Monthly Report of the Operations & Maintenance Activities

Claremont Polychemical Operable Unit 5

Groundwater Treatment System

Old Bethpage, New York
December 2019

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
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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
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.
HHL	High-high level
INF	influent
LOTO	Lock-out, tag-out
MW	monitoring well
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
PDB	Passive Diffusion Bags
PD	plant discharge
PFOA	Perfluorooctanoic Acid and related perfluorinated alkyl substances
PFOS	Perfluorooctanesulfonic Acid
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
VAC	Vapor phase activated carbon
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 December. This report covers the operation and maintenance activities for the system during the period defined as beginning at 0730 hours, December 1, 2019 through 0730 hours, January 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 experienced 205 minutes of downtime due to an unbalanced flow condition. The plant was restarted once the condition was cleared and the recovery well pumps were reset.

Readings of the key plant process parameters are normally recorded each work day. (When the plant is not occupied, the system is monitored remotely). These readings and the 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 document folder.

The treatment process control and alarm systems are fully functional. The recovery well pumps and the process pumps are operated in the automatic mode and are remotely controlled and monitored. The pump at RW-4 tripped off, (12/31/20) and unable to be restarted.

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)
Logbook – plant operator's daily log book (CPC 5-7)
Daily Database – daily process readings (12 December 19 Database.xlsx)

1.2 SUMMARY OF MAINTENANCE ACTIVITIES

The maintenance of the treatment system, facility, and associated equipment is performed in accordance with the site GWTS 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 December activities is further provided in the plant operator's daily log book.

Maintenance and project activities completed during December included:

- Routine and general maintenance tasks were conducted at the plant, on the grounds and in the well fields.
- Snow was cleared from the exits as necessary, Town of Oyster Bay (TOB) took care of clearing the paved areas.
- The back pad was cleaned off for Cascade Drilling equipment storage and staging.
- Several fallen tree branches from the drilling site were cut up and disposed of.
- The ASF process pumps were manually rotated.
- The intake fan was fixed on the ToxiRAE Photoionization Detector (PID).
- The process equipment function tests were conducted.
- The monthly truck inspection was completed.
- The RW system inspection was completed.
- The OU4 comprehensive site and safety inspections were conducted.
- A clamp was installed on the water pipe at the leak adjacent to the north door.
- The OU5 comprehensive site and safety inspections were completed.
- Testing continued on the (Human Machine Interface) HMI communication link.
- Electrical readings were taken at the controls for the pump at RW-4. Some components were replaced.

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 (with the exception of books CPC-1 and 6) 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 plant throughout the period.
- Various personnel at the Mahwah, NJ, New York, NY, and Newark, NJ offices remotely provided oversight, guidance and technical expertise for the project.
- 12/2, Derek Matuszewski in to receive the WA43 frac tank. He returned 12/3 for project setup.
- 12/3, Brian Montroy in to check WA43 progress.
- 12/4, Andrew Wadden in (WA43). He returned daily thru 12/23.
- 12/5, Matt Keaveney was in to assist with the GW elevation recording task. He returned 12/10 for GW sampling.
- 12/16, Tom Fogarty was in to work on the HMI communication connection.

2.2 NYSDEC Personnel, sub-contractors and other visitors

- 12/3, Cascade drilling onsite.
- 12/12, ARC was in to service the copier.
- 12/12, TA-NY picked up the GW samples.
- 12/19, TA-NY picked up the BP-GW and the plant discharge (PD) samples.

2.3 Deliveries

- 12/2, TA-NY delivered WA43 sampling supplies.
- 12/2, Pine Environmental delivered WA43 equipment and returned twice on 12/9 with more supplies.
- Mail was delivered one time.

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 OU4 comprehensive site and safety inspection was completed, 12/19 with nothing new to note.
- The OU5 comprehensive site and safety inspections were completed, 12/23 with nothing new to note.

There were no other safety issues of note in December.

4 PLANNED ACTIVITIES AND SCHEDULES

The evaluation of the plant operating system and equipment is ongoing. 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 monthly plant discharge samples are scheduled for 1/23.
- The disposition of the OU4 facility is awaiting NYSDEC approval.
- The repair of the OU5 smoke detectors is awaiting the NYSDEC approvals.
- The disposition of the OU4 carbon beds is to be determined.

