Monthly Report of the Operations & Maintenance Activities

Claremont Polychemical Operable Unit 5

Groundwater Treatment System

Old Bethpage, New York

May 2020

NYSDEC Standby Engineering Contract
Work Assignment #D0076025-28

Prepared for
NYS Department of Environmental Conservation
625 Broadway
Albany, New York 12233

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

Contents

Tables

Figures

ACRONYMS AND ABBREVIATIONS

AS	Air Stripper
ASF	Air Stripper feed
BSP	Bethpage State Park (Black Golf Course)
CPC	Claremont Polychemical
CSE	Confined Space Entry
DOSR	Daily Operations Summary Report
DTB	depth to bottom
DTW	depth to water
EAR	Environmental Assessment and Remediation
EFF	effluent
EON	EON Products, Inc.
ESS	Environmental Sampling Supply
Fed Ex	Federal Express
GPD	gallons per day
GPM	gallons per minute
GW	groundwater
GWTS	groundwater extraction, treatment, and reinjection system
HCl	hydrochloric acid
HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C.
HHLA	High-High Level Alarm
HMI	Human Machine Interface
INF	influent
LOTO	Lock-out, tag-out
MW	monitoring well
NCDPW	Nassau County Department of Public Works
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance
OBL	Old Bethpage Landfill
OU4	Operable Unit 4
OU5	Operable Unit 5
PET	Peter Takach
PDB	Passive Diffusion Bags
PD	plant discharge
PFOA	Perfluorooctanoic Acid and related perfluorinated alkyl substances
PFOS	Perfluorooctanesulfonic Acid
PFF	Pressure Filter Feed
PID	photo ionization detector
PSEG	Public Service Enterprise Group, electrical power supplier
PW	process water
RAP	Remedial Action Plan
RW	Recovery well, process well
SOP	standard operating procedure
SSHP	Site Safety and Health Plan
SU	standard pH units
TA	TestAmerica Laboratory
TOB	Town of Oyster Bay
UPS	United Parcel Service
VOCs	volatile organic compounds

1 OPERATION AND MAINTENANCE ACTIVITIES

Henningson, Durham & Richardson Architecture and Engineering, P.C. (HDR) continued the daily operation and maintenance (O&M) of the Claremont Polychemical Superfund Site Groundwater Treatment System (GWTS) Operable Unit 5 (OU5) during the month of May. This report covers the operation and maintenance activities for the system during the period defined as beginning at 0730 hours, May 1, 2020 through 0730 hours, June 1, 2020. O&M conducted during this reporting period was guided by the site O&M Manual.

The GWTS – treatment plant, grounds, and well systems - were maintained for the 31 days in this reporting period during which the treatment system was shut down for 220 minutes in order to perform various maintenance tasks

Readings of the key plant process parameters are normally recorded each work day (if the plant is not occupied, the system is monitored remotely). These readings and the Human Machine Interface (HMI) flow trend lines are used to monitor the system's performance and condition. Selected readings are recorded in the daily database which is an electronic file maintained in the monthly operating documents folder.

The treatment process control and alarm systems are functional. Pressure Filter Feed (PFF) Pump 1, and Air Stripper feed (ASF) P1 are off line with mechanical issues. The recovery well pumps and the process pumps are operated in the automatic mode and are remotely controlled and monitored.

1.1 DAILY OPERATIONS SUMMARY REPORTS

The GWTS's daily operations and maintenance activities, project tasks, and observations during this period are briefly described in the Daily Operations Summary Report (DOSR). The DOSR is based in part on the treatment system's daily operating worksheets and logs which include:

Daily Operating Log – flow readings (Form-01)
Daily Process Data Sheet – point process readings (Form-30)
Daily Safety and Site Inspection – plant condition checklist (Form-02)
Daily Plant Activity Notes – plant manager's daily summary (Form-03)
Employee Sign-In Sheet – employee on-site hours (Form-15)
Log Book – plant operator's daily log book (CPC 5-7)
Daily Database – daily process readings (05 May 20 Database.xlsx)
NYSDEC Log-in Sheet – Entry/Exit Log with COVID-19 Acknowledgement

1.2 SUMMARY OF MAINTENANCE ACTIVITIES

The maintenance of the treatment system, facility, and associated equipment is performed in accordance with the site O&M Manual.

The maintenance, operation, and inspection of the plant incorporates the equipment manufacturers' recommendations, operations experience, and good engineering and maintenance practices. A detailed

accounting of the May activities is further provided in the plant operator's daily log book.

