

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



February 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.**
- Oxidation Ditch-Cracks were identified in the concrete tank walls. **BPW issued PO for work to be completed spring 2023. Waiting to hear back from vendor for start date.**
- Filters- **Excessive foaming in the UF Trains occurred starting in January and continued through the end of February. While some foaming is common to a BNR plant, temperature fluctuations during this winter are believed to have contributed to the issue. Adjustments were made to recycle flows and DO setpoints along with utilization of the Foam Pump and applying sodium hypochlorite to the anoxic basin surface prior to entering the UF Trains. De-ragging UF Train 4 started March 20, 2023**
- A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. A Pump and valve replacement proposal was accepted for PS3. **A proposal was accepted from Harry Caswell to replace wet well piping at PS2.**

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, P13, 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	
Repair Cracks in Oxidation Ditch	BPW issued PO to vendor. Waiting on vendor to schedule	High	PW Project	QTR 2 2023
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs. Inframark soliciting quotes for temporary transfer switch.	High	BPW Project	
Rehab Pumps at PS3	PO Issued to Hills	High	BPW Project	QTR 2 2023
Replace wet-well piping PS2	Proposal from Harry Caswell Accepted	High	Needed	QTR 2 2023
Sump Pump Repairs	Inframark Electrician to complete work	Med	NA	QTR 2 2023
Electric panel surveys and power cable megger testing	In Progress	High	NA	Ongoing through 2023

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for February 2023. No violations will be reported for February 2023. The February DMR will be forwarded upon completion.
- The average daily influent flow for February was 0.803 MGD with a maximum daily flow of 0.939 MGD. Precipitation totaled 2.3 inches for February with a maximum daily total of 0.9 inches.

	Max	Sum
Precipitation (inches)	0.9	2.3

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.803	0.625	0.939	
BOD (mg/L)		219	219	219	
TSS (mg/L)		184	184	184	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.813	0.673	0.942	N
Dissolved Oxygen (mg/L)		4.55	2.38	6.55	N
pH (SU)	Min 6/ Max 9	7.14	6.72	7.39	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	<16	<16	<17	N
BOD Removal (%)		98.9	98.9	98.9	
TSS (mg/L)	Avg 15/ Max 23	<0.5	<0.5	0.5	N
TSS Load (lbs)	Avg 188/ Max 288	<3	<3	<4	N
TSS Removal (%)		100	100	100	
Total Nitrogen (mg/L)	Avg 8	7.61	6.12	9.10	N
Total Nitrogen Load (lbs)	Avg 100	41.80	35.84	47.75	N
Total Phosphorous (mg/L)	Avg 2	0.11	0.11	0.11	N
Total Phosphorous Load (lbs)	Avg 25	0.72	0.72	0.72	N

Process	Average	Min	Max
Bio #1 MLSS (mg/L)	8,973	8,100	9,800
Bio #2 MLSS (mg/L)	9,233	8,000	10,300
Train 1 MLSS (mg/L)	10,666	8,700	11,800
Train 2 MLSS (mg/L)	10,924	9,700	11,900
Train 3 MLSS (mg/L)	10,846	10,100	11,700
Train 4 MLSS (mg/L)	11,900	11,300	12,500
TSS Digester 1 (mg/L)	18,677	16,200	20,600
TSS Digester 2 (mg/L)	18,340	18,000	18,700

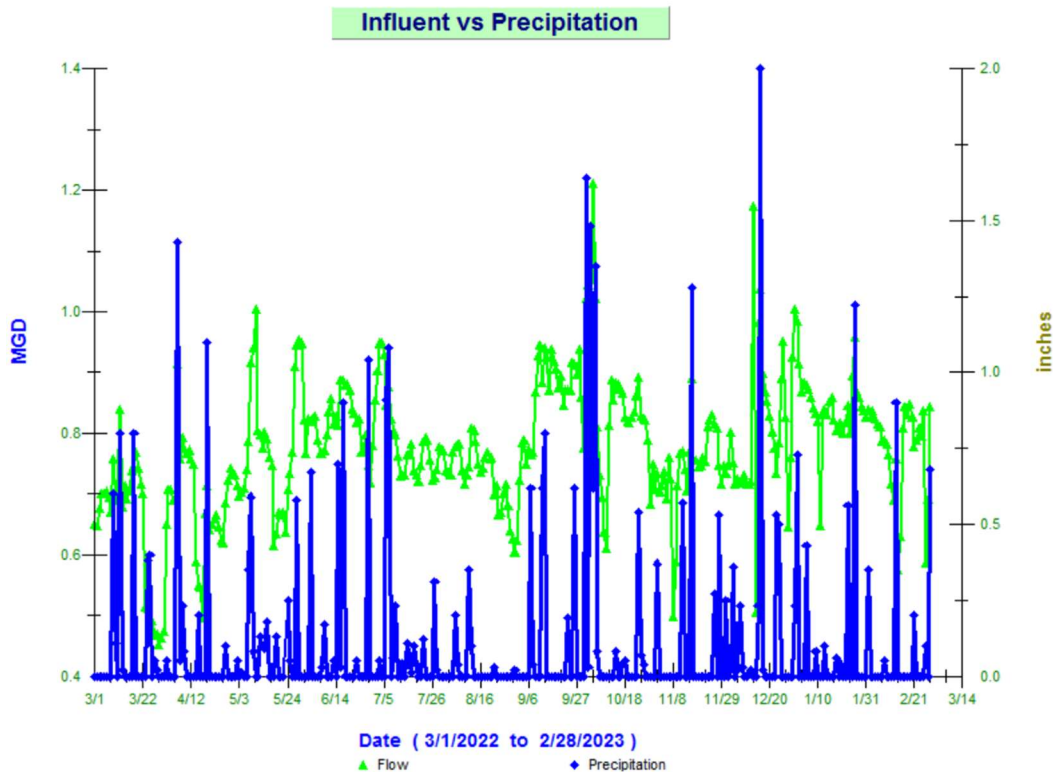
	Average	Max	Sum
Sludge Wasted (gallons)	15,068	23,012	421,890

