

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER R5-2017-0052
FOR
CITY OF DELANO
WASTEWATER TREATMENT FACILITY
KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board or Board) finds that:

Background

1. On 28 February 2005, the City of Delano (hereafter City or Discharger) submitted a Report of Waste Discharge (RWD) for the expansion of the wastewater treatment facility (WWTF) to include new treatment units and a discharge of 7.2 million gallons per day (mgd) of undisinfected wastewater to a total of 932 acres of City-owned farmland.
2. The Discharger owns and operates the WWTF and is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The WWTF is at 1107 Lytle Avenue, Delano (Section 8 and 9, Township 25 South, Range 25 East, MDB&M) and occupies a portion of assessor's parcel number (APN) 520-120-11-00-8.
4. WDRs Order 5-01-247, adopted by the Central Valley Water Board on 19 October 2001, prescribes requirements for a WWTF consisting of headworks, screening, grit removal, an aerated grit chamber, three primary clarifiers, two biofilters, three secondary clarifiers, two sludge digesters, a sludge thickener, and 1.6 acres of sludge drying beds, and six effluent storage ponds. WDRs Order 5-01-247 allows a phased expansion of the WWTF to treat and dispose of an ultimate flow of 7.2 mgd to six effluent storage ponds (total storage capacity of 1,450 acre-feet) and to 465 acres of City-owned farmland upon completion of the expansion and certification it can dispose of 7.2 mgd.
5. In 2003, the City purchased an additional 478 acres of farmland referred to as the "Mettler Property", for a total of approximately, 932 acres of farmland. The additional acres occupy APN's 520-170-09-01-7, 520-170-26-00-7, 520-170-08-00-5, 520-170-12-01-5, 520-170-11-01-2, 520-170-10-00-0, 047-160-04-01-9, 521-110-16-00-7, and 520-170-13-01-8.
6. In June 2011, the City completed expansion of the WWTF within the existing footprint of the WWTF. WDRs Order 5-01-247 need to be updated to ensure that the discharge is consistent with Central Valley Water Board plans and policies and prescribe

requirements that reflect changes the Discharger has made to its WWTF. WDRs Order 5-01-247 will be rescinded and replaced with this Order.

Wastewater Treatment and Disposal

7. The City accepts wastewater from North Kern State Prison, Delano Modified Correctional Facility, Paramount Citrus, and septage haulers.
8. The 2011 WWTF expansion consisted of two new influent bar screens, two new influent pump, rehabilitation of three existing primary clarifiers, two new oxidation ditches, two new secondary clarifiers, rehabilitation of the three existing secondary clarifiers, effluent pump modifications, one new effluent pump, three new sludge holding tanks, rehabilitation of existing digesters, and new centrifuge facility.
9. The WWTF now consists of a septage receiving station, two influent flow meters: one flow meter measures the flow coming from North Kern State Prison, a second flow meter measures the comingled wastewater coming into the WWTF, a total of three primary clarifiers, two oxidation ditches, a total of five secondary clarifiers, effluent pump station, sludge thickener, two anaerobic digesters, three aerobic sludge holding tanks, centrifuge facilities, eight soil cement lined sludge drying beds, two asphalt lined sludge drying beds, four unlined storage ponds (Ponds 1 through 4), two lined storage ponds (Ponds 5 and 6), and 932 acre of farmland. A process flow schematic and site map of the WWTF and Use Areas are shown on **Attachment A** and **Attachment B**, respectively, which are attached hereto and made part of this Order by reference.
10. The Discharger's Self-Monitoring Reports (SMRs) from January 2015 through November 2016 indicate the monthly average flow rates range from 1.30 mgd to 6.31 mgd.

Table 1. Monthly Average Wastewater Flows

Month	Units	2015			2016		
		Min	Max	Ave	Min	Max	Ave
January	mgd	3.97	4.94	4.55	3.14	4.44	3.83
February	mgd	3.96	5.18	4.54	3.06	4.66	3.98
March	mgd	4.08	5.21	4.64	3.15	4.89	3.95
April	mgd	3.91	4.96	4.50	2.02	4.31	3.96
May	mgd	2.84	4.69	4.34	3.71	4.11	3.92
June	mgd	3.32	4.51	4.00	3.60	3.60	3.60
July	mgd	3.59	4.19	3.90	3.60	4.19	3.87
August	mgd	2.71	5.75	4.11	3.77	4.58	4.08

Month	Units	2015			2016		
		Min	Max	Ave	Min	Max	Ave
September	mgd	3.74	4.26	3.96	2.72	5.01	4.05
October	mgd	3.74	4.61	4.15	1.30	6.31	3.74
November	mgd	3.42	4.78	4.18	2.76	5.85	4.33
December	mgd	3.23	4.01	3.80	---	---	---

11. Annual average wastewater influent characteristics, based on data contained the Discharger's SMRs from January 2015 through November 2016, are tabulated in Table 2.

Table 2. Annual Average Influent Quality

		Biochemical Oxygen Demand (BOD) (mg/L)	Total Suspended Solids (TSS) (mg/L)	Settleable Matter (SS) (ml/L)	pH (pH Units)
		2015	Minimum	68	47
	Maximum	550	1000	60	8.6
	Average	235	277	6.2	---
	Sampling Events	101	100	244	245
2016	Minimum	52	47	0.3	6.8
	Maximum	490	880	90	8.8
	Average	221	290	6.1	---
	Sampling Events	92	92	225	225

12. Annual average wastewater effluent characteristics for constituents of concern, based on data contained in the Discharger's SMRs from January 2015 through November 2016 are tabulated in Table 3.

Table 3. Annual Average Effluent Quality

Constituent/Parameter	Units	2015				2016			
		Min	Max	Ave	Sampling Events	Min	Max	Ave	Sampling Events
BOD	mg/L	1.5	31	4.82	92	1.50	31.0	4.9	92
TSS	mg/L	1.2	96	7.37	98	0.7	150	8.4	92
SS	mL/L	0.1	9.5	5.05	245	0.10	0.2	0.1	226

Constituent/Parameter	Units	2015				2016			
		Min	Max	Ave	Sampling Events	Min	Max	Ave	Sampling Events
Electrical Conductivity (EC)	µmhos/cm	782	1180	891	101	723	1,060	892	91
pH	pH units	7.3	8.0	---	246	7	8	---	226
Ammonia NH ₃ as N	mg/L	0.04	5.80	0.59	22	0.04	8.40	0.82	22
Nitrate NO ₃ as N	mg/L	0.58	4.20	2.39	2	0.11	2.30	1.21	2
TKN	mg/L	0.44	7.4	1.76	24	0.7	10	1.9	22
Total Nitrogen	mg/L	4.01	6.39	4.96	6	1.1	18.4	4.1	22
Total Dissolved Solids (TDS)	mg/L	470	770	571	102	480	670	577	91
Alkalinity as CaCO ₃	mg/L	120	160	140	2	150	210	180	2
Aluminum	mg/L	0.046	0.052	0.049	2	0.04	0.22	0.13	2
Bicarbonate as CaCO ₃	mg/L	120	160	140	2	150	210	180	2
Boron	mg/L	0.14	0.16	0.15	2	0.17	0.3	0.235	2
Calcium	mg/L	26	28	27	2	24	28	26	2
Carbonate as CaCO ₃	mg/L	<4.1	<4.1	<4.1	2	<4.2	<8.2	---	2
Chloride	mg/L	110	110	110	2	96	120	108	2
Hardness as CaCO ₃	mg/L	65	79	72	2	69	74	71.5	2
Iron	mg/L	0.04	0.22	0.13	2	0.081	0.38	0.2305	2
Magnesium	mg/L	1.15	1.30	1.23	2	2.3	2.5	2.4	2
Manganese	mg/L	0.01	0.02	0.01	2	0.016	0.034	0.025	2
Phosphate	mg/L	1.10	1.80	1.45	2	12	12	12	2
Potassium	mg/L	11	11	11	2	13	15	14	2
Sodium	mg/L	140	170	155	2	150	200	175	2
Sulfate	mg/L	95	100	98	2	94	100	97	2
Arsenic	mg/L	<0.0078	0.0093	0.0093	2	0.0085	0.0085	0.0085	2

13. Monitoring and Reporting Program (MRP) 5-01-247 requires the Discharger to sample semiannually for effluent metals: zinc, cadmium, lead, nickel, selenium, arsenic, molybdenum, mercury, and copper. The Self-Monitoring Report (SMRs) from 2015 and 2016 did not contain effluent metal data as required by MRP 5-01-247.

14. The City entered into two 10-year lease agreements with B & D Morris Farms a California corporation to manage the application of the wastewater produced by the City on 932 acres of farmland (Use Area). The first lease agreement expires 31 December 2021 and may be extended an additional five years following written agreement of both parties. The second lease agreement expires 31 December 2022. B & D Morris Farms leases the following land from the City:

Table 4. Use Area Parcels

Assessor's Parcel Number	Acres
520-120-11-00-8	454
520-170-09-01-7	19.84
520-170-26-00-7	58.09
520-170-08-00-5	39.96
520-170-12-01-5	20.63
520-170-11-01-2	20.73
520-170-10-00-0	20.73
047-160-04-01-9	78.28
521-110-16-00-7	159.64
520-170-13-01-8	40.58
Total	932.13

15. In November 2007, the City submitted a Title 22 Engineering Report to the California Department of Public Health Drinking Water Program (now Division of Drinking Water) to irrigate 932 acres of fibber, fodder crops for non-human consumption with undisinfected secondary treated wastewater. The Title 22 Engineering Report was approved on 16 January 2008.
16. On 8 May 2013, the City submitted a report and water balance titled *Engineer's Certification – City of Delano Treatment Capacity and Effluent Disposal Capacity Increase to 7.2 mgd WDR Order No. 5-01-247*, requesting a flow increase up to 7.2 mgd. According to the report, there is an overall total of 932 acres of farmland, of which a 40-acre parcel (portion of APN 521-110-16-00-7) is planted with almonds and does not receive treated wastewater, resulting in 892 acres. Out of the 892 acres of farmland a net of 802 acres is available to receive treated wastewater. The water balance is based on a 100-year wet year. The water balance shows that with 1,456 acre-feet of storage capacity provided by the six effluent storage ponds and a net of 802 acres of farmland the WWTF has sufficient storage and disposal capacity to accommodate flows up to 7.8 mgd.
17. The February 2005 RWD does not describe an irrigation cycle. The cycle average BOD loading rates over the net 802 acres of Use Areas based on a monthly average flow of 7.2 mgd, and effluent BOD concentration of 4.9 mg/L (2016 data), an assumed irrigation period of 1 day, and rest periods of 3, 5, and 7 days are shown below. The hydraulic loading to a net of 802 acres based on a flow of 7.2 mgd is approximately 0.331 inches per day.

