Monthly Report of the Operations & Maintenance Activities

Claremont Polychemical Operable Unit 5

Groundwater Treatment System

Old Bethpage, New York
October 2019

NYSDEC Standby Engineering Contract
Work Assignment #D0076025-28

Prepared for
NYS Department of Environmental Conservation
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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
TOBAY	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 (OU-5) during the month of October. This report covers the operation and maintenance activities for the system during the period defined as beginning at 0730 hours, October 1, 2019 through 0730 hours, November 1, 2019. 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 346 minutes of downtime due to the loss of an incoming power supply phase. The plant was restarted once power was restored but the pump for RW-3 would not engage

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

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 (10 October 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 October activities is further provided in the plant operator's daily log book.

Maintenance and project activities completed during October included:

- Routine and general maintenance tasks conducted at the plant, on the grounds and in the well fields.
- The valve influent to Basin 33 was adjusted as necessary to match the golf course usage and needs. By the end of October the valve was fully closed.
- A new shelf was added to the spare parts cabinet, parts sorted and purged.
- The third shelf from the HVAC room was installed at the shop
- The lab sink drip was repaired
- The ASF pump were manually rotated 2x
- The OU4 comprehensive site and safety inspection was completed.
- The CPC grounds were inspected
- The shelves in the outbuilding at OU4 were removed
- The monthly truck inspection was completed.
- The underside of the truck was power washed prior to the NYS annual inspection
- The monthly RW system inspection was completed
- Wheels were mounted on the portable generator
- The monthly equipment function tests were completed
- The OU5 comprehensive site and safety inspections were completed

1.3 MAINTENANCE LOGS

The following operating logbooks are currently in use and maintained at OU-5:

- 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 OU-5, 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.

2.2 NYSDEC Personnel, sub-contractors and other visitors

- 10/2, The US Dept. of Agriculture was in to survey invasive insects at OU4
- 10/8, PSEG-LI was in to read the meters at OU4 ad OU5
- 10/17, TA-NY was in to pick up the PD samples

2.3 Deliveries

- Mail was delivered once.

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 with nothing new to note.
- The OU5 comprehensive site and safety inspections were completed with nothing new to note.

There were no other safety issues of note in October.

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:

- Troubleshoot issue with RW-3 and put system back on-line
- The monthly process water samples are scheduled for 11/14/2019.
- The demolition of the OU4 plant is awaiting NYSDEC approval.
- Two bids were obtained for the repair of the OU5 smoke detectors. A third contractor was contacted and has been unresponsive. The lowest bidder will be contracted to replace the smoke detectors and address the alarm.

5 MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater level elevation data table was updated after September's GW sampling event. This database is available for review. The next synoptic water level round will be scheduled for December, prior to the quarterly groundwater sampling task.

6 TREATMENT SYSTEM FLOWS

The volume of treated water discharged by the treatment plant to the selected infiltration basin

is generally determined daily from readings of the plant effluent flow meter output. During October, the HMI readings were recorded. The plant continued to operate in the auto mode. The plant experienced a power interruption at the end of October. The system was down for 346 minutes.

The total volume of treated water discharged from 0730 hours on October 1, to 0730 hours on November 1, was approximately30,403,000 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 October are provided in Table 4, both following the text of this report.

Table 1 – Flow Average and Volume Discharged

Month	Flow Average (gpm)	Average Volume Discharged per day (gal)
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

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

During October, the treated water was discharged directly to Recharge Basin 1 on the landfill property. The plant partially discharged to Recharge Basin 33 on Winding Road until Bethpage State Park did not require any additional irrigation water.
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 October.

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 October.

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 October.

8 WASTE DISPOSAL

There were no wastes disposed of in October

9 MONTHLY DISCHARGE MONITORING REPORT

The GWTS is operated under an equivalency permit from the NYSDEC. A review of the analytical results for the October 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 plant generally operates in the automatic mode 24/7. The HMI and LED panels display pump status, process flows (INF, ASF, PD, RW-3, -4, and -5) and totalizer outputs. The HMI is able to data log and display flow and totalizer data and trend lines.

There was a loss of phase on the incoming power supply. This happened overnight, (10/31-11/1). Full power was not restored until 11/4. Currently the system is fully operational except for the pump at RW-3. Testing is being conducted.

Inspections of the CPC property and discharge basins will continue.

The repairs to the OU5 fire alarm open loop are to be 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 demolition is to be scheduled.

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 off.
- The fire alarm panels are offline.
- The facility is secure and 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. This activity for October included:

- Form-33, Monthly Task Checklist was generated
- Form-31, RW System Inspection worksheet was revised to rev. B.
- Form-29, Methane Monitoring worksheet was updated to rev. C

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 October sampling activities included:

- The September GW data was processed and submitted.
- The pH of the GW samples were recorded in the event field notes.
- The September PD data was processed and submitted
- The October PD samples were collected, processed and shipped to TA-Edison
- The GW data for the additional BP wells was processed and submitted
- The quarterly PW sample bottles were inventoried, a bottle order was placed, and the event scheduled for pick up on 11/14.

