Monthly Report of the Operations & Maintenance Activities

Claremont Polychemical Operable Unit 5

Groundwater Treatment System

Old Bethpage, New York

February, 2021

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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.
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
NOV	Notice of Violation
NCDPW	Nassau County Department of Public Works
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance
OBL	Old Bethpage Landfill
OFP&C	NYS Office of Fire Prevention & Control
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
PM	preventive maintenance
PSEG	Public Service Enterprise Group, electrical power supplier
PW	process water
RAP	Remedial Action Plan
RW	Recovery well, process well
SOP	standard operating procedure
SMP	Site Management Plan
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
VPB	vertical profile borings

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 February. This report covers the operation and maintenance activities for the system during the period defined as beginning at ~0830 hours, February 1, 2021 through ~0830 hours, March 1, 2021. 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 28 days in this reporting period during which the treatment system operated without downtime.

Readings of the key plant process parameters are normally recorded each workday. 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. Pump 1 of the Pressure Filter Feed (PFF) system, is offline with mechanical issues. The recovery well pumps, the process pumps, and the air stripper blower 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 and calculations (Form-01)
Daily Site and Safety Inspection – plant condition checklist (Form-02)
Daily Plant Activity Notes – plant manager's daily summary (Form-03)
HDR Sign-In Sheet – HDR employee on-site hours (Form-15)
Daily Process Data Sheet – point process readings (Form-30)
Logbook CPC 5-7– plant operator's daily logbook
Daily Database – daily process readings (02 February 21 Database.xlsx)
NYSDEC Log-in Sheet – Entry/Exit Log with COVID-19 Acknowledgement

1.2 SUMMARY OF MAINTENANCE ACTIVITIES

The operation and maintenance of the treatment system, facility, and associated equipment is performed in accordance with the site O&M Manual. These tasks and inspections incorporate the equipment manufacturers' recommendations, operations experience, and good engineering and maintenance practices. A detailed accounting of the February activities is further provided in the plant operator's daily logbook.

Maintenance and project activities undertaken during the February period included:

- Routine and general maintenance tasks were conducted at the plant, on the grounds, and in the well fields.
- Snow removal tasks were completed at both facilities as necessary.
- One of the snow shovels was repaired.
- Pump packing materials were inventoried, and modifications made to the packing rings.
- Process pump preventative maintenance (lubrication, seal tightening) was conducted.
- The Recovery Well System was inspected.
- The recharge basin water levels were observed and recorded throughout the month.
- The motor to pump seal at PFF P2 was repacked and the gland bolts replaced.
- Preventative maintenance was conducted on the portable generator.
- The OU4 comprehensive site and safety inspections were conducted.
- The monthly fire alarm system inspection was conducted.
- The monthly truck inspection was conducted.
- The equipment function tests were conducted.
- The OU5 comprehensive site and safety inspections were completed.
- The snowplow was removed from the truck.
- The caliper was removed from the plant truck's left front wheel. The system was inspected and tested.
- The backyard area was cleaned up and all egress was cleared.

1.3 MAINTENANCE LOGS

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

- CL-18 OU-4 Log (truck)
- CL-43 General Field Support Log (truck)
- CL-47 Misc. Projects Field Notebook (PET)
- CPC 5-4 Project Support Logbook (site)
- CPC 5-7 Site Supervisor's Daily Logbook (PET)

The completed logbooks 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 were provided from the Mahwah, Newark, and NYC offices.

2.2 NYSDEC Personnel, sub-contractors, and other visitors

- 2/19, TA-NY picked up the PW samples

2.3 Deliveries

- 2/3, TA-NY dropped off the sample bottle order
- 2/18, UPS delivered the EON order.

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.
- During this Covid-19 period of concern, access to the plant has been controlled and restricted.
- The working and common surfaces around the plant are frequently cleaned with 20% bleach solution.

