

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



December 2021

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- Equalization Pump control panel replacement project moving forward with Keystone and Hills. Keystone to replace the RTU. Waiting on receipt of VFDs. Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline. **Inframark continues to experience frequent high-level callouts from the screening's dumpster as temperatures decline. Inframark recommends that a compactor be procured and installed ASAP while the Headworks Project is in design.**
- Filters- UF Train 4 de-ragged and returned to service 3-8-2021. UF Train 1 de-ragged and returned to service 4-19-2021. De-ragging of UF Train 2 complete 5-28-2021. UF Train 3 de-ragged and returned to service 7-21-2021. UF Train 4 de-ragging completed 12-28-2021.
- Pump Stations- A proposal to replace the Pump Station 8 Generator Transfer Switch for \$3,690 from Curtis Power Solutions was accepted. A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. Continue to have issues with Pump 1 maintaining prime. Inframark repaired the external check valve on 11-17-2021. Pump continued to lose prime. 11-23-2021 Inframark replaced the Gorman Rupp internal check valve. A back up diesel bypass pump is on standby at PS4. **Supplies to replace discharge valves and external check valves for both Pumps 1 and 2 have been received and will be replaced during February.** A representative from Hills Electric Motor was onsite to generate proposals for PS3 and PS8 pump rehabilitation or replacement. **A proposal from Hill's to rebuild Pump 2 at PS8 was accepted by BPW. A proposal from Hill's to replace pumps and valves at PS3 has been received and is pending approval from BPW.**

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	QTR4 2022
Replace EQ Pump Drives and Control Panel	Keystone is proceeding with replacement of the RTU. Waiting on receipt of VFDs.	High	BPW Project	QTR1 2022
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs	High	BPW Project	QTR2 2022
Replace ATS at PS8	Accepted Proposal; Contractor waiting on receipt of the ATS	High	Received	QTR1 2022
Rehab PS3 & PS8	Waiting on proposal from Hills	High	Needed	QTR2 2022

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for December 2021. No violations will be reported for December. The DMR will be forwarded upon completion.
- The average daily influent flow for December was 0.700 MGD with a maximum daily flow of 0.812 MGD. Precipitation totaled 1.1 inches for December with a maximum daily total of 0.5 inches.

	Max	Sum
Precipitation (inches)	0.50	1.05

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.700	0.437	0.812	
BOD (mg/L)		246	246	246	
BOD Load (lbs)		1,407	1,407	1,407	
TSS (mg/L)		236	236	236	
TSS Load (lbs)		1,350	1,350	1,350	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.756	0.499	0.843	N
Dissolved Oxygen (mg/L)		7.08	5.31	9.41	N
pH (SU)	Min 6/ Max 9	7.20	6.97	7.42	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	<15	<15	<16	N
BOD Removal (%)		99.0	99.0	99.0	
TSS (mg/L)	Avg 15/ Max 23	<0.8	<0.5	1.0	N
TSS Load (lbs)	Avg 188/ Max 288	<5	<3	7	N
TSS Removal (%)		100	100	100	
Total Nitrogen (mg/L)	Avg 8	3.63	3.63	3.63	N
Total Nitrogen Load (lbs)	Avg 100	18.05	18.05	18.05	N
Total Phosphorous (mg/L)	Avg 2	<0.05	<0.05	<0.05	N
Total Phosphorous Load (lbs)	Avg 25	<0.30	<0.30	<0.30	N
Process					
Bio #1 MLSS (mg/L)		11,925	10,200	14,100	
Bio #2 MLSS (mg/L)		11,675	11,000	13,500	
Train 1 MLSS (mg/L)		13,075	10,700	14,600	
Train 2 MLSS (mg/L)		12,750	11,500	15,300	
Train 3 MLSS (mg/L)		13,275	11,300	16,300	
Train 4 MLSS (mg/L)		13,500	12,600	15,000	
TSS Digester 1 (mg/L)		24,700	21,400	27,000	
TSS Digester 2 (mg/L)					

