

# LEWES BPW

## Howard Seymour Water Reclamation Plant

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### Operation and Maintenance Report



April 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- **Equalization Pump control panel and VFD replacement project complete.** Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline.
- 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.**
- **Pump Stations-** A proposal to replace the Pump Station 8 Generator Transfer Switch for \$3,690 from Curtis Power Solutions was accepted. **The ATS has been received and we are waiting on the vender's electrical contractor to complete the work.** A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. A back up diesel bypass pump is on standby at PS4. **Sprig to install a clean out to each pump suction line at PS4 during the week of 5-16-2022.** A proposal from Hill's to replace pumps and valves at PS3 has been received. Inframark received a proposal from Freemire and Associates for new Classic T8 rotating assemblies for PS3 and forwarded to BPW. A proposal to install new wet well piping at PS9 was accepted. **Work will be scheduled after completion of PS4 work.** A proposal to replace wet well piping in PS2 is pending.
- Personnel- Currently Inframark has **5** fulltime and two part-time employees assigned to the Lewes Facilities.

## 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.

- **Pump Station 3 pumps need to be rebuilt or replaced in the immediate future. There are no bypass connections for this station and it is Inframark's belief that these pumps are beyond their useful lifespan.**

## 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 | Complete   | 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                       | ATS Received. Scheduling for May                           | High           | Received    | QTR1 2022          |
| Rehab Pump 2 PS8                         | Complete   | High           | Received    | March 2022         |
| Rehab Pumps at PS3                       | Proposals Received   | High           | Needed      | QTR2 2022          |

## Operations

### NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for April 2022. No violations will be reported for April. The DMR will be forwarded upon completion.
- The average daily influent flow for April was 0.690 MGD with a maximum daily flow of 0.938 MGD. Precipitation totaled 3.2 inches for April with a maximum daily total of 1.4 inches.

|                        | Max  | Sum  |
|------------------------|------|------|
| Precipitation (inches) | 1.43 | 3.24 |

| Influent   | Limit | Average | Min   | Max   | Vio |
|------------|-------|---------|-------|-------|-----|
| Flow (MGD) |       | 0.690   | 0.445 | 0.938 |     |
| BOD (mg/L) |       | 317     | 317   | 317   |     |
| TSS (mg/L) |       | 252     | 252   | 252   |     |

| Effluent                     | Limit            | Average  | Min    | Max    | Vio |
|------------------------------|------------------|----------|--------|--------|-----|
| Flow (MGD)                   |                  | 0.741    | 0.442  | 0.960  | N   |
| Dissolved Oxygen (mg/L)      |                  | 6.22     | 4.88   | 7.69   | N   |
| pH (SU)                      | Min 6/ Max 9     | 7.18     | 6.96   | 7.47   | 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      | <14    | <16    | N   |
| BOD Removal (%)              |                  | 99.2     | 99.2   | 99.2   |     |
| TSS (mg/L)                   | Avg 15/ Max 23   | <0.5     | <0.5   | 0.6    | N   |
| TSS Load (lbs)               | Avg 188/ Max 288 | <3       | <3     | 4      | N   |
| TSS Removal (%)              |                  | 100      | 100    | 100    |     |
| Total Nitrogen (mg/L)        | Avg 8            | 5.05     | 5.05   | 5.05   | N   |
| Total Nitrogen Load (lbs)    | Avg 100          | 26.82    | 26.82  | 26.82  | N   |
| Total Phosphorous (mg/L)     | Avg 2            | 0.14     | 0.14   | 0.14   | N   |
| Total Phosphorous Load (lbs) | Avg 25           | 0.93     | 0.93   | 0.93   | N   |
| <b>Process</b>               |                  |          |        |        |     |
| Bio #1 MLSS (mg/L)           |                  | 8,950    | 7,600  | 10,500 |     |
| Bio #2 MLSS (mg/L)           |                  | 8,775    | 7,800  | 9,400  |     |
| Train 1 MLSS (mg/L)          |                  | cleaning |        |        |     |
| Train 2 MLSS (mg/L)          |                  | 9,400    | 7,900  | 9,900  |     |
| Train 3 MLSS (mg/L)          |                  | 9,200    | 8,700  | 10,100 |     |
| Train 4 MLSS (mg/L)          |                  | 9,600    | 8,300  | 11,200 |     |
| TSS Digester 1 (mg/L)        |                  | 17,975   | 16,500 | 19,300 |     |
| TSS Digester 2 (mg/L)        |                  | 17,675   | 17,100 | 18,600 |     |

|                         | Average | Max    | Sum     |
|-------------------------|---------|--------|---------|
| Sludge Wasted (gallons) | 10,759  | 21,974 | 322,784 |

