NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Intended for
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Document type
Report

Date
July 2022

MONTHLY REPORT OF THE OPERATIONS & MAINTENANCE ACTIVITIES (MAY 2022)

CLAREMONT POLYCHEMICAL OPERABLE UNIT 5 GROUND WATER TREATMENT SYSTEM, OLD BETHPAGE, NY

RAMBOLL Bright ideas. Sustainable change.

MONTHLY REPORT OF THE OPERATIONS & MAINTENANCE ACTIVITIES (MAY 2022)
CLAREMONT POLYCHEMICAL OPERABLE UNIT 5 GROUND WATER TREATMENT SYSTEM, OLD BETHPAGE, NY

Project name	**Claremont Polychemical Corporation Site**
Project no.	**1087815.1940101703**
Recipient	**New York State Department of Environmental Conservation**
Document type	**Report**
Version	**[1]**
Date	**July 29, 2022**
Prepared by	**Ian Hnizdo – US Water**
Checked by	**Michael Grifasi - Ramboll**
Approved by	**Andrew Leitzinger - Ramboll**

Ramboll
333 West Washington Street
Syracuse, NY 13202
USA

T 315-956-6100
F 315-463-7554
https://ramboll.com

CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBRIEVIATIONS

AS	Air Stripper
A/V	Air and Vacuum
ASF	Air Stripper feed
BNA	Base Neutral & Acid Extractables
CPC	Claremont Polychemical
CSE	Confined Space Entry
DOSR	Daily Operations Summary Report
EE	Electrical Engineer
GPM	Gallons Per Minute
GWTS	Groundwater extraction, treatment, and reinjection system
HMI	Human Machine Interface
HVAC	Heating, Ventilation, and Air Conditioning
MTBA	Tert-Butyl-Methyl ether
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
OU4	Operable Unit 4
OU5	Operable Unit 5
PD	Plant Discharge
PDB	Passive Diffusion Bag
PID	Photoionization Detector
PFF	Pressure Filter Feed
PLC	Programmable Logic Controller
ppm	parts per million
PW	Process Water
Ramboll	Ramboll Americas Engineering Solutions, Inc.
RW	Recovery Well, Process Well
SPEDES	State Pollutant Discharge Elimination System
SSHP	Site Safety and Health Plan
SU	Standard pH Units
SVOCs	Semi-Volatile Organic Compounds
TBA	Tert-butyl alcohol
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TSS	Total Suspended Solids
US Water	US Water Services Corporation
VOCs	Volatile Organic Compounds

1. OPERATION AND MAINTENANCE ACTIVITIES

On behalf of Ramboll Americas Engineering Solutions, Inc. (Ramboll), US Water Services Corporation (US Water) continued the daily operation and maintenance (O&M) of the Claremont Polychemical (CPC) Superfund Site Groundwater Treatment System (GWTS) Operable Unit 5 (OU5) during the month of May 2022. In addition, former Operable Unit (OU4) was inspected once per month to ensure security and building code compliance. For this report, every time plant is mentioned it refers to OU5. OU4 will be referred to as such whenever discussed. This report covers the O&M activities for the system during the period defined as beginning at approximately 0830 hours, May 3, 2022, through approximately 0830 hours, June 2, 2022. 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 32 days in this reporting period during which the treatment system experienced 12,200 minutes of total downtime due to problems with the recovery well pump stations. The plant was left inoperable for a time due to a leak in the field that had to be patched before pumping could resume. Additionally, issues associated with the RW5 pump failure continue to impair full functionality of the treatment system.

Readings of the key plant process parameters are normally recorded each workday. 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. If the plant is not occupied,the system is monitored remotely.

The treatment process control and alarm systems are functional. The recovery well pumps, process pumps, and 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)
- US Water Sign-In Sheet – US Water/Ramboll employee on-site hours (Form-15)
- Daily Process Data Sheet – point process readings (Form-30)
- Logbook CPC 5-8– plant operator's daily logbook
- Daily Database – daily process readings (May 22 Database.xlsx)
- New York State Department of Environmental Conservation (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 May activities is further provided in the plant operator's daily logbook.

