

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



September 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.
- Filters- De-ragging UF Train 4 was completed during the week of 4-24-2023. De-ragging UF Train 1 Completed during the week of July 3, 2023. **A recovery clean was completed on UF Train 4 on 10-13-2023. The Account Manager for Veolia, Mathew Stapleford, was onsite 9-1-2023 to walk through and review UF operation. Manual cleaning of UF Train 3 to begin during the week of 10-16-2023.** The 5-ton Hoist in the Process Building needs repaired due to the manual chain driven trolley that moves the hoist to the right and left gets extremely tight when moving over UF Trains 3 & 4 to the area where we clean the membranes. Crane 1, a manufacturer's service representative, was onsite and generated a proposal to address the issue. The proposal was forwarded to BPW and a PO was issued. **Crane 1 completed proposed work but it did not completely resolve the issue. We are working with the vendor to resolve the issue.**
- Solid Handling- **A representative from Kubota was onsite 9-21-2023, to review solids thickener performance. We received directions for our next cleaning to pull several membranes out of the cassette and send them back to the manufacturer for testing. The manufacturer is to send us replacement membranes for the units being tested. We are trying to resolve the difference between design capacity vs actual performance.**
- Pump Stations- A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. The repair clamp to PS15 wetwell discharge piping failed. A proposal from Harry Caswell was accepted to replace wetwell piping and valves. **Caswell is scheduled to be completed before the end of the month.**
- Plant Electrical- Building Power Feeds were meggered, during the week of July 24th. Power cables to the Process Building, Chemical Building and Control Building passed. The yellow leg to the Digester Building failed. During the first two weeks of August, the main breaker to the digester had been tripping. The breaker trips after an extended period of time and we cannot determine that the potentially compromised power leg is

the cause. After several days of troubleshooting, we brought in Nickle Electric to install a monitor onto the power lines to the digester building. The monitor was online for four days but the breaker did not trip over that time period. The report from the monitor shows no anomalies. Nickle Electric returned and reinstalled the monitor for a 24-hour period during which the breaker tripped but the monitor did not catch the event as it likely fell between the three second recording interval. After discussing the issue with staff and Nickle electric, we changed the Digester Blower control to manual rather than automatic and the breaker has not tripped since that time. Staff continue to determine the cause of the issue. **(no update)**

- **Personnel- As of 10-17-2023, Andrew Courtney and Michael Mazzetti are no longer working for Inframark. Our staff currently includes five full time operators. We have interviewed several qualified electricians and will be making an offer within the week of 10-16-2023. A Maintenance-Operator position has been posted.**
- Inflow and Infiltration-I&I-Based on Pointwatch runtimes vs precipitation records (9-1-2022-8-31-2023), PS1,PS2,PS3,PS5, PS6 and PS10 collection system basins have the most significant I&I. **(no update)**

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, PS17, PS18, PS33, PS74 and PS83.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Headworks Rehabilitation	Pre-Construction Meeting Complete	High	BPW Project	QTR 3 2024
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs.	High	BPW Project	
Electric panel inspections and pump cable megger testing	In Progress/working on Pump Stations	High	NA	Ongoing through 2023
Liquid Sludge Loading Connection	GMB working on design	Med	NA	QTR4 2023
Old Drying Bed Valve Replacement (5,6&7)	Drying Bed 7 Complete, 5&6 are on hold to potentially be completed prior to next summer	Med	NA	QTR2 2024
Foam Pump Modifications	GMB working on design	Med	NA	QTR4 2023
PS15 Wetwell pipe replacement	BPW Issued a PO, Scheduled to be completed second half of October	High	Received	QTR4 2023

WWTP Process Building 5 Ton Crane repair	Initial work completed, Inframark working with vendor as repair may not be sufficient.	High	Received	QTR4 2023
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Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for September 2023. No violations will be reported for September 2023. The DMR will be forwarded upon completion.
- The average daily influent flow for September was 0.900 MGD with a maximum daily flow of 1.234 MGD. Precipitation totaled 8.0 inches for with a maximum daily total of 1.4 inches.