Table 5. Cycle Average BOD Loading Rates to the Use Areas

Assumed Irrigation Period (Days)	Assumed Rest Period (Days)	7.2 mgd
		Cycle Average BOD (lbs/acre-day)
1	3	0.09
1	5	0.06
1	7	0.05

18. The total nitrogen loading rate to the net 802 acres of Use Areas, based on a proposed monthly average flow of 7.2 mgd and a total nitrogen concentration of 4.96 mg/L (2015 annual average) is about 136 lbs/acre-year. Nitrogen uptake rates for alfalfa, wheat, and sudan grass are approximately 480 lbs/acre-year, 175 lbs/acre-year, and 325 lbs/acre-year, respectively, according to the Western Fertilizer Handbook, Eight Edition. The annual total nitrogen loading to the Use Areas will not exceed crop uptake rates.
19. Screenings removed at the headworks are deposited into a bin and hauled to a properly permitted landfill. Sludge from the primary clarifiers is pumped to the sludge thickener before being sent to the anaerobic digesters while sludge from the secondary clarifies is sent to the aerobic sludge holding tanks. From the sludge holding tanks, sludge passes through the centrifuge facility. Sludge is then dried in the sludge drying beds. There are a total of 10 sludge drying beds. Eight sludge drying beds are soil cement lined, and 2 sludge drying beds are asphalt lined.
20. On 27 January 2014, the City of Delano submitted a Notice of Intent to apply biosolids generated at the WWTF to approximately 61 acres of City owned land. On 11 February 2014, the Central Valley Water Board issue Notice of Applicability for coverage under General Order 2004-0012-DWQ-0013.

Site-Specific Conditions

21. The City obtains its source water from fourteen supply wells. The quality of source water, based on the City of Delano Consumer Confidence Reports, is as follows.

Table 6. Source Water Quality

Constituent/Parameter	Units	2013	2014	2015	Average
EC	umhos/cm	490	482	475	482
TDS	mg/L	304	323	240	289
Chloride	mg/L	54	53	33	47

Constituent/Parameter	Units	2013	2014	2015	Average
Sulfate	mg/L	60	65	36	54
Arsenic	ug/L	5.56	4.61	5.42	5.20
Barium	mg/L	0.01	0.097	---	0.05
Copper	mg/L	<0.010	0.22	0.22	0.22
Fluoride	mg/L	0.48	0.27	0.52	0.42
Lead	ug/L	<1.0	<0.1	<1.0	<1.0
Nitrate as NO ₃	mg/L	25.3	24.5	---	24.9
Nitrate as N	mg/L	---	---	3.74	3.74
Nitrite as N	mg/L	ND	0.15	---	0.15
Sodium	mg/L	84	82	77	81
Hardness	mg/L	35	52	14	34

22. According to the Federal Emergency Management Agency (FEMA) maps (Map Numbers 06029C0200E and 06029C0725E), the WWTF, excluding the effluent storage ponds and portions of the Use Area in section 8, Township 25 South, Range 25 East, MDB&M, are in Zone A. The “Mettler Property” Use Areas are in Zone X. Areas in Zone A have a 1 percent annual chance of flooding, no depth or base flood elevations are shown within these zones. Areas in Zone X are outside of the 1 percent annual chance of flood with average depths less than one foot.

23. Soils below the WWTF and the 454-acre Use Area are Garces silt loam, soils below the 478-acre “Mettler” Use Area are Milham sandy loam, according to the Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation Service. Garces silt loam and Milham sandy loam have irrigated land capability classifications of 3s and 1, respectively. Soils with “Class 1” have slight limitations that restrict their use. Soils with “Class 3” have severe limitations that restrict the choice of plants or require special conservation practices, or both. The subclass “s” shows that the soil has limitations within the root zone, such as shallowness of the root zone, a high content of stones, a low available water capacity, low fertility, and excessive salinity or sodicity. Overcoming these limitations is difficult.

24. The WWTF is in an arid climate characterized by dry summers and mild winters. The rainy season generally extends from October through April. The average annual precipitation in the area is about 7.23 inches based on 110 years of data collected by the Western Regional Climate Center. Average annual pan evaporation in the discharge area is about 79 inches, according to data in the *National Oceanic and Atmospheric Administration Technical Report NWS 34, Mean Monthly, Seasonal, and Annual Pan Evaporation for the United States*, published by the U.S. Department of Commerce National Oceanic and Atmospheric Administration.

25. Land uses in the vicinity of the WWTF and Use Areas primarily consist of agriculture but also include the California Department of Corrections and Rehabilitation, North Kern State Prison to the north and the Delano Modified Community Correctional Facility to the south. Both facilities discharge their domestic wastewater into the City's sewer system that is regulated by this Order. The California Department of Corrections and Rehabilitation, Kern Valley State Prison is found to the east of the WWTF and is regulated by WDRs R5-2007-0090. Primary crops grown in the area include cotton, corn, sugar beets, carrots, onions, and pistachios, according to DWR land use data published in 1998.

Basin Plan, Beneficial Uses, and Water Quality Objectives

26. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2015* (the "Basin Plan") designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. In accordance with Water Code section 13263(a), these waste discharge requirements implement the Basin Plan.
27. The WWTF is in Detailed Analysis Unit (DAU) No. 256, within the Kern County Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater in this DAU as municipal and domestic supply (MUN), agricultural supply (AGR), and industrial service supply (IND), and industrial process supply (PRO).
28. The WWTF is in the North Kern Hydrologic Area (No. 558.80) of the South Valley Floor Hydrologic Unit, as depicted on hydrologic maps prepared by State Water Resources Control Board. As indicated in the Basin Plan, the beneficial uses of the Valley Floor Waters are follows: agricultural supply (AGR), industrial service supply (IND); industrial process supply (PRO); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wildlife habitat (WILD); rare, threatened, or endangered species (RARE); and groundwater recharge (GWR).
29. The Basin Plan includes a water quality objective for chemical constituents that at a minimum, requires waters designated as domestic or municipal supply to meet the Maximum Contaminant Levels (MCLs) specified in Title 22 of the California Code of Regulations (CCR) (Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
30. The Basin Plan establishes narrative water quality objectives for chemical constituents, taste and odors, and toxicity. The toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated

with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.

31. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including:
 - a. The maximum EC in the discharge shall not exceed the EC of the source water plus 500 umhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.
 - b. Discharges to areas that may recharge to good quality groundwater, shall not exceed an EC of 1,000 umhos/cm, a chloride of 175 mg/L, or a boron content of 1.0 mg/L.

Groundwater Considerations

32. The Corcoran clay layer is found below the WWTF and Use Areas in section 8 and 9 of Township 25 South, Range 25 East, ranging from 250 to 300 feet below ground surface (bgs) according to the *Depth to Top of Corcoran Clay* map published by the Department of Water Resources in 1981.
33. Groundwater is found at approximately 37 to 46 feet below top of casing and flows in the northwest direction based on the 3rd Quarter 2016 Groundwater Monitoring Report.
34. The Discharger has a groundwater monitoring well network consisting of 7 monitoring wells (MW-1 through MW-7), as shown on **Attachment A**. Monitoring wells MW-1 through MW-4 were installed by the Discharger in 1987 and monitoring wells MW-5 through MW-7 were installed in 2010.
35. Water quality maps in *Groundwater Pollution Study* by Kern County Health Department in 1980 show that total dissolved solids and chloride concentrations in the unconfined aquifer underlying the WWTF and Use Areas range from 500 to 1,500 mg/L and 250 to 500 mg/L, respectively, based on data from 1973 through 1979.
36. Groundwater quality below the WWTF and Use Areas north of Garces Highway based on data in SMRs from January 2015 through July 2016 are tabulated below. For comparison purposes, State drinking water primary and secondary MCLs along with limits prescribed in WDRs Order 5-01-247, are listed at the end of the table, where bold, constituent concentrations are greater than listed MCLs or groundwater limits prescribed in WDRs Order 5-01-247.