5 MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater level elevation data table was updated after this

month's GW sampling event. This database is available for review. The next synoptic water level round will be scheduled for March, prior to the next quarterly groundwater sampling task.

6 TREATMENT SYSTEM FLOWS

The volume of treated water discharged by the treatment plant to the selected recharge basin is generally determined daily from readings of the plant effluent flow meter output. During the December period, the HMI readings were recorded. The plant continued to operate in the auto mode. The plant experienced an alarm condition which shut down the production well pumps. This accounted for 205 minutes of downtime in December.

The total volume of treated water discharged from 0730 hours on December 1, to 0730 hours on January 1, was ~29,694,420 gallons. 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 December are provided in Table 4, both following the text of this report.

Table 1 – Flow Average and Volume Discharged

Month	Flow Average in gallons per minute(gpm)	Average Volume Discharged per day (gals)
October '16	618	889,903
December '16	442	636,516
March '17	565	814,097
June '17	569	820,033
September '17	624	899,233
December '17	96	138,839
March '18	641 (while operating)	241,778 (for days online)
June '18	947 (9856 min. online)	444,291 (for 21 days online)
September '18	793 (38,439 min. online)	1,129,630 (27 days online)
December '18	269	387,581
January '19	567	816,613
February '19	456	657,321
March '19	550	791,677
April '19	689	991,754
May '19	649	926,035
June '19	678	976,567
July '19	687	988,323
August '19	688	992,968
September '19	680	975,233
October '19	687	980,742
November '19	568	816,000
December '19	668	957,885

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 December, the treated water was discharged directly to Recharge Basin 1 on the landfill property.

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 December.

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 December.

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 December.

8 WASTE DISPOSAL

There were no wastes disposed of in December.

9 MONTHLY DISCHARGE MONITORING REPORT

The GWTS is operated under an equivalency permit from the NYSDEC. A review of the analytical results for the December 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.

10 PENDING ISSUES AND CONSIDERATIONS

The pump for RW-4 tripped off. Technical assistance has been scheduled. A full evaluation of the problem is pending.

Remote access to the control system HMI is not functioning due to a non-stable IP address being generated. Technical services are scheduled

Inspections of the CPC property and discharge basins will continue.

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 is pending.

The plant exhaust system is controlled by the methane monitoring system.

Removal and disposal of vapor phase activated carbon at OU4 is to be scheduled.

The status of key aspects of OU4 are as follows:

- The plant heat is on.
- The fire alarm panels are offline.
- The facility is secure and physical monitoring continues.
- The facility is 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. There was no such activity in December.

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 December sampling activities included:

- The PW data was processed and submitted.
- GW samples were collected 12/9 and 12/10, and shipped 12/12.
- The RW-3 PW data was processed and submitted.
- Passive Diffusion Bags (PDBs) were collected from the additional BP wells, 12/17. GW samples were processed and the samples shipped 12/19.
- The quarterly plant methane monitoring task was undertaken. The data was processed and uploaded.
- The December PD samples were collected and processed, 12/18. The samples were shipped 12/19.
- The BP-GW samples including wells (BP 5B, 5C, 12B, 12C, 13B, and 13C) were collected and the data was processed and submitted.

12.2 Field Data

Plant Discharge pH and Temperature

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 December can be found below in Table 2.

Table 2 – Effluent pH and Temperature Readings

Date	pH (su)	Temp °F
12/3	6.9	55
12/11	6.7	55
12/16	6.8	56
12/23	6.7	55
12/30	7.1	55
December Average	**6.84 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. A graph 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 December readings from the AS tower are provided in Table 3.

Table 3 – AS Tower Air Monitoring Readings

Date	Port B
12/3	0
12/11	0
12/16	0
12/23	0
12/30	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 December included:

- 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.
- The monitoring well system's groundwater levels were recorded.