Maintenance and project activities undertaken during the May period included:

- Routine and general maintenance tasks were conducted at the plant, on the grounds,and in the well fields.
- Single Air Stripper Feed (ASF) pumps were placed into hand mode and frequently switched to cycletheir activity.
- The plant truck was inspected.
- The monthly process equipment tests were conducted.
- The Operable Unit 4 (OU4) comprehensive inspections were completed.
- The monthly Process/Recover Well (RW) system inspection was completed, and the incoming voltage levelswere recorded.
- Basin 33 was inspected.
- The ASF pumps were lubricated, and the seals tightened.
- The OU5 comprehensive inspections were completed.
- The Pressure Filter Feed (PFF) pumps were lubricated, and the seals tightened.
- The fire alarm system components were inspected.
- The monthly electrical device survey was completed.
- The SUNY wellfield was inspected.

1.3 Maintenance Logs

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

- CL-18 OU-4 Log (at OU4)
- CL-43 General Field Support Log (truck)
- CL-47 Misc. Projects Field Notebook (Ian Hnizdo)
- CPC 5-4 Project Support Logbook (site)
- CPC 5-8 Site Supervisor's Daily Logbook (Ian Hnizdo).

Except for log CPC 5-7, 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 US Water Personnel

- US Water maintained the system throughout the period.
- Technical expertise and guidance were provided from the Norristown, PA office
- On May 24 and 30, 2022, Christopher Martin from US Water visited the plant to check up the maintenance and operation as well as to provide assistance to the repair of the plant leak at an air/vacuum pit.
- On May 30, 2022, Kirk Takemori from US Water Maintenance on site to inspect and repair RW3.
- On May 30, 2022, Rick Breneman from US Water on site to perform repairs to the leaking air/vacuum pit.

2.2 NYSDEC Personnel, Sub - contractors, and Other Visitors

- On May 11, 2022, eight visitors representing the Town of Oyster Bay, NYSDEC, Lockwood Kessler & Bartlett, Inc., and the United States Environmental Protection Agency on site to inspect the facility and ensure it is up to code.
- On May 21, 2022, Eurofins Test America arrived to pick up plant quarterly samples.
- On May 24, 2022, a pre-bid visit/site walk was conducted with US Water, GES, GWT&T, Envirogen, and Ramboll. This visit was associated with the NYSDEC bidding process associated with the repair of RW5.

2.3 Deliveries

- On May 18, 2022, Eurofins Test America arrived to deliver a bottle order:
  - 1 box of 250 ml plastic containers with NaOH preservative,
  - A box 250 ml amber glass jars with H_2SO_4 preservative,
  - Two boxes 125 ml plastic containers,
  - 1 box of 125 ml plastic with H_2SO_4 preservative,
  - 2 boxes 250 ml amber glass jars (unpreserved), and
  - 1 box of 1000 ml plastic containers (unpreserved).
- On May 25, 2022, UPS delivered four packages to the plant containing 40 pre-filled passive diffusion bag (PDB) samplers, cable ties, and 1 PDB pre-filled blank.

3. HEALTH AND SAFETY

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

- The water remained off at OU4. Both potable and non-potable lines were drained. (No sanitary water)
- Daily site safety inspections were completed as part of the routine O&M activities.

4. PLANNED ACTIVITIES AND SCHEDULES

The evaluation of the plant operating system and equipment is ongoing by US Water. 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 this report as **Table 1** – Claremont Corrective Action Summary.

Upcoming tasks include:

- OU4 remains without water to the fire sprinkler system due to no heat in the building.
- OU4 potable water line was shut off due to pipe ruptures from frozen pipes.
- RW5 remains out of service due to well pump motor failure (single phased).
- Work on the OU4 heating system continues.
- The gas service to OU4 needs to be re-established as the supply to the HVAC was not flowing.

5. MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater elevation data table was updated after the March quarterly GW elevation recording task. This database is available for review. The next set of synoptic water level measurements will be scheduled for June 2022 and will be conducted by Ramboll.

6. TREATMENT SYSTEM FLOWS

During the May period, the plant continued to operate in the auto control mode although at times, an ASF pump was run in the Hand mode. The volume of treated water discharged by the treatment system to the selected recharge basin was calculated from the plant influent and effluent flow meter readings. These readings are taken at the HMI and recorded in the daily database.

