CLAREMONT POLYCHEMICAL SUPERFUND SITE
Groundwater Treatment System
Old Bethpage, New York
(NYSDEC Site Number 130015)

MONTHLY REPORT
of the
Operations & Maintenance Activities during
February 2016

NYSDEC STANDBY ENGINEERING CONTRACT
Work Assignment #D007625-19

PREPARED FOR
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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Table of Contents

ACRONYMS AND ABBREVIATIONS

AS	air stripping
ASF	air stripper feed
CA	carbon adsorber
CLP	contract laboratories program
DBA	doing business as
DOSR	daily operations summary report
DTW	depth to water
gpd	gallons per day
gpm	gallons per minute
GW	groundwater
GWTP	groundwater treatment plant
GWTS	groundwater extraction, treatment, and reinjection system
HCl	hydrochloric acid
HMI	human-machine interface
HRP	HRP Associates, Inc., dba HRP Engineering, P.C.
HVAC	heating, ventilation, and air conditioning
IG	infiltration gallery
IW	injection well
LGAC, LCA	Liquid phase granular activated carbon, Liquid side carbon Adsorbers
LTRA	Long Term Response Action
MCC	motor control cabinet
MCP	master (main) control panel
NCDPW	Nassau County Department of Public Works
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance
PDB	Passive Diffusion Bags
PD	plant discharge
PID	photo ionization detector
PLC	programmable logic controller
psi	pressure in pounds per square inch
PW	process water
SAIC	Science Applications International Corporation
SAP	sampling and analysis plan
SOP	standard operating procedure
SSHP	site safety and health plan
SU	standard pH units
TA	Test America laboratory
TOB	Town of Oyster Bay
USACE	United States Army Corps of Engineers
VGAC, VCA	vapor-phase granular activated carbon, Vapor side carbon adsorber
VFD	variable frequency drive
VOCs	volatile organic compounds

1.0 OPERATION AND MAINTENANCE ACTIVITIES

Henningson, Durham & Richardson Architecture and Engineering, P.C. (HDR) continued its daily operation and maintenance (O&M) of the Claremont Polychemical Superfund Site Groundwater Treatment System (GWTS) during the February 2016 period. This report covers the operational period defined as beginning at 0600 hours, February 1, 2016, through 0600 hours, March 1, 2016. O&M conducted during this reporting period was performed in accordance with the site O&M Manual.

The GWTS - plant, grounds, and well system were maintained for the 29 days in this reporting period during which the treatment system flows and tank levels varied with pump configurations but remained relatively stable. During this February period, the plant was shut down for approximately 35 minutes to implement wellfield repairs. The plant also experienced several momentary power interruptions but did not lose any operating time.

Readings of key process parameters were recorded each work day morning. These readings are used to monitor the system's performance and condition, and as a basis for adjustments to the plant processes. These readings are recorded in the Daily Database which is an electronic file maintained in the monthly operating document folders.

1.1 Daily Operations Summary Reports

The daily operation of the GWTS is briefly described in the Daily Operations Summary Report (DOSR). The DOSR includes a summary of the daily O&M activities and is based on the daily operating worksheets and the Daily Plant Activity Notes. These worksheets include:

Daily Operating Log – selected process readings (CPS-Form-008)
Daily Activities Summary Report - plant operator activities (CPS-Form-007)
Daily Site Safety Inspection – process condition checklist (CPS-Form-009)
Employee Sign-In Sheet – employee daily log in (CPS-Form-11)

1.2 Summary of Maintenance Activities

Maintenance of the treatment system and associated equipment is performed in accordance with the Claremont GWTS O&M Manual. Routine activities and equipment function tests completed during this reporting period are summarized in the Monthly Maintenance Log. This report is electronically filed and is available for review.

The plant and system maintenance incorporates the equipment manufacturers' recommendations, operations experience, and good engineering and maintenance practices. A detailed accounting of daily operation and maintenance activities is provided in the plant operator's daily logbook, the site supervisor's daily logbook, the operator's daily activities summary reports, and the site supervisor's daily plant activity notes.

A list at the end of this report gives the location of the documents referenced in this report.

Maintenance and project activities completed during February included:

- General maintenance tasks continued including - outdoor clean up, plant housekeeping, system inspections and system monitoring.
- Scheduled monthly tasks such as motor amp load readings, injection well DTB, DTW, and flow measurements, infiltration gallery DTW readings, process valve function tests, and comprehensive site safety inspections continued.
- Grounds and well maintenance tasks and inspections continued.
- The influent pumps were rotated from 2&3 to 1&3 to 2&3. The other process pumps from 1 to 2 to 3. Only one each of three ASF, TWF and INJ pumps were required for the current treatment operations.
- Snow removal efforts continued as necessary, including plowing the drive and clearing the exit door pads.
- Various indoor steel structures were prepared and painted.
- The heat trace vault cover for the sump pump discharge was replaced.
- Repairs were made to the upper hinge on the SE exit door.
- PM was completed on the AS blower.
- PM was completed on the air compressor system.
- Adjustments were made on the pipe caps for the IG-1 influent manifold.

2.0 MAINTENANCE LOGS

The following operating logbooks are currently in use:

- Well Maintenance Log CL-28
- Sampling and Field Support Log CL-37
- Field Support Log CL-43
- Miscellaneous Field Notes CL-47
- Plant Operator's Daily Log CL-53
- Site Supervisor's Daily Log CL-54

Except for log book CL-26, the remaining project log books are stored at the plant. All of the logbooks are identified on a master logbook inventory control file and those on-site are routinely checked as part of the site quality control program.

3.0 TECHNICAL SUPPORT ACTIVITIES

3.1 HDR Personnel

- The plant operators maintained the system throughout the period.
- Patricia Parvis provides project management and guidance from the Mahwah office.
- Christine Weaver continues to support the EQuIS sample data system.

- HDR staff continues to support various plant activities.
- Patricia Parvis, Erich Zimmerman and Jennifer Becker were in 2/24 to inspect the Old Bethpage GWTF (OU5) at the TOB Landfill.

3.2 NYSDEC Personnel, sub-contractors and other visitors

- Plainview Water was in to inspect the water supply lines 2/16.
- Mike Flaherty (NCDPW) was in 2/17 for a project update. He returned 2/26 to pick up well keys.
- TA-NY was in 2/25 to pick up the PW samples for delivery to TA-Edison for analysis.

3.3 Deliveries

- Mail was delivered 4 times.
- Fed Ex delivered the EON Products order (PDBs) 2/4.

4.0 HEALTH AND SAFETY

Work at the Claremont Polychemical GWTS was conducted in accordance with the approved Site Safety and Health Plan (SSHP). Site safety inspections were performed every workday and the reports are filed on-site. In addition to the daily site safety inspections, comprehensive safety inspections were carried out 2/1, 2/12, and 2/29. These worksheets are also on file.

