

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



February 2021

Executive Summary

	Green	Yellow	Red
Headworks		Yellow	
Oxidation Ditch	Green		
Filters		Yellow	
Generator	Green		
Weather	Green		
Solids Handling		Yellow	
NPDES Parameters	Green		
Lift Stations		Yellow	
Personnel	Green		
Safety		Yellow	
Compliance	Green		

- Headworks- Equalization Pump control panel and VFDs in need of replacement. Vendor proposals are being developed. Inframark met with the sales representative for the influent Screens and Lipactor in February. A quote to replace equipment has been received. We are still waiting on a quote to rebuild/repair. It is the Sales Representative's opinion that the 2 mm Bandscreen should be replaced with a 1 mm unit and the 5 mm Bandscreen can be rehabilitated. We have requested a report indicating findings from observations during the February 19th visit.
- Filters- High TMP for UF Train 4. Inframark completed hypochlorite and citric acid recovery cleans prior to pulling and manually picking all three modules. UF Train 4 was put back online 3-8-2021. Each module took 4 full days with three to four employees to clean. During February, we brought in two part time employees as well as personnel from our Elkton Team to help clean the membranes. Upon UF Train 4's return to service, UF Train 1 was taken offline for recovery cleaning. UF Train 1 manual picking began week of 3-15-2021. Additional Air relief valves were installed to each UF Train to address intermittent air entrapment issues.
- Solids Handling- Awaiting receipt and replacement of diffuser cleaning valve and actuator for Digester Membranes. (as of 3/17/2021 valve and actuator to arrive the week of 3/22/2021) Diffuser cleaning continues be completed manually on a daily basis. Staff have been hot water pressure washing Drying Beds prior to pouring. Bed performance has improved but we continue to haul liquid biosolids to control our solids inventory. A static mixer has been ordered to help improve polymer addition and mixing.
- We are developing a pump station evaluation. No critical issues exist currently. During February, we brought in maintenance personnel from our Elkton Team to help check and evaluate the pump stations.
- Our Health and Safety advisor completed a plant wide audit. Audit items being addressed through first quarter 2021. No critical issues exist currently.

Critical Issues

- Covid- Inframark is following CDC recommendations to ensure uninterrupted service to the BPW and the Lewes community. We are communicating with our teams daily to

ensure employees with primary or secondary exposure are staying home until receiving a negative test. So far, we have had little impact across our projects.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Clean Membranes	Cleaning UF Train 1	High	NA	March/April 2021
Repairs to Digester Filtration System	A new diffuser flush valve and actuator are required.	High	Maintenance Budget	March/April 2021
Rebuild Foam Pump	Staff removed pump and sent to Hills along with the rebuild kit. A quote has been accepted for \$1,643.90 for the rebuild.	Medium	Maintenance Budget	March 2021
Replace EQ Pump Drives and Control Panel	Only one drive operates in Auto. A proposal from Gorman Rupp has been received. Hills is providing a second quote.	High	Needed	2021
Pump Station Evaluation	We are developing a Pump Station asset list and evaluation	High	NA	QTR 1 2021
Buildout CMMS	eMaint has been built out. Work orders will be issued during March. Staff will continue to enter preventative and corrective workorders ongoing	High	Part of our base services	QTR 1 2021

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for February 2021. No violations will be reported for February. The DMR will be forwarded upon completion.
- The average daily influent flow for February was 1.057 MGD with a maximum daily flow of 1.325 MGD. Precipitation totaled 6.9 inches for February with a maximum daily total of 0.9 inches.