Maintenance and project activities completed during May include:

- Routine and general maintenance tasks conducted at the plant, on the grounds, and in the well fields.
- The air flow monitor was wired and powered up and attached to the blower duct. Without instructions or guides, the unit could not be programed.
- The network switch was replaced in the main control console, communication with the HMI has now stabilized.
- Treated water is now discharging into Basin-33. Inspections and measurements are occurring with greater frequency. The influent valve is now fully open, 5/22.
- The vault light for RW-4 was rewired in order to switch the vault grates.
- PDBs were pulled form 11 wells to accommodate the TOB's sampling task. The PDBs and tether reels were appropriately stowed. They were returned to the wells 5/22.
- The system was shut down and the PFF vault was pumped out, 5/14.
- The output from PFF L2 was returned to W2 relay.
- The PFF L2 thru L6 float switches were replaced and rewired above grade.
- The RW-4 overload relay was reset and the pump restarted, 5/14. The OLR heater elements will need to be replaced.
- The pressure switch load at RW-5 was adjusted and reset. The pump was restarted, 5/14.
- The OU4 site and safety inspections were completed 5/15.
- The plant heat was turned off at the OU4 facility, 5/15.
- An electric vault cover was fabricated and installed in the well field, 5/19.
- The motor-pump seals were snugged up on PFF P2 and ASF P2. The seal grease port on ASF P2 was leaking. This was cleaned out.
- The plant truck inspection was completed, 5/19.
- The RW system inspection was completed 5/20.
- The OU5 site and safety inspections were completed 5/21.
- Measurements were taken at well LF-1, (DTW, DTB, PDB deployment depth). The PDB depth was raised from -103.6 ft. to -101.6 ft.
- PM was conducted on plant lawn mower.
- A path was cleared to the B-33 valve.
- The process pump motors were lubricated.
- PM was complete on the string trimmer.
- Growth was cleared from around the paved areas.

1.3 MAINTENANCE LOGS

The following operating logbooks are currently in use and maintained at OU5:

- CL-43 Field Support Log
- CL-47 Misc. Projects Field Notebook (PET)
- CPC 5-4 Project Support Log Book (site)
- CPC 5-7 Site Supervisor's Daily Log Book (PET)

The completed log books associated with the project have been scanned, all are in storage at OU5, and are available for review.

2 TECHNICAL SUPPORT ACTIVITIES

2.1 HDR Personnel

- HDR maintained the system throughout the period.
- Technical expertise and guidance was provided from the Mahwah, Newark, and NYC offices
- Jennifer Rhee was in 5/14 to oversee various vault entries.

2.2 NYSDEC Personnel, sub-contractors and other visitors

- PSEG was in to read the meter at OU4, 5/7
- RTP was in to perform the TOB site air monitoring, 5/12
- TA-NY was in 5/14 to pick up the PW samples

2.3 Deliveries

- 5/4, UPS delivered part of a Staples order. They returned 5/7 with the remainder
- 5/14, UPS delivered part of a staples order. They delivered the remainder 5/15
- 5/20, Delta Drilling was onsite to pick up frac tank

3 HEALTH AND SAFETY

Work at the Claremont GWTS OU5 was conducted in accordance with the approved Site Safety and Health Plan (SSHP). Safety related activities during this period included:

- Daily site safety inspections were completed as part of the routine O&M activities.
- The working and common surfaces around the plant are frequently cleaned with 20% bleach solution.
- A CSE was made into the PFF wet well, 5/14. This was not permit required. LOTO procedures were followed
- A CSE was made into the RW-5 pump vault, 5/14. This was not permit required.
- NYSDEC required updating of the site H&S plan to include precautions and procedures for covering Covid-19 concerns

During this Covid-19 period of concern, access to the plant has been controlled and restricted. There were no other safety issues of note in May.

4 PLANNED ACTIVITIES AND SCHEDULES

The evaluation of the plant operating system and equipment is ongoing by HDR. A list in the form of corrective actions or maintenance tasks has been generated as is a monthly system status report. These reports are updated as needed and reviewed at least monthly. Both

are electronically filed. The corrective action list is included at the end of the text of this report as **Table 6** – Claremont Corrective Action Summary.

Upcoming tasks include:

- The quarterly recording of the monitoring well groundwater elevations, scheduled for June10
- The quarterly groundwater sampling task is scheduled for the week of June 16
- The June plant discharge samples are scheduled for a June 25 pickup.
- Replacement of the overload relay heaters at the RW-4 motor starter.

5 MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater level elevation data table was updated in March. This database is available for review. The next synoptic water level round will be scheduled for June 10, 2020, after which the table will be updated.