The treatment system was only able to use RW3 and RW4 initially. On May 12, 2022, RW3 began exhibiting flow issues. RW3 would go offline and reset attempts would result in 30 minutes of running time before repeating. On May 23, 2022, a leak was reported in the field by Bethpage State Park. As a result, RW4 was shut down until the leak was repaired (leaving the treatment system offline). On May 31, 2022, the leak was repaired and RW4 was able to resume pumping.

RW5 remained inoperable due to a motor failure that began on March 12, 2022.

Currently, the plant discharge is solely directed to Recharge Basin 33.

The total volume of treated water discharged from ~0830 hours May 3 to ~0830 hours June 2 was approximately 11,125,000 gallons. The data in **Table 2** is a summary of plant discharge flows.

A graphic representation of the system's daily plant discharge output is provided in **Figure 1** and the daily plant totalizer readings for May are provided in **Table 3**, both following the text of this report.

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

The flow summary for the individual components of the system can be found in **Table 4** at the end of this report.

7. CHEMICAL CONSUMPTION

The hydrochloric acid feed system is currently off-line, and the system is void of acid. There are four drums of virgin acid on site. No acid was consumed in May 2022.

The sodium hydroxide storage system is currently not in use and the system is empty of caustic. There is no bulk sodium hydroxide on site and no caustic was consumed in May 2022.

The sodium hypochlorite storage system is currently not in use and the system is empty of bleach. No bulk sodium hypochlorite is stored on site. No sodium hypochlorite was consumed in May 2022.

8. WASTE DISPOSALS

Routine collection of waste materials continued. National Waste emptied the dumpster. No other waste was disposed of in May 2022.

9. MONTHLY DISCHARGE MONITORING REPORT

The GWTS is operated under an equivalency permit from the NYSDEC. **Table 5** presents the Claremont OU5 O&M Sampling and Measurement requirements and their frequency. The analytical results for the May 2022 plant discharge samples indicate that the analyzed parameters were compliant with permit limits (**Table 6**).

10. PENDING ISSUES AND CONSIDERATIONS

Mechanical repairs have been made to the plant HVAC system at OU4. Upon testing, the gas supply appeared to be shut off. National Grid will be contacted to check the meter and delivery system.

The sprinkler system remains drained of water. The potable and non-potable water lines have been drained.

The discrepancies/inaccuracies in the plant/OU5 flow meter readings may be due to the inappropriate configuration of the local piping. Future calibration or adjustment of pulse reading may be required.

RW5 needs a motor replacement after it failed on March 12, 2022.

A damaged tree adjacent to the path to the MW-6 well cluster continues to obstruct the path. The situation will continue to be monitored.

The well path to the BP-3 cluster following rain events still poses issues for vehicle transport. Work and upkeep will continue as necessary along the path.

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 off, and the system is out of service.
- The fire alarm panels are off-line.
- The fire sprinkler system is currently off-line. The water has been drained from the system. An alarm system for the sprinkler has been installed with central monitoring.
- The facility is secure, and its physical monitoring continues.
- The facility and grounds are not maintained except for the facility entrance and plant egress points.

11. PLANT DOCUMENTS

Procedures and standard forms are written, reviewed, and revised as needed. As-built drawings are generated and updated as necessary.

12. MONITORING RESULTS

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

- The May PD data was processed and submitted.

12.2 Field Data

12.2.1 Plant Discharge pH and Temperature

The treatment plant effluent is monitored for pH and temperature on a weekly basis to obtain a monthly average in compliance with the NYSDEC discharge permit requirements. These measurements are taken from the plant effluent at a controlled point with a calibrated portable meter. The plant discharge readings for May 2022 can be found in **Table 7** following the text of this report.

The May 2022 average pH measurement was 6.79 standard units (su). The NYSDEC discharge permit requires the plant discharge to have an average monthly pH between 6.5 and 8.5 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.

12.2.2 Air Stripper (AS) Tower Air Monitoring

Using a calibrated PID, the vapor discharge from the air stripper tower was monitored weekly for volatile organic compounds (VOCs). The measurements were taken from the tower's effluent air stream through Port B when the treatment system is online. The May 2022 readings from the AS tower are provided in **Table 9**.

Other routine data collected in May 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 monthly electric and gas meter readings for OU4 were recorded.
- The recharge basins were inspected weekly.
- 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. It is remotely monitored as necessary.