Sludge Operations and Disposal

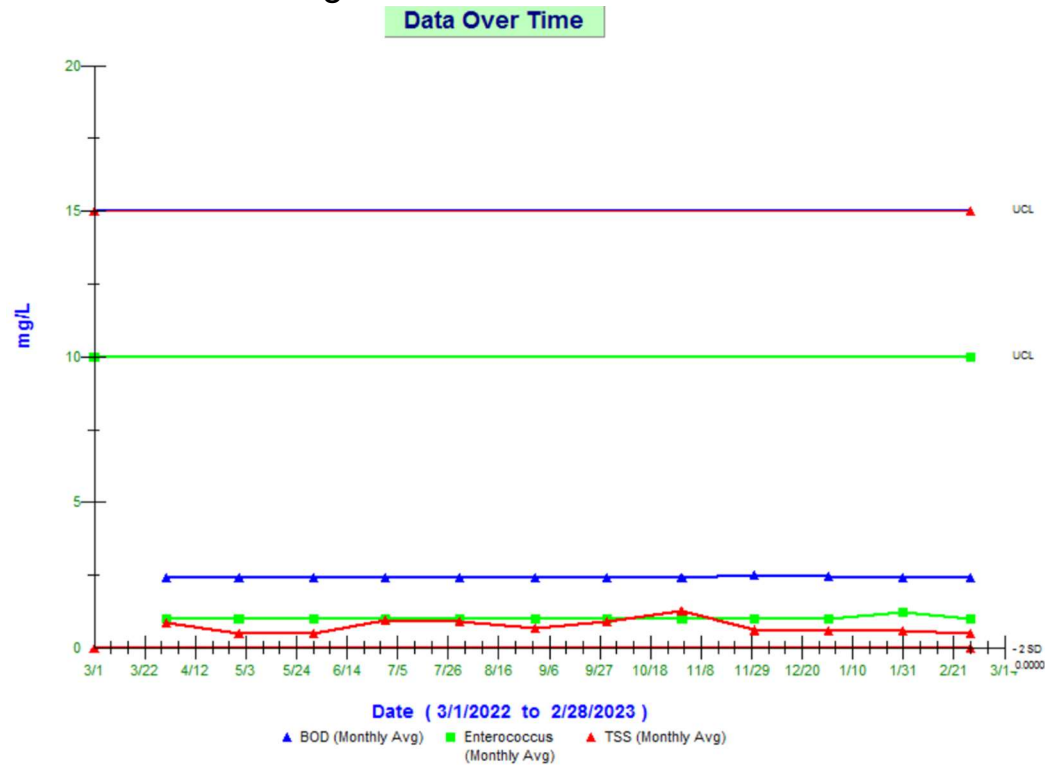
Liquid Hauled	188,300 Gallons	DELCORA
Cake Hauled	9.4 Wet Tons	Sussex County
Dewatering Container	9,000 Gallons	DELCORA