Table 7. Quality of Groundwater

Constituent/Parameter	Units	MW-2		MW-3		MW-4		MW-5		MW-7		MCL's GW Limits
		Ave	Sampling Events	Ave	Sampling Events	Ave	Sampling Events	Ave	Sampling Events	Ave	Sampling Events	
TDS	mg/L	729	7	1,175	4	1,086	7	1,300	4	1,300	1	600 ²
EC	umhos/cm	1,199	7	1,843	4	1,801	7	2,190	4	2,020	1	1,000 ²
Ammonia as N	mg/L	0.06	7	0.11	4	0.05	7	---	4	<0.033	1	0.5 ²
Nitrate as N	mg/L	0.44	7	7.2	4	14	7	5.0	4	7.1	1	10
pH	pH units	---	7	---	4	---	7	---	4	7.74	1	N/A
Total Coliform Organism	MPN/100mL	---	7	---	4	---	7	8.1	4	<1.1	1	2.2 ²
Total Organic Carbon	mg/L	2.06	7	2.48	4	1.46	7	2.08	4	1.7	1	N/A
TKN	mg/L	0.19	7	0.44	4	0.38	7	0.46	4	0.32	1	N/A
Total Nitrogen	mg/L	0.57	7	7.63	4	14	7	5.50	4	7.4	1	10 ²
Chloride	mg/L	124	7	183	4	207	7	208	4	190	1	175 ²
Sulfate	mg/L	40	7	155	4	209	7	160	4	160	1	250/500 ¹
Hardness	mg/L	167	7	310	4	531	7	298	4	240	1	N/A
Total Alkalinity	mg/L	394	7	515	4	371	7	673	4	600	1	N/A
Carbonate Alkalinity	mg/L	<8.2	7	<8.2	4	<8.2	7	<0.82	4	<8.2	1	N/A
Bicarbonate Alkalinity	mg/L	394	7	515	4	371	7	673	4	600	1	N/A
Total Phosphate	mg/L	0.97	7	3.20	4	0.48	7	3.65	4	0.53	1	N/A
Calcium	mg/L	54	7	95	4	186	7	95	4	76	1	N/A
Magnesium	mg/L	8	7	18	4	16	7	15	4	13	1	N/A
Potassium	mg/L	0.76	7	0.69	4	0.75	7	0.86	4	0.7	1	N/A
Sodium	mg/L	220	7	313	4	204	7	418	4	600	1	115 ²
Aluminum	mg/L	0.09	7	<0.023	4	<0.023	7	0.046	4	<0.023	1	1 ¹
Arsenic	mg/L	0.04	7	0.06	4	<0.0092	7	0.010	4	0.06	1	0.01 ¹
Boron	mg/L	0.30	7	0.48	4	0.38	7	0.60	4	0.77	1	0.7 ²
Iron	mg/L	0.05	7	<0.030	4	<0.030	7	<0.030	4	<0.030	1	0.3 ¹
Manganese	mg/L	0.01	7	0.0269	4	0.01	7	<0.0040	4	<0.0040	1	0.05 ¹

1 Title 22, California Code of Regulations Maximum Contaminant Levels or background whichever is greater.

2 Groundwater limits in Waste Discharge Requirements 5-01-247.

37. Groundwater in the area is of poor quality with respect to total dissolved solids and has not been of high quality with respect to salinity since at least the early 1970's. Sodium concentrations in shallow groundwater exceed the groundwater limit of 115 mg/L prescribed in WDRs Order 5-01-247 and an average background concentration of 160 mg/L (2013 data for MW-6).

Antidegradation Analysis

38. The *Statement of Policy With Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (hereinafter "Antidegradation Policy") was adopted by the State Water Board in October 1968. Antidegradation Policy limits the Board's discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board's Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board's Basin Plan. Whether or not a water is a high-quality water is established on a constituent- by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order No. WQ 91-10.)
39. Antidegradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high quality waters, Anti- Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.
40. Constituents of concern in the discharge that have the potential to degrade groundwater include salts and nutrients. This Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater and includes groundwater limitations that apply water quality objectives established in the Basin Plan to protect beneficial uses.
 - a. For salinity, the Basin Plan contains effluent limits of EC of source water plus 500 umhos/cm and 1,000 umhos/cm maximum for discharges to areas that may recharge to good quality groundwater. With an average source water EC of 482 umhos/cm, the average discharge EC of 933 umhos/cm (2016 annual average) meets the Basin Plan limit of source water plus 500 umhos/cm (982 umhos/cm). The EC of the discharge is also less than the Basin Plan cap of 1,000 umhos/cm, less than the EC of first encountered groundwater, and is not expected to degrade groundwater with respect to EC.
 - b. For nitrogen, the upgraded WWTF generates effluent total nitrogen of less than 5.0 mg/L, less than the MCL of 10 mg/L for nitrate as nitrogen. In addition, two of the storage ponds are lined, limiting the amount of wastewater percolating to groundwater. The annual total nitrogen loading to the Use Areas will not exceed crop uptake rates. Based on this, the discharge is not expected to cause exceedences of water quality objectives nor impair beneficial uses for nitrogen.

41. The WWTF described in Findings 7 through 20, will provide treatment and control of the discharge that incorporates:
- a. Secondary treatment of wastewater;
 - b. Recycling of wastewater for crop irrigation;
 - c. An operation and maintenance manual for the WWTF;
 - d. Lined storage ponds to limit the amount of wastewater that percolates to groundwater;
 - e. Certified operators to ensure proper operation and maintenance; and
 - f. Source water, discharge, and groundwater monitoring.

The Board finds that the preceding treatment and control measures represent BPTC for this discharge.

42. Generally, limited degradation of groundwater by some of the typical waste constituents of concern (e.g., EC and nitrate) released with discharge from a municipal wastewater utility after effective source control, and treatment is consistent with maximum benefit to the people of the state. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impacts on water quality will be substantially less. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and some groundwater degradation provided terms of the Basin Plan are met. The degradation will not unreasonably affect present and anticipated beneficial uses of groundwater, or result in water quality less than water quality objectives.

Water Recycling Regulatory Considerations

43. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. The State Water Resources Control Board Division of Drinking Water (formerly the California Department of Public Health Drinking Water Program), which has primary statewide responsibility for protecting water quality and the public health, has established statewide criteria in Title 22, section 60301 et seq. for the use of recycled water.

44. On 3 February 2009, the State Water Board adopted Resolution 2009-0011, *Adoption of a Policy for Water Quality Control for Recycled Water* (Recycled Water Policy). The recycled water policy promotes the use of recycled water to achieve sustainable local water supplied and reduced greenhouse gases.
45. On 23 April 2009, the Central Valley Water Board adopted Resolution R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plant*. Resolution R5-2009-0028 encourages water recycling, water conservation, and regionalization of wastewater treatment facilities. It requires the municipal wastewater treatment agencies to document:
 - a. Efforts to promote new or expanded wastewater recycling opportunities and programs;
 - b. Water conservation measures; and
 - c. Regional wastewater management opportunities and solutions (e.g., regionalization).
46. Title 22, section 60323, requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards.
 - a. For the use of undisinfected secondary recycled water: in November 2007, the Discharger submitted a Title 22 Engineering Report to the Department of Public Health (now Division of Drinking Water) for the discharge of undisinfected secondary wastewater generated by the Discharger to 932 acres of farmland owned by the City of Delano. On 16 January 2008, the Department of Public Health approved the Title 22 Engineering Report.

Other Regulatory Considerations

47. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic uses.
48. Based on the threat and complexity of the discharge, the WWTF is determined to be classified as 2B as defined below:
 - a. Category 2 threat to water quality: “ Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of

water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”

- b. Category B complexity: “Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.”

49. California Code of Regulations, Title 27 (“Title 27”) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste, which includes designated waste, as defined by Water Code section 13173. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. The exemption, found at Title 27, section 20090, states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

(a) Sewage – Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with the applicable SWRCB-promulgated provisions of this division.

(b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) The applicable regional water quality control board has issued WDRs, reclamation requirements, or waived such issuance;
- (2) The discharge is in compliance with applicable water quality control plan; and
- (3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

50. The wastewater treatment units and discharge of effluent authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:

- a. The Central Valley Water Board is issuing WDRs.

- b. The discharge is in compliance with the Basin Plan, and;
 - c. The treated effluent discharged to the storage ponds and Use Areas does not need to be managed as hazardous waste.
51. On 1 April 2014, the State Water Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities. Order 2014-0057-DWQ supersedes State Water Board Order 97-03-DWQ (NPDES General Permit CAS000001) and became effective 1 July 2015. Order 2014-0057-DWQ requires all applicable industrial dischargers to apply for coverage under the new General Order by the effective date. Storm water generated by this facility does not discharge to waters of the U.S. Coverage under Order 2014-0057-DWQ is not required at this time.
52. On 2 May 2006, the State Water Resources Control Board (hereafter State Water Board) adopted a General Sanitary Sewer System Order (State Water Resources Control Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*) (the "General Order"). The General Order requires that all public agencies that own or operate sanitary sewers systems greater than one mile in length comply with the General Order. The Discharger's collection system is greater than one mile in length. The Discharger has applied for, and is enrolled under the General Order.
53. Water Code section 13267(b) states that:
- In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.
54. The technical reports required by this Order and monitoring reports required by the attached MRP R5-2017-0052 are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the wastewater treatment facility that discharges the waste subject to this Order.
55. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 74-81* (December 1981). These standards, and any more stringent

standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

56. The City of Delano acted as the lead agency in accordance with for the project pursuant to California Environmental Quality Act ("CEQA"). The City of Delano approved a Negative Declaration for the expansion of the WWTF, and subsequently filed a Notice of Determination (SCH# 2006041024) on 13 November 2006. As this Order regulates an existing facility, further CEQA analysis is not required pursuant to California Code of Regulations, title 14, section 15301 (exempting permitting actions for existing facilities).
57. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 Code of Federal Regulations part 503, *Standards for the Use or Disposal of Sewage Sludge*, which establish management criteria for protection of ground and surface waters, sets limits and application rates for heavy metals, and establishes stabilization and disinfection criteria. The Central Valley Water Board is not the implementing authority for the 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to EPA.
58. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

59. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the conditions of discharge of this Order.
60. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and recommendations and an opportunity for a public hearing.
61. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Waste Discharge Requirements Order 5-01-247 is rescinded and that the City of Delano, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of waste to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous', as defined in California Code of Regulations, title 22, section 6626.1 et seq., is prohibited.
3. Bypass or overflow of untreated or partially treated wastes is prohibited, except as allowed by Standard Provisions E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991.
4. Discharge of wastewater in a manner or location other than that described herein or in the RWD and its amendments is prohibited.
5. Discharge of toxic substances into the wastewater treatment system or evaporation/percolation ponds such that biological treatment mechanics are disrupted is prohibited.

