCORA

## Trends

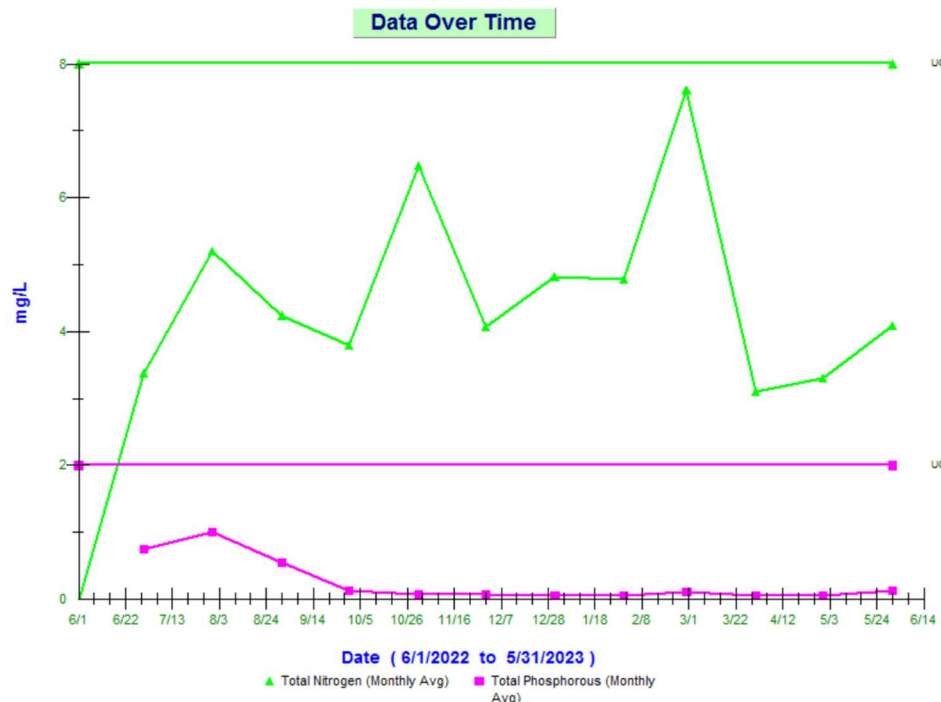
### Influent vs Precipitation Trend Previous 12 Months



### Effluent Biological Contaminants Trend Previous 12 Months



## Effluent Nutrient Trends Previous 12 Months



## Maintenance, Repair and Activities

During the month, Inframark completed routine preventive maintenance activities as recommended by equipment manufacturers and required by plant procedures. Maintenance activities are tracked utilizing a computerized maintenance management software (emaint). The report for the month is included with the report attachments.

### Corrective Actions

- WWTP-Facility flow meter calibrations completed
- PS-74-Replaced low voltage transformer in PS Control Panel
- PS-4- Converted fluorescent lighting to LED
- PS-13-Replaced pump overload relay and panel GFI outlet
- WWTP-Electric Manholes 1-10 Sump Pumps and Alarms restored.
  - Manholes 1,3,4,5,6,7,9,10- replaced pumps, installed waterproof junction box, installed waterproof connectors and replaced floats.
  - Manholes 2&8- replaced floats.

### Work Order Statistics

Preventative Work Orders closed for month	85
Corrective, Reactive and Proactive Work Orders closed for month	3
Total Work Orders closed for month	88

## Maintenance Budget

Monthly Budget	May 2023	Contract Year to Date	Over/(Under)
\$6,667	\$14,352.35	\$62,072	\$(17,928)

## Maintenance Fee Expenditures

DATE	INVOICE	REPORT	VENDOR	MEMO	AMOUNT
3/29/2023	FPS0086459	May 2023	Fidelity Power Systems	Annual Gen Service PS-8	\$1,310.00
4/18/2023	S105681725.001	May 2023	United Electric Supply Company	Headworks Building Lighting Panel/ PS83 contactor and spare	\$813.27
5/2/2023	614465	May 2023	Horney Industrial Electronics, Inc.	Calibrate Plant Flowmeters	\$702.60
5/7/2023	00374139	May 2023	Carter Machinery Co Inc	PS4 Generator Rental	\$1,768.68
5/17/2023	00376514	May 2023	Carter Machinery Co Inc	PS74 Generator Rental	\$3,851.37
5/20/2023	PCARD	May 2023	Home Depot	2x12 for dump pit	\$36.38
5/20/2023	PCARD	May 2023	Lowes	LED Lamps	\$254.94
5/20/2023	PCARD	May 2023	Home Depot	Electrical supplies for electric manhole sump pump repairs	\$210.53
5/20/2023	PCARD	May 2023	Bests Ace Hdwe	Power washer tips & hose nozzle	\$57.98
5/23/2023	PCARD	May 2023	Home Depot	Electrical supplies for bypass pump floats at PS#3	\$60.90
5/23/2023	PCARD	May 2023	Amazon	4-20mA generator	\$82.99
5/23/2023	PCARD	May 2023	Grainger	Submersible Level Transmitter for PS16	\$664.24
5/23/2023	PCARD	May 2023	Pump Products	Pump Control Panel for PS16	\$3,139.34
5/23/2023	PCARD	May 2023	Dover Electric Supply	Lugs for line connection at PS#74	\$62.98
5/23/2023	PCARD	May 2023	United Electric Dove	Transformer for controls at PS#74	\$169.03
5/23/2023	PCARD	May 2023	Grainger	Collapsible manhole guard for safety protection around manholes	\$228.73
5/23/2023	PCARD	May 2023	USA Bluebook	Charts for pump station chart recorders	\$122.74

5/23/2023	PCARD	May 2023	Dover Electric Supply	Lugs for generator hook up at PS#74	\$184.13
5/23/2023	PCARD	May 2023	Home Depot	Wire to hook up bypass floats at PS#3 and thread tape for piping	\$63.54
5/23/2023	PCARD	May 2023	United Electric Dove	Recycle box for 4ft fluorescent bulbs	\$175.26
5/23/2023	PCARD	May 2023	SP Firehosedirect	Firehose for cleaning and dumpster	\$392.72

## Afterhours Callouts

5-06-2023-WWTP-UF Train 2 Low Flow  
 5-07-2023-PS13-Highlevel  
 5-08-2023-WWTP-Digester Anoxic Tank High Level

## Health & Safety

- As of May 31, 2023, Inframark staff and contractors have worked 954 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations – Biological Hazards

## Personnel

Name	Title	DE Certification
Jerry Shupe Jr.	Regional VP	NA
Michael Wolgemuth	Regional Manager	DE Class IV WW
Jeffrey Kerin	Project Manager	DE Class IV WW
Mathew Davis	Lead Operator	DE Class IV WW
Paul Smith	Operator II	DE Class III WW
Vince Catalano	Lead Operator	DE Class II WW
Kurt Brittingham	Operator II	DE Class I WW
Andrew Courtney	Lead Maintenance Electrician	NA
Michael Mazzetti	Lead Maintenance Technician	OIT
Jack Masella	VP Health and Safety	NA

## Attachments

- April DMR
- May eMaint Report
- May Sussex County Flow Totals
- UF InSight Report 5/29-6/11/2023
- DNREC Compliance Inspection Letter (5-18-2023)