13.1 Extraction (RW) Processes

- The monthly system inspection was completed.
- The incoming voltage to the well controls was measured.
- The vault space heating units are active.
- The recovery well pump system is remotely controlled and monitored, it operates in the Auto mode. The pumps at RW-3 and RW-4, are currently online and fully functional. Within the month of May, RW3 had difficulty operating from May 22 to May 31, 2022, and RW4 had to be shut down on May 22, 2022 due to a leak in the field. RW5 experienced problems beginning on March 12, 2022, that have left it inoperable to the current day.
- Pump flow readouts are transmitted to the plant and the totalizers for pumps RW3, and RW4 are fully functional. The flow meter for RW5 occasionally stops transmitting.
- Air/Vacuum (A/V) valve at station 33+96 has encountered a leak that required the vault to be pumped out and have its air/vacuum valve removed.
- The Air/Vacuum (A/V) valves at station 16+57 and 17+10 remain isolated from the transmission line.
- RW1 and RW2 are offline and periodically run for preventative maintenance purposes. Their flow meters are not transmitting through the PLC. When repairs were made at RW1 in November 2021, stones were removed from the flow meter housing. There was a thick coating of iron salt deposits on the housing and impeller.

13.2 AS Process

- The three OU5 ASF pumps in the AS Process are fully functional.
- Motors and seals were lubricated as necessary. Seals were tightened and the drains were cleared.
- 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 valves for ASF P1 and P2 appear to be frozen in the open position.

13.3 PD Process

- The plant discharge flow is currently directed to Recharge Basin 33.
- The valve influent to Recharge Basin 33 remains closed.
- Pump 1 has been taken out of service due to excessive noise and vibration. A full evaluation is required. Pumps 2 and 3 are fully functional.
- The motors and seals were lubricated as necessary.
- The discharge valve for PFF P3 has failed open.

13.4 Other

- The plant's first bank of lights is wired to the emergency-light recharging system. The circuit is kept on 24/7. The lamps appear burnt out. The second bank of lights provides sufficient lighting for general tasks.
- The potential for leaks in the water supply line running through the plant will continue to be monitored.
- The fire alarm and central monitoring systems are fully functional.

14. GROUNDS

14.1 Plant Perimeter

- General outdoor clean-up tasks are on-going.
- The fencing is clear and secure.

14.2 Well Field

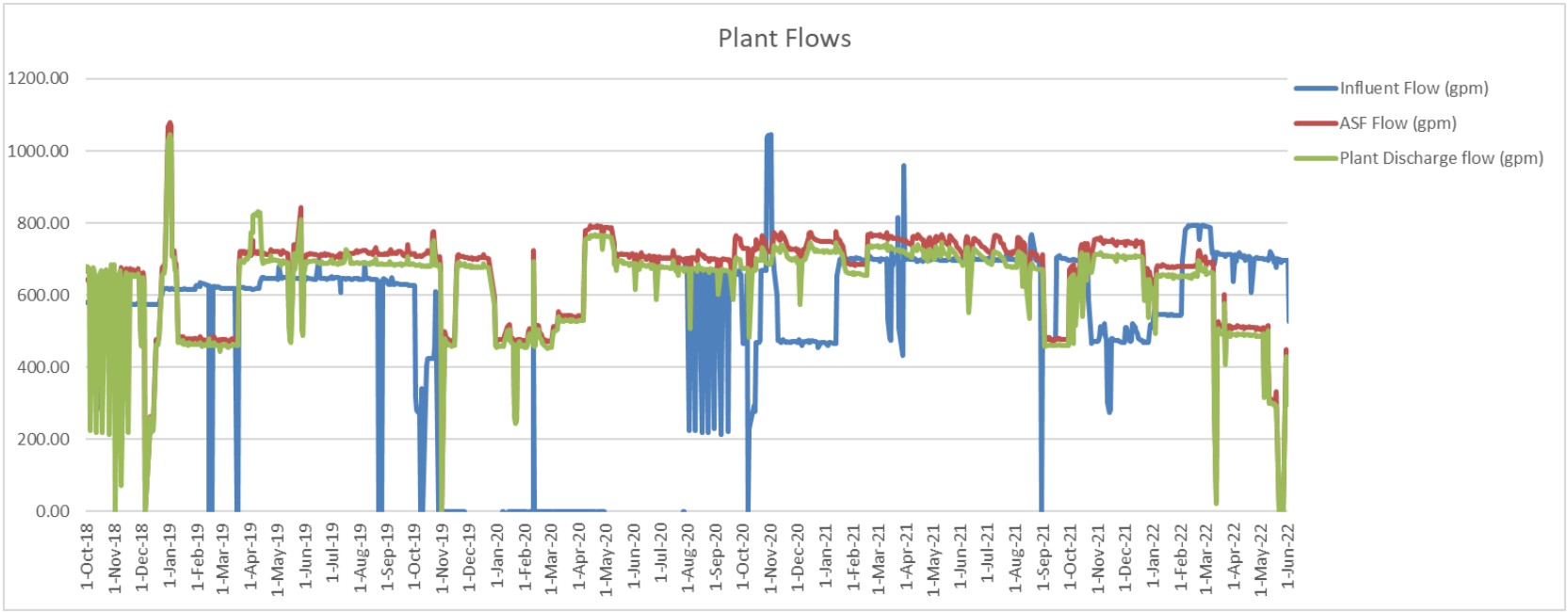
- Well, well field, and recharge basin inspections continue.