B. Flow Limitations [Compliance shall be determined at INF-001¹]

1. The monthly average dry weather flow shall not exceed 7.20 mgd.

C. Effluent Limitations

1. Effluent shall not exceed the following limitations. [Compliance shall be determined at EFF-001¹]

a)

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅ ¹	mg/L	40	80
TSS ²	mg/L	40	80
Total Nitrogen	mg/L	10	---

¹ Five-day biochemical oxygen demand at 20°C.

² Total suspended solids

- b) The arithmetic mean of BOD₅ and TSS in effluent samples collected over a monthly period shall not exceed 20 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (80 percent removal).

¹ Monitoring location INF-001 and EFF-001 are described in Monitoring and Reporting Program R5-2017-0052

- c) The 12-month rolling average EC of the discharge shall not exceed the 12-month rolling average EC of the source water plus 500 $\mu\text{mhos/cm}$. Compliance with this effluent limitation shall be determined monthly.

D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause violation of Groundwater Limitations of this Order.
2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
3. The discharge shall remain within the permitted waste treatment/containment structures, storage ponds and Use Areas at all times.
4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
5. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
6. Public contact with effluent at the WWTF shall be precluded through such means as fences, signs, or acceptable alternatives.
7. Objectionable odors shall not be perceivable beyond the limits of the WWTF property at an intensity that creates or threatens to create nuisance conditions.
8. As a means of discerning compliance with Discharge Specification D.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
9. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall

install and maintain a permanent staff gauge with calibration marks that clearly show the water level at the design capacity and enable determination of available operational freeboard.

10. Wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
11. On or about **1 October** of each year, available pond storage capacity shall be at least equal the volume necessary to comply with Flow Limitation B.1.
12. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically,
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
 - c. Dead algae, vegetation and other debris shall not accumulate on the water surface.
 - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
13. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within the pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
14. The Discharger shall periodically monitor sludge accumulation in the wastewater treatment/storage ponds at least every five years beginning in 2017, and shall periodically remove sludge as necessary to maintain adequate treatment and storage capacity. Specifically, if the estimated volume of the sludge in the ponds exceeds five percent of the permitted reservoir capacity, the Discharger shall complete sludge cleanout within 12 months after the date of the estimate.

E. Groundwater Limitations

1. Release of waste constituents from any treatment, reclamation or storage component associated with the discharge shall not cause or contribute to groundwater:
 - a. Containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater:
 - (i) Nitrate as Nitrogen of 10 mg/L.
 - (ii) Total Coliform Organisms of 2.2 MPN/100 mL.
 - (iii) For constituents identified in Title 22, the primary and secondary MCLs quantified therein.
 - b. Containing taste or odor-producing constituents, toxic substances, or any other constituent in concentrations that cause nuisance or adversely affect beneficial uses.

F. Water Recycling Specifications

1. For the purpose of this Order, "Use Area" means an area with defined boundaries where recycled water is used or discharged.
2. Notwithstanding the following requirements, the production, distribution, and use of recycled water shall conform to an Engineering Report prepared pursuant to Title 22, section 60323 and approved by the Division of Drinking Water.
3. The recycled water shall be at least undisinfected secondary recycled water as defined in Title 22, section 60301.
4. Recycled water shall be used in compliance with Title 22, section 60304. Specifically, uses of recycled water shall be limited to those set forth in Title 22, section 60304(d), except that undisinfected recycled water shall not be discharged to orchard or vineyard crops.
5. Tailwater runoff and spray of recycled water shall not be discharged outside of the Use Areas.
6. Application rates of recycled water to the Use Areas shall be reasonable and shall consider soil, climate, and plant demand. In addition, application of recycled water

and use of fertilizers shall be at a rate that takes into consideration nutrient levels in recycled water and nutrient demand by plants. As a means of discerning compliance with this requirement.

- a. Crops or landscape vegetation shall be grown on the Use Areas, and cropping activities shall be sufficient to take up the nitrogen applied, including any fertilizers and manure.
- b. Hydraulic loading of recycled water and supplemental irrigation water (if any) shall be managed to:
 - i. Provide water only when water is needed and in amounts consistent with that need;
 - ii. Maximize crop nutrient uptake;
 - iii. Maximize breakdown of organic waste constituents in the root zone; and
 - iv. Minimize the percolation

The Regional Board recognizes that some leaching of salts is necessary to manage salt in the root zone of crops for production. Leaching shall be managed to minimize degradation of groundwater, maintain compliance with the groundwater limitations of this Order, and prevent pollution.

7. No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops that may be eaten raw by humans.
8. Irrigation of the Use Areas shall occur only when appropriately trained personnel are on duty.
9. The Discharger shall conduct periodic inspections of the recycled water Use Areas to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with this Order, the Discharger shall temporarily stop recycled water use immediately and implement corrective actions to ensure compliance with this Order.
10. Grazing of milking animals within the use areas is prohibited.
11. The irrigation with recycled water shall be managed to minimize erosion within the Use Areas.
12. The Use Areas shall be managed to prevent breeding of mosquitos or other vectors.

13. Use Areas and recycled water impoundments shall be designed, maintained, and operated to comply with the following setback requirements:

Setback Definition	Minimum Irrigation Setback (feet)
Edge of Use Area to domestic water supply well	150
Toe of recycled water impoundment berm to domestic water supply well	150
Edge of use area to residence	100
Edge of use area using spray irrigation to public park, playground, school yard, or similar place of potential public exposure	100

14. Spray irrigation with recycled water is prohibited when wind speed (including gusts) exceeds 30 mph.
15. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
16. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.
17. Public contact with recycled water shall be controlled using fences, signs, and other appropriate means.
18. Use areas that are accessible to the public shall be posted with signs that are visible to the public and no less than four inches high by eight inches wide. Signs shall be placed at all areas of public access and around the perimeter of all use areas and at above-ground portions of recycled water conveyances to alert the public of the use of recycled water. All signs shall display an international symbol similar to that shown in **Attachment C**, which is attached hereto and made part of this Order, and shall include the following wording:

“RECYCLED WATER – DO NOT DRINK”
“AGUA DE DESPERDICIO RECLAMADA – NO TOME”

19. All recycling equipment, pumps, piping, valves, and outlets shall be marked to differentiate them from potable water facilities. Quick couplers, if used, shall be different than those used in potable water systems.

20. Recycled water controllers, valves, and similar appurtenances shall be equipped with removable handles or locking mechanisms to prevent public access or tampering.
21. Hose bibs and unlocked valves, if used, shall not be accessible to the public.
22. No physical connection shall exist between recycled water piping and any potable water supply system (including domestic wells), or between recycled water piping and any irrigation well that does not have an approved air gap or reduced pressure principle device.
23. Horizontal and vertical separation between pipelines transporting recycled water and those transporting potable water shall comply with Title 22, section 64572, except to the extent that Division of Drinking Water has specifically approved a variance.
24. No physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water or auxiliary water source system.
25. A public water supply shall not be used as backup or supplemental source water for a recycled water system unless the connection between the two systems is protected by and air gap separation which complies with the requirements of California Code of Regulations, title 17, sections 7602(a) and 7603(a).
26. All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations shall be colored purple or distinctively wrapped with purple tape in accordance with California Health and Safety Code section 116815.
27. Any backflow prevention device installed to protect a public water system shall be inspected and maintained in accordance with Title 17, section 7605.

G. Solids and Sludge/Biosolids Disposal Specifications

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advance wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially used as soil amendment for agriculture, silviculture, horticulture, and land reclamation activities pursuant to federal and state regulations.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers, etc., as needed to ensure optimal plant operation.

2. Any handling and storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.
3. Residual sludge, solid waste, and biosolids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfill, composting sites, and soil amendment sites) operated in accordance with valid waste discharge requirements issued by the Central Valley Water Board will satisfy this specification.
4. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water board or the State Water Board except in cases where a local (e.g., county) program has been authorized by a regional water board. In most cases, this means the General Biosolids Order (State Water Board Water Quality Order No. 2004-0012-DWQ, "General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities"). For a biosolids use project to be covered by Order 2004-0012-DWQ, the Discharger must file a complete Notice of Applicability for each project.
5. Any proposed change in sludge use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

G. Provisions

1. The Discharger shall comply with MRP R5-2017-0052, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer.
2. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions), which are attached hereto and made part of this Order.
3. A copy of this Order, including its MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
4. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the

Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

5. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.
6. The Discharger shall provide certified wastewater treatment plant operators in accordance with CCR, Title 23, division 3, chapter 26.
7. The Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
8. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
9. In the event of any change in control or ownership of land or WWTF and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
10. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The

statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

11. **By 4 October 2017**, the Discharger shall submit a Wastewater and Nutrient Management Plan for the Use Areas for Executive Officer approval. The Plan must include procedures of daily monitoring of the Use Areas and proposed management practices that will be implemented to ensure wastewater and the nutrients contained therein are applied evenly at agronomic rates. The objective of the Plan shall be to identify and utilize site specific data to demonstrate that wastewater loading will occur at reasonable agronomic rates that will preclude degradation of groundwater that will exceed Water Quality Objectives or adversely affect Beneficial Uses.
12. **By 4 October 2017**, the Dischargers shall submit a Salinity Management Plan that specifically addresses sodium, reduction goals and implementation time schedule for Executive Officer approval. The Salinity Management Plan shall identify any additional methods that could be used to further reduce sodium of the discharge to the maximum extent feasible. The Dischargers shall implement the plan in accordance with the approved time schedule.
13. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by these provisions by the due dates specified.
14. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.

15. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
16. The Discharger shall continue to maintain coverage under, and comply with *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, Water Quality Order 2006-0003-DWQ and the Revised General WDRs Monitoring and Reporting Program Order 2008-0002-EXEC, and any subsequent revisions thereto as adopted by the State Water Board. Water Quality Order 2006-0003 and Order 2008-0002-EXEC requires the Discharger to notify the Central Valley Water Board and take remedial action upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow.
17. The Discharger shall not allow pollutant-free wastewater to be discharged into the WWTF collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.
18. If the Central Valley Water Board determines that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective, or to create a condition of nuisance or pollution, this Order may be reopened for consideration of additional requirements.
19. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations are different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.
20. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The

Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and CCR, Title 23, section 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filling petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality/

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 7 April 2017.

Original signed by

PAMELA C. CREEDON, Executive Officer

Order Attachments:

- A Site Map
 - B Process Flow Schematic
 - C Recycled Water Signage
- Monitoring and Reporting Program R5-2017-0052
Information Sheet
Standard Provisions (1 March 1991)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2017-0052
FOR
CITY OF DELANO
WASTEWATER TREATMENT FACILITY
KERN COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267.

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts or the Executive Officer issues a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer and in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request the MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for the requested reduction in monitoring frequency.

A glossary of terms used within this MRP is included on [page 12](#).

MONITORING AND REPORTING PROGRAM ORDER R5-2017-0052
 CITY OF DELANO
 WASTEWATER TREATMENT FACILITY
 KERN COUNTY

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this Order.

Monitoring Location Name	Monitoring Location Description
INF-001	Location where a representative sample of the wastewater treatment facility (WWTF) influent can be obtained prior to any additives, treatment processes, and WWTF return flow.
EFF-001	Location where a representative sample of the WWTF effluent can be obtained prior to discharge into the storage ponds.
PND-001 through PND-006	Storage Ponds Nos. 1 through 6
MW-001 through MW-007 and replacement wells MW-00X through MW-00Z	Groundwater monitoring wells MW-1 through MW-7, and replacement groundwater monitoring wells MW-00X through MW-00Z
SWS-001	Source Water Supply
UA-001 through UA-010	Use Areas described in the Title 22 Engineering Report by alphanumeric code: C-1 (UA-001), C-2 (UA-002), C-3 (UA-003), C-4 (UA-004), C-5 (UA-005), C-6 (UA-006), C-7 (UA-007), C-8 (UA-008), C-9 (UA-009), and C-10 (UA-010)
SLD-001	Location where a representative sample of the WWTF sludge/biosolids can be obtained.

INFLUENT MONITORING

The Discharger shall monitor the influent to the WWTF at INF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Weekly	pH	pH units	Grab
Weekly	Electrical Conductivity (EC)	umhos/cm	Grab
Weekly	Total Dissolved Solids (TDS)	mg/L	24-hour composite
Weekly	Total Suspended Solids (TSS)	mg/L	24-hour composite
Weekly	Biochemical Oxygen Demand ₅ ¹ (BOD ₅)	mg/L	24-hour composite

¹ Five-day, 20°C biochemical oxygen demand (BOD)

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EFFLUENT MONITORING

The Discharger shall monitor treated effluent at EFF-001. Effluent monitoring shall include the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	pH	pH Units	Grab
Weekly	EC	umhos/cm	24-hour composite
Weekly	TSS	mg/L	24-hour composite
Weekly	BOD ₅ ¹	mg/L	24-hour composite
Monthly	TDS	mg/L	24-hour composite
Monthly	Total Kjeldahl Nitrogen (TKN)	mg/L	24-hour composite
Monthly	Nitrate as Nitrogen (NO ₃ as N)	mg/L	24-hour composite
Monthly	Nitrite as Nitrogen (NO ₂ as N)	mg/L	24-hour composite
Monthly	Ammonia as Nitrogen (NH ₃ as N)	mg/L	24-hour composite
Monthly	Total Nitrogen (TN)	mg/L	Computed
Semiannual	Arsenic	mg/L	24-hour composite
Semiannual	General Minerals ^{2,3}	mg/L	24-hour composite

¹ Five-day, 20°C biochemical oxygen demand (BOD)

² With the exception of wastewater samples, samples must be filtered. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24 hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

³ See glossary on page 12 for list of general mineral constituents

POND MONITORING

A permanent marker (e.g., staff gages) shall be placed in the storage ponds. The marker shall have calibrations indicating water level at the design capacity and available operational freeboard. Effluent storage pond monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	DO ¹	mg/L	Grab ²
Weekly	Freeboard	Feet ³	Observation

¹ Should the DO be below 1.0 mg/L during three consecutive sampling events, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in the affected ponds until the problem has been resolved.

² DO shall be measured between 8:00 am and 10:00 am and shall be taken opposite the pond inlet at a depth of approximately one-foot.

³ To the nearest tenth of a foot.

The Discharger shall inspect the condition of the storage ponds weekly and record visual observations in a bound logbook. Notations shall include observations of whether weeds are

developing in the water or along the bank, and their location; whether grease, dead algae, vegetation, scum, or debris are accumulating on the storage pond surface and their location; whether burrowing animals or insects are present; and the color of the reservoirs (e.g., dark green, dull green, yellow, gray, tan, brown, etc.). A summary of the entries made in the log shall be included in the subsequent monitoring report.

GROUNDWATER MONITORING

After measuring water levels and prior to collecting samples, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Depth to groundwater	Feet ¹	Measured
Quarterly	Groundwater Elevation	Feet ²	Calculated
Quarterly	pH	pH Units	Grab
Quarterly	EC	umhos/cm	Grab
Quarterly	TDS	mg/L	Grab
Quarterly	Total Coliform Organisms	MPN/100 mL	Grab
Quarterly	TKN	mg/L	Grab
Quarterly	Nitrate as Nitrogen	mg/L	Grab
Quarterly	Nitrite as Nitrogen	mg/L	Grab
Quarterly	Ammonia as Nitrogen	mg/L	Grab
Quarterly	Total Nitrogen	mg/L	Grab
Quarterly	Iron ³	mg/L	Grab
Quarterly	Manganese ³	mg/L	Grab
Quarterly	Arsenic ³	mg/L	Grab
Quarterly	Boron	mg/L	Grab
Quarterly	General Minerals ^{3,4}	mg/L	Grab

¹ To the nearest tenth of a foot

² To the nearest tenth of a foot above mean Sea Level

³ Groundwater samples placed in an acid-preserved bottle for metals and general minerals analysis must first be filtered. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24-hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

⁴ See glossary on page 12 for list of general mineral constituents

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The Discharger shall maintain its groundwater monitoring well network. If a groundwater monitoring well(s) are dry for more than four consecutive sampling events, the Discharger shall submit a work plan and proposed time schedule to replace the well(s). The well(s) shall be replaced following written Executive Officer approval of the work plan and time schedule.

SOURCE WATER MONITORING

For each source (either well or surface water supply), the Discharger shall calculate the flow-weighted average concentrations for the specified constituents utilizing monthly flow data and the most recent chemical analysis conducted in accordance with Title 22 drinking water requirements. Alternatively, the Discharger may establish representative sampling stations within the distribution system serving the same area as is served by the WWTF.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Flow-Weighted EC	umhos/cm	Computed Average
Annually	General Minerals ¹	mg/L	Grab

¹ With the exception of wastewater samples, samples must be filtered. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24 hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

USE AREA MONITORING

The Discharger shall perform the following routine monitoring and loading calculations for the Use Areas. In addition the Discharger shall keep a log of routine monitoring observations (e.g., areas of ponding, broken irrigation pipes, odors and/or flies within the Use Areas, etc.). Data shall be collected and presented in tabular format and shall include the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily	Application Location	n/a	n/a
Daily	Application Area	acres	n/a
Daily	Wastewater Flow	gallons	Metered
Daily	Wastewater Loading	inches/day ¹	Calculated
Daily	Supplemental Irrigation	inches/day ¹	Calculated
Daily	Precipitation ²	inches/day ¹	Rain gage
<u>BOD Loading Rates:</u>			
Daily	On Day of Application ³	lbs/acre	Calculated
Daily	Cycle Average ⁴	lbs/acre	Calculated
<u>Nitrogen Loading Rates:</u>			
Monthly	From Wastewater ⁵	lbs/acre	Calculated
Monthly	From Fertilizer ⁶	lbs/acre	Calculated

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Salt Loading Rates:

Monthly Annually	From Wastewater ⁵ Cumulative Salt Loading	lbs/acre lbs/acre-year	Calculated Calculated
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- ¹ To the nearest tenth of a foot
- ² National Weather Service data from the nearest weather station is acceptable.
- ³ Loading rates to be calculated using the applied volume of wastewater, applied acreage, and average of the three most recent concentrations of BOD.
- ⁴ The cycle average BOD loading rates shall be calculated using applied volume of wastewater, applied acreage, and average of the four most recent concentrations for BOD and divided by the number of days between applications.
- ⁵ Nitrogen and salt shall be calculated using the applied volume of wastewater, applied acreage, and average of the three most recent concentrations for total nitrogen and Fixed Dissolved Solids.
- ⁶ Additional nitrogen loading to the land application area from other sources (i.e. organic matter and manure).

SLUDGE/BIOSOLIDS MONITORING

If used for land application, the Discharger shall sample sludge/biosolids for the following:

Arsenic	Copper	Nickel
Cadmium	Lead	Selenium
Molybdenum	Mercury	Zinc

Monitoring shall be conducted: using the methods in “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods” (SW-846) and updates thereto, as required in Title 40 of the Code of Federal Regulations (40 CFR), Part 503.8(b)(4). The constituents listed above shall be monitored at the following frequency, depending on volume generated:

<u>Volume Generated (dry metric tons/year)</u>	<u>Frequency</u>
0 to 290	Annually
290 to 1,500	Quarterly
1,500 to 15,000	Bimonthly (six samples per year)
Greater than 15,000	Monthly

The Discharger shall demonstrate that treated sludge (i.e., biosolids) meets Class A or Class B pathogens reduction levels by one of the methods listed in 40 CFR, Part 503.32. The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction requirements in 40 CFR, Part 503.33(b). The Discharger needs to demonstrate that the facility where sludge is hauled to complies with Title 40 CFR, Part 503.