On February 16, the water supply line to the MANA construction site froze and ruptured. This required a service shut down for repairs. The shut down included the sanitary and safety water supplies to the plant. Precautions were taken and no additional problems occurred.

5.0 PLANNED ACTIVITIES AND SCHEDULES

The status of project work and significant corrective maintenance activities is updated as needed and reviewed at least monthly. This status of plant conditions and concerns was updated February 22. It is electronically filed and is included at the end of this report as Table 12-1 – Claremont Corrective Action Summary.

Separate tentative schedules for equipment maintenance tasks are shown in the O&M Manual and the Sampling and Analysis Plan (SAP). Other significant activities being considered include:

- The potential cessation of operations at the Claremont GWTF will require meeting state and local protocols as well as good engineering practices.
- The next quarterly monitoring well groundwater elevation readings are scheduled for 3/11.
- The next monthly PD samples are scheduled for March 24.
- The next quarterly GW samples are to be scheduled for March 17.

- Further testing is required for the IG flow meters.
- A pipe cap at IG-3 is damaged and will require replacement. The pipe itself will require some modification.
- The performance of the injection well system continues to raise a concern.
- Selected equipment and fixtures are to be painted.
- The level control floats for the sump pump are to be reattached to the sump wall.
- The AS blower bearings may need to be replaced.
- The LCA vessels are to be scrapped.
- The INF, PD, and the IW flow elements are to be cleaned.
- The pump control in the RCY tank is to be evaluated.
- The flow control meters for the treatment trains are to be calibrated.
- The fire alarm panel is to be evaluated.

6.0 MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater level elevation data table was updated after December's groundwater sampling task. This database is available for review.

The next water level recording event is scheduled for March 11.

7.0 TREATMENT SYSTEM FLOWS

The volume of treated water discharged by the treatment plant to the injection well field is determined daily from readings of the magnetic flow meter on the plant effluent line. A summary of the February meter readings is provided in Table 7-1. The total volume of treated water discharged, as measured from 0600 hours on February 1, to 0600 hours on March 1, was 6,659,322 gallons. The cumulative volume of water discharged for the HDR contract year (Sept. 1, 2015 to present) was 43,848,709 gallons. For the 2016 calendar year the total volume of water discharged was 13,897,745 gallons. A graphic representation of the system's daily flows is provided in Figure 7-1. The plant experienced 35 minutes of downtime in February.

In February, the plant discharge flow averaged 159 gallons per minute (gpm) and 229,632 gallons per day (gpd). The plant discharge flow rate was stable throughout the period.

Month	Flow Average (gpm)	Volume Discharged (gpd)
January '14	334	481,617
February '14	318	457,259
March '14	333	478,018
April '14	320	460,702
May '14	314	452,422
June '14	295	424,576
July '14	302	435,092

Month	Flow Average (gpm)	Volume Discharged (gpd)
August '14	292	420,245
September '14	250	360,066
October '14	254	365,181
November '14	258	371,571
December '14	240	344,998
January '15	258	372,237
February '15	256	368,601
March '15	254	365,363
April '15	244	350,913
May '15	241	347,461
June '15	213	306,679
July '15	235	337,848
August '15	208	298,894
September '15	174	250,316
October '15	176	253,630
November '15	168	241,216
December '15	164	236,853
January '16	163	233,498
February '16	159	229,632
Historic Target	**335**	**482,400**

The flow monitoring units for the individual IW systems allow for reading the flow rate and volume discharged to each individual IW system. The influent flow restrictions for IW-1, -2, and -3 are introduced at the plant manifold as necessary; other restrictions were introduced at the wells for IW-1 and IW-3. The IG meters are not functioning. The velocity of water influent to IW-2 is too low for the flow element to pick up (the values indicated are estimates). In February, the flows to each well system are indicated below:

Injection Well System	Flow Average (gpm)	Volume Discharged to well (gallons)
IW-1	58	2,433,050
IW-2	6	250,086
IW-3	29	1,216,566
IW-4	56	2,341,456
System	**149**	**6,241,158**

Differences in the flow measurements of the different treatment process steps are observed. These discrepancies are due in part to the type of flow meters utilized (paddle wheel vs. magnetic vs. turbine), the plumbing configurations, sludge build up in the piping at the flow elements, and rounding factors in the meters.

In the wellfield, the valves controlling the flow into IW-1 and IW-3 are partially closed and those controlling flow into IG-1 and IG-3 are fully open. Both infiltration galleries are

adequately draining at the current influent rates. Surface water at IG-1 and IG-3 had been attributed to leaking pipe caps and not to clogged laterals. Caps were adjusted as necessary or replaced. Currently only one injection pump is required online.

The plant's total effluent discharge is limited by plumbing constraints, the discharge capacity of the injection pumps, and the ability of the injection wells to accept water.

8.0 CHEMICAL CONSUMPTION

The four (4) chemical feed systems are currently not in-service. The systems are periodically tested and could be made operational. The caustic, the hydrochloric acid and the polymer chemical feed tanks and feed tubing contain water for testing and inspection purposes. The $KMnO_4$ tank is empty with a cracked tank drain flange.

There were no bulk chemicals present onsite in February 2016.

9.0 VAPOR PHASE CARBON SYSTEM

One of the Vapor-phase Carbon Adsorber Vessels (VCA) is on-line for the treatment of the air stripping (AS) air stream. Currently, VCA-1 is online. VCA-2 is offline and is ready for service.

Monitoring of VOCs in the online vessel's air stream is performed weekly with a photo-ionization detector (PID) calibrated per manufacturer's recommendations. No emissions from the vessel's effluent air stream were observed in February.

No spent vapor-phase carbon waste was generated during this period, and no carbon was added to the vessels.

10.0 WASTE DISPOSAL

No chemical waste was removed or disposed of in February.

11.0 MONTHLY DISCHARGE MONITORING REPORT

The GWTS is currently operating under an equivalency permit from the New York State Department of Environmental Conservation (NYSDEC). A review of the analytical results for the monthly plant discharge samples, (included within Section 14.0), indicated all analyzed parameters were below noted permit limits. The most recent plant discharge results can be seen in Table 14-1.

The plant's water discharge permit has been extended through December 31, 2025.

12.0 OTHER OPERATIONS, MAINTENANCE, OR MANAGEMENT ISSUES

Members of the HDR staff made a site visit to the Old Bethpage Groundwater Treatment Facility (OB-GWTF) to assess the system for the transfer of the O&M responsibility later this year. The process, equipment, control system and system performance is to be evaluated.