14.3 Other

- The CPC GWTF OU4 is secure.
- The property at and around the OU4 site continues to be inspected. While the grounds are not maintained, the treatment plant's entrance and egress points are kept clear and functional.

FIGURE

Figure 1
Plant Discharge Daily Flow



TABLES

Table 1
Claremont Corrective Actions Summary

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
The RW Discharge Manifold integrity is suspect	The condition of the various devices on the RW discharge manifold 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.** **The manifold employs isolation, venting, and drain valves as well as other devices. Along the path of the manifold are vaults which house some of these devices. These vaults need to be accessed, pumped out, and the devices tested.** **Two isolation valves were closed between RW1 and RW3. These valves seemed to hold.**	Plant staff and outside contractors	Possible shutdown	May require a Confined Space Entry (CSE)
AS Tower main drain valve is not controlled	The valve does not respond to manipulation of its actuator. ***This valve should be replaced*.** ***No further action is planned at this time.***	Operator	Plant will need to be shut down to change out the valve	None

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
OU4 fire alarm system is not functioning Central monitoring of the fire alarm system or fire suppression system does not exist OU4 electrical system has been unstable	The Nassau County Fire Code indicates that the sprinkler system must have central monitoring for flow and valve tampering. The fire alarm system needs to be replaced and centrally monitored. Several contractors have been at the site to propose options for the system. BK Fire installed central monitoring on the sprinkler system. Both are offline as the sprinkler system will remain drained until the HVAC system is repaired. Certain OU4 lights currently create a large amount of noise in the fan box within the control room. The southern lights flicker and then die including the emergency system.	Plant operator, Electrical Engineer (EE) and outside vender	None at this time	Fire code violations. High altitude tasks, safety code violations
Several leaks were observed in the plant overhead water supply line	Adjacent to the north door a clam-shell type clamp was applied. The second leak observed above the AS Blower is not readily accessible. It is not problematic. ***Repair work may require evaluation and outside resources. Currently the situation is controlled.***	Outside plumbing contractor	None	Sanitary water may be shut off during repairs

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
The float controls for the PFF pump system have intermittently shorted out causing the system to not properly control 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, as when switches have been replaced in the past, they were spliced outside the box. The float switches have been replaced and spliced above the sump 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. Currently the second splices to the floats are above ground outside the vault.***	Plant operator and US Water resources	Plant shut down is required	Possible Confined Space Entry work
PFF P1 has failed	The pump when activated immediately makes a lot of noise, and the pump drop pipe shakes. Smoke/ fumes emanated at the Motor-shaft connection. The motor appears to be good. The pump was removed from service, 2/24/20. ***It is recommended that the motor be disconnected, lifted, and the mechanical connection checked.***	Outside contractors	None anticipated	To be determined