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 October can be found below in Table 2.

Table 2 – Effluent pH and Temperature Readings

Date	pH (su)	Temp °F
10/2	7.2	62
10/8	6.9	59
10/16	6.8	59
10/21	67	58
10/28	6.7	58
Oct. Average	**6.86**	**59**

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 October readings from the AS tower are provided in Table 3.

Table 3 – AS Tower Air Monitoring Readings

Date	Port B
10/2	0
10/8	0
10/16	0
10/21	0
10/28	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 October 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.
- Groundwater elevations were recorded for the monitoring well system.

13 PROCESS ANALYSIS and SYSTEM STATUS

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

13.1 Extraction Processes

- The monthly inspection of the RW systems was conducted. The pump for RW-3 remains off-line.
- The status of the pressure switches and surge protectors is observed at the HMI.
- The pump system is operated automatically and is remotely controlled and monitored. The pumps at RW-1, -2, -4, and -5 are fully functional.
- Pump flow readouts are transmitted to the plant and the totalizers for RW- 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 have been shut off and panel heaters are active.

13.2 Air Stripping 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 discharge pressure of the pump discharge is rising. This will require cleaning the screen during the next plant shut down.
- 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 mainly 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.

14 GROUNDS

14.1 Plant Perimeter

- General outdoor clean-up tasks are on-going.
- The fencing and gates are secure. Some of the signage was refurbished.
- Five of the outdoor building lights are out but should not impact safety or security.
- The TOB continues to maintain the grounds along the plant perimeter.

14.2 Well Field

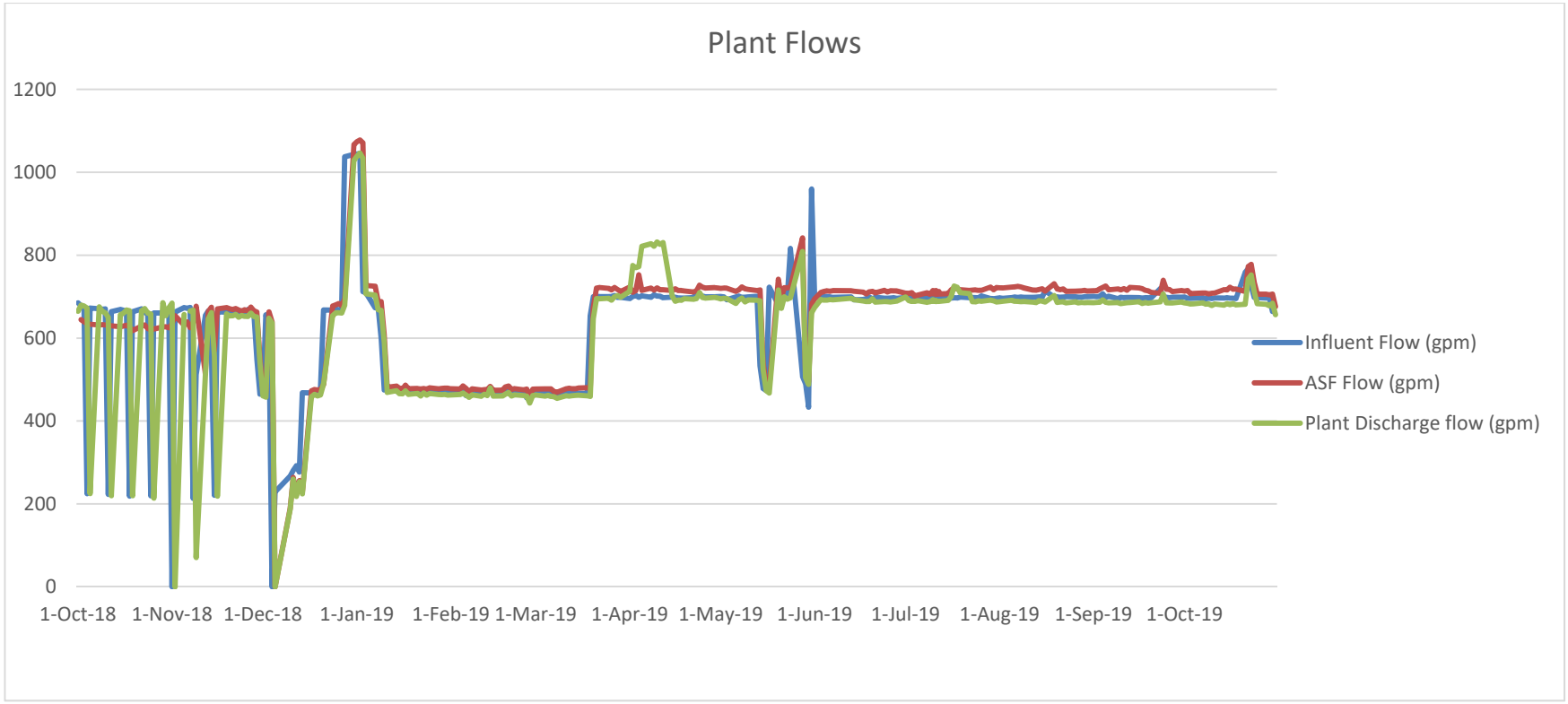
- Well, well field, and basin inspections continued. The wells and basins are secure.
- The well access paths are relatively clear, downed trees and overgrowth are removed as necessary.