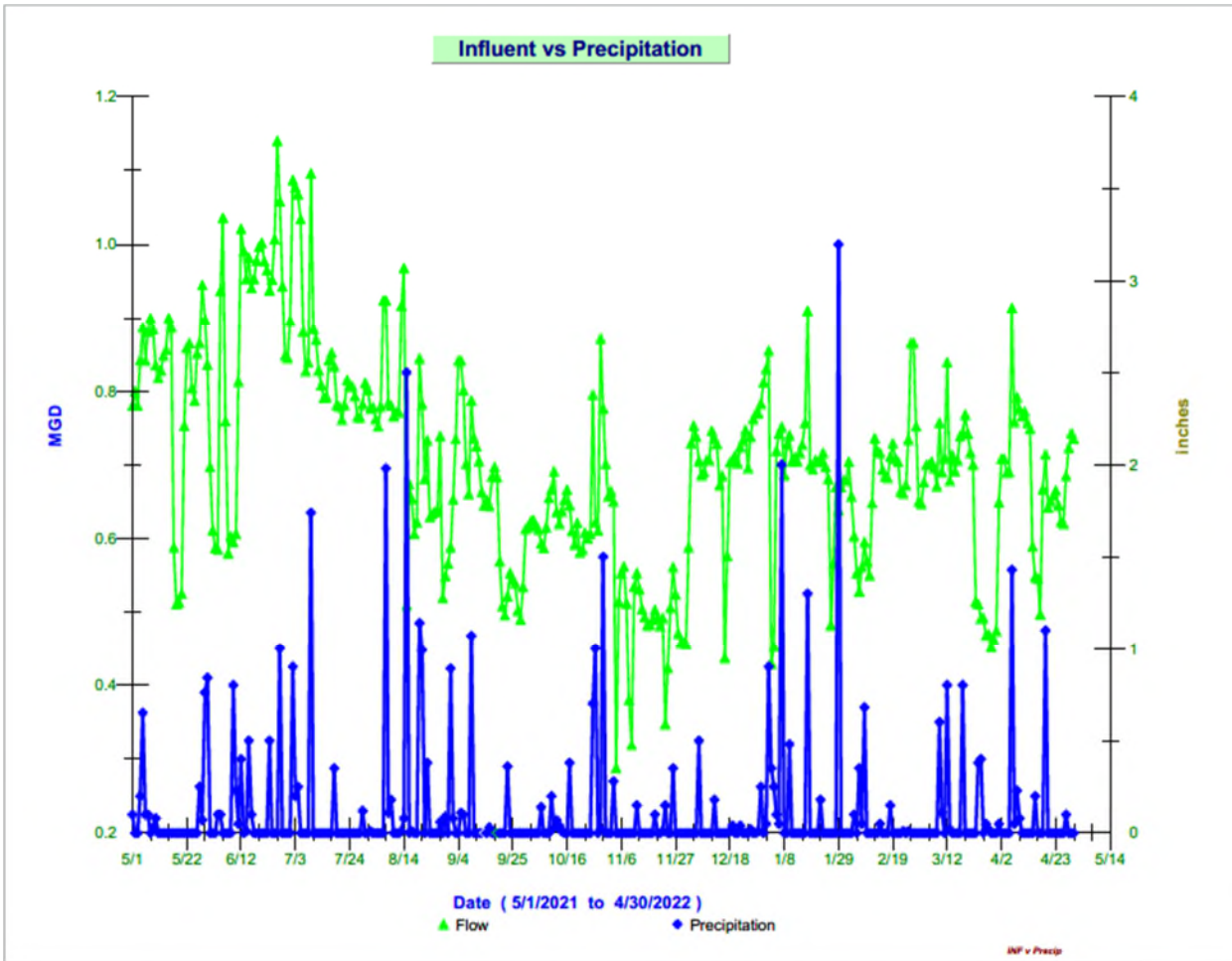
## Sludge Operations and Disposal

|                      |        |          |               |
|----------------------|--------|----------|---------------|
| Liquid Hauled        | 80,000 | Gallons  | DELCORA       |
| Cake Hauled          | 75.9   | Wet Tons | Sussex County |
| Dewatering Container | 10,000 | Gallons  | DELCORA       |