6 TREATMENT SYSTEM FLOWS

During May, the plant continued to operate in the auto mode. The volume of treated water discharged by the treatment plant to the selected recharge basin is determined from readings of the plant effluent flow meter output. During the May period, the HMI readings were recorded. The treatment system experienced process control problems and was shut down for a total of 220 minutes to replace pump control float switches.

The total volume of treated water discharged from 0730 hours on May 1, to 0730 hours on June 1, was approximately 31,690,043 gallons. Now that the plant discharge is directed to Basin-33, the downhill nature of the discharge creates a syphon effect which distorts the flow meter readings. The flow at the end of the month was calculated as a percentage of the influent flow, (based on recent historic readings). The data in **Table 1** shows selected monthly flows discharged from the plant.

A graphic representation of the system's daily plant discharge output is provided in **Figure 1** and the daily plant totalizer readings for May are provided in **Table 4**, both following the text of this report.

Table 1 – Flow Average and Volume Discharged

Period	Average Flow (gpm)	Average Daily volume (gal)	Total Period Flow (gal)	Min off	Min on
Q4 2016	517	745,000	68,540,000	7,309	125171
Q1 2017	520	748,244	67,342,000	655	128945
Q2 2017	576	829,130	76,280,000	6,165	126315
Q3 2017	634	913,576	84,049,000	1,110	131370
Q4 2017	256	368,762	33,926,110	69,165	63315

Q1 2018	53	75,989	6,839,000	118,180	11420
Q2 2018	179	258,284	23,762,103	102,929	29551
Q3 2018	504	725,280	66,725,717	57,416	75064
Q4 2018	726	1,045,065	96,145,984	23,734	108746
Q1 2019	527	758,467	68,262,000	735	128865
Q2 2019	662	953,877	87,756,724	405	132075
Q3 2019	685	985,802	90,693,740	108	132372
Q4 2019	655	943,871	82,116,780	5039	129326
Q1 2020	480	682,527	62,110,000	1824	129,326
April2020	703	1,006,567	30,198,000	285	42941
May2020	714	1,022,518	31,690,043	220	44414

Under current conditions, the Programmable Logic Controller (PLC) and the control system are stable and fully functional. Flows from the individual recovery wells are remotely read, transmitted, and totalized.

During the May reporting period, the treated water was initially discharged directly to Recharge Basin No. 1 on the landfill property. As the Bethpage State Park's watering needs increased, the discharge was transitioned to Basin 33 on Winding Road.

The flow summary for the processes can be found in **Table 5** at the end of this report.

7 CHEMICAL CONSUMPTION

The hydrochloric acid feed system is currently off line and the system is empty of acid. There are four drums of virgin acid on site. No acid was consumed in May.

The sodium hydroxide storage system is currently not in use and the system is empty of caustic. There is no bulk sodium hydroxide on site and no caustic was consumed in May.

The sodium hypochlorite storage system is currently not in use and the system is empty of bleach. No bulk sodium hypochlorite is stored on site. No sodium hypochlorite was consumed in May.

8 WASTE DISPOSAL

The routine collection of waste materials continued. This month, toner cartridges, test gas cylinders, spent batteries, paint and electronic waste were dropped off at the TOB site.

9 MONTHLY DISCHARGE MONITORING REPORT

The GWTS is operated under an equivalency permit from the NYSDEC. The analytical results

for the May plant discharge samples indicated all analyzed parameters were compliant with permit limits. These results can be seen in **Table 7** following the text of this report.

The plant's water discharge permit is in the process of being renewed by the NYSDEC.

10 PENDING ISSUES AND CONSIDERATIONS

Pump 1 of the Plant Discharge system is failing and was taken out of service. An evaluation needs to be made.

Pump 1 of the Air Stripper Feed system has begun to emit a louder pitched whine. It was taken off line until it can be evaluated. It is available for service.

The disposition of the fire sprinkler system, fire alarm, and central monitoring systems at OU4 are awaiting the decision of the NYSDEC.

The backflow preventer device on the 6" water line into OU4 failed its December inspection. The repair proposal was received in March. The disposition of this repair has yet to be determined.

The repairs to the OU5 fire alarm open loop are to be approved by NYSDEC and scheduled.

The plant lights are kept on overnight because the plant lighting and emergency lighting are wired to the same circuit breaker (sole switch).

The OU4 plant is offline and its disposition including that of the injection well system, and vapor carbon beds is pending.

The plant exhaust system is controlled by the methane monitoring system and needs to be separated.