	Max	Sum
Precipitation (inches)	1.40	8.03

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.900	0.652	1.234	
BOD (mg/L)		209.00	209.00	209.00	
TSS (mg/L)		229.00	229.00	229.00	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		.90	.64	1.11	N
Dissolved Oxygen (mg/L)		2.70	1.91	4.19	N
pH (SU)	Min 6/ Max 9	7.17	6.96	7.38	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	3.0	N
BOD (mg/L)	Avg 15/ Max 23	<2.7	<2.4	3.1	N
BOD Load (lbs)	Avg 188/ Max 288	<20	<13	<27	N
BOD Removal (%)		98.7	98.7	98.7	
TSS (mg/L)	Avg 15/ Max 23	<0.9	<0.5	1.2	N
TSS Load (lbs)	Avg 188/ Max 288	<7	<4	<9	N
TSS Removal (%)		100	100	100	
Total Nitrogen (mg/L)	Avg 8	2.23	2.23	2.23	N
Total Nitrogen Load (lbs)	Avg 100	7.42	7.42	7.42	N
Total Phosphorous (mg/L)	Avg 2	0.94	0.94	0.94	N
Total Phosphorous Load (lbs)	Avg 25	5.21	5.21	5.21	N

Process		Average	Min	Max
Bio #1 MLSS (mg/L)		7,963	6,700	9,750
Bio #2 MLSS (mg/L)		8,528	7,700	9,570
Train 1 MLSS (mg/L)		9,043	8,100	9,800
Train 2 MLSS (mg/L)		11,175	9,800	12,000
Train 3 MLSS (mg/L)		9,435	7,700	10,500
Train 4 MLSS (mg/L)		8,820	4,600	11,790

TSS Digester 1 (mg/L)		18,335	17,070	21,170	
TSS Digester 2 (mg/L)		15,625	12,700	18,550	

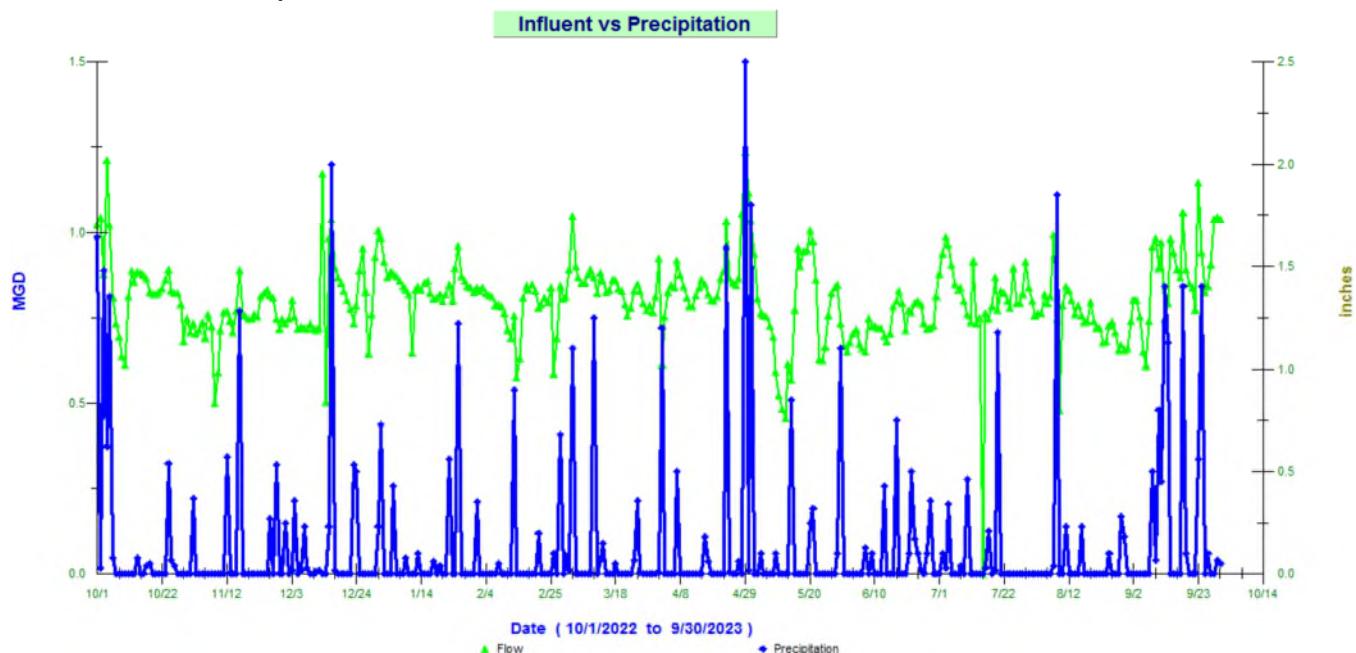
	Average	Max	Sum
Sludge Wasted (gallons)	10,603	12,000	307,487