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 collection of the monthly PD samples is scheduled for the week of 3/8 with shipment on 3/11.
- The collection of the quarterly GW samples is scheduled for the week of 3/22 with the sample shipment on 3/25.
- The synoptic recording of the well water elevations is scheduled for the week of 3/15.
- The fire alarm communicator panel and central alarm monitoring was installed and set up by March 5.

5 MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater elevation data table was updated after December's quarterly GW elevation recording task. This database is available for review. The next synoptic water level round is tentatively scheduled for March 17, after which the table will be updated.

6 TREATMENT SYSTEM FLOWS

During the February period, the plant continued to operate in the auto mode. The volume of treated water discharged by the treatment system to the selected recharge basin was calculated from the plant effluent flow meter readings. These readings are taken at the HMI and recorded in the daily database. The treatment system experienced no downtime during this period.

The total volume of treated water discharged from ~0830 hours, February 1 to ~0830 hours March 1, was approximately 27,776,000 gallons. The plant discharge is now directed to Recharge Basin No. 1. 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 February 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	125,171
Q1 2017	520	748,244	67,342,000	655	128,945
Q2 2017	576	829,130	76,280,000	6,165	126,315
Q3 2017	634	913,576	84,049,000	1,110	131,370
Q4 2017	256	368,762	33,926,110	69,165	63,315
Q1 2018	53	75,989	6,839,000	118,180	11,420
Q2 2018	179	258,284	23,762,103	102,929	29,551
Q3 2018	504	725,280	66,725,717	57,416	75,064
Q4 2018	726	1,045,065	96,145,984	23,734	108,746
Q1 2019	527	758,467	68,262,000	735	128,865
Q2 2019	662	953,877	87,756,724	405	132,075
Q3 2019	685	985,802	90,693,740	108	132,372
Q4 2019	655	943,871	82,116,780	5039	129,326
Q1 2020	480	682,527	62,110,000	1824	129,326
Q2 2020	698	996,998	88,732,846	3838	127,185
Q3 2020	669	955,928	87,945,333	1099	131,401
Q4 2020	695	1,001,365	92,125,539	52	132,497
Jan 2021	705	1,015,677	31,486,000	0	44645
Feb 2021	689	992,000	27,776,000	0	40339

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 February reporting period, the treated water discharged was redirected to Recharge Basin No. 1 on the landfill property.

The flow summary for the individual components of the system 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 February.

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 February.

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 February.

8 WASTE DISPOSAL

The routine collection of waste materials continued. No waste was disposed of in February.

9 MONTHLY DISCHARGE MONITORING REPORT

The GWTS is operated under an equivalency permit from the NYSDEC. The analytical results for the February plant discharge samples indicate that all analyzed parameters were compliant with permit limits (**Table 7**).

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

10 PENDING ISSUES AND CONSIDERATIONS

A damaged tree adjacent to the path to the MW-6 well cluster could pose a threat and will continue to be monitored.

The well path to the BP-3 cluster following rain events still poses issues for vehicle transport. Additional work may be needed by Bethpage State Park in the spring.

The recovery well pump pressure switch assemblies need to be reconfigured to prevent a possible design related catastrophic failure.

Plant Discharge Pump 1 failed and was taken out of service. An evaluation needs to be made to determine the problem and to bring it back online.

The central monitoring system for the OU5 fire alarm is to be installed. HDR has scheduled the task for the first week of March.

The controls for the OU4 fire sprinkler system, fire alarm, and central monitoring systems are to be replaced. HDR is going forward.

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

The status of key aspects of OU4 are as follows:

- The plant heat is currently on
- The fire alarm panels are off-line
- The fire sprinkler system is online. It is frequently checked but not monitored.
- The facility is secure and physical monitoring continues
- The facility and grounds are not maintained
- There appears to be periodic activity at the Claremont Polychemical site

11 PLANT DOCUMENTS

Procedures and standard forms are written, reviewed, and revised as needed. As-built drawings are generated and updated as necessary. This activity in February included:

- The PW sampling documentation was revised after the labeling app was updated
- Form-37, fire alarm system inspection 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 February sampling activities included:

- Process Water field samples were collected 2/16 and processed. The pH readings of the point sources were recorded in the field notes.
- The plant Influent PW samples were collected and processed. The point source pH level was recorded, 2/16.