The status of key aspects of OU4 are as follows:

- The plant heat is now off
- The fire alarm panels are off-line and there is no central monitoring
- The facility is secure and physical monitoring continues
- The facility and grounds are not maintained

11 PLANT DOCUMENTS

Procedures and standard forms are written, reviewed, and revised as needed. As-built drawings are generated and updated as necessary. These May activities included:

- GP-08, Procedure for normal system operations was generated
- Form-28, OU4 inspections, was revised
- Form-12, GW field notes was revised
- Form-11, GW elevations was revised
- Form-04, Plant air monitoring was revised

- Dwg-30, Basin -33 level gage was updated

12 MONITORING RESULTS

The Claremont Polychemical GWTS is monitored through the analysis of off-site laboratory analytical data and on-site field data.

12.1 Off-site Analytical Data Results

Monthly PD samples are taken for organic analysis in compliance with the NYSDEC discharge permit. Quarterly groundwater (GW) samples are taken for organic analysis, and quarterly process water (PW) samples are taken for organic, inorganic, and generic analysis. The May sampling activities were:

- The GW data was processed and submitted, 5/6
- The PFOA data was processed and submitted, 5/6
- The PW field samples were collected and processed 5/13
- The PW cyanide sample bottles were prepared and the plant PW samples were collected and processed, 5/13. The samples were packed and shipped, 5/14
- The PW analytical data was processed

12.2 Field Data

Plant Discharge pH and Temperature

The treatment plant effluent is monitored for pH and temperature on a weekly basis in order to obtain a monthly average in compliance with the NYSDEC discharge permit requirements. These readings are taken from the plant effluent at a controlled point with a calibrated portable meter. The plant discharge readings for May can be found below in **Table 2**.

Table 2 – Effluent pH and Temperature Readings

Date	pH (su)	Temp °F
5/5	6.6	56
5/11	7.1	56
5/18	6.6	58
5/26	6.9	60
May Average	**6.8 su**	**58°F**

The NYSDEC discharge permit requires the plant discharge to have an average monthly pH between 6.5 and 8.5 standard units (su). The results for this month meet this requirement. Data showing the plant discharge's monthly average pH trend over several months is provided in **Table 8** following the text of this report.

AS Tower Air Monitoring

Using a calibrated PID meter, weekly air monitoring readings are taken from the effluent air stream of the AS Tower through Port B when the treatment system is online. The May readings from the AS tower are provided in **Table 3**.

Table 3 – AS Tower Air Monitoring Readings

Date	Port B
5/5	0
5/11	0
5/19	0
5/26	0

There were no emissions from the Air Stripping System observed this month. No emissions have been detected since HDR began operation of the plant in October of 2016.

Other routine data collected in May were:

- The electric and water meter readings were recorded weekly.
- The plant sound levels were recorded bi-weekly.
- The electric and gas meter readings for OU4 were recorded monthly.
- The water levels in Sumps 3 and 4 were monitored.
- The recharge basins were inspected and the water levels noted.
- The differential pressure readings across the AS Tower were recorded bi-weekly.

13 PROCESS ANALYSIS and SYSTEM STATUS

The treatment system is currently operated 24/7 in the automatic mode.

13.1 Extraction (RW) Processes

- The motor controls and systems were inspected
- The pump system is remotely controlled and monitored, it operates in the Auto mode. All the pumps are now fully functional with pumps RW-3, RW-4, and RW-5 on line.
- Pump flow readouts are transmitted to the plant and the totalizers for 3, 4, and 5 are fully functional.
- The A/V valve at station 16+57 remains isolated from the transmission line.
- The A/V valve at station 17+10 remains isolated from the transmission line.
- RW-1 and RW-2 are off line and periodically run for PM purposes. Their flow meters are not transmitting.
- The vault heaters are on and panel heaters are active.

13.2 Air Stripping (AS) Process

- AS feed pump 1 was taken off-line as a precaution. The pump is available for service but it needs to be evaluated.
- Pumps 2 and 3 are fully functional. The pumps are operated in the auto mode off the wet well level switches. The system has been coded to force the periodic shut off of the lead pump.
- The shaft seals were snugged up. Motors and seals were greased.
- The AS tower main drain valve is not functional (fail open).
- The tower media appears clean as the pressure differential between the top and bottom ports remains relatively constant. The lower section of media has been visually inspected. Analysis of the sampling data indicates that iron is being removed from the system.
- The discharge valve for ASF P1 appears to be frozen in the open position.