Trends

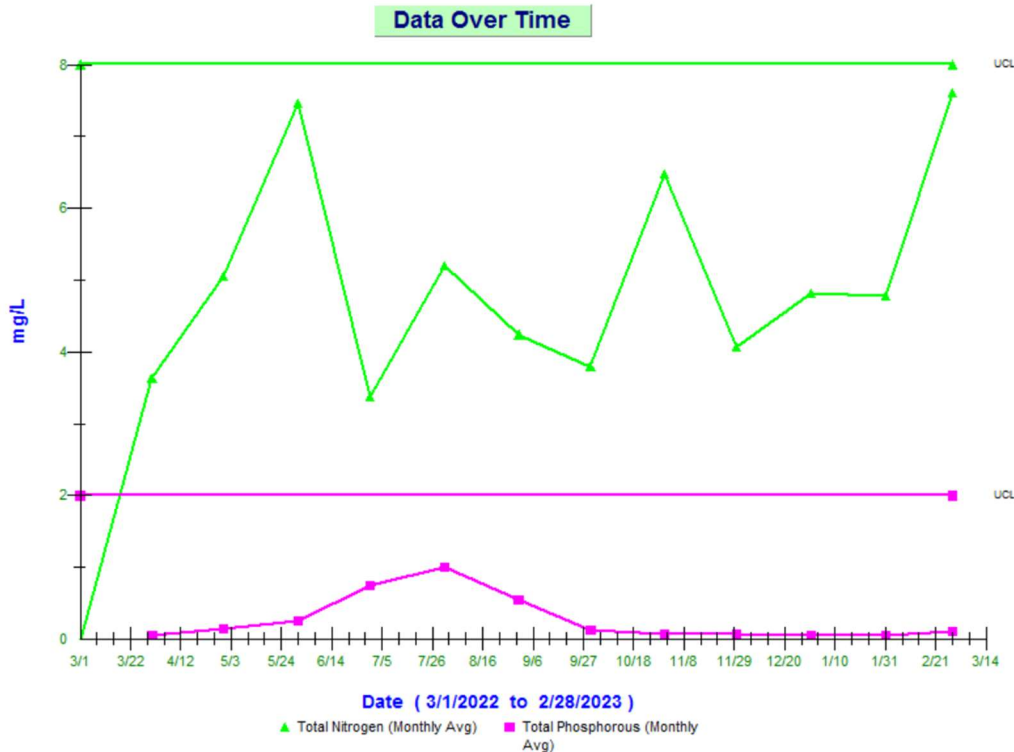
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

- Keystone onsite to install Digester Thickener Controls to Plant SCADA. They connected a new high-level float installed to the digester anoxic tank by Inframark.
- PS4- Pump 2 not pumping. Pulled rotating assembly and found a bolt jammed in the impeller. Removed bolt and replaced assembly. Pump would not pump effectively. Two assemblies still at Hill's waiting on parts for full rebuild. Staff set up Bypass Pump for backup and delivered current assembly to Hill's for bearing and seal replacement. Hill's were able to turn around the repair in two days. Staff replaced rotating assembly, tested, returned to service and broke down Bypass Pump.
- PS15- Installed a repair clamp to leaking discharge piping from Pump 1 in the wet well.
- WWTP- Electrical Inspection Headworks building- found corrosion in lighting and single-phase panels. New parts to repair on order.
- WWTP- Repaired five outlets to the second floor of headworks building
- WWTP- Repaired outlet on catwalk at Headworks
- WWTP- Replaced electrical timer to exhaust fan in Headworks Building
- WWTP- Electrical Inspection Maintenance Shop /Admin Building
- WWTP- Repaired two GFCI outlets in bathrooms.
- WWTP- Replaced faulty level transducer in UF Train 1
- WWTP- Installed GFCI in process building for Sodium Hypochlorite feed to Foam Pump.
- WWTP- Electrical Inspection Digester Building
- WWTP- Installed conduit and a GFCI on the catwalk over Digester 1 for the anoxic return pump

- WWTP- AMT electric trash pump for 2mm Band Screen failed after 3 months of service. It was replaced under warranty and returned to service.
- PS16- Control panel and wet well electrical connections are an issue at this station. A representative from United Electric was on site to provide pricing to build a new panel for install by Inframark. Inframark has also identified a prebuilt control panel that would provide for basic functions required for the pump station. We will provide options and work with BPW staff to decide on a path forward when the United Electric proposal is received.
- 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).

Work Order Statistics

Preventative WOs closed for month	103
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Maintenance Budget

Monthly Budget	February 2023	Contract Year to Date	Over/(Under)
\$6,667	\$6,009.40	\$21,735.40	\$(58,264.60)

Maintenance Expenditures

February Expenses					
DATE	INVOICE	REPORT	VENDOR	MEMO	AMOUNT
2/25/2023	PCARD	Feb-23	AMAZON	Megohmmeter for electrical work	\$109.16
2/25/2023	PCARD	Feb-23	HOME DEPOT	Padlocks, electrical outlets, and chlorine tablets	\$136.38
2/25/2023	PCARD	Feb-23	FIDELITY	Troubleshoot Generator WWTP Fail to run	\$1,681.00
2/25/2023	PCARD	Feb-23	FREEMIRE & ASSOCIA	Diagnose priming issue with Pistagrit	\$472.50
2/25/2023	PCARD	Feb-23	USA BLUE BOOK	Charts for chart recorder	\$242.92
2/25/2023	PCARD	Feb-23	FIDELITY	Generator Annual Service and Replace Batteries	\$2,706.50
2/15/2023	PCARD	Feb-23	WM TRACKER	Universal Waste Removal	\$367.00
2/15/2023	PCARD	Feb-23	FIREHOSEDIRECTCOM	Fire Hose	\$293.94
				Monthly Total	\$6,009.40
				Cap budget	\$6,666.67
				Client Total	(\$657.27)

Afterhours Callouts

2-13-2023- WWTP- High Level Digester Thickener

Health & Safety

- As of February 28, 2023, Inframark staff and contractors have worked 862 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations –
 - Active Shooter
 - Annual Security Awareness Training

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	Maintenance Technician III	OIT
David Weed	PT Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- February Sussex County Flow Totals
- January 2023 DMR
- February 2023 DMR
- Zenon Reports
- eMaint Report