	Max	Sum
Precipitation (inches)	0.90	6.88

Influent	Limit	Average	Min	Max	
Flow (MGD)		1.057	0.709	1.325	
BOD (mg/L)		231	208	256	
BOD Load (lbs)		2,160	1,806	2,432	
TSS (mg/L)		271	142	372	
TSS Load (lbs)		2,562	1,188	3,230	

Effluent	Limit	Average	Min	Max	Vio
Flow (MGD)		1.057	0.709	1.333	N
Dissolved Oxygen (mg/L)		5.43	3.72	7.92	N
pH (SU)	Min 6/ Max 9	7.06	6.82	7.78	N
Enterococcus (col/100ml)	Geo Mean10/ Max 104	<3*	<1.0	54.5	N
BOD (mg/L)	Avg 15/ Max 23	<2.6	<2.4	<3.0	N
BOD Load (lbs)	Avg 188/ Max 288	<24	<21	<26	N
BOD Removal (%)		98.9	98.9	98.9	
TSS (mg/L)	Avg 15/ Max 23	<0.6	<0.5	0.7	N
TSS Load (lbs)	Avg 188/ Max 288	<5	<4	6	N
TSS Removal (%)		100	100	100	N
Total Nitrogen (mg/L)	Avg 8	7.70	6.74	8.66	N
Total Nitrogen Load (lbs)	Avg 100	73	73	73	N
Total Phosphorous (mg/L)	Avg 2	0.35	0.35	0.35	N
Total Phosphorous Load (lbs)	Avg 25	3	3	3	N

*Geometric Mean

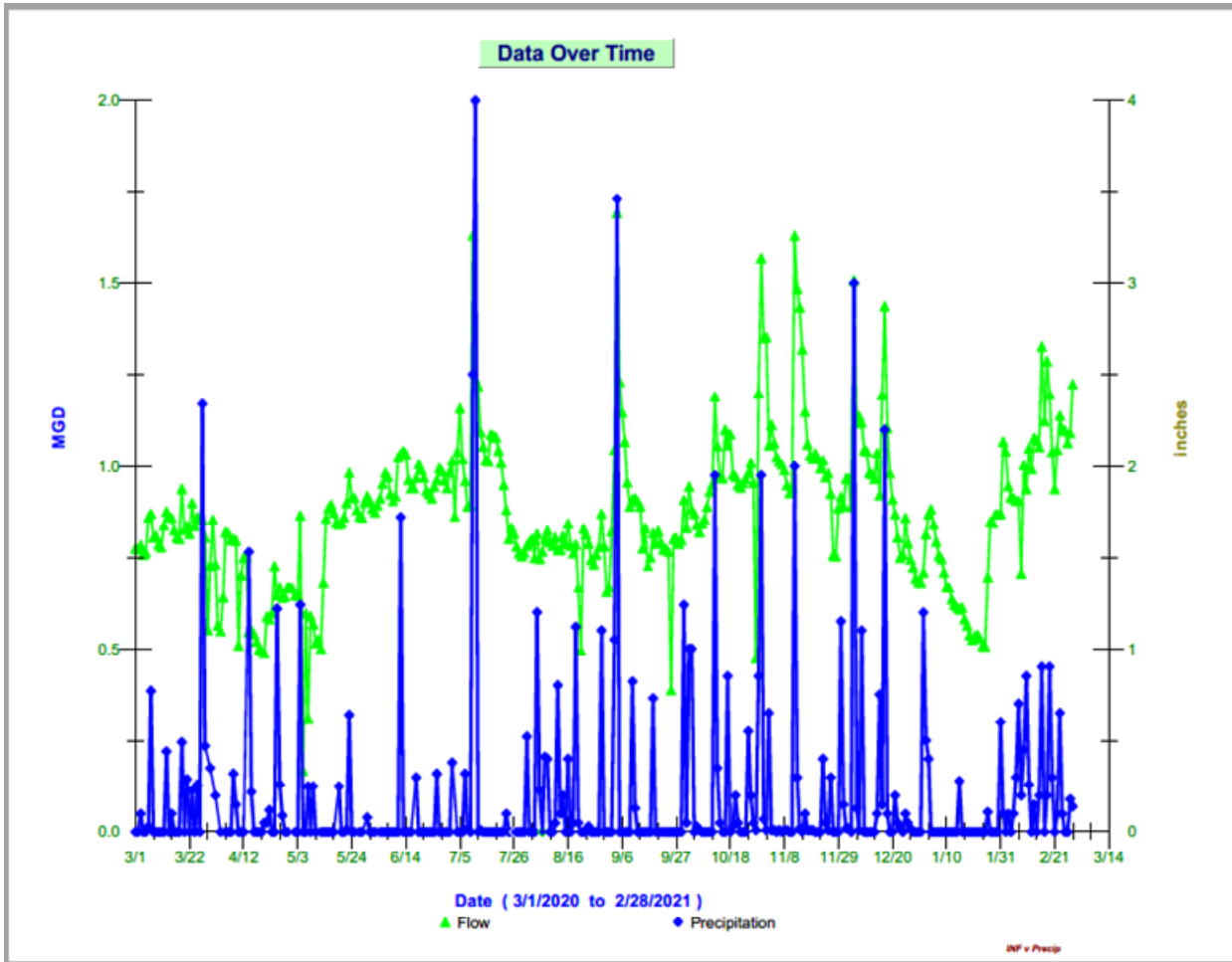
Process	Limit	Average	Min	Max	
Bio-Train 1 MLSS (mg/L)		11,853	11,020	13,030	
Bio-Train 2 MLSS (mg/L)		11,288	10,590	12,370	
Membrane Train 1 MLSS (mg/L)		13,735	10,330	16,730	
Membrane Train 2 MLSS (mg/L)		13,373	11,800	14,830	
Membrane Train 3 MLSS (mg/L)		13,033	11,760	14,060	
Membrane Train 4 MLSS (mg/L)		offline	offline	offline	
TSS Digester 1 (mg/L)		26,988	26,370	27,500	
TSS Digester 2 (mg/L)		27,028	25,990	28,870	