13 PROCESS ANALYSIS and SYSTEM STATUS

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

13.1 Extraction Processes

- The flow signal from RW-5 was interrupted causing an unbalanced flow condition in the system. The plant was restarted and the signal was restored.
- The pump at RW-4 tripped off. It has yet to be determined what the cause was; additional troubleshooting required. The pump remains off-line.
- The pump system is operated automatically and is remotely controlled and monitored. The pumps at RW-2, -3, and -5 are fully functional. Components were removed from the RW-1 controls for use at RW-4.
- 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. The flow meters are not transmitting.
- The vault heaters are on and panel heaters are active.

13.2 Air Stripping (AS) Process

- The three AS feed pumps are fully functional and are operated in the auto mode off the wet well level switches. The pumps have been coded to rotate into service. The lead pump does not keep up with influent flow and therefore it does not shut off. This requires occasional manual rotation of the pump.
- 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 little iron is getting into the system.
- The discharge valve for ASF P1 appears to be frozen in the open position.

13.3 Plant Discharge Process

- The three plant discharge pumps are fully functional. The pumps have been coded to

automatically rotate into service.

- The control and monitoring systems are fully functional.
- The plant discharge continues to be directed to Recharge Basin 1. Currently no discharge is going to Basin 33.
- The discharge valve for PFF P2 appears to be failing in the open position.
- Pump 2 continues to occasionally trip.

13.4 Other

- The Auto-dialer is fully functional.
- The plant's first light bank is wired to the e-light recharging system, therefore the circuit must be kept on. The light activity is intermittent.
- A leak has developed in the water supply line running through the plant. The water was shut off and repairs attempted.

14 GROUNDS

14.1 Plant Perimeter

- General outdoor clean-up tasks are on-going. The back pad was cleared for the staging of Cascade Drilling's equipment.
- The last power outage disabled the clock mechanism on the outdoor light timer. Five of the outdoor building lights are currently out. These conditions should not impact safety or security.
- The TOB continues to maintain the grounds along the plant perimeter.

14.2 Well Field

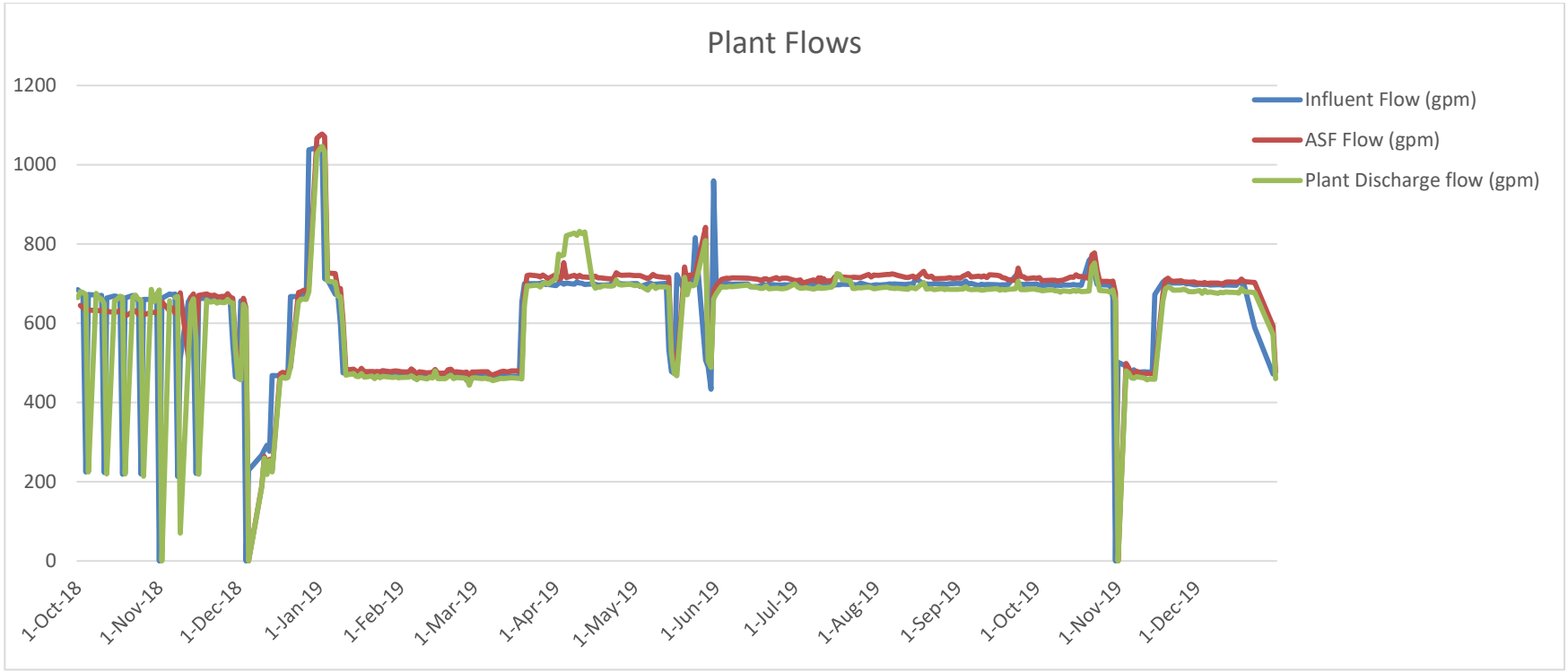
- Well, well field, and basin inspections continue and are secure.
- The well access paths are relatively clear, downed trees and overgrowth are removed as necessary.

