

# LEWES BPW

## Howard Seymour Water Reclamation Plant

---

### Operation and Maintenance Report



September 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.**
- Oxidation Ditch-**Cracks were identified in the concrete tank walls. BPW is working with their consultants to determine the best path to resolve.**
- 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.
- A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. Pump and valve replacement proposals are being evaluated for PS3 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. **PS16 is currently being serviced by one pump. The second pump had been sent to Hills for repair evaluation. The cost of the repair the pumps exceeds its value. A second pump is being purchased by BPW and will be installed as soon as it is received. Bypass connections and valves have been installed as a backup while the pump station is serviced by one pump. Inframark has solicited proposals for a spare pump at PS13. The station utilizes a single pump and there is no spare. Proposals will be forwarded to BPW when received.**
- Personnel- **Richard Plack left Inframark Lewes to pursue other opportunities. Michael Wolgemuth and David Weed will be Co-DRCs until the open manager position is filled. DNREC has been notified of the change in leadership. Four additional FTEs are assigned to the project, three of which are DE licensed operators.**

## 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	
Rehab Pumps at PS3	Sprig to cut in bypass valves during September. Proposals to replace pumps under consideration.	High	BPW Project	
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 September 2022. No violations will be reported for September 2022. The DMR will be forwarded upon completion.
- The average daily influent flow for September was 0.866 MGD with a maximum daily flow of 1.036 MGD. Precipitation totaled 2.9 inches for September with a maximum daily total of 0.8 inches.

	Max	Sum			
Precipitation (inches)	0.80	2.89			
Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.866	0.621	1.036	
BOD (mg/L)		136	136	136	
TSS (mg/L)		73	73	73	

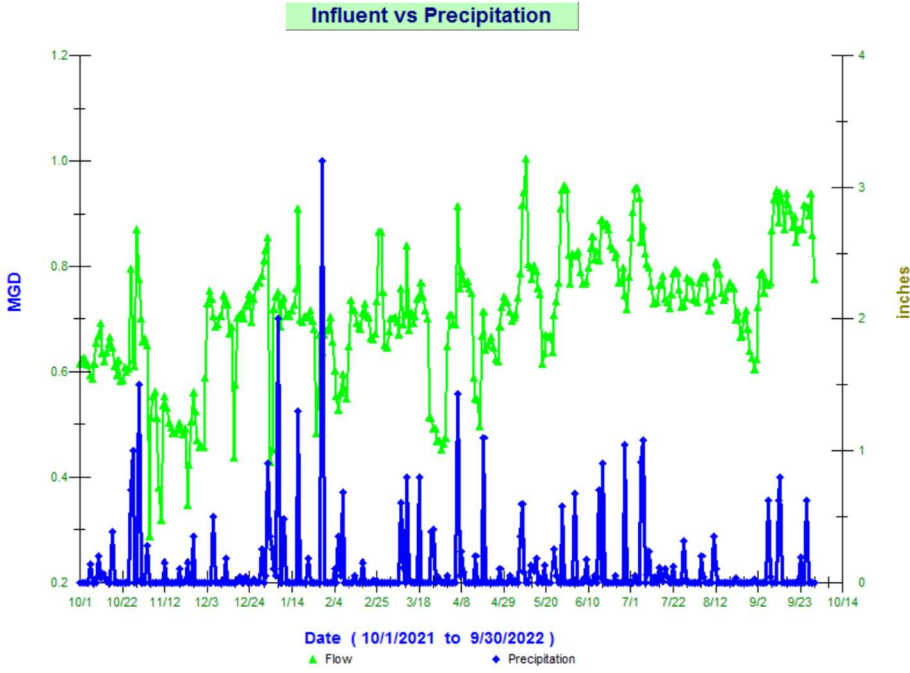
Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.870	0.676	0.951	N
Dissolved Oxygen (mg/L)		4.70	4.24	5.87	N
pH (SU)	Min 6/ Max 9	7.18	7.03	7.31	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	<1.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<18	<16	<18	N
BOD Removal (%)		98.2	98.2	98.2	
TSS (mg/L)	Avg 15/ Max 23	<0.9	<0.5	2.0	N
TSS Load (lbs)	Avg 188/ Max 288	<6	<4	14	N
TSS Removal (%)		99	99	99	
Total Nitrogen (mg/L)	Avg 8	3.79	3.79	3.79	N
Total Nitrogen Load (lbs)	Avg 100	19.93	19.93	19.93	N
Total Phosphorous (mg/L)	Avg 2	0.12	0.12	0.12	N
Total Phosphorous Load (lbs)	Avg 25	0.81	0.81	0.81	N
Process		Average	Min	Max	
Bio #1 MLSS (mg/L)		9,850	9,300	11,200	
Bio #2 MLSS (mg/L)		9,750	8,200	10,900	
Train 1 MLSS (mg/L)		9,250	6,300	11,600	
Train 2 MLSS (mg/L)		9,300	7,800	11,100	
Train 3 MLSS (mg/L)		9,250	6,600	11,600	
Train 4 MLSS (mg/L)		9,375	8,800	9,700	
TSS Digester 1 (mg/L)		15,475	14,000	16,900	
TSS Digester 2 (mg/L)		15,375	14,900	15,700	
		<b>Average</b>	<b>Max</b>	<b>Sum</b>	
Sludge Wasted (gallons)		12,078	18,910	362,344	