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REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

First Quarter Monitoring Report: **1 May**
Second Quarter Monitoring Report: **1 August**
Third Quarter Monitoring Report: **1 November**
Fourth Quarter Monitoring Report: **1 February**

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modification. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

The Central Valley Water Board has gone to a Paperless Office System. All regulatory documents, submissions, materials, data, monitoring reports, and correspondence shall be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be mailed to: centralvalleyfresno@waterboards.ca.gov. Documents that are 50MB or larger should be transferred to a disc and mailed to the appropriate regional water board office, in this case 1685 E Street, Fresno, CA, 93706.

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any email used to transmit documents to this office:

Program: Non-15, WDID: 5D150102001, Facility Name: City of Delano WWTF, Order: R5-2017-0052

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements, and shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the reporting limit (RL) or practical quantitation

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limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. Monitoring data or discussions submitted concerning WWTF performance must also be signed and certified by the chief plant operator. If the chief plant operator is not in direct line of supervision of the laboratory function for a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

In the future, the State or Central Valley Water Board may notify the Discharger to electronically submit and upload monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site <http://www.waterboards.ca.gov/ciwqs/index.html> or similar system. Electronic submittal to CIWQS, when implemented, will meet the requirements of our Paperless Office System.

A. All Quarterly Monitoring Reports shall include the following:

Wastewater Reporting

1. The results of Influent, Effluent, and Pond Monitoring specified on page 2 through 4.
2. For each month of the quarter, calculation of the maximum daily flow and the monthly average flow.
3. For each of the quarters, calculation of the 12-month rolling average EC of the discharge using the EC value for that month averaged with EC values for the previous 11 months.
4. For each month of the quarter, calculation of the monthly average effluent BOD₅ and TSS concentrations, and calculation of the percent removal of BOD₅ and TSS compared to the influent.

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5. A summary of the notations made in the pond monitoring log during each quarter. Copies of log pages covering the quarterly reporting period shall not be submitted unless requested by Central Valley Water Board staff.

Groundwater Reporting

1. The results of Groundwater Monitoring specified on page 4 and 5.
2. For each monitoring well, a table showing constituent concentrations for at least five previous years, up through the current quarter.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow under/around the facility and/or effluent disposal area(s). The map shall also include the locations of monitoring wells and wastewater discharge areas.

Source Water Reporting

1. The results of Source Water Monitoring specified on page 5.
2. For each month of the quarter, calculation of the flow-weighted 12-month rolling average EC of the source water using monthly flow data and the source water EC values for the most recent four quarters.

Use Area Reporting

1. The results of the routine monitoring and loading calculations specified on page 5 and 6.
2. Provide a Site Map of the Use Areas showing predominant features, and include field numbers (if applicable) and acreage where wastewater was applied.
3. For each month that wastewater is applied to the Use Areas, calculation of the monthly hydraulic load for wastewater and supplemental irrigation water (in million gallons) to each discrete irrigation area.
4. A summary of the notations made in the Use Areas monitoring log during routine observations. The entire contents of the log do not need to be submitted.

B. Fourth Quarter Monitoring Reports, in addition to the above, shall include the following:

Wastewater Treatment Facility Information

1. The names, certificate grades, and general responsibilities of all persons in charge of wastewater treatment and disposal.
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations.
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
4. A statement whether the current operation and maintenance manual, sampling plan, and contingency plan, reflect the WWTF as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
5. The results of an annual evaluation conducted pursuant to Standard Provision E.4 and a figure depicting monthly average discharge flow for the previous five calendar years.
6. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with this Order.

Sludge/Biosolids Monitoring

1. Annual production totals in dry tons or cubic yards.
2. A description of disposal methods, including the following information related to the disposal methods used. If more than one method is used, include the percentage disposed of by each method.
 - a. For landfill disposal, include: the name and location of the landfill, and the Order number of WDRs that regulate it.
 - b. For land application, include: the location of the site, and the Order number of any WDRs that regulate it.

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- c. For incineration, include: the name and location of the site where incineration occurs, the Order number of WDRs that regulate the site, the disposal method of ash, and the name and location of the facility receiving ash (if applicable).
- d. For composting, include: the location of the site, and the Order number of any WDRs that regulate it.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Original signed by

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

7 April 2017

(Date)

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GLOSSARY

BOD ₅	Five-day biochemical oxygen demand		
CBOD	Carbonaceous BOD		
DO	Dissolved oxygen		
EC	Electrical conductivity at 25°C		
FDS	Fixed dissolved solids		
NTU	Nephelometric turbidity unit		
TKN	Total Kjeldahl nitrogen		
TDS	Total dissolved solids		
TSS	Total suspended solids		
Continuous	The specified parameter shall be measured by a meter continuously.		
24-Hour Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots.		
Daily	Samples shall be collected at least every day.		
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.		
Weekly	Samples shall be collected at least once per week.		
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.		
Monthly	Samples shall be collected at least once per month.		
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months.		
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.		
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in April and October.		
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.		
mg/L	Milligrams per liter		
mL/L	milliliters [of solids] per liter		
ug/L	Micrograms per liter		
umhos/cm	Micromhos per centimeter		
mgd	Million gallons per day		
MPN/100 mL	Most probable number [of organisms] per 100 milliliters		
General Minerals	Analysis for General Minerals shall include at least the following:		
	Alkalinity	Chloride	Sodium
	Bicarbonate	Hardness	Sulfate
	Calcium	Magnesium	TDS
	Carbonate	Potassium	Nitrate
	General Minerals analyses shall be accompanied by documentation of cation/anion balance.		

INFORMATION SHEET

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Background

Waste Discharge Requirements (WDRs) Order 5-01-247, adopted 19 October 2001 regulates the City of Delano's WWTF. The WDRs allow a phased expansion of the WWTF to treat and dispose of an ultimate flow of 7.2 mgd.

In 2003, the City of Delano purchased approximately 478 acres of farmland southwest of the WWTF, referred to as the "Mettler Property", for a total of approximately, 932 acres of farmland.

On 28 February 2005, the City of Delano submitted a Report of Waste Discharge (RWD) for the expansion of the wastewater treatment facility (WWTF) to include new treatment units and a discharge of 7.2 million gallons per day (mgd) of undisinfected wastewater to a total of 932 acres of City-owned farmland.

In June 2011, the City of Delano completed expansion of the WWTF and began discharging wastewater to the "Mettler Property".

WWTF Expansion

The WWTF expansion consisted of two new influent bar screens, two new influent pump, rehabilitation of three existing primary clarifiers, two new oxidation ditches, two new secondary clarifiers, rehabilitation of the three existing secondary clarifiers, effluent pump modifications, one new effluent pump, three new sludge holding tanks, rehabilitation of existing digesters, and new centrifuge facility.

The City entered into two 10-year lease agreements with B & D Morris Farms a California corporation to manage the disposal of all the wastewater produced by the City on 932 acres of farmland. The first lease agreement expires 31 December 2021 and may be extended an additional five years following written agreement of both parties. The second lease agreement expires 31 December 2022.

Groundwater Conditions

The WWTF has a groundwater monitoring well network that consists of 7 monitoring wells (MW-1 through MW-7). Monitoring wells MW-1 through MW-4 were installed by the Discharger in 1987 and monitoring wells MW-5 through MW-7 were installed in 2010. Monitoring well MW-6 was installed as the upgradient well. The total depth below ground surface of the wells and screen interval for each well is tabulated below.

Table 1. Monitoring Well Construction Details

Well	Total Depth (feet bgs)	Screen Interval (feet bgs)
MW-1	54	34-54
MW-2	56	36-56
MW-3	---	---
MW-4	60	40-60
MW-5	50	22-47
MW-6	45	19-44
MW-7	40	10-35

Monitoring wells MW-1, MW-5, MW-6, and MW-7 have gone dry since October 2013, July 2016, October 2013, and April 2015, respectively. The Monitoring and Reporting Program of this Order includes language for the Discharger to replace monitoring wells that are dry for more than four consecutive sampling events.

Groundwater in the area is approximately 37 to 46 feet below ground surface and flows in the northwest direction based on 3rd Quarter 2016 Groundwater Monitoring Report.

Groundwater in the area is of poor quality with respect to total dissolved solids and has not been of high quality with respect to salinity since at least the early 1970's. Sodium concentrations in shallow groundwater exceed the groundwater limit of 115 mg/L prescribed in WDRs Order 5-01-247.

Figures 1 through 4 depict the quality of groundwater for EC, TDS, sodium, and chloride.