- The plant discharge effluent PW samples were collected, 2/16, and processed. The pH of the discharge was recorded.
- The plant discharge chrome samples were collected and processed, 2/19. All the PW samples were packed and shipped 2/19.

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 February can be found below in **Table 2**.

Table 2 – Effluent pH and Temperature Readings

Date	pH (su)	Temp °F
2/2	7.0	55
2/9	6.6	55
2/15	6.6	54
2/22	6.8	55
February's Average	**6.75 su**	**55°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 VOC air monitoring readings are taken from the effluent air stream of the AS Tower through Port B when the treatment system is online. The February readings from the AS tower are provided in **Table 3**.

Table 3 – AS Tower Air Monitoring Readings

Date	Port B
2/2	0
2/9	0
2/15	0
2/22	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 February included:

- The electric and water meter readings at OU5 were recorded weekly.
- The plant vaults and selected areas were monitored for VOCs weekly.
- The plant sound levels were recorded bi-weekly.
- The electric and gas meter readings for OU4 were recorded monthly.
- 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 overload relay at RW-1 was reset, it tripped again after routine testing.
- The vault heat units remain active.
- The recovery well pump system is remotely controlled and monitored, it operates in the Auto mode. All the pumps are fully functional with pumps RW-3, RW-4, and RW-5 online.
- Pump flow readouts are transmitted to the plant and the totalizers for pumps in RW-3 and RW-4 are fully functional. The transmitter for RW-5 has failed on occasion.
- 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 offline and periodically run for PM purposes. Their flow meters are not transmitting.

13.2 Air Stripping (AS) Process

- The three pumps are fully functional. The pumps are operated in the auto mode off the wet well level switches.
- Motors and seals were lubricated.
- The AS tower main drain valve's manual actuator 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.
- 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 motors and seals were lubricated.
- More seal packing was added to the pump 2 seal. The gland bolts were replaced.

- The plant discharge is currently directed to Recharge Basin No.1.
- 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 plant's first light bank is wired to the e-light recharging system. The circuit is kept on 24/7.
- There are leaks in the water supply line running through the plant. A temporary patch was installed on one leak. The water service was restored at a lower pressure. The shut off valve may be defective.
- The fire alarm smoke detector system is fully functional. The system was tested following replacement.

14 GROUNDS

14.1 Plant Perimeter

- General outdoor clean-up tasks are on-going.
- Snow is removed as necessary.
- The Town of Oyster Bay (TOB) continues to maintain the grounds along the plant perimeter. They continue to plow the driveway and apron.
- The plow was installed on the plant truck and the plant apron was plowed.