14.3 Other

- The grounds continue to be inspected but not maintained at OU4.
- A tree was cut down at the natural gas supply pad (at the request of National Grid)
- The Claremont site is currently secured with a locked gate. There is currently no tenant on the property.

FIGURES

Figure 1 – Plant Discharge Daily Flow



TABLES

Table 4 – Plant Daily Totalizer Readings

December 2019 Flows				
	Plant Influent		Plant Discharge	
Date	Volume	Avg. Flow	Volume	Avg. Flow
1-Dec-19	1012000	703	989000	687
2-Dec-19	1041000	723	1019000	708
3-Dec-19	1002000	696	969000	673
4-Dec-19	978000	679	957000	665
5-Dec-19	1023000	710	993000	690
6-Dec-19	2997000	2081	2916000	2025
9-Dec-19	1010000	701	980000	681
10-Dec-19	1014000	704	986000	685
11-Dec-19	1012000	703	982000	682
12-Dec-19	991000	688	967000	672
13-Dec-19	3011000	2091	2933000	2037
16-Dec-19	1012000	703	984000	683
17-Dec-19	989000	687	961000	667
18-Dec-19	895000	622	873000	606
19-Dec-19	4005000	2781	3888000	2700
23-Dec-19	7033000	4884	6833000	4745
30-Dec-19	857000	595	831000	577
31-Dec-19	649944	451	633420	440
Dec. Total Plant **Influent** (Gal)				30,531,944
Dec. Total Plant **Effluent** (Gal)				29,694,420

Readings from HMI digital outputs

Table 5 – Pump System Flow Readings

December	On-Time Minutes (actual)	Avg. Flow (gpm)	Avg. Flow (gpd) (over 31 days)	Total Flow (gal)
RW-1	6	228	-	1368
RW-2	7	250	-	1750
RW-3	44,430	255	365,799	11,339,774
RW-4	42,439	237	323,871	10,040,000
RW-5	44,430	202	288,894	8,955,711
Plant Influent	44,430	687	984,901	30,531,711
Plant Effluent	44,430	668	957,885	29,694,420

The treatment process was online 31 days in December. Flows are taken from the HMI meter readings. There was 205 minutes of downtime.

Table 6 – Claremont Corrective Actions Summary

Conditions of note and corrective actions planned 12/31/19

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 Air vent valve in the vault north of the 6th fairway (BSP-B) has a leak	The nipple connecting the A/V valve to the RW manifold is leaking. The isolation valve has been closed and the device is out of service. The piping needs replacement ***No further action has been taken***	Plant staff and contractors	None, isolation valve is functioning	Confined Space Entry
the Air vent valve in the vault east of the 6th green has a leak	The A/V valve has been isolated by the shut off valve. The device itself is leaking. The unit needs replacement or rebuilding. ***No further action is planned at this time***	Plant staff and contractors	System shut down until the remedy was made	Confined space entry