Sludge Operations and Disposal

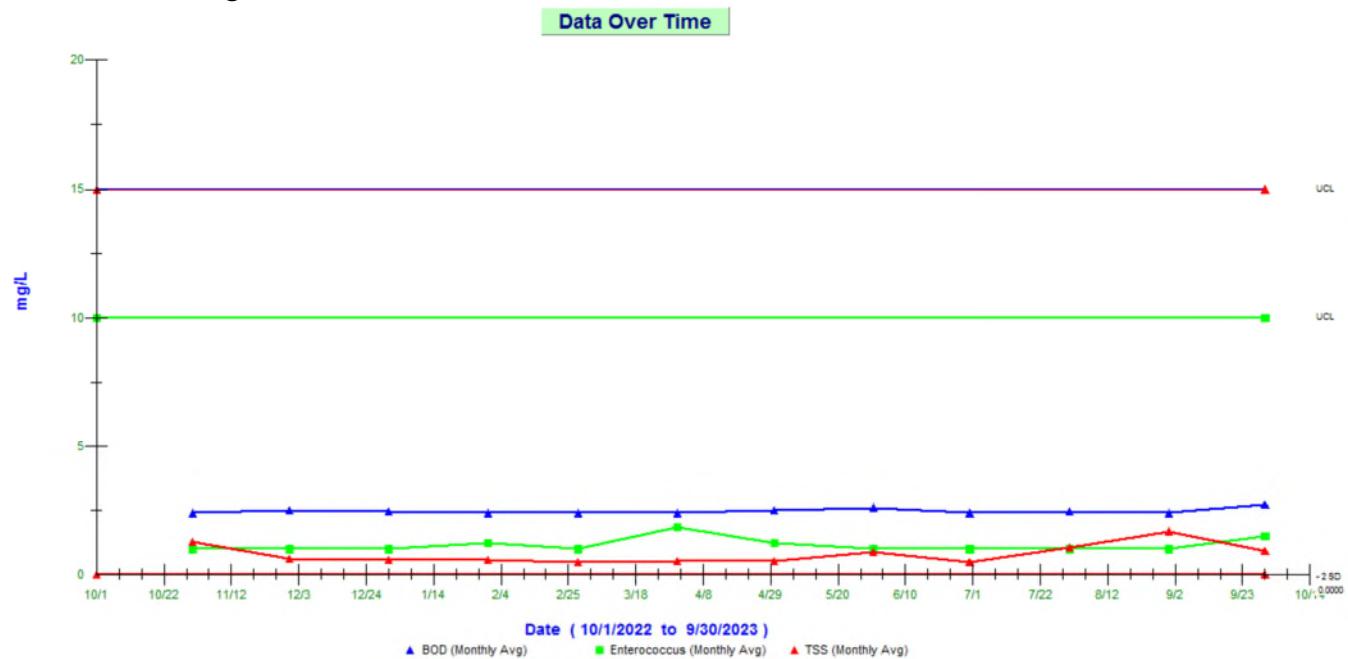
Liquid Hauled	102,650 Gallons	Sussex County
Hauled Solid	0 Tons	Sussex County
Dewatering Container	13,500 Gallons	DELCORA

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

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 Maintenance September

- WWTP- EQ Tank Mixer 1- Pumped down EQ Tank to replace lifting cable. Cleaned rags from all equipment while EQ level was down.
- WWTP- Headworks Building- Installed new outlet on third floor for future security camera installation.
- PS8- Pump 1- Hills onsite to extract and replace broken pipe nipple from the volute.
- PS83- Cleaned wetwell basket and replaced latch on control cabinet door.
- PS19-Replaced “pump start” float switch in wetwell.
- PS8,12,14,16,17&19- CES onsite due to BPW Vac-Truck out of service to clean wetwells and remove FOG.
- WWTP-Effluent Composite sampler-HIE onsite to flow pace new effluent sampler.