If the operations at the Claremont GWTP are to be terminated or mothballed, a plan will be needed to address the transition. To be included but not limited to, agency regulation requirements for the shut down of the system, if, how and where historic and operating records are to be stored, the level of power shut down, and the level of security/maintenance to continue on the facility and wellfields.

The IG flow meters continue to malfunction. More investigative work is required to determine the problem.

It should be considered that carbon sludge may be deposited throughout the system's piping and instrumentation.

Several pumps are making noise when activated (INJ P-2, LCAF P-2 and INF P-2). INF-P3 requires manual shaft rotation before startup after a prolonged idle period

The pH of the plant discharge remains below 6.5 standard units. The trend of the recent average plant discharge pH can be seen in Table 14-3.

IW-1, -2, and -3 appear to be accepting little water and their influent water flows remain restricted.

The actual discharge pressure of the injection pumps is higher than their specified operating range and therefore will underperform. However, at current flows and the condition of the injection system, one pump online is adequate.

Other on-going plant maintenance issues are summarized on Table 12-1.

13.0 PLANT DOCUMENTS

Procedures and standard forms are written, reviewed, and revised as needed. In February, the update of the Field Sampling Plan continued.

14.0 TREATMENT PLANT AND WELL FIELD MONITORING RESULTS

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

14.1 Off-site Analytical Data Results

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

- The January PD data was processed and submitted using EQuIS.
- The PDBs were ordered and received. Installation will occur during GW sampling.
- The quarterly GW samples are scheduled for 3/17.
- The March PD samples are scheduled for 3/24.
- The groundwater samples for the PW task were collected 2/22. The plant samples were collected 2/25. The samples were shipped to TA-Edison for analysis.

14.2 Field Data

Injection Well Soundings and DTW

Measurements to determine the well depth from the top of the injection well column to the bottom were taken February 3. A summary of the historical data can be reviewed in Table 14-2. Currently it appears that the sediment levels are stable.

The IW water levels are manually monitored and all the wells are stable. The plant flow control valves are adjusted for IW-1, IW-2, and IW-3. The DTW readings for the injection wells were also recorded 2/3.

	Orig. Well depth ft bgs	Screen Interval ft bTOC	Depth to Bottom ft bTOC	Depth to Water ft bTOC
IW-1	-248.50	-133 to -248	-145.18	-2.15
IW-2	-248.50	-100 to -250	-106.00	-39.78
IW-3	-253.20	-102 to -250	-247.20	-4.25
IW-4	-250.00	-100 to -250	-184.8	-9.18

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 obtained from the plant effluent taken from a controlled point with calibrated portable meters. A summary of this data for February is as follows:

Date	pH (su)	Temp ^{0}C
Feb. 2	5.94	13
Feb. 8	6.14	10
Feb. 15	6.27	15
Feb. 22	5.73	14
Feb. 29	6.30	15

Date	pH (su)	Temp ^{0}C
Feb. Average	**6.08**	**13**

The previous NYSDEC discharge permit required the plant discharge to have an average monthly pH greater than 5.50 standard units (su). The treatment plant effluent pH averaged 6.08 su in February and met the monthly average pH discharge requirement. A graph of the plant discharge monthly pH average trend over several months is provided in Table 14-3.

AS Tower Carbon Bed Air Monitoring

Using a calibrated PID meter, weekly air monitoring readings are taken of the influent and effluent air streams of the active VCA vessel following the air stripping tower. Currently vessel VCA-1 is on-line. Below are the readings for February.

Date	Outlet
Feb. 2	0
Feb. 8	0
Feb. 15	0
Feb. 22	0
Feb. 29	0

*PID readings indicate that the VOCs in the air stream are lower than the part per million levels (ppm) of the instrument's capability.

No emissions were detected in the discharge of the active vessel (VCA-1) in February.

Other routine data collected during February's operations included:

- The plant sound level readings were recorded 2/1, 2/12 and 2/29.
- The utility meter readings were recorded weekly.
- The extraction well packer pressures were recorded ~ weekly.
- The process motor amp loads were measured and recorded 2/27.
- The infiltration gallery DTW readings were recorded 2/29.

15.0 PROCESS ANALYSIS, INTERPRETATIONS, AND CONCLUSIONS

15.1 Extraction and Influent Processes

- The discharge flows from EX-1 remain restricted.
- The pump for EX-2 remains shut off.
- The sampling hydrants were tested and then used for sampling.
- The EQ tank level controller element is heat traced and insulated.
- The EX and INF pump motor amp load readings were recorded 2/27.
- Both active EX pumps are running ~14 hours per day.
- The three influent pumps are operational and two are online.
- The flow control for treatment train 1 fluctuates but is manageable.

- The influent pumps were rotated twice in February.
- The INF check valves are manually set.
- Routine maintenance continues.

Extraction Well Packer Pressure Readings:

	EX-1 (>25 psi)	EX-2 (>35 psi)
Feb. 2	31	38
Feb. 10	30	38
Feb. 18	29	36
Feb. 22	27	36
Feb. 29	28	37

15.2 Flow through Aeration Process

- Both treatment trains are on-line and the process water is balanced between them.
- The polymer, potassium permanganate, caustic, and hydrochloric acid feed systems remain off line. All 4 systems were last tested in April 2015. All systems work adequately. The $KMnO_4$ feed tank will require repairs.
- The flash and flocculation mixers at the clarifiers remain idle due to lack of solids generation.
- The pH control systems are off line and out of service.
- The reaction tanks, clarifier systems, and settling tanks continue to operate as pass-through settling tanks.
- Maintenance is performed as required.

15.3 Air Stripping Process

- The three ASF pumps are operational. Only one is required with current flows. They were rotated twice in February.
- The motor amp load readings were recorded 2/27.
- The check valves are manually set.
- The VFD for ASF P2 exhibits an earth ground fault. When on-line, Pump 2 operates through the VFD for pump 3.
- The pH control system is not in service.
- The VCA carbon beds are drained of water as necessary.
- The blower bearings were lubricated and PM completed.
- Paint is peeling from the tower.
- No other issues arose with the air stripping system. Routine maintenance continues.

15.4 Treated Water Tank Feed System (Former LCA Feed system)

- The LCA vessels are isolated, out of service, and empty.
- All three pumps are operational and were rotated twice in February. Only one pump is necessary for the current flows.
- The pump motor amp load readings were recorded 2/27.

- The pump check valves are manually set.
- Other routine maintenance tasks continued.