13.3 Plant Discharge (PD) Process

- Pump 1 has been taken out of service due to excessive noise and vibration. A full evaluation is required.
- The wet well float switches were replaced and the control system is fully functional.
- The system operating code was revised to allow for smoother sequencing of the pumps.
- The shaft seals were tightened and greased. The motors were greased.
- The plant discharge is now mainly directed to Recharge Basin No. 33.
- The discharge valve for PFF P2 appears to be failing in the open position. The valve for Pump 3 has failed open.

13.4 Other

- The communication to the HMI was restored with the replacement of the control console's network switch.
- The plant's first light bank is wired to the e-light recharging system, therefore the circuit must be kept on.
- A leak has developed in the water supply line running through the plant. A temporary patch was installed. The water service was restored at a lower pressure.
- The fire alarm's plant loop has an open sensor and is awaiting repairs.

14 GROUNDS

14.1 Plant Perimeter

- General outdoor clean-up tasks are on-going.
- The back lot was cleaned up.
- The Frac tank was removed.
- The outdoor light timer is not operating. Nine of the outdoor building lights are currently out. These conditions should not impact safety or security.
- The Town of Oyster Bay (TOB) continues to maintain the grounds along the plant perimeter.

14.2 Well Field

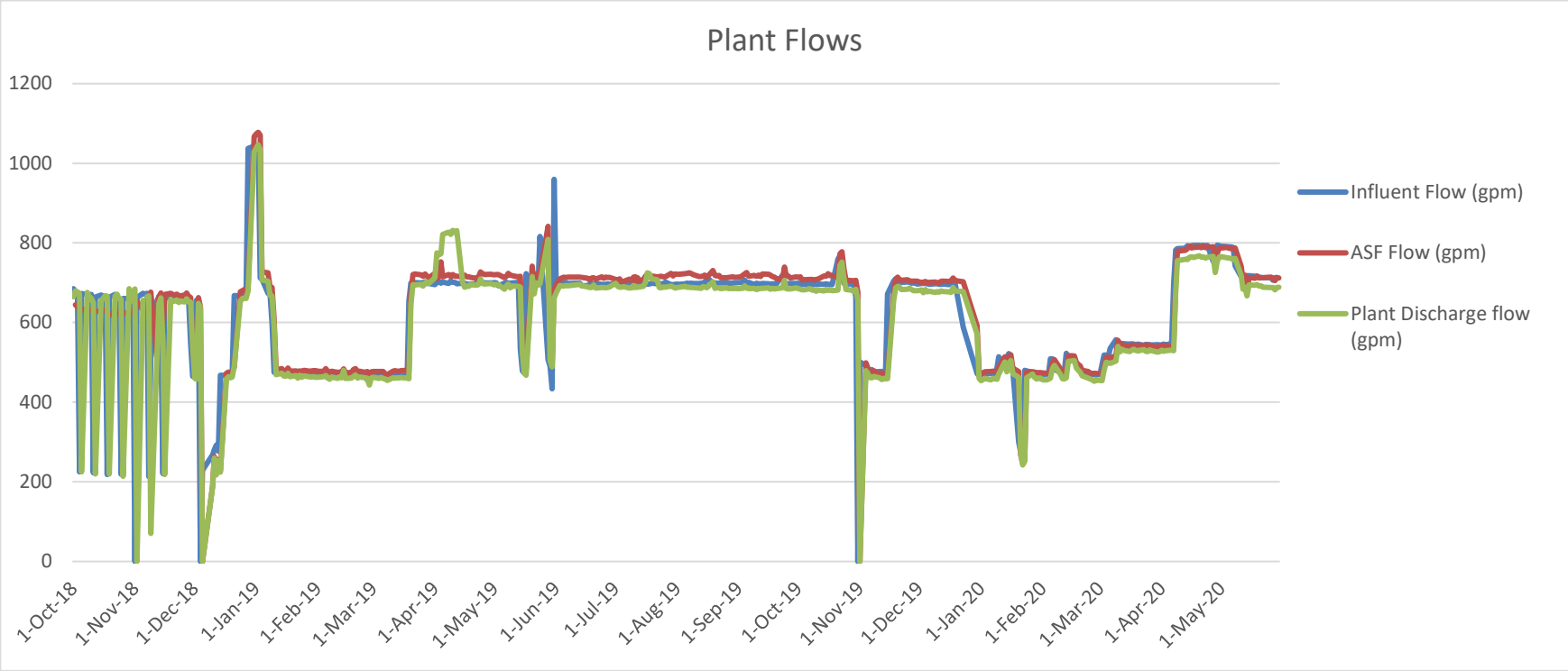
- Clean up of vegetative growth around the wells continues
- The cover of an electric vault in the SUNY wellfield had collapsed. The cover was replaced.
- Well, well field, and basin inspections continue.
- The well access paths are relatively clear, downed trees and overgrowth are removed as necessary.