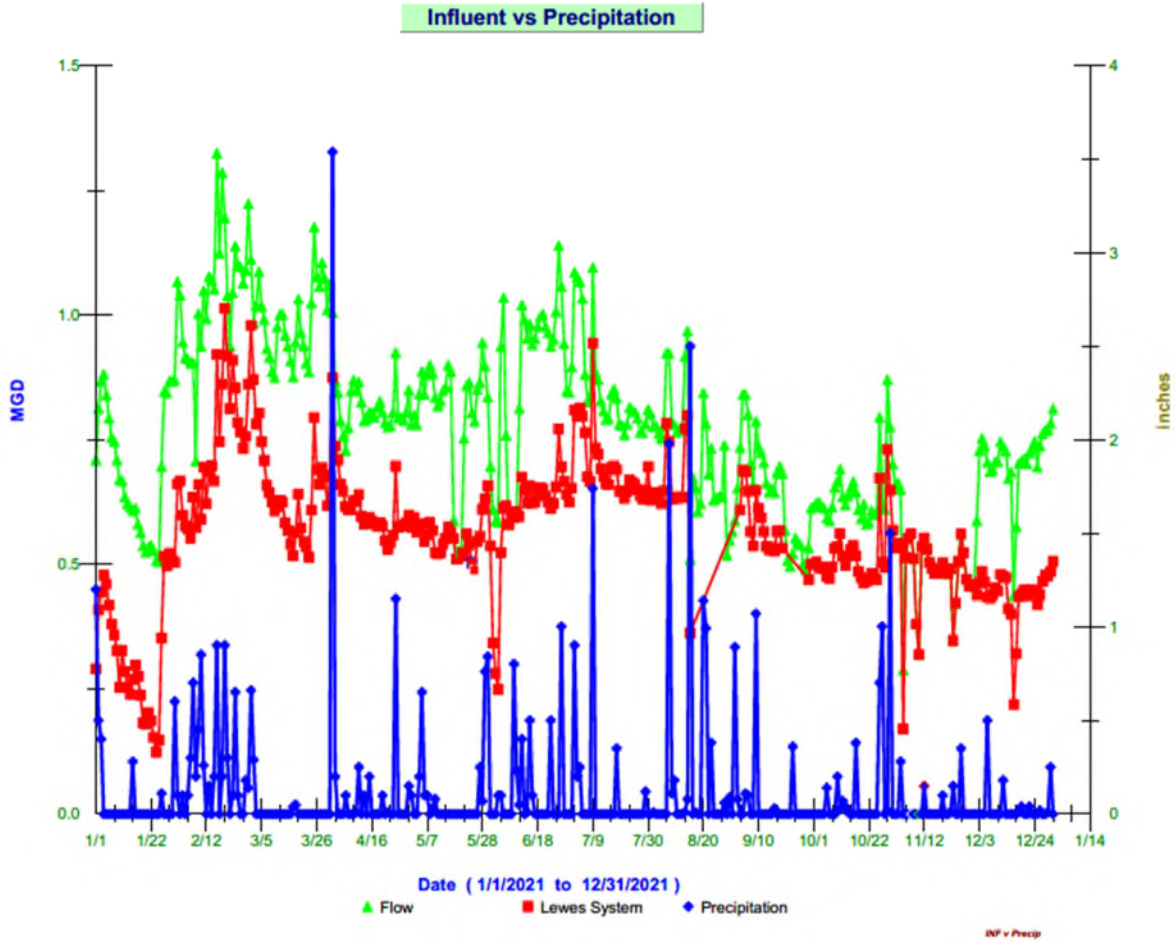
	Average	Max	Sum
Sludge Wasted (gallons)	6,294	17,013	195,110