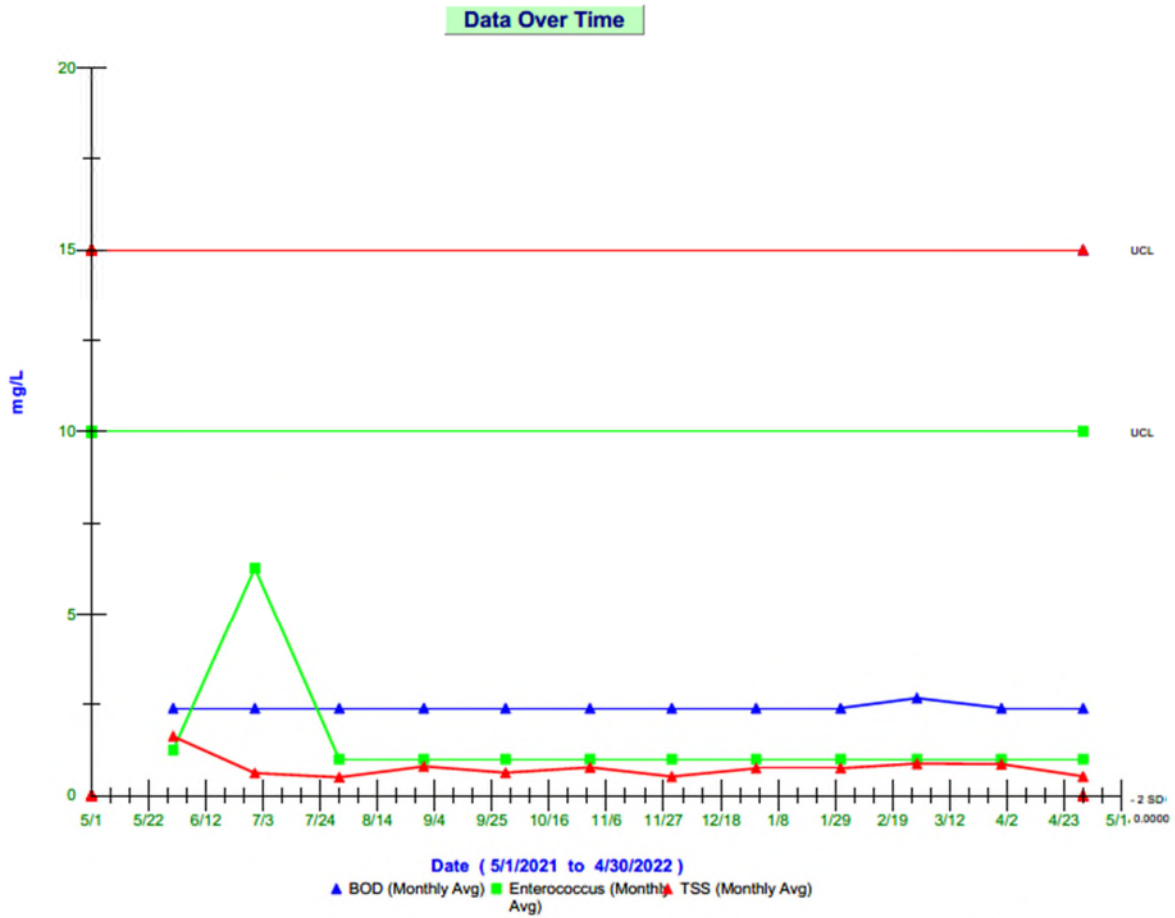
\*Waiting on weights and % solids data from Sussex County