14.3 Other

- The grounds continue to be inspected but not maintained at OU4.
- The Claremont site is relatively secure. There is currently no tenant on the property.

FIGURES

Figure 1 – Plant Discharge Daily Flow



TABLES

Table 4 – Plant Daily Totalizer Readings

May 2020 Flows	Plant Influent		Plant Discharge	
Date	Volume	Avg. Flow	Volume	Avg. Flow
1-May-20	3417000	791	3297000	763
4-May-20	1137000	790	1095000	760
5-May-20	1140000	792	1099000	763
6-May-20	1147000	797	1105000	767
7-May-20	1123000	780	1078000	749
8-May-20	3418000	791	3297000	763
11-May-20	1068000	742	1032000	717
12-May-20	1036000	719	991000	688
13-May-20	984000	683	942000	654
14-May-20	876000	608	854000	593
15-May-20	3114000	721	3015000	698
18-May-20	1018000	707	984000	683
19-May-20	1032000	717	1002000	696
20-May-20	1038000	721	1003000	697
21-May-20	1036000	719	1004652	698
22-May-20	4101000	712	3960336	688
26-May-20	1019000	708	984048	683
27-May-20	1019000	708	984048.3	683
28-May-20	972000	675	938660.4	652
29-May-20	1043000	724	1007225	699
30-May-20	2097000	728	2025073	703
May Total Plant **Influent** (Gal)			32,835,000	
May Total Plant **Effluent** (Gal)			31,698,043	

Table 5 – Pump System Flow Readings

March	On-Time Minutes (actual)	Avg. Flow (gpm)	Avg. Flow (gpd) (over 31 days)	Total Flow (gal)
RW-1	8	224	-	1792
RW-2	25	243	-	6075
RW-3	44400	253	362,419	11,235,000
RW-4	44311	270	386,387	11,978,000
RW-5	44186	206	294,226	9,121,000
Plant Influent	44414	739	1,059,194	32,835,000
Plant Effluent	44414	714	1,022,518	31,690,043

The treatment process was online 31 days in May. Flows are taken from the HMI meter readings. There was 220 minutes of downtime.

Table 6 – Claremont Corrective Actions Summary

Conditions of note and corrective actions planned 6/2/2020

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
Plant heaters UH-1 and UH-2 are not working	UH-2 - needs a timer relay and wiring repairs at the unit. UH-1 – needs a transformer. It should be noted that the heating system AH-2 is adequate to heat the process area. ***No further action is planned at this time***	Electrical and/ or plant personnel	Not needed at this time. Repairs can be made with treatment system on line.	Task may require working off ladders or elevated surface.
The RW Discharge Manifold integrity is suspect	The condition of the various devices in the RW manifold vaults are suspect. The Air Vent valve in the vault on the N-side of the 6th fairway is leaking from the influent nipple. **The shut-off valve was closed and the device isolated** The air-vent valve in the vault to the east of the 6th green is leaking. **The shut-off valve was closed and the device isolated.**	Plant staff and outside contractors	Possible shutdown	May require a CSE
NaOH Vault sump pump not actuating	System needs to be inspected A portable submersible well pump was set up in the vault sump for manual operation ***No further action is planned at this time***	Plant staff Electrical support	None at this time	Oversight needed
AS Tower main drain valve does not close	Tests on the valve indicate that it does not close. This is not a problem until the tower media needs to be acid washed **This valve should be replaced.**	operator	Plant will need to be shut down to change out the valve	None at this time

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
The piping configuration for the RW pump pressure switches, pressure gages and sample ports are corroding and unwieldy and subject to catastrophic failure	The systems at RW-5 and RW-3 have failed. While piping components have been replaced, the design has not been changed. The top-heavy configuration needs a re-design and re-build or eliminated. **Need to confirm if the pressure switches are required for the safety of the pumps And if they can be eliminated or redesigned.**	Plant operator and spotter	Each well system will be shut down during the upgrade	Confined space entries will be required. These will generally not be permit required.
RW-2 flow sensor output is no longer displaying	The flow element mechanical output is spinning and therefore is functional. The HS sending unit needs to be checked as well as the 12 volt power supply and wiring. **No further action at this time as RW-2 remains offline with the exception of system checks.**	Electrical techs	None anticipated. The system is isolated and off line	Confined space entries may be necessary
Lack of central monitoring of the OU4 fire sprinkler system	New Nassau County Fire Code indicates that the system have a central monitoring and flow monitoring system installed. The fire alarm panels are non-functional and are off line. **The fire alarm system needs to be replaced.** **A central station monitoring system needs to be installed.**	Plant operator, EE and outside vender	None at this time	None at this time
The pump isolation valve at RW-5 does not fully function	The valve does not fully close and it should be removed and cleaned or replaced **No further action is planned at this time.**	Plant operator and spotter	Replacement of valve will require shutting down the manifold	Confined space work