14.2 Well Field

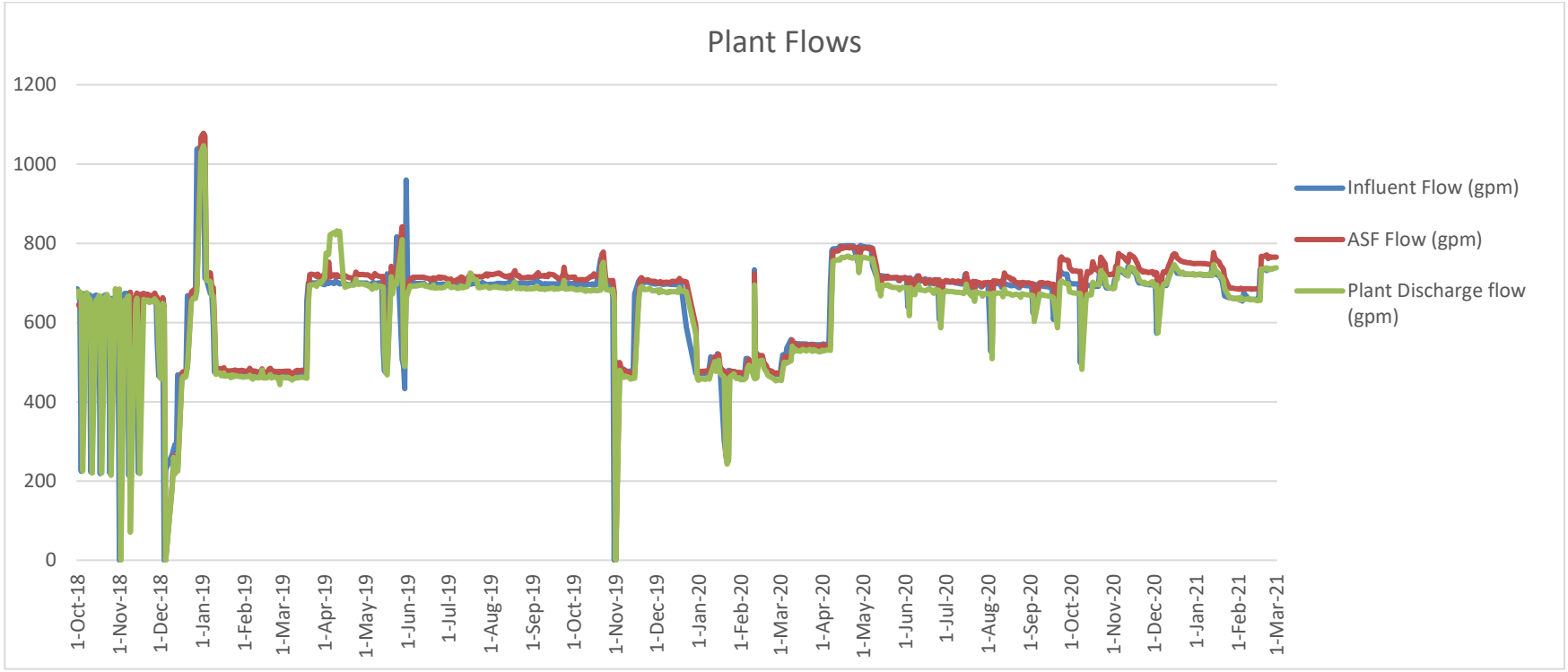
- Well, well field, and recharge basin inspections continue.
- The well access paths are relatively clear of downed trees. Overgrowth is removed as possible when necessary.
- The well field and well paths have been covered with a significant amount of snow. The GW sampling tasks were postponed a week to allow for snow melting and ground firming.

14.3 Other

- The grounds at OU4 continue to be inspected but not maintained.
- 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

February 2021 flows	Plant Influent		Plant Discharge		RW Discharge	
Date	Volume	Avg. Flow	Volume	Avg. Flow	Volume	Avg. Flow
1-Feb-21	959000	666	961000	667	977000	678
2-Feb-21	957000	665	952000	661	978000	679
3-Feb-21	945000	656	950000	660	967000	672
4-Feb-21	947000	658	944000	656	970000	674
5-Feb-21	2826000	654	2846000	659	2908953	673
8-Feb-21	972000	675	949000	659	972000	675
9-Feb-21	962000	668	961000	667	985000	684
10-Feb-21	947000	658	945000	656	972000	675
11-Feb-21	947000	658	946000	657	964440	670
12-Feb-21	2842000	658	2841000	658	2916000	675
15-Feb-21	953000	662	948000	658	976000	678
16-Feb-21	943000	655	943000	655	967000	672
17-Feb-21	952000	661	948000	658	975000	677
18-Feb-21	1063000	738	1065000	740	1089247	756
19-Feb-21	3144000	728	3147000	728	3219000	745
22-Feb-21	1083000	752	1084000	753	1104000	767
23-Feb-21	1047000	727	1049000	728	1076000	747
24-Feb-21	1058000	735	1060000	736	1083000	752
25-Feb-21	1060000	736	1059000	735	1080000	750
26-Feb-21	3176000	735	3178000	736	3244000	751
February Total Plant **Influent** (Gal)				27,783,000		
February Total Plant **Effluent** (Gal)				27,776,000		
February Total **RW Discharge** (Gal)				28,423,640		