Work Order Statistics

Preventative Work Orders closed for month	81
Corrective, Reactive and Proactive Work Orders closed for month	7
Total Work Orders closed for month	88

Callouts

- PS19- 9-06-2023- Wetwell high level. Bad float switch.
- PS1- 9-23-2023- Wetwell high level. I&I during rain event.
- PS14- 9-26-2023- Wetwell high level. Pumps were air bound after wetwell cleaning.

Maintenance Budget

Monthly Budget	September 2023	Contract Year to Date	Over/(Under)
\$6,667	\$9,273.24	\$107,020.91	\$27,020.91

Maintenance Fee Expenditures

DATE	INVOICE	REPORT	VENDOR	MEMO	AMOUNT
7/30/2023	00394977	Sep 2023	Carter Machinery Co	PS4 Generator Rental	\$1,768.68
8/27/2023	00402226	Sep 2023	Carter Machinery Co	Rental FROM 08/11/23 - 09/07/23 SHORT TERM	\$1,768.68

				RENTAL EPA CHARGE	
9/12/2023	PCARD	Sep 2023	THE HOME DEPOT	Hole saw for ps#16	\$31.97
9/12/2023	PCARD	Sep 2023	AUTOZONE	Puller for process pump #2	\$90.00
9/12/2023	PCARD	Sep 2023	THE HOME DEPOT	Tread lock	\$39.90
9/12/2023	PCARD	Sep 2023	DENNEY ELECTRIC SUPPLY	Hole saw for ps#16	\$205.90
9/12/2023	PCARD	Sep 2023	BESTS ACE HDWE	Flapper for toilet	\$12.99
9/12/2023	PCARD	Sep 2023	BESTS ACE HDWE	Epoxy for poly pump	\$17.18
9/22/2023	PCARD	Sep 2023	JIFFY LUBE	required oil change for pick up truck	\$106.96
9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	parts for JB in basement	\$101.76
9/26/2023	PCARD	Sep 2023	AQUAFLOW PUMP & SUPPLY	two sump pumps for the elec. wells	\$519.48
9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	Maintenance supplies/tools	\$249.99
9/26/2023	PCARD	Sep 2023	ACF 22	Mulch sock	\$240.00
9/26/2023	PCARD	Sep 2023	A.E.T ELECTRIC	Electrical contractor for digester building power outage	\$375.00
9/26/2023	PCARD	Sep 2023	AQUAFLOW PUMP & SUPPLY	Floats for P.S.#16	\$445.60
9/26/2023	PCARD	Sep 2023	GRAINGER	Cable for EQ mixer	\$254.44
9/26/2023	PCARD	Sep 2023	HORNEY INDUSTRIAL	Calibration of effluent sample fridge	\$765.10
9/26/2023	PCARD	Sep 2023	BELAIR ROAD SUPPLY CO	6" blowup ball	\$109.90
9/26/2023	PCARD	Sep 2023	LOWES	PVC parts for 2mm sump pump, batteries for office	\$47.40
9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	Electrical testers 2	\$184.91
9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	parts for P.S. #16	\$396.24
9/26/2023	PCARD	Sep 2023	LOWES	Parts to do P.S.4 Switch	\$55.82

9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	installing outlet for camera and Exit light	\$196.29
9/26/2023	PCARD	Sep 2023	LOWES	Parts for P.S.#16	\$92.48
9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	Refrigerator for influent sampler	\$156.78
9/26/2023	PCARD	Sep 2023	DOVER ELECTRIC SUPPLY	Panel for P.S.#16	\$366.89
9/26/2023	PCARD	Sep 2023	AMAZON	Chest waders for working in EQ tank	\$104.98
9/26/2023	PCARD	Sep 2023	BESTS ACE HDWE	Nipple and bushing for ps#8	\$7.78
9/26/2023	PCARD	Sep 2023	THE HOME DEPOT	Saw blades/ parts for caustic line	\$51.89
9/27/2023	PCARD	Sep 2023	THE HOME DEPOT	Flashlights, gloves, plywood for PS#8, tape measure, PB Blaster	\$508.25

Health & Safety

- As of September 30, 2023, Inframark staff and contractors have worked 1076 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations – Personal Protective Equipment

Personnel (September Staffing)

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

- August DMR
- September eMaint Report
- September Sussex County Flow Totals
- UF InSight Report