CITY OF LOMITA

Cypress Water Production Facility Monthly Status Report

May 2019

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June 10, 2019

Mr. Dmitry Ginzburg, P.E.
District Engineer – Hollywood District
State Water Resources Control Board – Division of Drinking Water
500 North Central Avenue, Suite 500
Glendale, CA 91203

Subject: Well Permit Amendment No. 1910073PA-002 - Monthly Report for the Cypress Water Production Facility (CWPF) for the period of May 1 through May 31, 2019.

Dear Mr. Ginzburg,

In accordance with the Department of Public Health Well Permit Amendment No. 1910073PA-002, I am submitting the following report for the Cypress Water Production Facility operations for the month of May 2019.

If you should have any questions or concerns, please contact me at 310-325-7110 Ext. 310.

Sincerely,

Mark Andersen
Chief Water Operations Manager

A. BACKGROUND

On May 30, 2018, the City of Lomita received its Domestic Water Supply Permit Amendment from the State Water Resources Control Board, Division of Drinking Water to distribute blended water from the Cypress Water Production Facility (CWPF) Well No. 5 to the City's customers.

The CWPF is an iron-manganese greensand filtration treatment system designed to remove primarily iron, manganese, and color. The CWPF was recently modified to enable aeration and blending with Metropolitan Water District (MWD) imported water to address the aesthetic secondary issues of Total Dissolved Solids (TDS), Hardness (as Calcium Carbonate), and Taste/Odor.

The CWPF came online on April 1, 2013. The first week of operations from April 1 to April 5, 2013 was utilized for conducting routine startup activities. The distribution of blended water to the City's residents began on April 5, 2013.

B. WELL PRODUCTION

The CWPF operated from the 1st to the 15th of May 2019 maintaining water levels inside the reservoir ranging from 7 feet to 10 feet. The average flow from Well No. 5 was 365 gpm and 541 gpm from MWD. The blend ratio for the month was 33% Well water and 67% MWD water. See Table 1 below for production totals for the month of May 2019.

Table 1. Monthly Production Totals.

	Production for May 2019		
Well No. 5	22.06	ac-ft	7,186,238 (gallons)
MWD	45.58	ac-ft	14,851,000 (gallons)
Combined Total	67.64	ac-ft	22,037,238 (gallons)
Daily	2.25	ac-ft/day	734,575 (gallons/day)

C. OPERATIONAL INTERRUPTIONS

On May 9th, the City received a result for a single annual water quality test sample collected on April 30 that showed benzene detection over the MCL at 3.2 ppb in the water supply at Well No. 5 at the Cypress Water Production Facility (CWPF). Lomita Water operators conducted additional confirmation sampling at Well No. 5 and sampling throughout the City's distribution system to verify the results. Benzene was detected at 3.6 ppb and 3.7 ppb at Well No.5. The City's only domestic production well, Well No. 5, was immediately taken offline after the City received the laboratory confirmation results on May 15th.

D. SAMPLE LOCATIONS

Compliance monitoring is performed at the following sample locations: SP1, SP2, SP3, SP5, and SP6. The SP1 sample location is the raw well water sample location. The SP2 sample location is on the effluent side of the greensand filter (before ammonia injection or full

chloramination). The SP3 sample location is downstream of the greensand filter after full chloramination and the static mixer before entering the reservoir. The SP5 sample location is the reservoir effluent sample location before entering the distribution system. The SP6 sample location is the MWD source sample location before blending occurs.

E. WATER QUALITY MONITORING

All water quality monitoring analyses were performed by laboratories certified by the Department of Health's Environmental Laboratory Accreditation Branch (ELAB). The CWPF has been continuously monitored, maintained and inspected, per the CWPF Operations Monitoring and Maintenance Plan. A brief discussion of the laboratory and/or monitoring results is provided below. Refer to Appendix A for laboratory results.

E1. IRON, MANGANESE AND COLOR

See Table 2 below for a summary of the results for the compliance monitoring at the three sample locations SP1 through SP3. Color for raw water (SP1) was below the MCL level. Iron for raw water was below the MCL level and Manganese was above the MCL level for the month. Iron and Manganese levels before entering the reservoir (SP3) show non-detect, indicating the greensand filtration system remains highly effective.

E2. FREE AND TOTAL CHLORINE RESIDUALS

Daily free chlorine residuals were monitored at SP2, SP3, SP4 and SP5. Daily total chlorine residuals were monitored at SP3, SP4 and SP5. Free chlorine and total chlorine residuals, at all respective sample points, were monitored using a combination of continuous chlorine analyzers and SCADA. See Table 3 below for a weekly summary of results.

E3. TOTAL DISSOLVED SOLIDS (TDS), ODOR, HARDNESS AND METHANE

See Table 4 below for a summary of the results for the monitoring of Total Dissolved Solids (TDS), Odor (as measured by the Threshold Odor No. - T.O.N.), Total Hardness as Calcium Carbonate, and Methane levels in water at three sample locations SP1, SP5 and SP6.