## Sludge Operations and Disposal

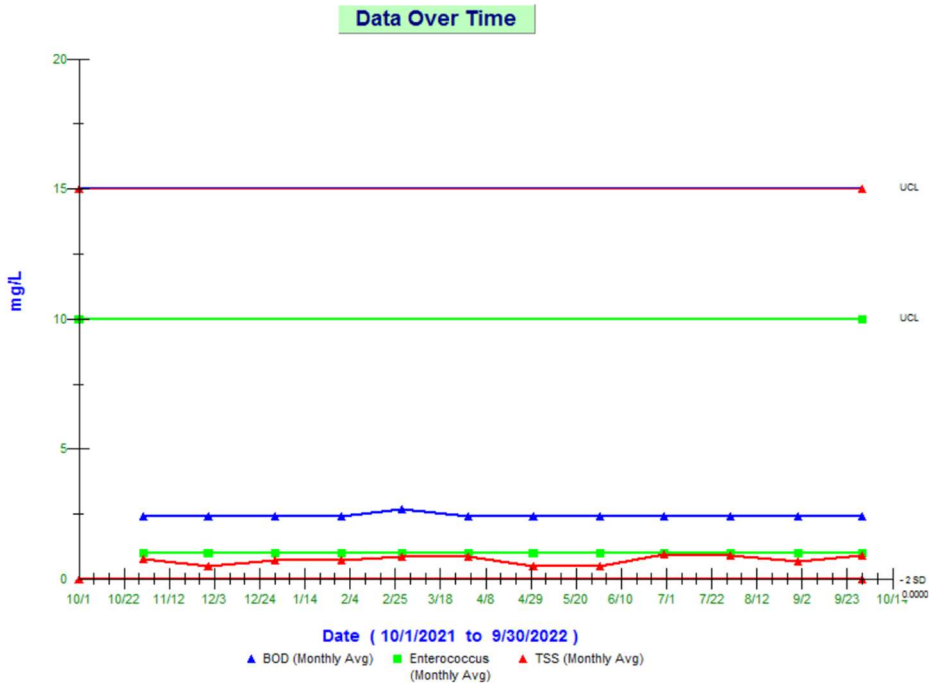
Liquid Hauled	123,000 Gallons	DELCORA
Cake Hauled	89.8 Wet Tons	Sussex County
Dewatering Container	14,000 Gallons	DELCORA