Sludge Operations and Disposal

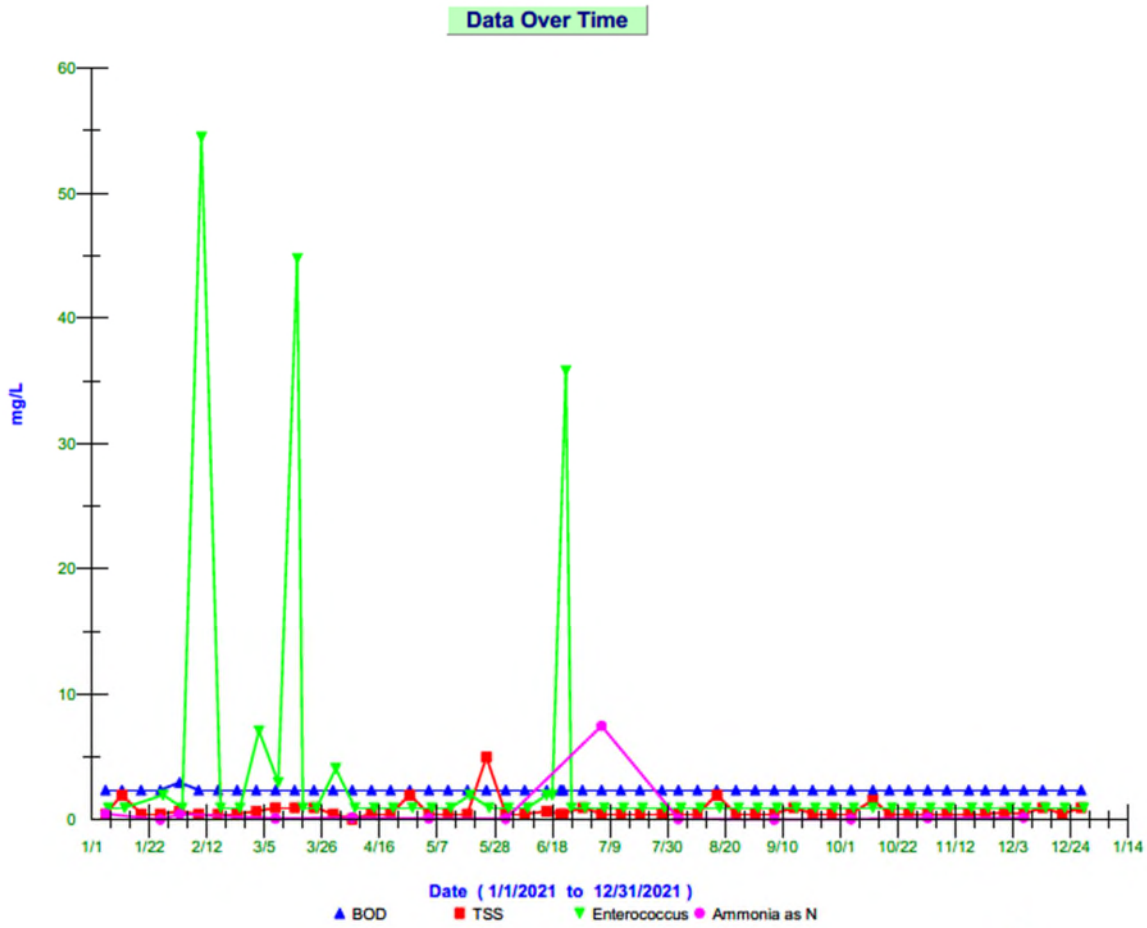
Liquid Hauled	129,000	Gallons	DELCORA
Cake Hauled	21,000	Wet Tons	Sussex County
Dewatering Container Material	14,300	Gallons	DELCORA