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
Fire safety Code violations at OU5	The inspection revealed several items that needed to be resolved. Currently, **A defective smoke detector is to be replaced and the existing system tested. All the other violations have been addressed.**	Plant operator, TOB personnel	Disposition of TOB materials	Moving materials from mezzanine level
The power to the plant lights and the emergency light charging system are on the same electrical switch	Normally when the plant lights are shut off at night, it inadvertently activates the emergency light system and shuts off the battery charging system. This action may have damaged the charging system. **The plant lights are left on overnight.**	Plant operator. EE, outside contactors	In code violation	Possible emergency evacuation impact
The activation of the HVAC room and plant exhaust fans are connected to the methane monitoring system and not independently operated	It has not been determined how to manually start the exhaust fans without putting the facility into a methane alarm ***When available, EE will look into this.***	Plant operator, EE	None	Possible problem with excessive heat of fume conditions
A leak has developed at the Victaulic fitting on the PFF vent line	The Victaulic nipple to PVC connector is corroded and starting to leak. Flow is minimal. The replacement part has been received **This work will be scheduled**	Plant operator	Shut down will be required	Ladder work
The loss of power 11/1/19 appears to have affected the outdoor lighting timer	Unit receives power but appears to not function. It is a 270 volt unit ***The unit should be replaced.***	Plant operator	none	Electrical work

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
Several leaks were observed in the plant overhead water supply line.	Adjacent to the north door, a leak was observed. The covering and insulation were removed and a clam-shell type clamp was applied. The second leak observed above the AS Blower needs to be addressed. In addition, there appears to be a problem with the supply shut off valve. **This work will require evaluation**	Outside plumbing contractor?	None at this time	Sanitary water may be shut off during repairs
the PFF pumps started short cycling	The control relays started chattering and the system was not properly controlling the pumping operation. It was determined that the float switches need to be replaced The L-1 float switch was replaced and the short cycling has stopped. There are plans to replace the remaining 5 switches. The problem re-manifested itself 4/28). The L2 switch has now faulted. **The remaining float switches were replaced 5/14. The pump short cycling and relay chatter has stopped**.	Plant operator and HDR resources	Plant shut down is required	Confined space entry work
PFF P1 has started making a lot of noise	The pump when activated immediately makes a lot of noise, and the pump drop tube shakes. Smoke/ fumes emanated at the Motor-shaft connection. The motor appears to be good. The pump was removed from service, 2/24 **It is recommended that the motor be disconnected, lifted, and the mechanical connection be checked.**	Outside contractors	Not at this time	To be determined

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
ASF P1 has started to emit a high pitched whine	The pump was taken out of service as a precautionary measure as its operating hum grew louder. **The system will need to be checked**	Plant operator and outside resources	Not at this time	To be determined
ASF P1 and PFF P3 discharge valves have failed Open	The valves are stuck in the open position. This does not affect the day to day operation but may have an impact on future PM tasks. **No further action at this time**	Plant operators	A shut down will be required to replace the valves	To be determined
Upon the ASF pumps cycling off, the check valves have started to slam closed. This has a tendency to rattle the piping and fixtures	**There is no available literature regarding the check valves so the exact description of their functioning parts is to be determined** **This will need further investigation**	**Plant operator**	**If replacement or repairs are necessary, a plant shutdown will be required as the units can- not be isolated**	**To be determined**
Upon the ASF pumps cycling on, the engagement of the starter contact is getting rather violent. This has a tendency to rattle the piping and plant fixtures	**A softer start/stop control may fix this issue. I may also help the above issue.** **The fix may require EE to get involved**	**Plant operator and EE support**	**To be determined**	**To be determined**

Other Plant Conditions of Note (no action required at this time)

- The methane detection system is offline. **To function, it will need a technical inspection and technical maintenance**.
- Air stripper air flow meter is not functional. **It will need to be powered up to determine if it is functional.**
- The RW-1 flow sensor is not functional. **The unit is not in service and no further action is planned at this time**.
- The AH-1 HVAC system is not functioning. **No further action is planned at this time.**
- The RW-2 flow sensor is not functional. **No further action is planned at this time.**
- It has been determined that intrinsically safe components are no longer required in the plant.