# Trends

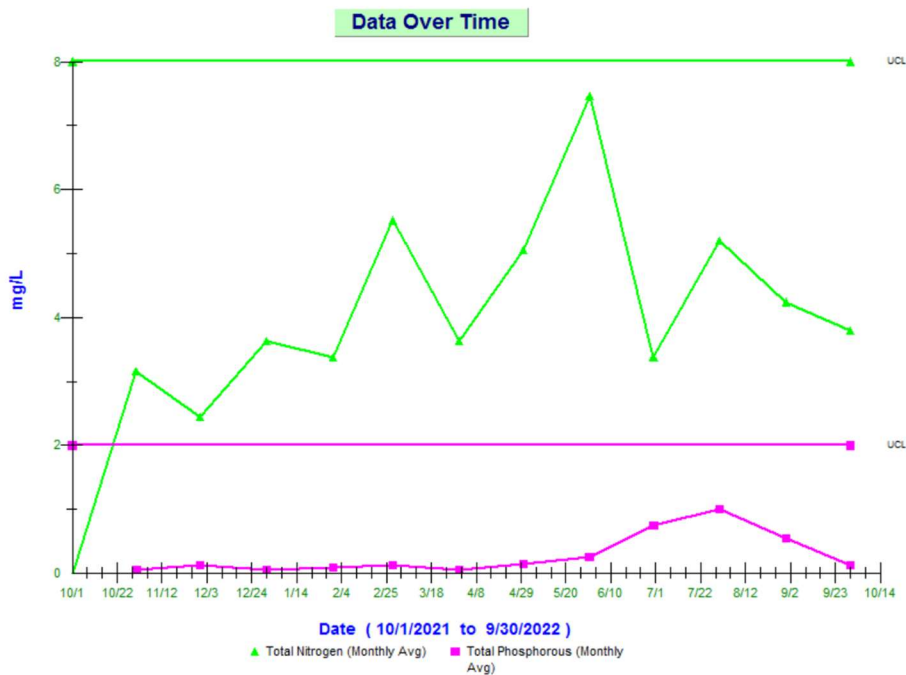
## Influent vs Precipitation Trend Previous 12 Months



## Effluent Biological Contaminants Trend Previous 12 Months



## Effluent Nutrient Trends Previous 12 Months



### Maintenance, Repair and Activities

9-1-2022-WWTP-Replace UF Train 2 Permeate Pump VFD

9-6-2022-WWTP- Removed potable water pump in Process Building, found impeller locked up.  
Ordered new impeller.

9-8-2022-PS8-Replaced check valves for Pump's 1&2.

9-8-2022-PS8-Installed new Isolation Valve between common pump discharge and bypass connection.

9-8-2022-PS8-Replaced drive belts Pump 2.

9-14-2022-WWTP- Replaced impeller to potable water pump in Process Building.

9-20-2022-WWTP-Replace alum feed line in Chemical Building.

9-21-2021-WWTP-Replaced Recovery Clean Hypo Pump A in Process Building for recovery cleans.

9-21-2022-WWTP-Dolphin Electric onsite to troubleshoot PistaGrit electrical control issues. Ordered new breaker and terminal blocks.

9-22-2022-PS16-Pulled Pump 1, cleared impeller clog, reinstalled. Pump would not run due to seal fail.

9-22-2022-PS8-Adjusted belts checked oil in rotating assembly and greased motor Pump 2.

9-23-2022-WWTP-Replaced terminal block to PistaGrit controls.

9-23-2022-PS16-Existing seal fail relay for Pump 2, hooked to Pump 1 preventing Pump 1 from running. Moved existing seal fail to relays to appropriate pumps. Pump 2 out of service due to seal fail. Pulled Pump 2 sent to Hills. No spare pump for this station.

9-23-2022- WWTP-CDI onsite to clean Drying Bed Wetwell.

9-26-2022-WWTP-Replaced Maintenance Clean Hypo Pump B in Process Building.

9-26-2022-WWTP-Replaced Maintenance Clean Hypo Pump A in Process Building.

9-29-2022-PS9-Pulled Pump 1 unclogged and reset.

9-29-2022-PS9-Pulled Pump 2, replaced with rebuilt pump.

9-29-2022-PS16-Bypass valves and connections installed.

9-30-2022-PS5- Replace Pump 1 with rebuilt pump.

## Maintenance Budget

Monthly Budget	September 2022	Contract Year to Date	Over
\$6,667	\$20,366.55	\$203,942	\$123,942