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
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
The RW Discharge Manifold integrity is suspect	The condition of the various devices in the RW manifold vaults are suspect. ***A full set of function tests should be scheduled.***	Plant staff and outside contractors	Possible shutdown	May require a CSE
Plant discharge Pump 2 frequently trips	Pump continues to trip. It requires manual resetting. The control panel does not indicate the status EE indicated that the motor starter contact block appears to be getting stuck. ***When possible the unit will be cleaned.***	Operator and EE	Loss of redundancy. Requires P3 to be activated	None at this time
AST 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. **Are the pressure switches required for the safety of the pumps? Can they be eliminated or do they need a re-design?**	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. ***This work needs to be scheduled as needed.***	Electrical techs	None anticipated. The system is isolated and off line	Confined space entries may be necessary
New Nassau County Fire Code indicates that the sprinkler system at OU4 be centrally monitored	The fire alarm panels are off line and their viability needs to be determined. Initial investigation indicated that the panel can be powered up but it emits nuisance alarms. Further work on panels will require EE time and may not solve problem. ***The plan was to take down the building, thus eliminating the system and the issue. However, the building will no longer be demolished, and at the direction of the NYSDEC all fire violations will need to be addressed. Memo sent to NYSDEC 12/20/19- no response.***	Plant operator, EE and possible outside vender	None at this time	None at this time

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
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
NYS Fire Marshall safety inspection at OU4	The inspection revealed several action items that needed to be addressed. Currently, The e-lights have been removed. Fire alarm panel function does not fully function Central monitoring is not in place The roof leak remains ***See above- Memo sent to NYSDEC 12/20/19- no response.***	Plant operator and certified contractors	None	To be determined
NYS Fire Marshall safety inspection at OU5	The inspection revealed several action items that needed to be addressed. Currently, ***There is a defective smoke detector which is to be replaced once NYDEC approves the plan.***	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 shuts down the emergency lights and 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

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
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
The first bank of plant lights are functioning intermittently (CB-1)	The plant lighting stopped functioning after the 3rd e-light was installed. The e-light charging system and the plant lights are on the same circuit. ***When available, EE will look into this.***	Plant operator, EE	None, the second bank of plant lights is functional	None at this time
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. ***Fitting should be replaced.*** ***The condition will be monitored.***	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
At least one leak was uncovered in the plant overhead water supply line.	**Adjacent to the north door, a leak was observed. The covering and insulation was removed and a clam-shell type clamp was applied. This did not seem to fully stop the leak. In addition, there appears to be a problem with the supply shut off valve.** **The clamp will be reapplied. This may require a plumber as it is 1" copper.**	**Plant operator Outside plumbing contractor?**	**Safety showers are off line**	**Sanitary water may be shut off during repairs**

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 December 18th. The results are shown below.

Parameters	Discharge Limitations (SPDES)	Units	Results December 2019
pH (August Average)	6.5 – 8.5	SU	6.84
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	NS
Chromium, Hexavalent	100	ug/l	NS
Lead, Total recoverable	50	ug/l	NS
Iron, Total recoverable	600	ug/l	NS
Manganese, Total recoverable	600	ug/l	NS
Mercury	Not indicated	ug/l	NS
Zinc	Not indicated	mg/l	NS
Nitrogen, Total (as N)	10	mg/l	NS
Selenium, Total recoverable	40	ug/l	NS
Solids, Total Dissolved	1000	mg/l	NS
Chloride Ion	NL	mg/l	NS
Cyanide	Not indicated	ug/l	NS
Fluoride Ion	NL	mg/l	NS
Sulfate Ion	NL	mg/l	NS

NS – 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 – not detected.**

Table 8 – Plant Discharge Monthly Average pH

Month	pH(su)
Dec ‘17	6.74
Feb ‘18	6.87
Mar’18	7.35
Apr ‘18	7.1
May ‘18	7.05
June ‘18	6.5
July ‘18	6.95
August ‘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
April ‘19	6.54
May ‘19	6.61
June ‘19	6.5
July ‘19	6.6
Aug ‘19	6.56
Sept ‘19	7.45
October ‘19	6.86
November ‘19	6.88
December ‘19	6.84