15.5 Treated Water Injection Process

- The plant discharge system is online and operational.
- The TW tank level controller elements are heat traced and insulated.
- The pumps were rotated twice in February. Only one pump is necessary for the current plant flows.
- The galleries are draining adequately.
- A pipe cap was adjusted on the main cleanout of the IG-1 influent manifold.
- The IG flow meters are not operating correctly. Further investigation is required.
- The flow influent to IW- 1, IW-2 and IW-3 is restricted.
- The pump motor amp load readings were recorded 2/27.
- The check valves for P1 and P2 are manually set.
- The well transducers are not functioning and are disregarded.
- No other issues were encountered with the injection system.

16.0 GROUNDS

16.1 Plant Perimeter

- General outdoor clean up tasks continue.
- Snow was removed as required.
- The access gates are clear.
- The fire hydrant is clear and accessible.

16.2 Well Field

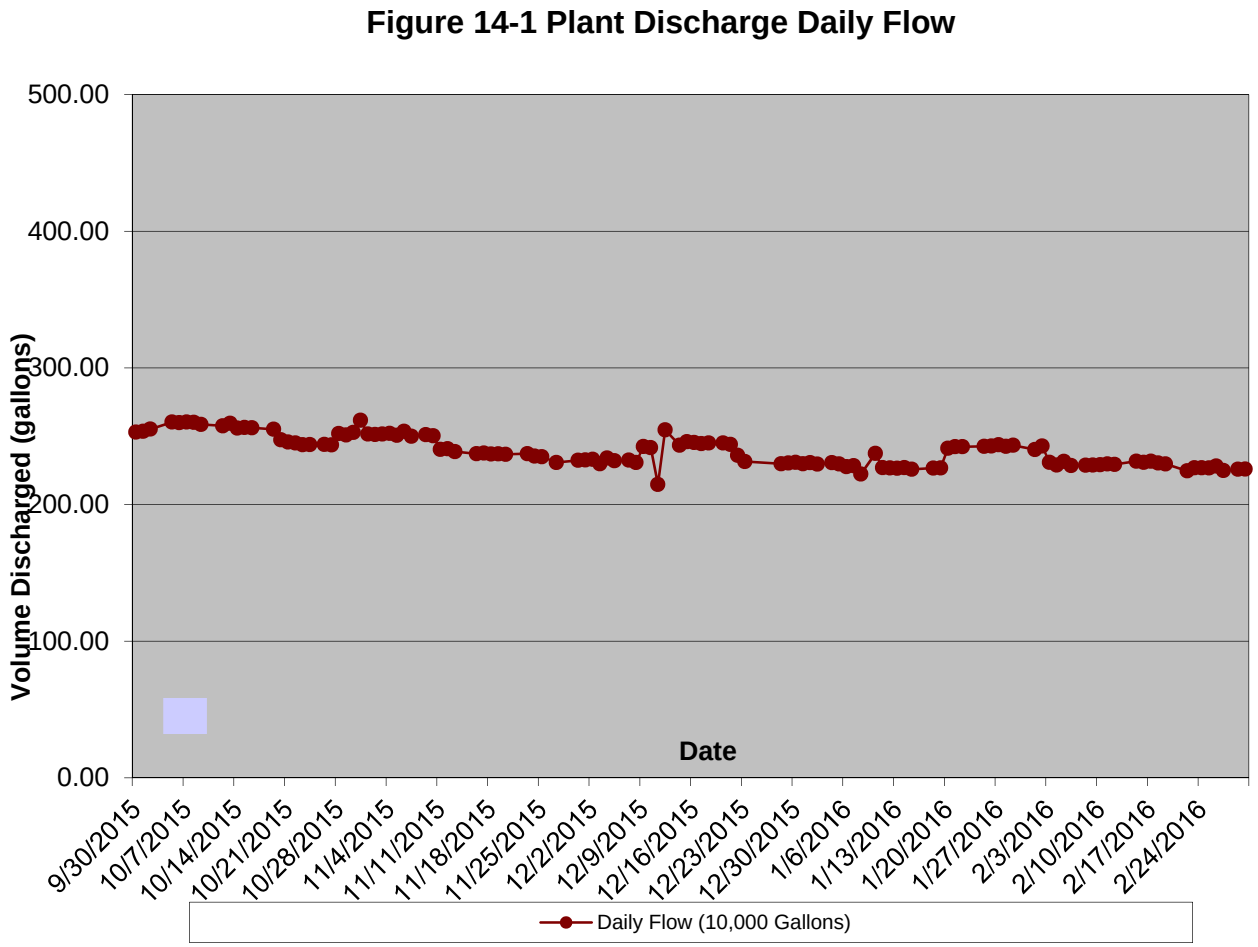
- Manual DTW readings of the IWs continued.
- Extraction well packer pressure readings continue.
- The manifold pipe caps in the infiltration galleries are adjusted as necessary.
- The paths to the monitoring wells are clear.

16.3 Other

- The monthly in-house inspection of the plant truck was completed.
- Miscellaneous trips for local purchases were made.

FIGURES

Figure 14-1 Plant Discharge Daily Flow



TABLES

TABLE 7-1 Magnetic Flow meter Daily Totalizer Readings – February 2016

DATE	TOTALIZER READING	GALLONS PER DAY	GALLONS PER MINUTE
2/1/2016	35257210	258790	180
2/2/2016	35516000	246000	171
2/3/2016	35762000	231000	160
2/4/2016	35993000	233000	162
2/5/2016	36226000	191000	133
2/6/2016	36417000	491000	170
2/8/2016	36908000	231000	160
2/9/2016	37139000	226000	157
2/10/2016	37365000	229000	159
2/11/2016	37594000	260000	181
2/12/2016	37854000	655000	152
2/15/2016	38509000	233000	162
2/16/2016	38742000	233000	162
2/17/2016	38975000	229000	159
2/18/2016	39204000	235000	163
2/19/2016	39439000	689000	159
2/22/2016	40128000	224000	156
2/23/2016	40352000	224000	156
2/24/2016	40576000	228000	158
2/25/2016	40804000	232000	161
2/26/2016	41036000	205000	142
2/27/2016	41241000	466000	162
2/29/2016	41707000	209532	146
3/1/2016	41916532		
Feb '16 Treated Water Volume		**6,659,322**	
Feb '16 Avg. GPM Discharged			**159**

TABLE 12-1 Plant conditions and concerns (updated 2/22/16)