E3-1 TOTAL DISSOLVED SOLIDS (TDS)

The sampling results indicate the TDS levels of the effluent blended water to be on average 480 mg/L. The TDS level of the effluent water is below the City's Water Quality Objective/Goal of 500 to 750 mg/L. The sampling results indicate the TDS levels in the raw water and MWD water source to be 790 mg/L and 260 mg/L, respectively.

E3-2 HARDNESS

The sampling results for the month indicate the hardness levels of the blended water to be on average 220 mg/L. This hardness level meets the City's Water Quality Objective/Goal of 180 to 250 mg/L; staff continues to monitor hardness levels at the CWPF effluent (SP5) and within the water distribution system. The City has maintained a consistent blend ratio to ensure acceptable hardness levels are met.

E3-3 DISSOLVED METHANE (IN WATER)

The methane levels in the CWPF effluent after aeration treatment remain negligible averaging 0.24 mg/L.

E3-4 METHANE (IN AIR)

The methane levels in the reservoir headspace are monitored daily by staff using a handheld device. These readings have consistently read non-detect to low concentrations for methane in air. Available methane hand held monitoring instruments can only detect levels of 1% Lower Explosive Limit (LEL) or greater. The handheld methane readings during the month were below the 50,000 ppm LEL. See attached methane log for the month of May 2019 in Appendix B.

E3-5 ODOR

The odor levels at the CWPF effluent averaged 2.0 units for the month. Odor levels within the distribution system averaged 1.5 units for the month.

E3-6 TOTAL PHOSPHATE AND ORTHOPHOPHATE

See Table 5 below for a summary of the results for the monitoring of Orthophosphate and Total Phosphate both in the distribution system and CWPF.

E4. NITRIFICATION MONITORING

Weekly nitrification sampling was performed during this month following the City's Nitrification Monitoring Plan. Refer to Appendix C for results.

F. TABLES

Table 2. Monitoring Results for SP1, SP2, and SP3 Sample Locations.

Date, week of	SP1, Well Raw Water Discharge							SP2, Combined Pressure Filter Effluent			SP3, After chloramination static mixer; reservoir entry					
	Iron, ug/L	*MCL = 3 00 ug/L	Manganese, ug/L	*MCL = 50 ug/L	Color	*MCL=15	Total Coliform	Total Coliform	HPC, MPN/100mL	MCL=500	Iron, mg/L	*MCL = 300 ug/L	Manganese, mg/L	*MCL = 50 ug/L	Color	*MCL=15
5/7/2019											ND	300	ND	50	7.5	15
5/14/2019	180	300	150	50	10	15	A	A	ND	500	ND	300	ND	50	7.5	15
5/21/2019																
5/28/2019																

Notes:
Monthly- Orange; Weekly- Yellow
A – Absent
ND – Non Detect
*Per the SWRCB Drinking Water "Chemicals and Contaminants in Drinking Water" Regulations

Table 3. Monitoring Results for Free and Total Chlorine at SP2, SP3, SP4 and SP5 Sample Locations.

Date, week of	SP2	SP3			SP4			SP5		
	Free Cl	Free Cl	Total Cl	Total NH_3	Free Cl	Total Cl	Total NH_3	Free Cl	Total Cl	Total NH_3
5/6/2019	7.46	0.8	8.1	0.9	0.38	4.56	0.70	0.06	3.38	0.57
5/15/2019	8.27	0.9	8.2	0.84	0.46	4.67	0.72	0.06	2.77	0.56
5/21/2019								0.05	1.99	0.47
5/28/2019										

Table 4. Monitoring Requirements and Frequencies for SP1, SP5, and SP6.

Date, week of	TDS, mg/L				T.O.N.		Hardness, mg/L				Methane (Water), mg/L	
	SP1 - Raw Well Water	SP6 - MWD Water	SP5 - Reservoir Effluent	Goal= 500 - 750 mg/L	SP5 - Reservoir Effluent	MCL= 3	SP1 - Raw Well Water	SP6 - MWD Water	SP5 - Reservoir Effluent	Goal= 180 - 250 mg/L	SP1 - Raw Well Water	SP5 - Reservoir Effluent
5/7/2019			480	500-750	2	3						0.32
5/14/2019	790	260	480	500-750	1	3	380	120	220	180-250	2.4	0.15
5/21/2019												
5/28/2019												
Average			**480**	500-750	**1.5**	3						**0.24**

Notes:
Monthly- Orange; Weekly- Yellow
ppm – parts per million
mg/L – milligram per liter
T.O.N. - Threshold Odor Number
TDS - Total Dissolved Solids
Hardness - As total CaCO3
Methane (Water) - Methane dissolved in water

Table 5. Monitoring Requirements and Frequencies for Total Phosphate and Orthophosphate.

Sample Location	Date, week of	Total Phosphate, mg/L	Orthophosphate, mg/L
1948 W 252nd St	5/7/19	0.38	0.53
24632 S Moon Ave		0.37	0.48
2450 W 247th St		0.38	0.52
2052 Dawn St		0.40	0.48
CWPF SP5		0.40	-

Notes:
Monthly- Orange;
mg/L – milligram per liter