Figure 1. Electrical Conductivity in Groundwater Monitoring Wells MW-1 through MW-7

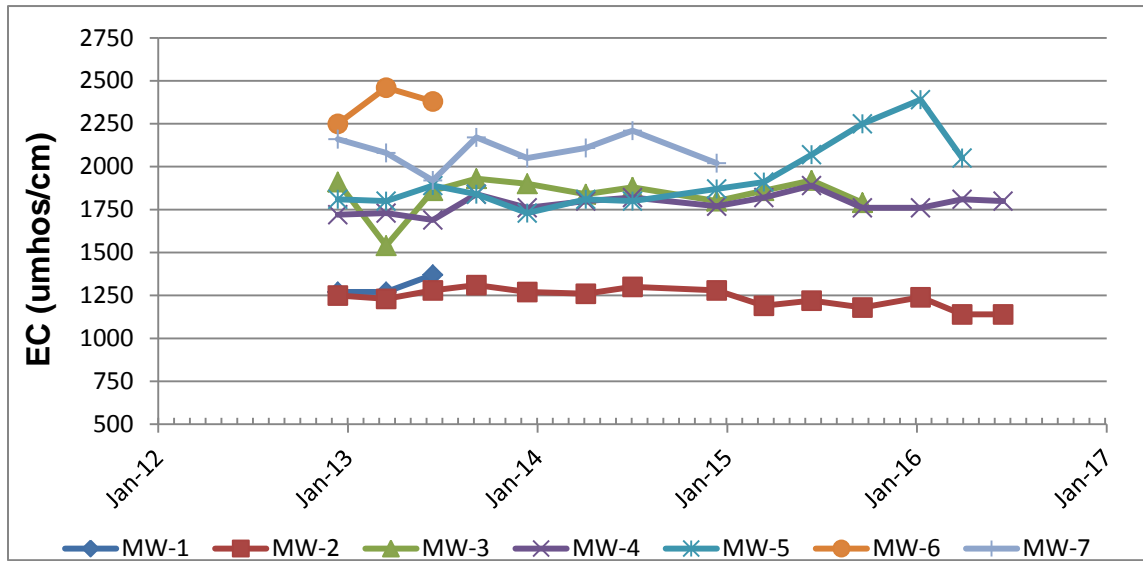


Figure 2. Total Dissolved Solids in Groundwater Monitoring Wells MW-1 through MW-7

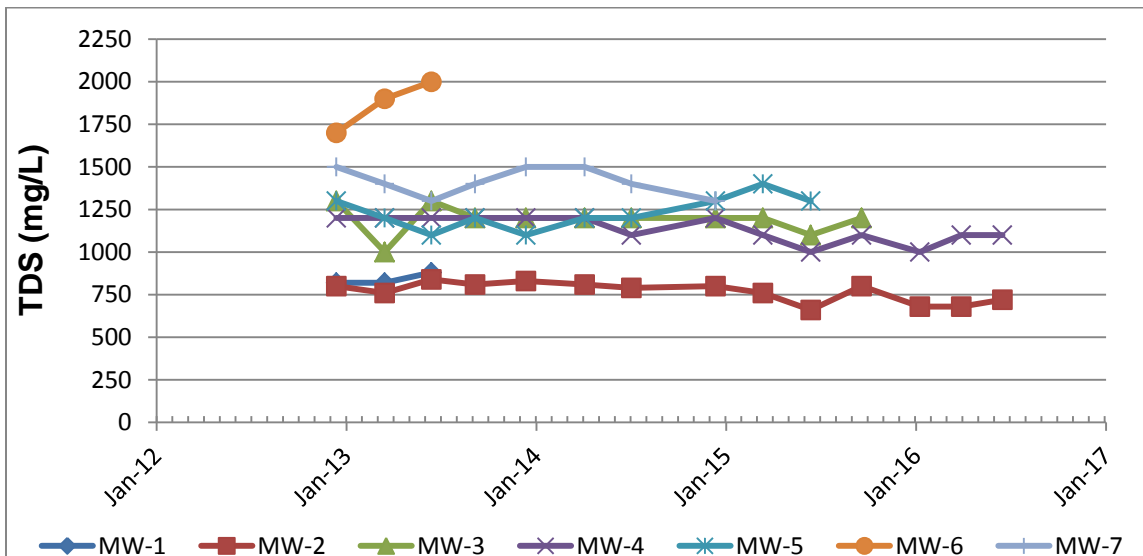


Figure 3. Sodium in Groundwater Monitoring Wells MW-1 through MW-7

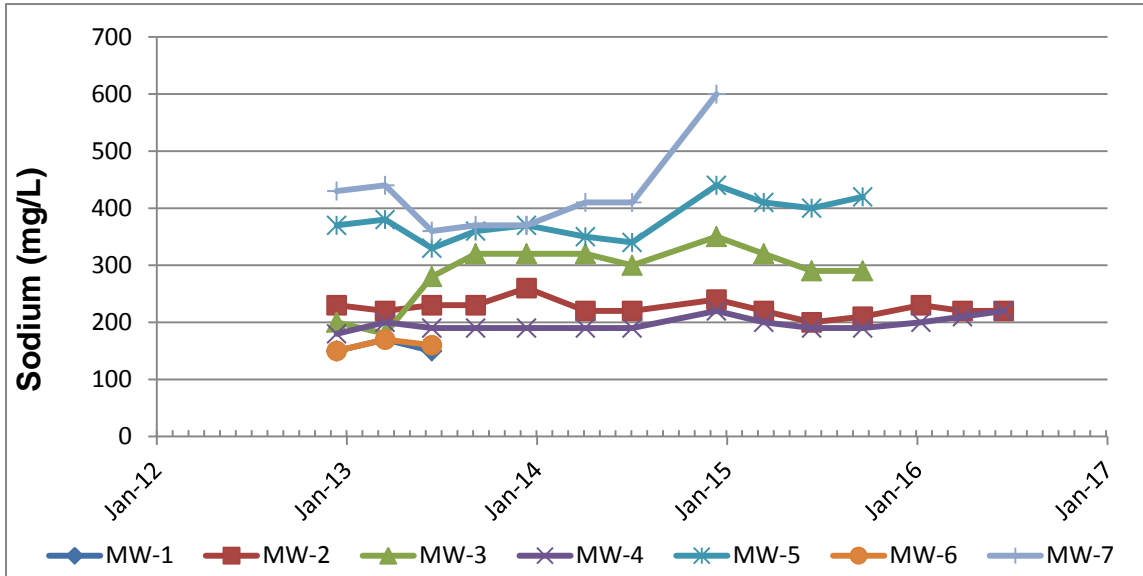
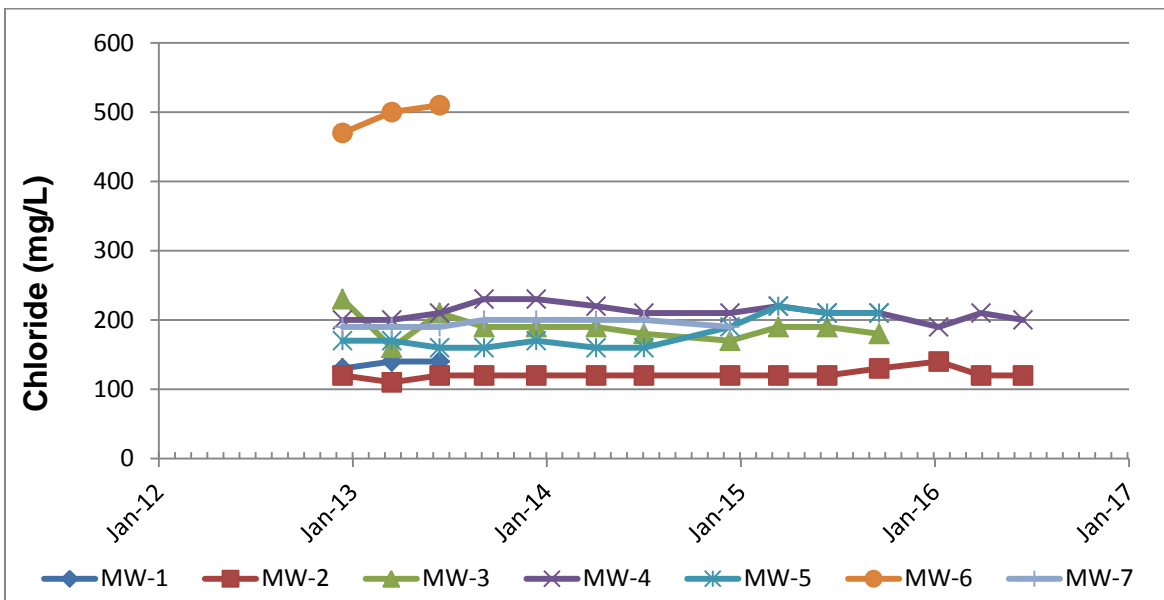


Figure 4. Chloride in Groundwater Monitoring Wells MW-1 through MW-7



Basin Plan, Beneficial Uses, and Regulatory Considerations

The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2015* (Basin Plan) designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board.

The Basin Plan identifies the greatest long-term water quality problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including the following limits:

- a. The maximum EC of the effluent discharged to land shall not exceed the EC of source water plus 500 umhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.
- b. Discharges to areas that may recharge to good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.

Antidegradation

State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Antidegradation Policy*) generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality groundwater unless it has been shown that:

- a. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
- b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
- c. The Discharger employs Best Practicable Treatment or Control (BPTC) to minimize degradation; and
- d. The degradation is consistent with the maximum benefit to the people of the state.

This Order establishes terms and conditions to ensure that the authorized discharge does not unreasonably affect present and anticipated future beneficial uses of groundwater or result in groundwater quality worse than background or the water quality objectives set forth in the Basin Plan.

This Order is consistent with the Anti-Degradation Policy since: (a) the Discharger has implemented Best Practicable Treatment or Control to minimize degradation, (b) the degradation will not unreasonably affect present and anticipated beneficial uses of groundwater, or result in water quality less than water quality objectives, and (c) the limited degradation is of maximum benefit to the people of the State.

CEQA

The City of Delano acted as the lead agency with in accordance with for the project pursuant to California Environmental Quality Act ("CEQA"). The City of Delano approved a Negative Declaration for the expansion of the WWTF, and subsequently filed a Notice of Determination (SCH# 2006041024) on 13 November 2006. Acting as a responsible agency pursuant to CEQA, the Central Valley Water Board reviewed the Negative Declaration and concurs that the will not have a significant impact on water quality.

Title 27

Unless the Board finds that the discharge of designated waste is exempt from Title 27 of the California Code of Regulations, the release of designated waste is subject to full containment requirements. Here, the discharge is exempt from the requirements of Title 27 pursuant to the sewage and wastewater exemptions found at Title 27, sections 20090(a) and (b).