Trends

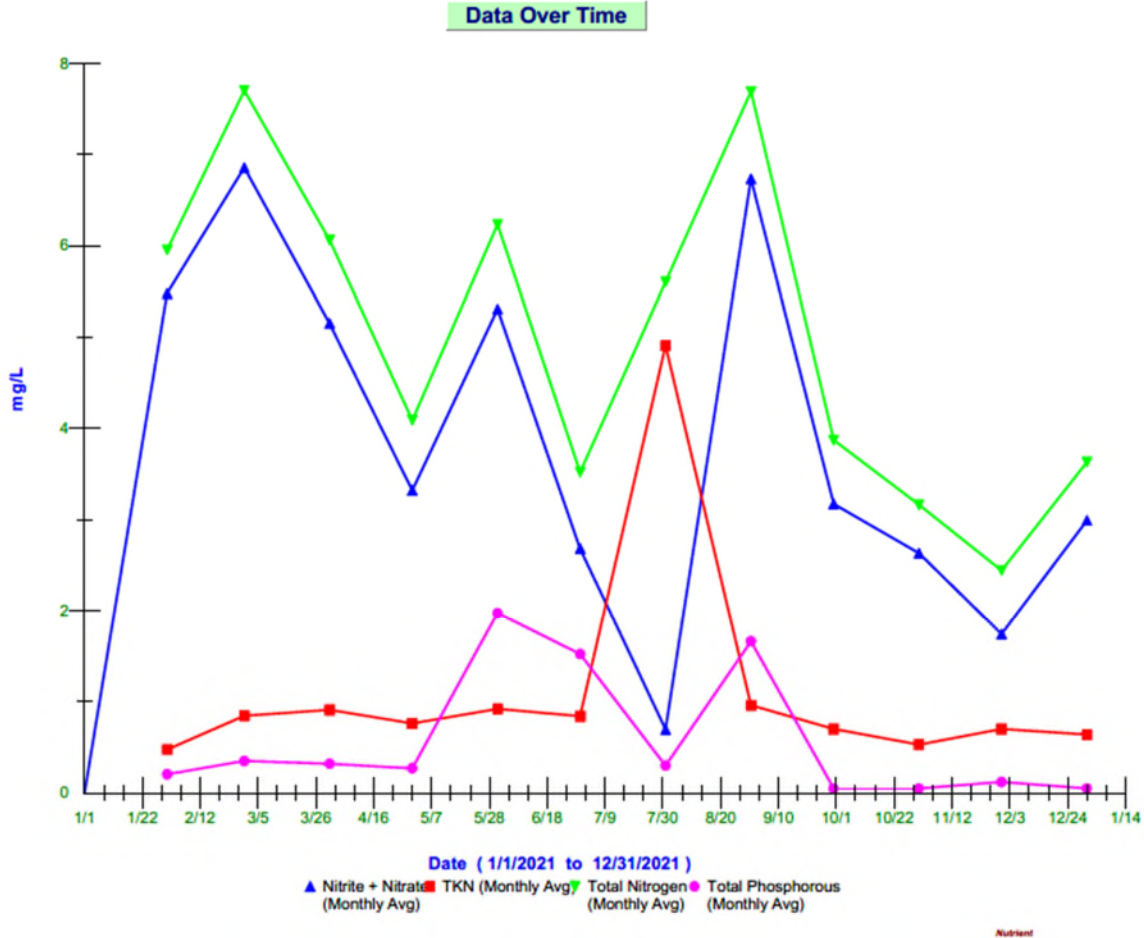
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

- 12-01-2021- PS17- Pump 1; Dolphin Electric onsite install capacitor.
- 12-01-2021- PS4- Pump 1; Air bound sealed inspection plate with gasket sealer.
- 12-01-2021- WWTP- Zenon Air Compressor; pressure sensor malfunction; cleaned debris from sensor and returned to service.
- 12-01-2021-WWTP- DO Probe 2A; replaced probe sensor cap, recalibrated and returned to service.
- 12-02-2021- WWTP- Storm Water Inlet; Replaced sedimentation sock around inlet.
- 12-06-2021-PS9- Wet Well low level; FOG buildup; cleaned and raised floats; returned to service.
- 12-06-2021-PS4- Dry Well; cleaned and pressure washed lower level Dry Well.
- 12-06-2021-PS8- Dry Well; cleaned and pressure washed lower level Dry Well.
- 12-06-2021-PS3- Pump 2; topped off oil reservoir.
- 12-07-2021- HIE onsite DO Probe 2A replacement
- 12-08-2021-PS9- Wet Well; BPW onsite with Vac Truck to remove FOG buildup.
- 12-09-2021-PS9- Wet Well high level; replaced alternating relay; return to service.

12-10-2021-PS3- Pump 2; topped off oil reservoir.
 12-14-2021-PS19- Wet Well high level; cleaned rags from check valves.
 12-17-2021-PS1- Wet Well low level; replaced low level float.
 12-21-2021-PS17- Pumps not working in auto; replaced float tree; Dolphin Electric onsite to replace phase monitor relay; returned station to service.
 12-22-2021-PS17- Pump1 not pumping; pulled Pump 1 for repair.