# Trends

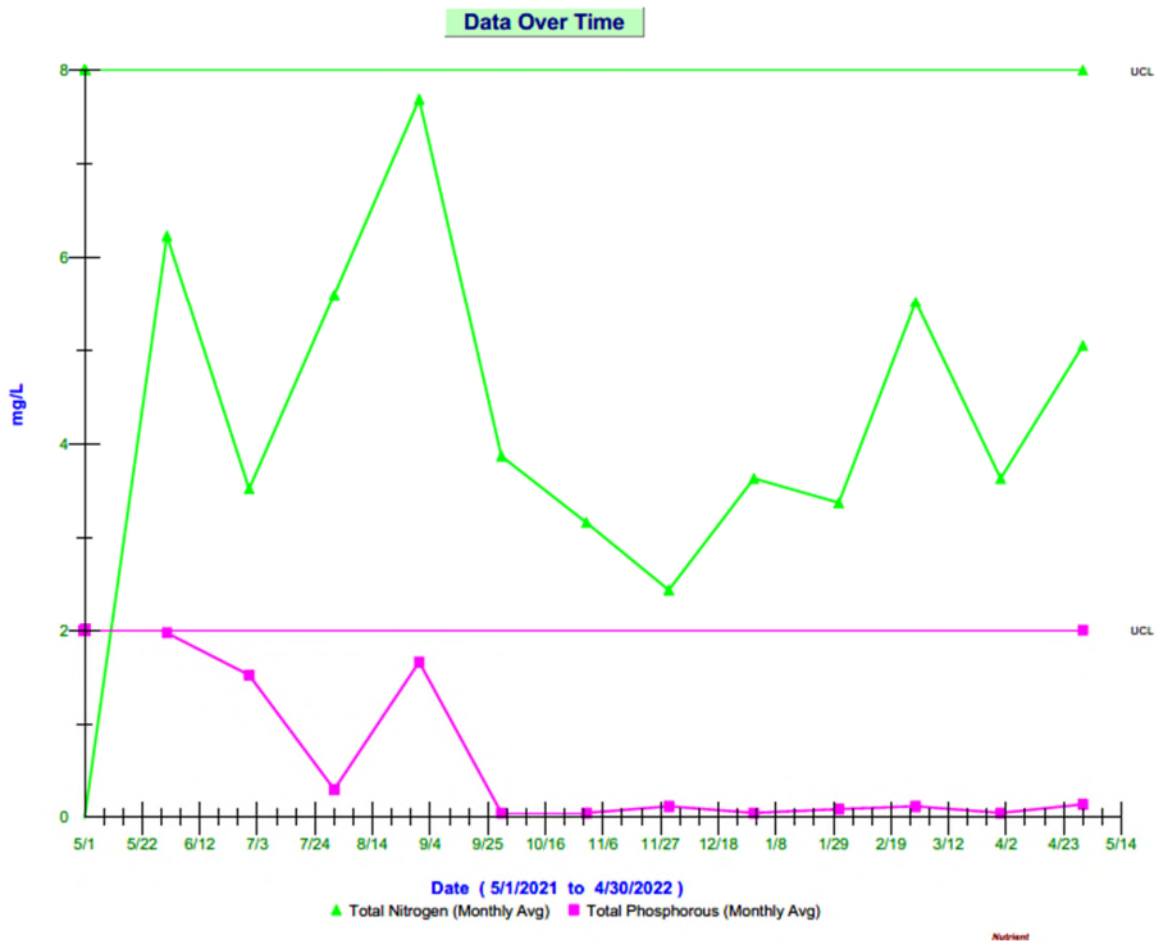
## Influent vs Precipitation Trend Previous 12 Months