14.3 Other

- The grounds continue to be inspected but not maintained at OU4.
- The Claremont site is currently accessible and there is a tenant on the property.

FIGURES

Figure 1 – Plant Discharge Daily Flow



TABLES

Table 4 – Plant Daily Totalizer Readings

October 2019 Flows				
	Plant Influent		Plant Discharge	
Date	Volume	Avg. Flow	Volume	Avg. Flow
1-Oct-19	1035000	719	1015000	705
2-Oct-19	1015000	705	993000	690
3-Oct-19	1003000	697	983000	683
4-Oct-19	2995000	693	2938000	680
7-Oct-19	996000	692	980000	681
8-Oct-19	1017000	706	994000	690
9-Oct-19	997000	692	979000	680
10-Oct-19	1010000	701	984000	683
11-Oct-19	2988000	692	2932000	679
14-Oct-19	1006000	699	981000	681
15-Oct-19	1020000	708	1001000	695
16-Oct-19	994000	690	970000	674
17-Oct-19	1009000	701	990000	688
18-Oct-19	2995000	693	2926000	677
21-Oct-19	1000000	694	980000	681
22-Oct-19	1104000	767	1081000	751
23-Oct-19	1108000	769	1086000	754
24-Oct-19	961000	667	943000	655
25-Oct-19	3088000	715	3021000	699
28-Oct-19	1007000	699	984000	683
29-Oct-19	989000	687	963000	669
30-Oct-19	1027000	713	1008000	700
31-Oct-19	679000	472	671000	466
Oct. Total Plant **Influent** (Gal)				31,043,000
Oct. Total Plant **Effluent** (Gal)				30,403,000

Readings from HMI digital outputs

Table 5 – Pump System Flow Readings

October	On-Time Minutes (actual)	Avg. Flow (gpm)	Avg. Flow (gpd) (over 31 days)	Total Flow (gal)
RW-1	8	232	-	1856
RW-2	8	254	-	2052
RW-3	44285	264	377,290	11,696,000
RW-4	44285	243	347,065	10,759,000
RW-5	44285	206	294,774	9,138,000
Plant Influent	44285	701	1,001,387	31,043,000
Plant Effluent	44285	687	980,742	30,403,000

The treatment process was online 31 days in October. Flows are taken from the HMI meter readings. There was 346 minutes of downtime.

Table 6 – Claremont Corrective Actions Summary

Conditions of note and corrective actions planned 10/30/19

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**	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 **Currently the plan is to take down the building. This will eliminate the system and the issue.**	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. • Emergency lighting needs to be restored • Access paths need to be cleared • Sprinkler heads need to be replaced • Fire alarm with central station monitoring needs to be replaced **Exit lighting is functional.** **The e-lights have been removed.** **Egress paths have been cleared** **The sprinkler heads in the control room were re-installed.** **Fire alarm panel function does not fully function** **Central monitoring is not in place** **The roof leak remains** **The building is to come down. No further action is planned**	Plant operator and certified contractors	None	To be determined

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
NYS Fire Marshall safety inspection at OU5	The inspection revealed several action items that needed to be addressed. • Emergency lighting needs to be restored • Access paths need to be cleared • Fire alarm with central station monitoring needs to be replaced • Items stored in mechanical room need to be removed. • Wooden shelving in mechanical room needs to be removed **All the violations have been resolved with the exception of open smoke alarm loop.** **Work continues to mitigate this code violation**	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 e-lights from OU4 have been installed in OU5 and are fully functional** **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 **EE will look into this**	Plant operator, EE	None	Possible problem with excessive heat of fume conditions
There has been a drop in the RW well pump output.	The output from pumps for RW-3 and RW-5 has been dropping for the last several months. The pump at RW-3 is new (Apr. '19) It has not been determined if it is an electrical, mechanical or manifold issue. **This condition will continue to be monitored**	Plant operator, EE	Process volumes are down	none
The first bank of plants are not functioning (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

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 October 16. The results are shown below.

Parameters	Discharge Limitations (SPDES)	Units	Results September 2019
pH (August Average)	6.5 – 8.5	SU	6.86
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	NS
Arsenic, Total recoverable	50	ug/l	NS
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)
Oct ‘17	6.72
Nov ‘17	6.52
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