Proposed Order Terms and Conditions

Discharge Prohibitions, Specifications and Provisions

The proposed Order prohibits the discharge of waste to surface waters and to surface water drainage courses, and prohibits the cross connection between potable water and well piping with recycled water piping.

The proposed Order restricts the discharge to a monthly average dry flow limit of 7.2 mgd. The Order sets effluent limits for BOD and TSS of 40 mg/L as monthly average and 80 mg/L as daily maximum.

The proposed Order's provisions regarding storage pond dissolved oxygen and freeboard are consistent with Central Valley Water Board policies for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed Order prescribes groundwater limitations that ensure the discharge does not affect present and anticipated beneficial uses of groundwater.

The proposed Order includes provisions that require the Discharger to submit a Wastewater and Nutrient Management Plan and Salinity Management Plan for Executive Officer approval.

Monitoring Requirements

Section 13267 of the Water Code authorizes the Central Valley Water Board to require the Discharger to submit monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State.

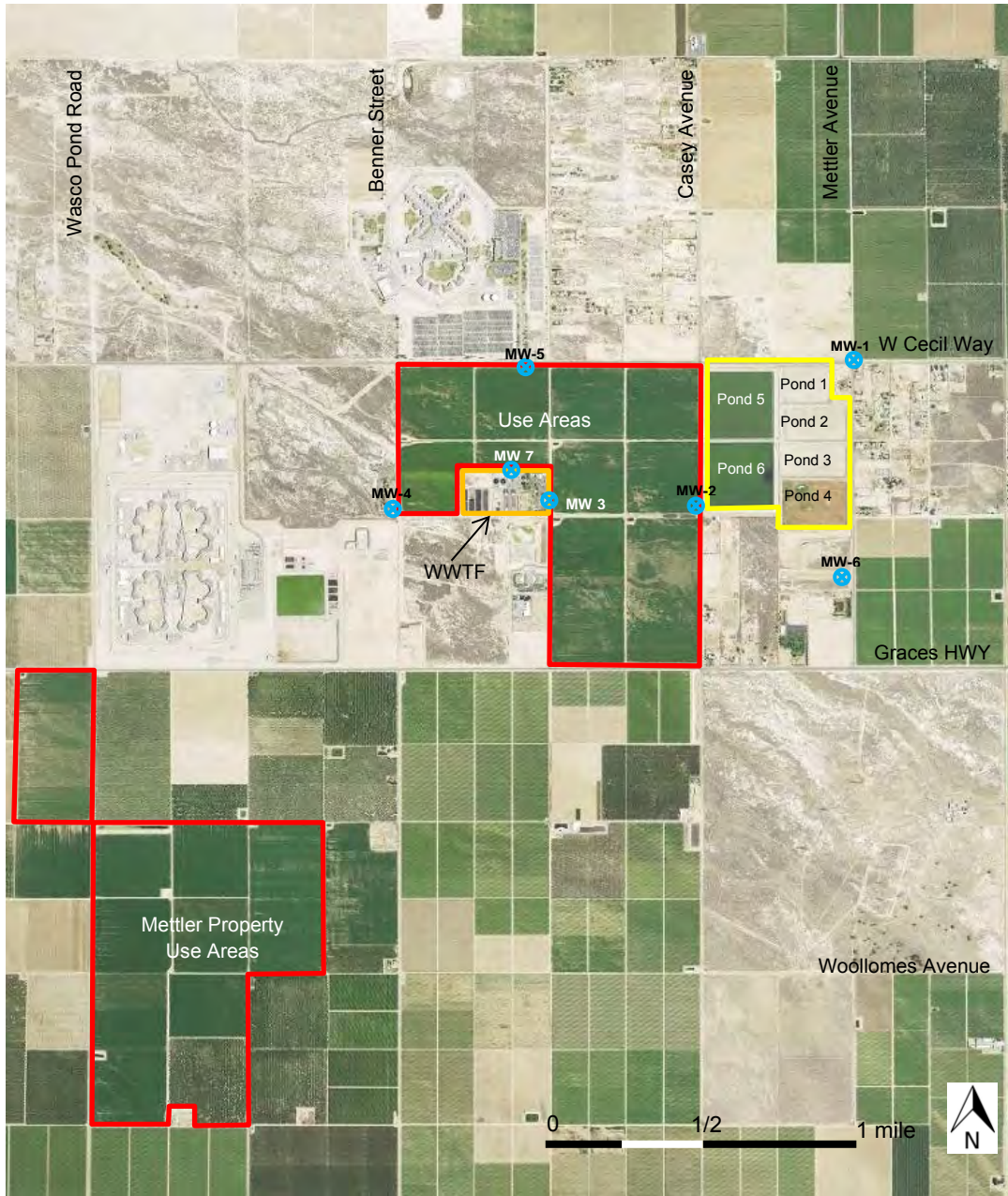
The proposed Order includes influent and effluent monitoring requirements, pond monitoring, source water monitoring, groundwater monitoring, land application area monitoring, and sludge/biosolids monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance with effluent limitations prescribed by the Order, and evaluate groundwater quality and the extent of degradation, if any, caused by the discharge.

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

Reopener

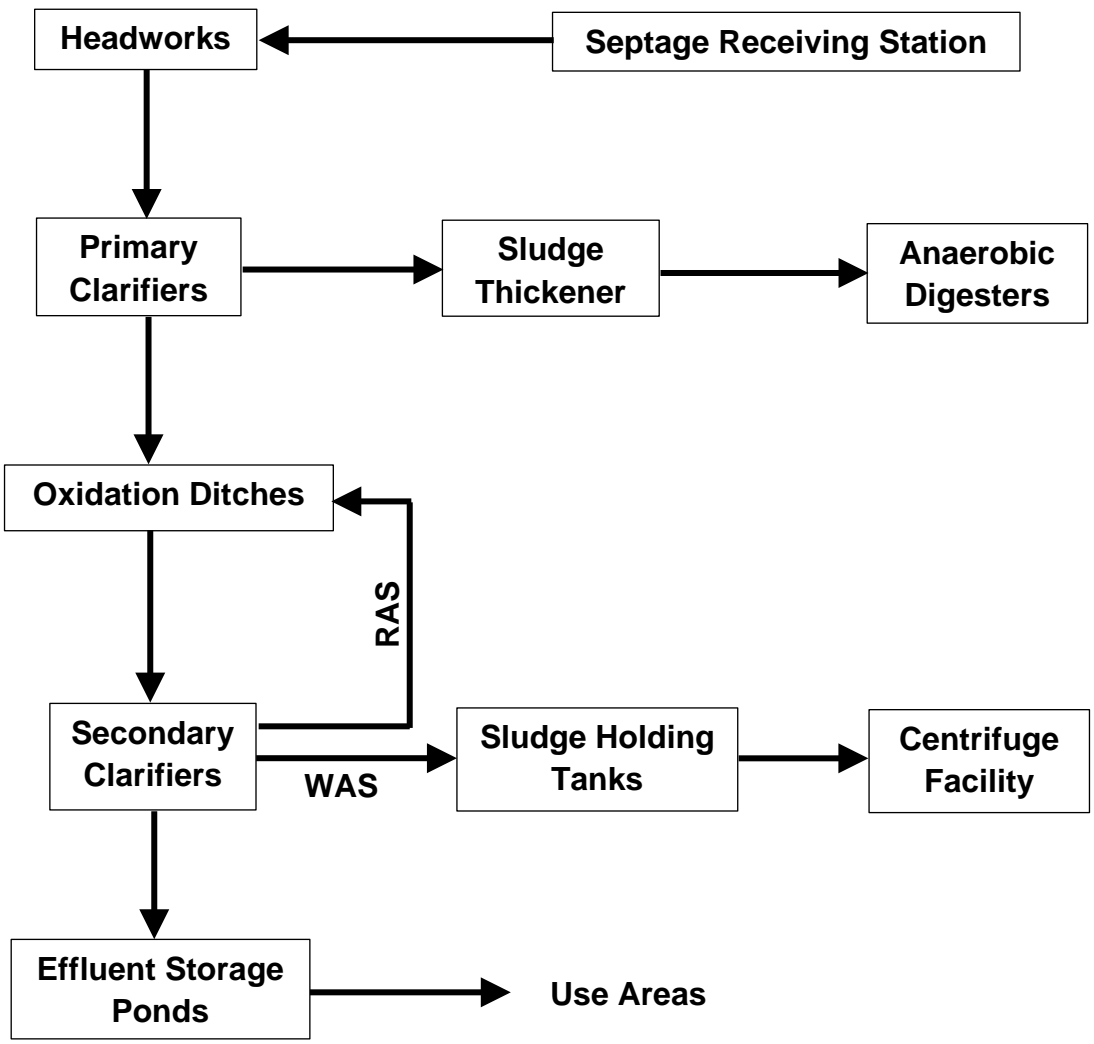
The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. It may be appropriate to reopen the Order if new technical information is received or if applicable laws and regulations change.



SITE MAP
 WASTE DISCHARGE REQUIREMENTS ORDER R5-2017-0052
 FOR
 CITY OF DELANO
 WASTEWATER TREATMENT FACILITY
 KERN COUNTY

Groundwater Monitoring Wells

ATTACHMENT A



PROCESS FLOW SCHEMATIC

WASTE DISCHARGE REQUIREMENTS ORDER R5-2017-0052
 FOR
 CITY OF DELANO
 WASTEWATER TREATMENT FACILITY
 KERN COUNTY

ATTACHMENT B



RECYCLED WATER SIGNAGE

WASTE DISCHARGE REQUIREMENTS ORDER R5-2017-0052
FOR
CITY OF DELANO
WASTEWATER TREATMENT FACILITY
KERN COUNTY

ATTACHMENT C