Table 5 – Pump System Flow Readings

February	On-Time Minutes (actual)	Avg. Flow (gpm)	Avg. Flow (gpd) (over 28 days)	Total Flow (gal)
RW-1	11	213	-	2,343
RW-2	12	242	-	2,904
RW-3	40,339	223	321,250	8,995,000
RW-4	40,339	275	396,821	11,111,000
RW-5	40,339	206	296,871	8,312,393
Plant Influent	40,339	689	992,250	27,783,000
Plant Effluent	40,339	689	992,000	27,776,000

The treatment process was online 28 days in February with no downtime. Flows are taken from the HMI meter readings.

The signal from the RW-5 flow transmitter was lost for 207 minutes

Table 6 – Claremont Corrective Actions Summary

Conditions of note and corrective actions planned (updated 2/25/21)

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 online.	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.** ***A full inspection of the manifold piping and devices should be made.***	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

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
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
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. ***The 'As-built' drawings indicate valves throughout the discharge manifold. Each pump has an isolation valve on the discharge side. If any of these valves were to be left closed, then the PS would be a good safety device. The PS assembly should be changed.***	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 RW-1 flow sensor does not function.	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. ***This work should be scheduled as needed.***	Electrical techs	None anticipated. The system is isolated and offline	Confined space entries may be necessary

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
Lack of central monitoring of the OU4 fire sprinkler system. The fire alarm panel is not functioning	The Nassau County Fire Code indicates that the system must have central monitoring and flow and valve tampering The fire alarm system needs to be replaced **Several contractors have been at the site to propose options for the system** ***The fire alarm system is to be replaced*** ***A central station monitoring system is 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
Fire safety Code violations at OU5	The inspection revealed several items that needed to be resolved. Currently, ***The smoke detectors have been replaced, the alarm wiring has been checked and the system tested.*** ***A central monitoring system is to be installed*** ***All the other violations have been addressed*.**	Plant operator, TOB personnel	Disposition of TOB materials	Moving materials from mezzanine level

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
The power to the plant lights and the emergency light charging system are on the same electrical switch	If the plant lights are shut off at night, it inadvertently activates the emergency light system by shutting off power to the lights. This continued action may have damaged the charging system, requiring the replacement of the emergency lights. ***The plant lights are left on overnight. No further action is planned at this time.***	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 investigate 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 With the current valving configuration, the leak has stopped. ***No action is required at this time***	Plant operator	Shut down will be required	Ladder 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. It is not readily accessible. In addition, there appears to be a problem with the water supply shut off valve. ***This work will require evaluation and outside resources. Currently the situation is controlled.***	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	The wiring of the pump control system is connected below grade. The junction box in the wet well is thought to be filled with water creating a problem with the float switches to control relay wiring. The box cannot be opened without damage to it and the conduit. This appears to have been a longstanding problem. When switches have been replaced in the past, they were spliced outside the box. The float switches have been replaced but there remains a problem with the L2 circuit. The output from the W-2 relay was moved to the output for the W-1 relay. This has stopped the short cycling. ***The control wiring should be changed and moved above grade.***	Plant operator and HDR resources	Plant shut down is required	Confined space entry work

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
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
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
As the ASF pumps cycle off/on, the check valves have started to slam closed. When reactivating, the starter contact closing is rather violent. Both actions tend 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. A softer start/stop control may fix this issue. I may also help the above issue. ***This will need further investigation***	Plant operator and EE support	If replacement or repairs are necessary, a plant shutdown will be required as the units can-not be isolated	To be determined
The System Flow flowmeter is indicating lower flow than the plant discharge	The flow meter for the System Flow process is consistently at a level below the plant discharge and quite a bit below the RW system total flow. This is not affecting the system operation, but is skewing the flow numbers **The meter calibration needs to be adjusted**	Electrical engineering	None	none