Sludge Operations and Disposal

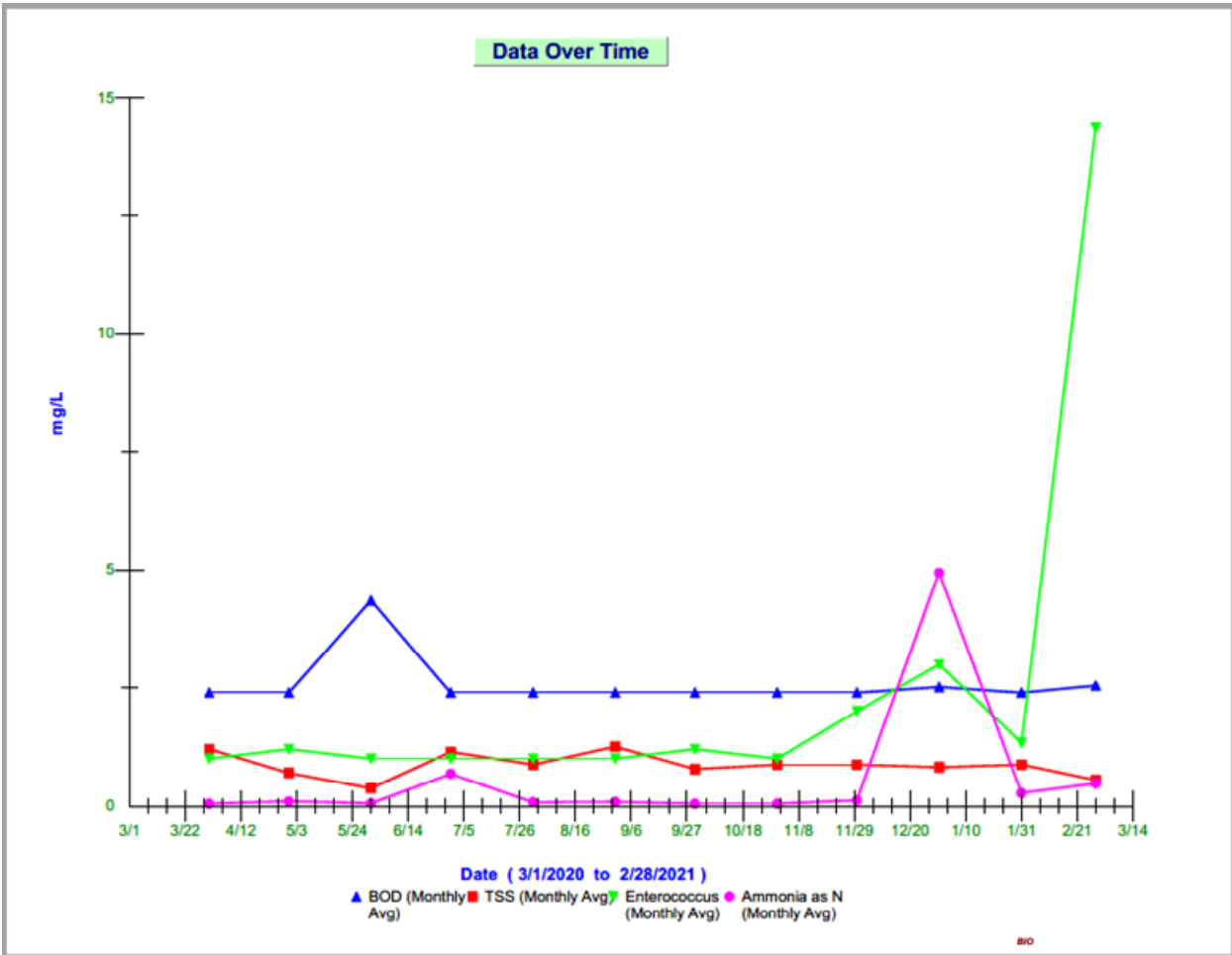
Liquid Hauled	71,400	Gallons	DELCORA
Cake Hauled	0	Wet Tons	No cake hauled in February