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
As the ASF pumps cycle off/on, the check valves have started to slam closed. When reactivating, the motor starter contact 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. ***This will need further investigation. Soft-start equipment and variable frequency controls were discussed.***	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 flowmeters for system flow, ASF flow and plant discharge are out of sync with the flow meters on the recovery wells	While the ASF flow meter is the most out of line, it is plumbed correctly. The influent system flow meter and the plant discharge flow meters are piped incorrectly. The same style of relay is used to count pulses, but the meters have not been calibrated. **The system needs further investigation to determine if any changes are warranted.**	EE support	To be determined	none
EF-4 is not operatable	The fan is controlled through the mezzanine thermostat, but it does not appear to be operating. The fan requires electrical testing. **The system was checked, it appears that the fan is not functioning. The fan should be replaced.**	EE support	Only in an emergency	Only in an emergency
Wiring nests in main control console	**The wiring in the main control console needs to be cleaned up and labeled, to facilitate problem troubleshooting and process improvements.**	EE support	A shut down may be necessary	Electrical work

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
Pressure Filter Feed pump controls	With P1 out of service, the sequencing of pumps allows for the PFF vault to reach HHL conditions in certain circumstances. **Reprogram the sequencing to eliminate the position of P1.**	EE support	To be determined	To be determined
RW5 has failed	RW5 shorted out and has been malfunctioning since 3/12/2022 at 17-17:10. Attempts to reset the pump have failed and switching the pump into manual resulted in the station losing power. The motor will need to be removed and replaced to restore functions.	EE support	Less water is treated	To be determined
Air vacuum valve removal	On 5/22/22 RW4 had to be shut down because of a leak detected in the field near an air/vacuum valve pit. On 5/24/22 and 5/25/22, water was pumped out of the vault and on 5/31/22 a confined space entry was made to attempt to tighten the valve and stop the leak. This tightening was unsuccessful, and the valve had to be removed with replacement pending.	US Water Mechanics	Less water is treated	Confined space entry required to do work in vault

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 maintenance**. However, methane does not currently appear to be a hazard
- It has been determined that intrinsically safe components are no longer required in the plant
- There has been no need for acid washing of the AS Tower media, the hydrochloric acid feed and storage system have not been operated. The tanks have not been filled and the level monitoring system has not been operated.

As previously noted, there are pieces of equipment that are out of service and require repairs. Currently there are no plans for addressing these conditions as the operation of this equipment is not necessary or needed for the operation of the treatment system.

Equipment	Fault	Status
Plant electric heater UH-1	Needs transformer	Heater is not needed
Plant electric heater UH-2	Needs relay timer and wiring repairs	Heater is not needed
Recovery well pump pressure switch assembly	Units are unwieldy and subject to vibration, corrosion, and leaks	Each unit requires assessment and disposition
NaOH sump pump	Pump is not operating	No water or chemicals stored in vault. Portable submersible pump in sump should suffice
Plant lights are wired to the emergency light charging system	Un-segregated light cannot be shut off. Several of the lamps may have burnt out	The bank of lights appear to have failed/burnt out. The second bank of lights are sufficient
Plant exhaust fans are part of methane system	Fans cannot be manually operated	Once the methane monitoring system is online, the fans can be operated
Plant discharge drain	Leak in Victaulic fitting	Drain line on plant discharge intermittently leaks. Parts are in-house. Not pressing
ASF pump isolation valve	Valve P1 has failed open	Not needed at this time
PFF pump isolation valve	Valve P3 has vailed open	Not needed at this time
RW1 flow meter	The meter is not operating	Pump is offline. Rocks were pulled from the housing and iron sediment was encrusting the flow meter impeller and housing
RW2 flow meter	The meter is not transmitting	Pump is offline
Air stripper flow meter	Non-functional and removed	
AH-1 condenser	Air conditioner is non-functional	Two window AC units in place
Plant outdoor lights	9 of 12 lights not functioning	Not a security issue

Table 2
Plant Discharge Average Flow & Volume

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	5,039	129,326
Q1 2020	480	682,527	62,110,000	1,824	129,326
Q2 2020	698	996,998	88,732,846	3,838	127,185
Q3 2020	669	955,928	87,945,333	1,099	131,401
Q4 2020	695	1,001,365	92,125,539	52	132,497
Q1 2021	708	1,019,733	91,776,000	0	129,603
Q2 2021	709	1,021,317	92,939,850	0	131,040
Q3 2021	615	884,934	81,413,897	0	132,475
Q4 2021	677	928,370	85,410,047	6,317	126,185
Q1 2022	633	1,291,661	80,082,987	5,280	124,320
April 2022	458	659,484	20,444,000	0	44,640
May 2022	336	483,696	11,125,000	12,200	33,120