Date	Condition to be corrected	Status and Actions	Priority
2007 June '14 Jan '16	PD manifold leak A second leak has developed A third leak has developed in the manifold	3 leaks are monitored and deemed to be not serious Leave as is and continue monitoring This leak is from the connection past the flow meter	3
2008	Check Valve failures	Plant wide – 13 units, this situation creates problems for any remote control of the processes. Valves are manually controlled	2
2008	Injection Pump 1&2 shut off valve failures	Minimum 3 units. Pumps cannot be isolated. Leave as is. The influent valve for P2 has been replaced	2
Aug '08	Air Compressor overhaul	A failure may prevent some tasks. System is run on an 'as needed' basis	4
2009	EQ tank isolation valve failure	The tank cannot be isolated Run system as is.	2
2009	Filter press hydraulic fluid leak	The hydraulic pump system will require outside service. Fluid is added as needed. System is operable.	4
Aug '10	IW transducer replacement	Leave as is and manually measure water levels	3
June '11	ASF P2 VFD failure	Leave unit out of service P-2 is run on off-line pump's VFD	2
July '11	INF P1 VFD malfunction	Leave as is. Pump flow is controlled by throttling the P-1 discharge valve. The system seems better and just requires adjustment to the PID control.	2
Apr '12	Permanganate tank repair	The feed system is off line and tank is not needed. Tank will be repaired when its use is mandated.	4
Sept '12	Flow into the wellfield has been decreasing.	Pump efficiency and water acceptance are both factors. Items to address include: - change discharge & manifold plumbing - change out pump impellers or resize pumps - review plant flow requirements - Redevelop wellfield - Install another IG	2
May '13	Sump pump level control mountings are loose	The float is secured to a submersed pipe. A permitted confined space entry will be required for a permanent repair.	3
Aug '13	Sediment infiltration of IW-2	Possible breach in well casing or screen. Flow has been restricted influent to the well. The DTW and DTB continue to be monitored.	2
Jan '14	Replacement of bearings on the AS blower	The shaft bearing is making noise. Replacement is not necessary at this time. The bearings are a capital item (~$1000 per pair, 1 pair to be replaced).	2
March '14	INF P2 has developed a mechanical seal leak.	The leak is not severe and requires no action at this time.	3
May '14	INJ P1 and P2 output is dropping.	The impeller for INJ P2 has been cleaned with no improvement to flow. Influent restrictions to the wells have increased discharge pressures.	2
Sept '14	Paint is peeling from the AS tower	Venders have been contacted. Paint specification have been provided	3
April '15	The flow meters in IG-1 and IG-3 are not recording flow	Meter elements were removed and cleaned in July '15. Once cleaned the mechanism spun freely but do not register flow. The meters will require re-examination.	3

Date	Condition to be corrected	Status	Priority
July '15	Influent flow control for treatment train 1 is problematic	Currently the system is monitored and manually adjusted. The PID control mechanism scheme is now much tighter and controls on the lower limits. Both INF P1 and P3 are affected.	3
August '15 Dec '15	Flooding observed in area adjacent to and above IG-3 Water observed coming from IG-1 main clean out	Flow influent to IG-3 has been lowered. System operation results in the influent piping remaining full while hydraulically pressurized. The surface water appears to be due to loose piping end caps. These will be replaced. The NW pipe cap was removed and adjusted and reinstalled. The cap for the SW pipe is cracked and there is not enough clearance under the drive over cap for a replacement. Modifications to the pipe will be required Flow influent to IW-1 has been lowered. The pipe cap has been adjusted and may require replacement.	2
August '15	Nuisance alarms on Fire alarm control panel	Reset as necessary. Panel shut down. Vender is to be contacted	3
August '15	Auto drain valve on compressor does not shut off	Valve is manually activated. The valve will be opened, cleaned, and examined.	3
Dec '15	Influent pump #3 failed to run upon activation.	Previous recent experience with pump required manual rotation of pump shaft if pump had been idle for prolonged periods of time (between pump rotations). Pump was taken out of service and physically rotated to free up its operation. The unit was returned to service and monitoring will continue.	3
Dec '15	INF P3 leak at adapter housing	It appears to be a seal leak, not severe at this time. It may be contributing to the problem indicated above. **Last observation revealed no leak. Monitoring will continue.**	3
Feb '16	**A water hammer prevention device is leaking**	**The leak is from a device on the non-potable water line above the KMnO4 containment area. Monitoring will continue**	**3**
Feb '16	**Flow control on treatment Train 2 is problematic**	**When P3 is on treatment train 1and Pump 2 is online, The PID control of Train 2 is affected**	**3**

Current monthly activity in bold

Priority Level 1- Urgent and must be done
2- Not urgent but must be done
3- Not urgent but should be done
4- Not urgent but would like done

TABLE 14-1 Recent Plant Discharge Analytical Results

The plant discharge was last sampled on January 21. The following are the analytical results for this event.

Plant Discharge			
Parameters	**Discharge Limitations (SPDES 2015)**	**Units**	**Results January 2016**
pH (range)	6.5 – 8.5	SU	6.21
1,1,1-Trichloroethane	5	ug/l	U
1,1-Dichloroethane	5	ug/l	U
1,1 Dichloroethylene	5	ug/l	U
Benzene	0.7	ug/l	U
Chlorobenzene	5	ug/l	U
Chloroform	7	ug/l	U
1,2-Dichloroethane	0.6	ug/l	U
1,2-(cis) Dichloroethylene	5	ug/l	U
1,2-(trans)Dichloroethylene	5	ug/l	U
Ethylbenzene	5	ug/l	U
Methylene Chloride	5	ug/l	U
nitrobenzene	0.04	ug/l	U
Tert-butyl alcohol	Not indicated	ug/l	U
tert-Butyl-Methyl ether	5	ug/l	U
Tetrachloroethylene(PCE)	5	ug/l	U
Toluene	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
Antimony, Total recoverable	3	ug/l	NS
Arsenic, Total recoverable	50	ug/l	NS
Barium, Total recoverable	2000	ug/l	NS
Lead, Total recoverable	50	ug/l	NS
Selenium, Total recoverable	40	ug/l	NS
Iron, Total recoverable	600	ug/l	NS
Manganese, Total recoverable	600	ug/l	NS
Nitrogen, Total (as N)	10	mg/l	NS
Solids, Total Dissolved	1000	mg/l	NS
Chromium, Hexavalent	100	ug/l	NS
Chloride Ion	NL	mg/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