Trends

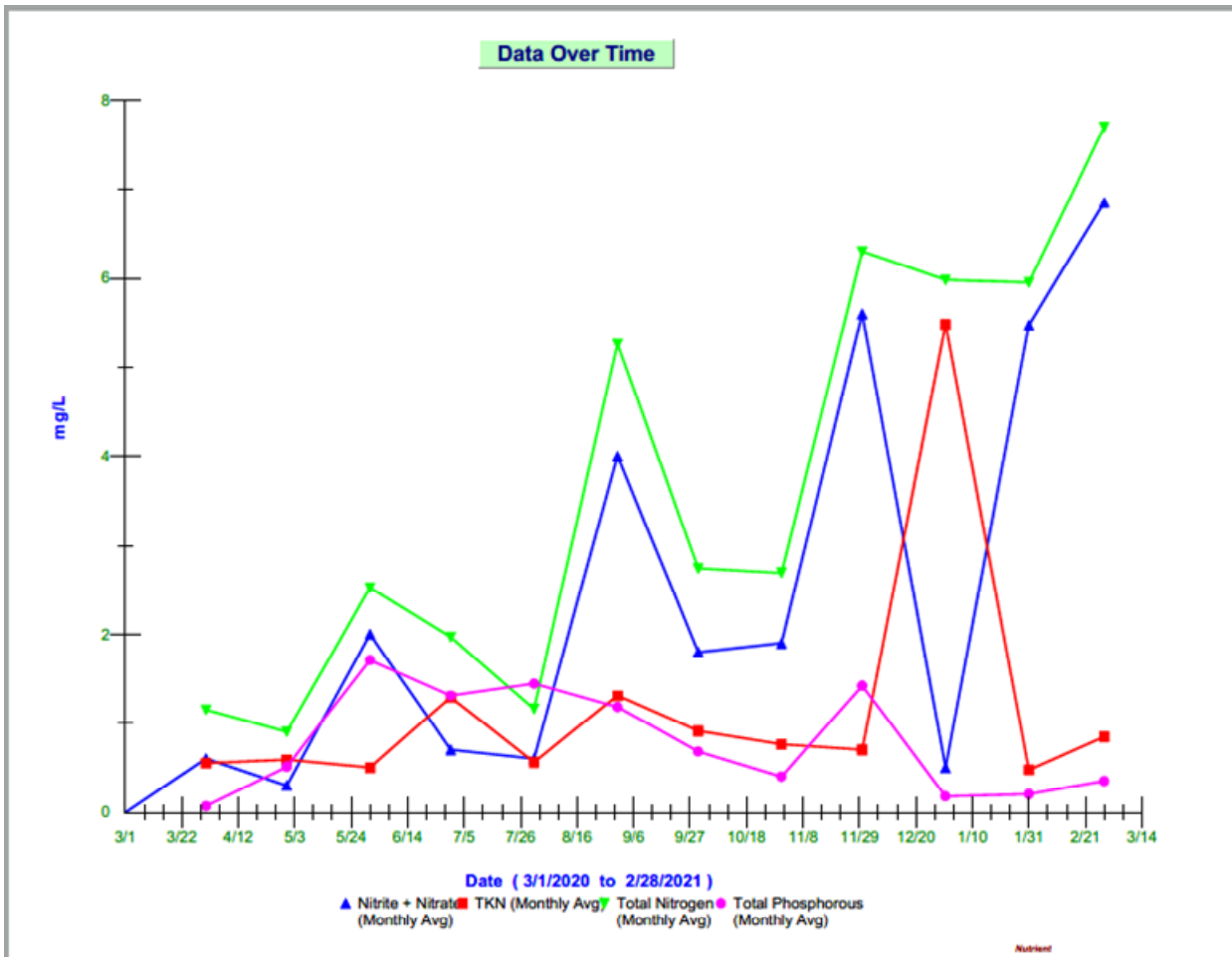
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance & Repair

Pump Stations

- 2-1-2021- PS5 flooded by elevated tide. Found float switch junction box filled with water. Staff removed lid to drain and dry out junction box.
- 2-1-2021- Inland Water Watch installed a high gain antenna at PS10 to resolve communications issues.
- 2-1-2021- Inland Water Watch replaced the modem at PS32 at no charge. The modem did not resolve the issue so a high gain antenna was installed to eliminate communications failures.
- 2-11-2021- Received call from BPW Monroe Avenue E-one Station alarm light on. Neither pump would run. Called Freemire & Associates to troubleshoot. Both pump control boards were shorted. Installed spare pumps. Inland Water Watch was contacted about alarms not being received through PointWatch. New rules were added but need to be tested and verified.
- 2-13-2021- Received a call from BPW of a high level at PS31 on Jefferson Court. Inframark responded and could not resolve the issue. Freemire & Associates onsite

determined control panel missing a leg of power. BWP was notified and ran temporary power to obtain correct voltage. Both pumps not working. Staff called BPW to pump down the station wet well. Staff replaced one pump with a spare. Freemire bypassed the control board to get the station running until a new one could be installed. We also discovered that the station did not have a Pointwatch System. Inland Water Watch contacted to provide a quote for installation.

- 2-15-2021- Freemire returned to PS31 to install a new pump control panel and the second pump.