Acronyms: gal - gallons gpm – gallons per minute

Table 3
Plant Daily Totalizer Readings

May 2022 Flows						
	Plant Influent		Plant Discharge		RW Discharge	
Date	**Volume**	**Avg. Flow**	**Volume**	**Avg. Flow**	**Volume**	**Avg. Flow**
3-May-22	698,000	485	703,000	488	732,000	508
4-May-22	725,000	483	728,000	485	764,000	509
5-May-22	700,000	486	709,000	492	738,000	513
6-May-22	1,398,000	328	1,351,000	317	1,373,000	322
9-May-22	703,000	488	707,000	491	731,000	508
10-May-22	706,000	490	721,000	501	748,000	519
11-May-22	618,000	412	609,000	406	636,000	424
12-May-22	454,000	303	449,000	299	456,000	304
13-May-22	1,340,000	315	1,300,000	305	1,322,000	310
16-May-22	444,000	308	428,000	297	407,000	283
17-May-22	446,000	310	431,000	299	467,000	324
18-May-22	455,000	303	435,000	290	446,000	297
19-May-22	445,000	309	424,000	294	434,000	301
20-May-22	660,000	278	560,000	236	757,000	319
23-May-22	0	0	0	0	0	0
24-May-22	0	0	0	0	0	0
25-May-22	0	0	0	0	1,000	307
26-May-22	0	0	0	0	0	0
27-May-22	0	0	0	0	0	0
31-May-22	617,000	428	620,000	431	651,000	452
1-Jun-22	511,000	355	505,000	351	514,000	357
2-Jun-22	458,000	318	445,000	309	452,000	357
May Total Plant **Influent** (Gal)			11,378,000			
May Total Plant **Effluent** (Gal)			11,125,000			
May Total **RW Discharge** (Gal)			11,629,000			

Table 4
Pump System Flow Readings

May	On-Time Minutes (actual)	Avg. Flow (gpm)	Avg. Flow (gpd)	Total Flow (gal)
RW1	10	192*	NA	4000
RW2	45	211*	NA	4,440
RW3	17,280	138	198,583	2,383,000
RW4	33,120	279	402,000	9,246,000
RW5	0	0	0	0
RW Totals	33,120	351	505,609	11,629,000
Plant Influent	33,120	344	494,696	11,378,000
Plant Effluent	33,120	336	483,696	11,125,000

The treatment process was online 23 days in May with 12,200 minutes of downtime due to a leak in an air vault pit. Flows are taken from the HMI meter readings.

RW3 was on for only 12 whole days during this period due to electrical malfunctions. Its average flow was done for the days it was running.

RW4 was on for 23 days in this period. Its average was taken with those days accounted for.

*RW1 and RW2 are offline aside from monthly process equipment test to check their functionality. There are no average gallons per day.

Table 5
Claremont OU5 O&M Sampling/Measurement Program and Frequency

Measurement / Analyte	Sampling Location			
	System Influent	Plant Discharge	Recovery Wells	Monitoring Wells
Flow	Daily	Daily	Daily	NA
pH	Quarterly	Weekly	Quarterly	Quarterly
VOCs (+Tert-Butyl-Methyl ether (MTBA) & Tert-butyl alcohol (TBA))	Quarterly	Monthly	Quarterly	Quarterly
Semi-Volatile Organic Compound (SVOC) Base Neutral & Acid Extractables (BNA)	Quarterly	Monthly	NS	NS
Total Kjeldahl Nitrogen⇥ (TKN)	NS	Quarterly	NS	NS
Total Suspended Solids (TSS)	Quarterly	NS	Quarterly	NS
Total Organic Carbon (TOC)	Quarterly	NS	NS	NS
Total Dissolved Solids (TDS)	NS	Quarterly	NS	NS
Cyanide	NS	Quarterly	NS	NS
Hexavalent Chromium	NS	Quarterly	NS	NS
Mercury	NS	Quarterly	NS	NS
Metals	Quarterly	Quarterly	Quarterly	NS
Anions	NS	Quarterly	NS	NS

Notes: NA – Not applicable; NS – Not sampled.