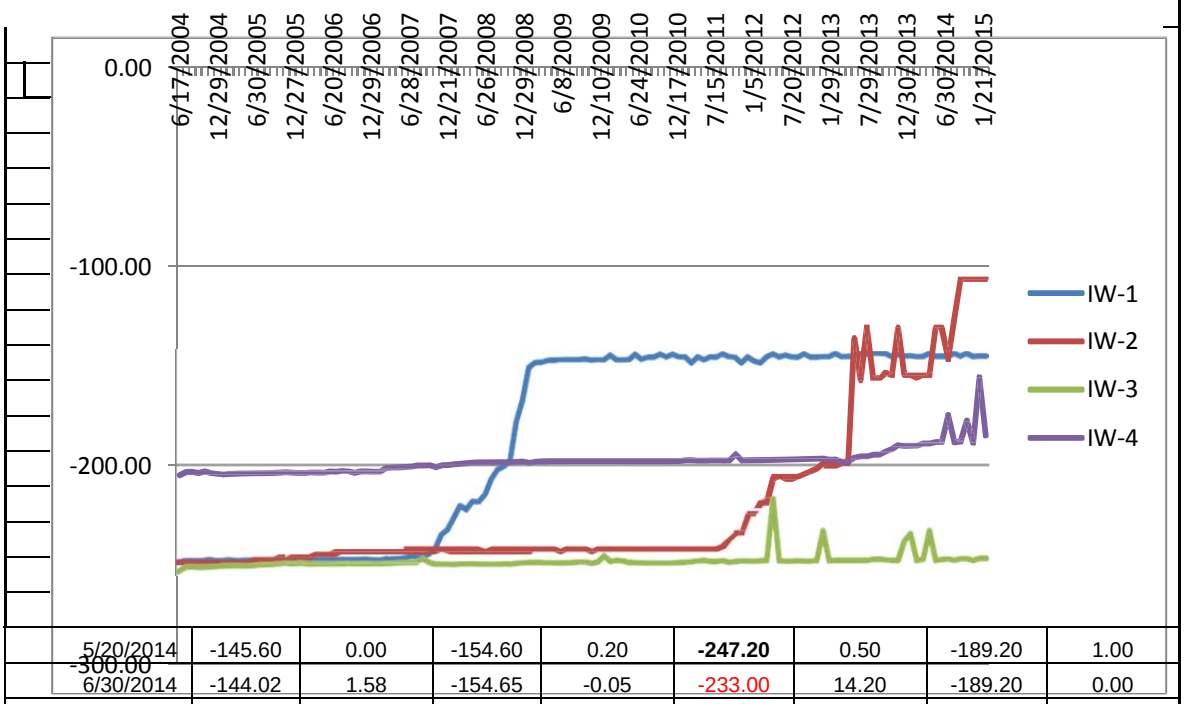
Discharge limitations updates as per the water discharge permit (expires December 31, 2025).

TABLE 14-2 Injection Well Soundings

	Injection Well 1		Injection Well 2		Injection Well 3		Injection Well 4	
Date	DTB(ft)	Difference	DTB (ft)	Difference	DTB (ft)	Difference	DTB (ft)	Difference
6/17/2004	-248.50	--	-248.50	--	-253.20	--	-205.00	--
7/23/2004	-247.97	0.53	-248.19	0.31	-251.20	2.00	-203.50	1.50
8/16/2004	-247.90	0.07	-248.18	0.01	-251.00	0.20	-203.40	0.10
9/14/2004	-247.95	-0.05	-248.15	0.03	-251.10	-0.10	-203.95	-0.55
10/28/2004	-247.79	0.16	-248.20	-0.05	-251.20	-0.10	-203.15	0.80
11/15/2004	-247.40	0.39	-248.26	-0.06	-251.03	0.17	-204.03	-0.88
12/29/2004	-247.87	-0.47	-248.33	-0.07	-250.82	0.21	-204.40	-0.37
1/10/2005	-247.83	0.04	-248.12	0.21	-250.54	0.28	-204.70	-0.30
2/16/2005	-247.50	0.33	-248.25	-0.13	-250.45	0.09	-204.36	0.34
3/18/2005	-247.82	-0.32	-248.10	0.15	-250.40	0.05	-204.43	-0.07
5/10/2005	-247.81	-0.03	-248.14	-0.01	-250.45	0.02	-204.22	-0.02
6/30/2005	-247.62	0.19	-247.25	0.89	-250.36	0.09	-204.04	0.18
7/26/2005	-247.67	-0.05	-246.82	0.43	-249.93	0.43	-204.11	-0.07
8/29/2005	-247.71	-0.04	-246.50	0.32	-249.78	0.15	-204.17	-0.06
9/27/2005	-247.77	-0.06	-246.29	0.21	-249.77	0.01	-203.90	0.27
10/24/2005	-247.78	-0.01	-246.00	0.29	-249.44	0.33	-203.84	0.06
11/14/2005	-247.51	0.27	-246.19	-0.19	-249.10	0.34	-203.57	0.27
12/27/2005	-247.60	-0.09	-245.70	0.49	-249.32	-0.22	-203.83	-0.26
1/27/2006	-247.51	0.09	-246.09	-0.39	-249.21	0.11	-203.98	-0.15
2/16/2006	-247.50	0.01	-245.69	0.40	-249.19	0.02	-203.98	0.00
3/23/2006*	-247.59	-0.09	-245.65	0.04	-249.60	-0.41	-203.75	0.23
4/28/2006	-247.54	0.05	-243.68	1.97	-249.50	0.10	-203.78	-0.03
5/24/2006	-247.38	0.16	-243.61	0.07	-249.57	-0.07	-203.90	-0.12
6/20/2006	-247.47	-0.09	-243.70	-0.09	-249.46	0.11	-203.14	0.76
7/28/2006	-247.44	0.03	-243.37	0.33	-249.52	-0.06	-203.33	-0.19
8/21/2006	-247.34	0.10	-243.19	0.18	-249.42	0.10	-202.88	0.45
9/22/2006	-247.36	-0.02	-242.70	0.49	-249.27	0.15	-203.05	-0.17
10/30/2006	-247.16	0.20	-242.64	0.06	-249.48	-0.21	-203.92	-0.87
11/29/2006	-247.32	-0.16	-242.50	0.14	-249.22	0.26	-203.19	0.73
12/29/2006	-247.22	0.10	-242.52	-0.02	-249.29	-0.07	-203.15	0.04
1/30/2007	-247.44	-0.22	-242.60	-0.08	-249.47	-0.18	-203.35	-0.20
2/21/2007	-247.63	-0.19	-242.56	0.04	-249.42	0.05	-203.32	0.03
3/29/2007	-247.11	0.52	-242.54	0.02	-249.22	0.20	-201.55	1.77
4/20/2007	-247.17	-0.06	-242.29	0.25	-249.19	0.03	-201.24	0.31
5/25/2007	-246.85	0.32	-242.86	-0.57	-249.11	0.08	-201.24	0.00
6/28/2007	-246.63	0.22	-242.15	0.71	-248.80	0.31	-200.96	0.28
7/26/2007	-245.88	0.75	-242.13	0.02	-248.78	0.02	-200.80	0.16
8/23/2007	-245.96	-0.08	-242.03	0.10	-248.73	0.05	-200.22	0.58
10/25/2007	-244.69	1.10	-242.08	-0.12	-248.73	-1.93	-200.14	0.15
11/19/2007	-242.20	2.49	-242.00	0.08	-249.60	-0.87	-201.05	-0.91
12/21/2007	-235.02	7.18	-241.56	0.44	-249.62	-0.02	-200.08	0.97
1/29/2008	-232.46	2.56	-241.98	-0.42	-249.63	-0.01	-200.03	0.05
2/29/2008	-226.58	5.88	-242.12	-0.14	-249.82	-0.19	-199.52	0.51