WWTP

- 2-1-2021- Completed sodium hypochlorite recovery clean UF Train 4
- 2-9-2021-2-12-2021- Pulled UF Train 4 Module C for cleaning
- 2-16-2018- 2-18-2021-Continued cleaning UF Train 4 Module C for cleaning
- 2-18-2018- Pulled UF Train 1 Module A for diffuser cleaning.
- 2-19-2021- Pulled UF Train 1 Modules B & C for diffuser cleaning.
- 2-22-2021- Installed a second air relief valve to each UF Train.
- 2-23-2021-2-26-2021- Pulled UF Train 4 Module B for cleaning

Afterhours Alarm Callouts

- 2-03-2021- Low Flow UF Train 1
- 2-03-2021- Low Flow UF Train 1
- 2-05-2021- High Digester Level
- 2-07-2021- Low Generator Fuel (false alarm)
- 2-13-2021- High Level PS 31
- 2-14-2021- High Digester Membrane Trouble
- 2-15-2021- High Bioreactor 2 Level (foam tripped float)
- 2-18-2021- High Digester TMP
- 2-25-2021- High Level Digester Anoxic Tank
- 2-25-2021- High UF Train 2 Turbidity (air entrapment)
- 2-27-2021- Blowers D&E Failure. (Blown fuse in control system)
- 2-28-2021- Multiple Plant alarms due to a large breaker tripping when a Digester Blower VFD shorted.

Maintenance Budget

Monthly Budget	February Expenses 2021	Contract Year to Date	Remaining Balance
\$7,500	\$ 14,555	\$ 50,154	\$ 39,846

Maintenance Expenditures

Vendor	Description	Expense
Hazzard Electrical Contractors, Inc.	Troubleshoot PS 83	150.00
K & Z Mechanical, Inc.	PS83 Emergency call, replace motor contactors, overload relays and auxiliary contactors for pumps 1 and 2.	2,141.25
GRAINGER	Wire for high level alarms digesters	161.35
UNTD RNTLS	Loader Rental	1,673.62
THE HOME DEPOT	Hose adapter	5.18
BESTS ACE HDWE	PVC Saw and Fittings	32.44
GRAINGER	PVC Fitting Stock	1,099.68
SQ *AMERICRANE INSPECT	5-ton and 1-ton hoist inspections	500.00
LOWES	Conduit and supplies for high level alarms digesters	154.92
BESTS ACE HDWE	Plumbing supplies	20.95
USA BLUE BOOK	Two 2 in Utility Pumps, 80' of hose and two male cam fittings	1,644.83
RITE AID	Products to remove fiber from membranes	46.38
THE HOME DEPOT	PVC Junction box and tap-cons for PS13	33.46
USA BLUE BOOK	RHINO Manhole lid extractor	260.83
227 RENT	Power Plumbing Snake Rental	89.59
LOWES	Supplies for high level alarms digester	15.42
Hill's Electric Motor Service Inc	Repair post anoxic mixer	3,558.68
Freemire & Associates, Inc.	Emergency service Call E1 Pump Station Jefferson Circle	1,273.98
THE HOME DEPOT	Maintenance Supplies	193.04
227 RENT	Hotwater pressure washer rental	123.19
LOWES	Industrial Drill Bit Set, (8)1 1/4 in plugs for membrane diffusers	52.70
THE HOME DEPOT	Milwaukee 18-volt 3PC Kit, additional 5 Amp Battery, hand tools, tool bag	656.83
AQUAFLOW PUMP & SUPPLY	Maintenance Supplies	82.93
227 RENT	Hotwater pressure washer rental	123.19
BILLY WARREN & SON LLC	2 Brass Ball Valves, 2-inch swing check valve	286.00
THE HOME DEPOT	Maintenance Supplies	174.55

Health & Safety

- Through the end of February, Inframark Lewes employees have worked 132 days without a lost time injury.
- Inframark Training and Presentations
-ISHE Biological Hazards

-Workplace Cleaning and Disinfection

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 Gunderson	Lead Operator	DE Class IV WW
David Sylvester	Operator II	NA
Nick Karpin	Maintenance Technician II	NA
Loran George	Operator III	DE Class IV WW
David Weed	Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- February County Flow Totals
- Zenon InSight Report-2-10-2021
- Zenon InSight Report-2-24-2021
- Pump Station Flow Vs Rain Graphs