Table 6
Recent Plant Discharge Analytical Results

Parameters	Discharge Limitations (SPDES)	Units	Results
pH (range)	*6.5 – 8.5*	*su*	*6.79*
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	0.40 J
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	73.0 J
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	67.0
Mercury	Not indicated	ug/l	NS
Zinc	Not indicated	mg/l	37.9
Nitrogen, Total (as N)	10	mg/l	7.1
Selenium, Total recoverable	40	ug/l	U
Solids, Total Dissolved	1000	mg/l	292
Chloride Ion	NL	mg/l	113
Cyanide	Not indicated	ug/l	0.040
Fluoride Ion	NL	mg/l	0.045 J
Sulfate Ion	NL	mg/l	10.8
1, 4-Dioxane	NL	ug/l	U

J – Estimated value **U** – Analyzed but not detected **NL** – Monitor only **NS**– Not sampled
SPDES – State Pollutant Discharge Elimination System
Discharge limitations updates as per the water discharge permit.
Note: Parameters shaded in gray are analyzed quarterly with results generally being provided March, June, October, and December.

Table 7
Effluent pH and Temperature Readings

Date	pH (su)	Temp (^{o}F)
5/2/2022	6.69	60.8
5/9/2022	6.81	56.84
5/16/2022	6.85	65.48
5/27/2022	6.8	63.32
May Average	**6.79 su**	**61.61^{O}F**

Table 8
Plant Discharge Monthly Average pH

Month	pH(su)
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
Aug '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
Mar '21	6.76
Apr '21	7.28
May '21	7.53
June '21	7.44
July '21	7.41
Aug '21	7.42
Sept '21	7.13
Oct '21	7.10
Nov '21	7.09
Dec'21	7.01
Jan '22	6.90
Feb '22	6.90
Mar'22	6.80
Apr '22	6.78
May '22	6.79

Plant Discharge Monthly Average pH Readings

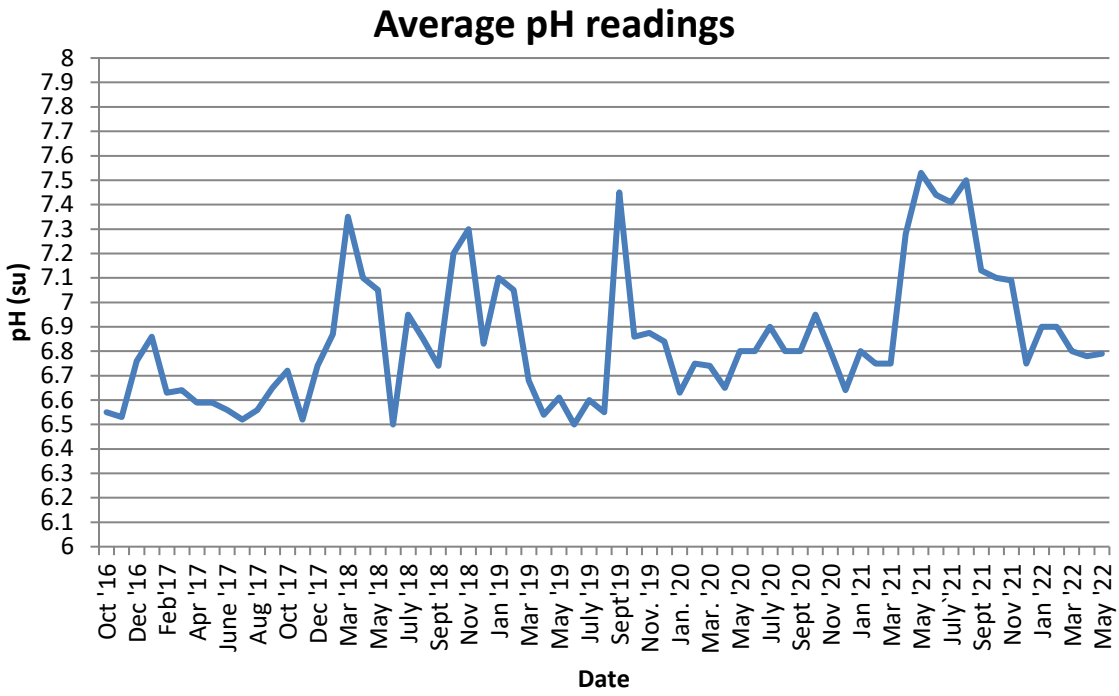


Table 9
AS Tower Air Monitoring Readings

Recorded Date	Port B (ppm)
5/2/22	0
5/9/22	0.2
5/16/22	0.1
5/27/22	0