### Maintenance Expenditures

Vendor	Description	Expense
Horney Industrial Electronics, Inc.	Post EQ mag meter repair parts. Sensor prom, mount kit, and wire	\$1,798.00
Horney Industrial Electronics, Inc.	Post EQ mag meter repair labor,	\$500.00
Horney Industrial Electronics, Inc.	Post EQ mag meter travel expense	\$77.60
K & Z Mechanical, Inc.	Manufacturer's rep advised power cycles negatively affect mag meter reliability. Electrician tied in UPS to resolve issue.	\$380.00
K & Z Mechanical, Inc.	Male, female cord ends for above project	\$28.00
GRAINGER	Belts for annual service GR pumps PS4 & PS8	\$1,028.85
LOWES	Parts for chemical room fan repair	\$26.85
HACH COMPANY	Composite sampler tubing	\$101.74
GRAINGER	Spare part for PS17	\$15.83
KTOOL	Control parts for ps17	\$68.10
GRAINGER	Gasket scraper tool	\$10.94
RE MICHEL	Chemical room exhaust fan repair fan motor	\$104.40
BESTS ACE HDWE	PS17 pump chain repair parts	\$29.97
BESTS ACE HDWE	Chemical room vent louver repair hardware	\$1.05
RE MICHEL	Tool for chemical room exhaust fan repair	\$63.06
EASTERN SHORE METALS	Pipe spacers for valve installation PS8	\$250.00
THE HOME DEPOT	Chemical room exhaust fan repair parts	\$8.83
GRAINGER	PS17 pump control parts	\$21.02
AMAZON.COM	Replacement tires skid steer (2)	\$339.78
AMAZON.COM	Replacement tires skid steer (2)	\$339.78
HITCHENS TIRE SERVICE	Install tires on skid steer	\$255.00
Billy Warren & Son LLC	Hardware for repairs to angle broom and PS8	\$107.47
GRAINGER	Stock Plumbing parts	\$60.80
LOWES	Industrial fan for process building	\$319.99
GRAINGER	Caustic tank sight glass repair parts and eyewash replacement bottles	\$248.37
LOWES	Dosing bed chemical feed repair	\$33.49
LOWES	Maintenance. bulbs, strut channel, pvc glue	\$136.41
THE HOME DEPOT	Dosing bed chemical feed repair parts	\$26.75
Carter Machinery Co Inc	PS4 Generator Rental billed through 8-11-2022	\$1,768.68
Carter Machinery Co Inc	PS4 Generator Rental billed through 9-8-2022	\$1,768.68

Carter Machinery Co Inc	PS4 Generator Rental billed through 10-6-2022	\$1,768.68
K & Z Mechanical, Inc.	Pistagrit pump not working, replace terminal block. Troubleshoot PS16 pump control issues. Switched pump 2 to pump 1 overloads. One pump operating. Pump 1 requires repair and new overload relay.	\$760.00
K & Z Mechanical, Inc.	materials - terminal block	\$31.75
K & Z Mechanical, Inc.	Meet onsite with Tank Sensor Representative to review replacement of Fuel Tank Sensor for Emergency Generator at WWTP	\$380.00
Horney Industrial	Repair Influent Flow Meter Head	\$308.00
Harbor Freight	Equipment to replace valves at PS8, cable puller, chain hoist, shackles, rigging materials	\$257.35
Lowes	Penetrating oil for gantry at PS8	\$27.92
Belair Road Supplies	Butterfly valve gasket and threaded rod PS8	\$326.55
Lowes	Tools for PS8 valve replacement. 8pc Impact Drive Accessory Set	\$54.98
Iron Source	Repair angle broom for Skid Steer	\$154.92
Sump Pumps Direct	2 replacement Pumps for Drying Bed Pump Station	\$1,572.00
Hazzard Auto Parts	motor oil for Skid Steer	\$69.99
Lowes	Temporary pump for Drying Bed Pump Station	\$439.00
Baker's hardware	2" fire hose for temporary pump for Drying Bed Pump Station	\$72.99
Belair Road Supply	fittings, flanges, gaskets for PS16 bypass install	\$317.00
Lowes	hose fittings and hose for BPW bypass pump priming discharge	\$50.44
Envirep	2" Gorman Rupp pump impeller	\$677.83
Kleen Rite	Replacement Hypo Pump (maint clean)	\$1,476.47
Grainger	Hardware and materials for Hypo pump install	\$140.68
RE Michel	Pistgrit Contactor replacement and spare	\$17.72
Kleen Rite	Replacement Hypo Pump (recovery clean)	\$945.56
Envirep	T Series Fill Cover Assembly PS8 (2)	\$408.28
Home Depo	Influent Sampler fridge replacement	\$189.00

## Health & Safety

- As of September 30, 2022, Inframark staff and contractors have worked 711 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations - Confined Space Safety
- Chlorine Institute Presentation- Sodium Hypochlorite Safety

## Personnel

Name	Title	DE Certification
Jerry Shupe Jr.	Regional VP	NA
Michael Wolgemuth	Regional Manager	DE Class IV WW
Open	Project Manager	
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

- September Sussex County Flow Totals
- August DMR
- Zenon Reports