	Injection Well 1		Injection Well 2		Injection Well 3		Injection Well 4	
Date	DTB(ft)	Difference	DTB (ft)	Difference	DTB (ft)	Difference	DTB (ft)	Difference
3/27/2008	-220.50	6.08	-241.90	0.22	-249.50	0.32	-199.30	0.22
4/29/2008	-222.50	-2.00	-242.02	-0.12	-249.60	-0.10	-198.98	0.32
5/30/2008	-218.55	3.95	-241.90	0.12	-249.47	0.13	-198.65	0.33
6/26/2008	-218.60	-0.05	-241.95	-0.05	-249.50	-0.03	-198.65	0.00
7/29/2008	-214.98	3.62	-242.20	-0.25	-249.68	-0.18	-198.68	-0.03
8/26/2008	-207.03	7.95	-241.90	0.30	-249.72	-0.04	-198.65	0.03
9/26/2008	-202.40	4.63	-241.93	-0.03	-249.52	0.20	-198.60	0.05
10/27/2008	-200.68	1.72	-241.88	0.05	-249.50	0.02	-198.59	0.01
11/20/2008	-198.05	2.63	-242.12	-0.24	-249.54	-0.04	-198.64	-0.05
12/29/2008	-178.29	19.76	-242.10	0.02	-249.15	0.39	-198.30	0.34
1/26/2009	-167.50	10.79	-241.90	0.20	-248.87	0.28	-198.28	0.02
2/25/2009	-151.20	16.30	-242.00	-0.10	-248.80	0.07	-198.80	-0.52
3/13/2009	-148.68	2.52	-241.87	0.13	-248.94	-0.14	-198.28	0.52
4/17/2009	-148.52	0.16	-241.67	0.20	-249.00	-0.06	-198.10	0.18
5/15/2009	-147.60	0.92	-241.64	0.03	-249.05	-0.05	-198.10	0.00
6/8/2009	-147.50	0.10	-241.60	0.04	-248.95	0.10	-197.92	0.18
7/27/2009	-147.20	0.30	-242.40	-0.80	-249.00	-0.05	-197.90	0.02
8/13/2009	-147.20	0.00	-241.55	0.85	-248.90	0.10	-198.00	-0.10
9/16/2009	-147.20	0.00	-241.50	0.05	-248.90	0.00	-198.00	0.00
10/28/2009	-147.20	0.00	-241.44	0.06	-248.50	0.40	-197.95	0.05
11/19/2009	-146.90	0.30	-241.50	-0.06	-248.53	-0.03	-198.00	-0.05
12/10/2009	-147.40	-0.50	-242.50	-1.00	-249.20	-0.67	-198.10	-0.10
1/22/2010	-147.20	0.20	-241.80	0.70	-248.50	0.70	-198.00	0.10
3/4/2010	-147.28	-0.08	-241.20	0.60	-245.45	3.05	-198.00	0.00
3/24/2010	-144.95	2.33	-241.60	-0.40	-248.30	-2.85	-198.00	0.00
4/19/2010	-147.25	-2.30	-241.65	-0.05	-247.70	0.60	-198.00	0.00
5/26/2010	-147.28	-0.03	-241.80	-0.15	-248.00	-0.30	-198.00	0.00
6/24/2010	-147.18	0.10	-241.72	0.08	-248.80	-0.80	-198.00	0.00
7/27/2010	-144.50	2.68	-241.10	0.62	-248.90	-0.10	-198.00	0.00
8/19/2010	-146.95	-2.45	-241.70	-0.60	-249.05	-0.15	-198.00	0.00
9/14/2010	-146.00	0.95	-241.70	0.00	-249.10	-0.05	-198.00	0.00
10/14/2010	-145.90	0.10	-241.65	0.05	-249.10	0.00	-198.00	0.00
11/8/2010	-144.46	1.44	-241.60	0.05	-249.00	0.10	-198.00	0.00
12/17/2010	-145.83	-1.37	-241.60	0.00	-249.10	-0.10	-198.00	0.00
2/24/2011	-144.50	1.33	-241.60	0.00	-249.10	0.00	-197.98	0.02
3/22/2011	-145.80	-1.30	-241.60	0.00	-248.90	0.20	-198.00	-0.02
4/12/2011	-145.80	0.00	-241.60	0.00	-248.50	0.40	-197.50	0.50
5/23/2011	-148.80	-3.00	-241.60	0.00	-248.40	0.10	-197.50	0.00
6/22/2011	-145.80	3.00	-241.60	0.00	-248.00	0.40	-197.83	-0.33
7/15/2011	-147.28	-1.48	-241.60	0.00	-247.70	0.30	-197.80	0.03
8/12/2011	-145.85	1.43	-241.50	0.10	-248.25	-0.55	-197.80	0.00
9/21/2011	-145.90	-0.05	-241.10	0.40	-248.25	0.00	-197.73	0.07
10/7/2011	-144.30	1.60	-239.95	1.15	-247.90	0.35	-197.75	-0.02
11/17/2011	-145.70	-1.40	-236.70	3.25	-248.72	-0.82	-197.70	0.05
12/2/2011	-145.95	-0.25	-233.80	2.90	-248.30	0.42	-194.65	3.05
1/5/2012	-148.80	-2.85	-233.20	0.60	-247.98	0.32	-197.70	-3.05
2/2/2012	-145.85	2.95	-224.45	8.75	-248.10	-0.12	-197.60	0.10

	Injection Well 1		Injection Well 2		Injection Well 3		Injection Well 4	
Date	DTB(ft)	Difference	DTB (ft)	Difference	DTB (ft)	Difference	DTB (ft)	Difference
3/7/2012	-147.85	-2.00	-223.30	1.15	-248.10	0.00	-197.50	0.10
4/2/2012	-148.80	-0.95	-218.80	4.50	-247.97	0.13	-197.50	0.00
7/20/2012	-145.85	-1.55	-205.55	0.15	-248.00	-31.00	-197.40	0.00
8/16/2012	-144.90	0.95	-205.70	-0.15	-248.10	-0.10	-197.20	0.20
9/20/2012	-145.84	-0.94	-205.70	0.00	-248.09	0.01	-197.10	0.10
11/1/2012	-145.95	-0.11	-205.15	0.55	-248.00	0.09	-197.00	0.10
11/16/2012	-144.30	1.65	-203.90	1.25	-248.15	-0.15	-197.00	0.00