# Effluent Biological Contaminants Trend Previous 12 Months



## Effluent Nutrient Trends Previous 12 Months



## Maintenance, Repair and Activities

|                 |  |
|-----------------|--|
| 4-01-2022-WWTP- | Replaced sample tubing to effluent composite sampler         |
| 4-02-2022-WWTP- | Replaced sample tubing to influent composite sampler         |
| 4-02-2022-PS4-  | Replaced rotating assemble to Pump 1                         |
| 4-02-2022-WWTP- | Replaced 2-inch submersible digester recycle pump            |
| 4-04-2022-PS3-  | Topped off oil Pump 2  |
| 4-06-2022-WWTP- | Replaced sprinkler for membrane soak                         |
| 4-09-2022-WWTP- | Replaced timer relay for 2mm screen controller               |
| 4-12-2022-PS3-  | Topped off oil Pump 2  |
| 4-18-2022-WWTP- | Moved alum feed lines to discharge at the post anoxic mixers |
| 4-19-2022-WWTP- | Replaced seal packing to drying bed sludge pumps             |
| 4-22-2022-PS3-  | Topped off oil Pump 2  |
| 4-23-2022-PS4-  | Pump 1 lost prime. Staff restored prime.                     |



4-24-2022-PS4- Pump 1 lost prime. Staff restored prime.  
 4-27-2022-WWTP- Replaced UF Train 1 RAS Pump with a rebuild spare. Dolphin Electric completed the power cable change out.  
 4-29-2022-WWTP- Lubricated grit auger bearings

## Afterhours Alarm Callouts

**4-06-2022-WWTP-Alarm-High-level Screening Dumpster**  
**4-07-2022-WWTP-Alarm-High-level Screening Dumpster**  
**4-09-2022-WWTP-Alarm-High-level Screening Dumpster**  
 4-16-2022-WWTP-Alarm- Generator Fuel Level  
 4-12-2022- PS4- Alarm -Wet-well low level  
 4-21-2022- PS4- Alarm -Wet-well low level

## Maintenance Budget

| Monthly Budget | April 2022  | Contract Year to Date | Over     |
|----------------|-------------|-----------------------|----------|
| \$6,667        | \$ 6,666.67 | \$116,206             | \$36,206 |

## Maintenance Expenditures

| Vendor                            | Description  | Expense  |
|-----------------------------------|--|----------|
| BELAIR ROAD SUPPLY CO             | Replacement valves for PS2   | 1,315.00 |
| BELAIR ROAD SUPPLY CO             | Parts for PS2 valve assembly   | 589.62   |
| EASTERN SHORE METALS              | Spacers for valve installation PS4   | 250.00   |
| FERGUSON                          | Repair parts for broken back pulse tank fill line  | 73.95    |
| GRAINGER                          | Restocking spare parts for stations and WWTP   | 759.93   |
| GRAINGER                          | Chemical feed pump replacement and spare   | 2,448.56 |
| GRAINGER                          | Parts for caustic fill valve replacement and spares  | 45.12    |
| HACH COMPANY                      | Spare LDO probe gasket   | 11.84    |
| Hill's Electric Motor Service Inc | PS3 spare electric pump motor  | 1,241.70 |
| HITCHENS TIRE SERVICE             | Skid steer tire replacement  | 260.00   |
| HOMEDEPOT                         | Oil transfer pump for preventative maintenance   | 45.60    |
| HORNEY INDUSTRIAL ELEC            | Repair parts for SC200 controller screen   | 245.10   |
| K & Z Mechanical, Inc.            | 3-29-2022- Troubleshoot Pista Grit Vacuum Pump. Identified severe corrosion to contacts and wiring | 380.00   |



|                |  |        |
|----------------|--|--------|
| THE HOME DEPOT | Replacement return pump for digester 1 to anoxic tank      | 329.00 |
| THE HOME DEPOT | Jack-post to secure bypass pump hosing                     | 130.00 |
| THE HOME DEPOT | Replacement pump for digester return and manhole pump outs | 329.00 |
| THE HOME DEPOT | Acid to neutralize caustic in EQ tank                      | 212.28 |
| THE HOME DEPOT | Acid to neutralize caustic in EQ tank and replacement pump | 320.36 |
| USA BLUE BOOK  | Replacement of spare inventory pump controller             | 598.44 |

## Health & Safety

- As of April 30, 2022, Inframark staff have worked 558 days at the Lewes Facilities without a lost time injury.
- Inframark Training and Presentations
  - Heat Illness

## Personnel

Robert Fields, Maintenance Technician III was transferred to another facility.

| 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

- March County Flow Totals
- March DMR
- Zenon InSight Report- 5-4-22
- Zenon InSight Report- 4-20-22