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
A process control surge protector is powered off	One of the surge protectors is not powered up. The unit has no ID of the associated equipment.	Electrical engineering	Potential	To be determined
The mechanical seal for the motor-pump interface of PFF P2 is starting to fail. In addition, the bolts holding the seal cap have corroded and cannot be adjusted	The cap bolts should be replaced, and the cap tightened to see if the seal can be adjusted. If the seal cannot be adjusted, then it should be repacked. Hardware has been purchased. **More packing was added to the seal and the gland bolts were replaced - complete**	Plant operator	LOTO of P2. The system will operate on one PFF pump until complete	none

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. Methane does not currently appear to be a hazard.
- Air stripper air flow meter is not functional. Technical information is required for proper wiring and operation.
- The RW-1 flow sensor is not functional. The unit is not in service and no further action is planned at this time. RW-1 is generally offline.
- The cooling side of the AH-1 HVAC system is not functioning. No further action is planned at this time. AC is supplied with window units.
- The RW-2 flow sensor is not functional. No further action is planned at this time. RW-2 is generally offline.
- 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 2-16-21. The analytical results are for these samples are shown below.

Parameters	Discharge Limitations (SPDES)	Units	Results
pH (range)	*6.5 – 8.5*	*SU*	*6.75*
1,1,1-Trichloroethane	5	ug/l	U
1,1-Dichloroethane	5	ug/l	U
1,1-Dichloroethylene	5	ug/l	U
1,2- Dichloroethane	0.6	ug/l	U
Benzene	0.7	ug/l	U
Chlorobenzene	5	ug/l	U
Chloroform	7	ug/l	U
CIS 1,2-Dichloroethylene	5	ug/l	U
Ethylbenzene	5	ug/l	U
Methylene Chloride	5	ug/l	U
Tert-butyl alcohol (TBA)	Not indicated	ug/l	U
Tert-Butyl-Methyl ether (MTBA)	5	ug/l	U
Tetrachloroethylene(PCE)	5	ug/l	U
Toluene	5	ug/l	U
Trans 1,2-Dichloroethylene	5	ug/l	U
Trichloroethylene(TCE)	5	ug/l	U
Bis(2-ethylhexyl)phthalate	5	ug/l	U
Di-n-butyl phthalate	50	ug/l	U
Nitro Benzene	0.4	ug/l	U
Antimony, Total recoverable	3	ug/l	U
Arsenic, Total recoverable	50	ug/l	U
Barium, Total recoverable	2000	ug/l	82.4
Chromium, Hexavalent	100	ug/l	U
Lead, Total recoverable	50	ug/l	U
Iron, Total recoverable	600	ug/l	U
Manganese, Total recoverable	600	ug/l	139
Mercury	Not indicated	ug/l	U
Zinc	Not indicated	mg/l	U
Nitrogen, Total (as N)	10	mg/l	6.9
Selenium, Total recoverable	40	ug/l	U
Solids, Total Dissolved	1000	mg/l	274
Chloride Ion	NL	mg/l	116
Cyanide	Not indicated	ug/l	0.004
Fluoride Ion	NL	mg/l	0.032
Sulfate Ion	NL	mg/l	18.3
1, 4-Dioxane	NL	ug/l	U

J – Estimated value **U** – Analyzed but not detected **NL** – Monitor only **NM**– Not sampled
Discharge limitations updates as per the water discharge permit.

Table 8 – Plant Discharge Monthly Average pH

Month	pH(su)
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
June ‘20	6.8
July ‘20	6.9
August ‘20	6.8
Sept. ‘20	6.8
Oct. ‘20	6.95
Nov. ‘20	6.8
Dec ‘20	6.64
Jan ‘21	6.8
Feb ‘21	6.75