Callouts

12-04-2021-WWTP- UF Train 3 high high TMP
 12-05-2021-WWTP- 5mm Maci-pump failure
 12-08-2021-WWTP- Screenings Dumpster high level
 12-09-2021-PS9- Wet Well high level
 12-10-2021-PS1- Wet Well high level
 12-10-2021-PS1- Wet Well high level
 12-10-2021-WWTP- Screenings Dumpster high level
 12-11-2021-WWTP- Screenings Dumpster high level
 12-12-2021-WWTP- Screenings Dumpster high level
 12-14-2021-WWTP- Screenings Dumpster high level
 12-14-2021-PS33- Wet Well high level
 12-14-2021-PS19- Wet Well high level
 12-17-2021-PS1- Wet Well low level
 12-21-2021-PS17- Wet Well high level
 12-22-2021-WWTP- Screenings Dumpster high level
 12-24-2021-WWTP- Screenings Dumpster high level
 12-24-2021-WWTP- Screenings Dumpster high level
 12-25-2021-WWTP- Screenings Dumpster high level
 12-26-2021-WWTP- Screenings Dumpster high level
 12-31-2021-WWTP- 5mm Maci-pump failure

Maintenance Budget

Monthly Budget	December Expenses 2021	Contract Year to Date	Remaining Balance
\$6,667	\$ 34,292.95	\$ 72,672.32	\$ 7,327.68

Maintenance Expenditures

Vendor	Description	Expense
ADVANCE AUTO PARTS	Forklift radiator repair	25.98
BESTS ACE HDWE	Plumbing parts for hoses nozzle	10.98
CORE & MAIN	Gaskets for process pump train3	13.84
HACH COMPANY	Turbidimeter wipers	172.05
HAZZARD AUTO PARTS	Process pump oil	350.30
HAZZARD AUTO PARTS	Fuel transfer pump	339.99
HORNEY INDUSTRIAL ELEC	Station flow charts	50.77

HORNEY INDUSTRIAL ELEC	Annual Flow Meter Calibration	702.60
K & Z Mechanical, Inc.	Train 4 UF Cleaning	2,880.00
K & Z Mechanical, Inc.	Train 4 UF Cleaning	1,200.00
K & Z Mechanical, Inc.	Electrical work -Troubleshoot and repair Process Blower not operating	560.00
K & Z Mechanical, Inc.	Electrical work-Troubleshoot and repair Blower Room air compressor pressure sensor issue/ install capacitor PS17	380.00
LOWES	Winterizing and maintenance repair	117.88
LOWES	Lime for air relief SSO	40.30
LOWES	Parts for repair digester blower intake/ extension cord	132.32
LOWES	Indoor pressure washer for headworks cleanup	218.98
LOWES	Screening dumpster cleaning supplies	33.96
LOWES	Temporary heater for chemical room	152.43
SAVANNAH ONE STOP	Fuel for headworks generator	177.95
THE HOME DEPOT	Sampler refrigerator replacement	191.97
United Rentals North America Inc	Generator Rental PS4	3,072.00
United Rentals North America Inc	Dewatering dumpster rental	1,938.67
United Rentals North America Inc	Rental protection and environmental surcharge for Bypass Pump rental PS4	1,465.16
United Rentals North America Inc	Generator Rental Headworks	19,501.56
United Rentals North America Inc	Skid Steer Broom Rental	874.88
USA BLUE BOOK	60 ft of 3 suction hose & 3-inch Adapter	1,233.00
USA BLUE BOOK	Chart recorder parts	716.98
USA BLUE BOOK	Chemical pump parts	302.68

Health & Safety

Inframark Training and Presentations

- Holiday safety
- COVID Policy

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	Operator II	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
Loran George	PT Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- December County Flow Totals
- Zenon InSight Report- 01-12-2022
- Zenon InSight Report- 12-29-2021
- Pump Station Flow vs Rain Graphs