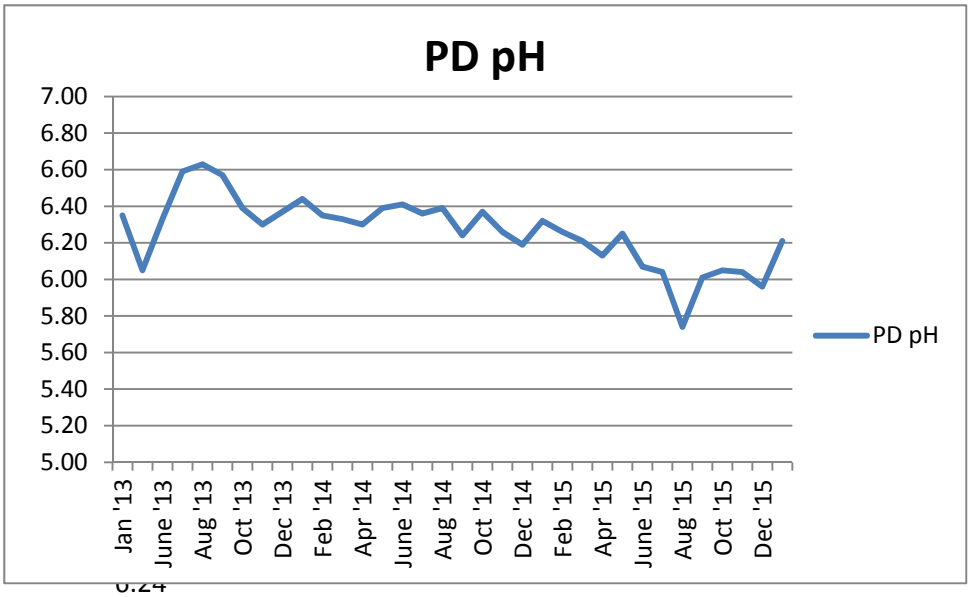
5/20/2014	-145.60	0.00	-154.60	0.20	**-247.20**	0.50	-189.20	1.00
6/30/2014	-144.02	1.58	-154.65	-0.05	-233.00	14.20	-189.20	0.00
7/30/2014	-145.58	-1.56	-130.55	24.10	-247.70	-14.70	-188.48	0.72
8/28/2014	-145.50	0.08	-130.50	0.05	-247.35	0.35	-188.28	0.20
9/24/2014	-145.50	0.00	-146.16	-15.66	-246.96	0.39	-174.96	13.32
10/20/2014	-144.05	1.45	-125.50	20.66	-247.65	-0.69	-188.50	-13.54
12/30/2014	-145.45	-1.40	-106.05	19.45	-246.95	0.70	-188.20	0.30
1/21/2015	-144.03	1.42	-105.90	0.15	-246.95	0.00	-177.70	10.50
3/27/2015	-145.55	-1.52	-105.79	0.11	-247.75	-0.80	-188.80	-11.10
4/15/2015	-145.40	-1.37	-105.85	0.05	-246.75	0.20	-155.90	21.80
5/26/2015	-145.40	0.00	-105.65	0.20	-246.75	0.00	-185.00	-29.10
6/22/2015	-145.43	-0.03	-105.70	-0.05	-247.28	-0.53	-184.95	0.05
7/28/2015	-145.20	0.23	-105.70	0.00	-246.20	1.08	-188.73	-3.78
9/23/2015	-146.30	1.00	-105.72	0.00	-246.25	-0.95	-185.00	-2.40
10/12/2015	-145.35	0.95	-105.75	-0.03	-247.14	-0.89	-185.02	-0.02
11/09/2015	-145.25	0.10	-105.90	-0.03	-246.00	-0.89	-185.00	-0.02
12/4/2015	-145.40	-0.15	-106.10	-0.20	-246.10	-0.10	-185.00	0.00
1/5/16	-145.43	-0.03	-106.05	0.05	-246.15	-0.05	-187.42	-2.42
2/3/16	-145.18	0.25	-106.00	0.05	-247.20	-1.05	**-184.8**	-2.62

DTB Well Changes

June ' 04 to	Present	**103.07**	**142.45**	**7.05**	**17.58**

TABLE 14-3 - Plant Discharge Monthly Average pH

Month	$pH_{AVG.}$
Jan '13	6.35
May '13	6.05
June '13	
July '13	
Aug '13	
Sept '13	
Oct '13	
Nov `13	
Dec '13	
Jan '14	
Feb '14	
Mar '14	
Apr '14	
May '14	
June '14	
July '14	
Aug '14	
Sept '14	
Oct '14	6.37
Nov '14	6.26
Dec '14	6.19
Jan '15	6.32
Feb '15	6.26
Mar '15	6.21
Apr '15	6.13
May '15	6.25
June '15	6.07
July '15	6.04
Aug '15	5.74
Sept.'15	6.01
Oct '15	6.05
Nov '15	6.04
Dec '15	5.96
Jan '16	6.21
Feb '16	6.08



Associated and Referenced Documents

All daily paper worksheets are located at the plant in monthly file folders (MFF).
All current data bases and working documents are on the supervisor's computer (SC).
File archives have been set up on ProjectWise (PW) for older and historic documents and on SharePoint (SP) for more recent files.

Document	Location
Daily Worksheets Daily Operating Log Daily activities Summary Report Daily Site Safety Inspection Employee Sign-in Sheet	Original paper copies in MFF Scanned copies on PW, SP
Supporting Worksheets Visitor/Subcontractor Sign-in Sheet Air Monitoring Log Sound Monitoring Worksheet Daily Plant Activity Notes (DPAN) Comprehensive Site Safety Inspections	Original paper copies in MFF Scanned copies on PW, SP
Plant Operator's Daily Log Book	Current book issued to operator, completed books on file in shop cabinet
Plant Manager's Daily Log Book	Current book issued to supervisor, completed books on file in shop cabinet
Daily Database Daily Operations Summary Report	Current database is an Electronic file on manager's computer Electronic copies on SP and MFF
Monthly O&M Report	Electronic file on SP
Monthly Maintenance Log	Electronic file on SP
Corrective Action Summary – formerly Project Status Report and Activities Schedule	Electronic file on SP
Groundwater Elevation and Water Quality Database	Electronic file on SP
Monthly Plant Truck Inspection Worksheet	Electronic file on SP
Stand Alone Documents Claremont O&M Manual Site Safety and Health Plan SOP and Instruction manual Sampling and Analysis Plan Log of Operating System Drawings Emergency Action Plan	Bindered copies in control room, electronic copies on PW
Sampling forms and COC documents	Original paper copies in MFF, Electronic file on SC

Associated documents and worksheets used to generate this report can also be found in the monthly file folders.