Table 7 – Recent Plant Discharge Analytical Results

The plant discharge was last sampled 5-18-2020-. The analytical results are for these samples are shown below.

Parameters	Discharge Limitation (SPDES)	Units	Results: Effluent	ASF	RW-3	RW-4	RW-5
pH (range)	6.5 – 8.5	SU	6.8	NM	NM	NM	NM
1,1,1-Trichloroethane	5	ug/l	U	U	U	0.85	1.1
1,1-Dichloroethane	5	ug/l	U	U	U	1.5	0.37
1,1-Dichloroethylene	5	ug/l	U	1.3	U	U	2.5
1,2- Dichloroethane	0.6	ug/l	U	U	U	U	U
Benzene	0.7	ug/l	U	U	U	U	U
Chlorobenzene	5	ug/l	U	0.44	0.54	0.54	U
Chloroform	7	ug/l	U	U	U	0.4	U
CIS 1,2-Dichloroethylene	5	ug/l	U	3.3	1.8	6.5	1.5
Ethylbenzene	5	ug/l	U	U	U	U	U
Methylene Chloride	5	ug/l	U	U	U	U	U
Tert-butyl alcohol (TBA)	NL	ug/l	U	U	U	U	U
Tert-Butyl-Methyl ether (MTBA)	5	ug/l	U	0.47	0.92	U	U
Tetrachloroethylene(PCE)	5	ug/l	U	10	4.2	19	6.5
Toluene	5	ug/l	U	U	U	U	U
Trans 1,2-Dichloroethylene	5	ug/l	U	U	U	U	U
Trichloroethylene(TCE)	5	ug/l	U	77	21	170	34
Bis(2-ethylhexyl)phthalate	5	ug/l	U	U	U	U	U
Di-n-butyl phthalate	50	ug/l	U	U	U	U	U
Nitro Benzene	0.4	ug/l	U	U	U	U	U
Antimony, Total recoverable	3	ug/l	U	U	U	U	U
Arsenic, Total recoverable	50	ug/l	U	U	U	U	U
Barium, Total recoverable	2000	ug/l	83.8	90.3	59.2	77.7	129
Chromium, Hexavalent	100	ug/l	U	U	U	U	U
Lead, Total recoverable	50	ug/l	U	2.7	4.0	U	U
Iron, Total recoverable	600	ug/l	U	U	285	U	U
Manganese, Total recoverable	600	ug/l	148	159	218	67	185
Mercury	NL	ug/l	U	0.14	0.17	U	0.29
Zinc	NL	mg/l	U	U	U	U	U
Nitrogen, Total (as N)	10	mg/l	7.3	NM	NM	NM	NM
Selenium, Total recoverable	40	ug/l	U	U	U	U	U
Solids, Total Dissolved	1000	mg/l	278	NM	NM	NM	NM
Chloride Ion	NL	mg/l	U	NM	NM	NM	NM
Cyanide	NL	ug/l	U	NM	NM	NM	NM
Fluoride Ion	NL	mg/l	0.08	NM	NM	NM	NM
Sulfate Ion	NL	mg/l	19.3	NM	NM	NM	NM
1, 4-Dioxane	NL	ug/l	NM	NM	NM	NM	NM

NM– Not sampled **J** – Estimated value **U** – Analyzed but not detected **NL** – Monitor only

Discharge limitations updates as per the water discharge permit.
Not monitored but of interest: 1, 4-Dioxane – ug/L.

Table 8 – Plant Discharge Monthly Average pH

Month	pH(su)
May ‘18	7.05
June ‘18	6.5
July ‘18	6.95
Aug ‘18	6.85
Sept ‘18	6.74
Oct ‘18	7.2
Nov ‘18	7.3
Dec ‘18	6.82
Jan ‘19	7.1
Feb ‘19	7.05
Mar ‘19	6.68
Apr ‘19	6.54
May ‘19	6.61
June ‘19	6.5
July ‘19	6.6
Aug ‘19	6.56
Sept ‘19	7.45
Oct ‘19	6.86
Nov ‘19	6.88
Dec ‘19	6.84
Jan ‘20	6.63
Feb ‘20	6.75
Mar’20	6.74
Apr ‘20	6.65
May ‘20	6.8