

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-0149

WASTE DISCHARGE REQUIREMENTS
AND
MASTER RECYCLING PERMIT
FOR
RANCHO MURIETA COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT AND RECLAMATION PLANT
SACRAMENTO COUNTY

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

1. On 20 December 2013, Rancho Murieta Community Services District (RMCS D or District) submitted a Report of Waste Discharge (RWD) to apply for revised Waste Discharge Requirements (WDRs) and a Master Recycling Permit for its existing wastewater reclamation plant (WWRP) and use of reclaimed water within the District's service area and the Van Vleck Ranch. Amendments to the RWD were submitted on 15 August 2015, 20 October 2015, and 27 October 2014.
2. The District (hereafter "Discharger") owns and operates the Rancho Murieta Wastewater Reclamation Plant (WWRP) and is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The WWRP is at 15160 Jackson Road in Rancho Murieta (Section 3, T7N, R8E, MDB&M) Assessor's Parcel Number 0730180030000 as shown on Attachment A, which is attached hereto and made part of this Order by reference. The locations of the existing and proposed recycled water Use Areas are presented in the table below. For the purpose of this Order, 'Use Area(s)' as used herein means an area within the defined boundaries where recycled water is used or discharged.

Recycled Water Use Areas	Existing/Proposed Use Areas	Description	Assessor's Parcel Numbers
North Golf Course	Existing	18-hole golf course	07301900060000, 07301900070000, 07301900080000, 07301900090000, 07301900100000, 07301900980000, 07301901080000

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Recycled Water Use Areas	Existing/Proposed Use Areas	Description	Assessor's Parcel Numbers
South Golf Course	Existing	18-hole golf course	07307900090000, 07307900100000, 07307900210000, 07307900350000
Van Vleck Ranch (Field 1, Field 2, and Field 3)	Existing	Field 1 (49 acres), Field 2 (25 acres), Field 3 (22 acres)	12800800670000, 12800800680000
Wastewater Reclamation Plant	Existing	District Office & wastewater treatment site	07301800300000
Van Vleck Ranch (Field 4)	Proposed	Field 4 (150 acres)	12800800670000, 12801000290000, 12800800680000
Lakeview	Proposed	99 residential units	07307900460000
Murieta Gardens	Proposed	99 residential units, 50 commercial units, 1-acre park	07304700040000, 07304700050000, 07304700060000
Residences of Murieta Hills	Proposed	198 residential units	07301901060000, 07301901050000
Retreats	Proposed	84 residential units	07307900440000, 07301900990000
Riverview	Proposed	140 residential unit	07307900070000
Stonehouse Park	Proposed	existing 4-acre park	07301900460000
Apartments	Proposed	170 residential units	07301900690000
Escuela	Proposed	40 residential units, 4-acre park	07301900250000
Highlands	Proposed	110 residential units	07308000090000, 07308000050000
Industrial/ Commercial/ Residential	Proposed	100 residential units, 125 commercial units	07301800290000
River Canyon	Proposed	120 residential units	07307900230000
Terrace	Proposed	177 residential units	07308000080000, 07308000060000, 07308000070000

4. WDRs Order 5-01-124, adopted by the Central Valley Water Board on 11 May 2001, prescribes requirements for the facility. Order 5-01-124 allows a 30-day average dry weather influent flow into the secondary wastewater treatment ponds up to 1.5 million gallons per day (mgd) and a 30-day average dry weather effluent discharge from the tertiary plant up to 3.0 mgd. Tertiary treated wastewater is land applied on two golf courses.
5. WDRs Order R5-2009-0124, which amended WDRs R5-2007-0109, adopted by the Central Valley Water Board on 10 December 2009, prescribes requirements for the use of disinfected tertiary recycled water (produced at the WWRP) at the Van Vleck Ranch. Discharges of recycled water at the Van Vleck Ranch were prohibited after 31 December 2014 because the Use Permit issued by Sacramento County was temporary.
6. The Discharger requests revised WDRs and a Master Recycling Permit to regulate additional recycled water uses within the District's service areas, including landscape irrigation and ancillary recycled water use and some residential landscape irrigation; continued use at the existing two golf courses; and expansion of the Van Vleck Ranch, which is outside the District's service area. Therefore, Order 5-01-124 and Order R5-2009-0124 will be rescinded and replaced with this Order, which also includes a Master Recycling Permit.

Existing Facility and Discharge

7. The WWRP is an existing facility which receives domestic wastewater and a relatively small amount of commercial wastewater from the community of Rancho Murieta. The WWRP also receives recreational vehicle (RV) waste (approximately 3,000 gallons per year) from two RV dump stations, one at the Rancho Murieta Mobile Home Park located on Cantova Way and another at the Murieta Airport located on Murieta Drive. There are no industries or industrial activities that discharge wastewater to the WWRP. The community encompasses 3,500 acres, of which approximately 2,000 acres are used for residential development. The current number of residential units is 2,548 and is expected to increase to approximately 4,150 residences within the next 15 years.
8. Raw wastewater is pumped to the WWRP through three main pumping stations located throughout Rancho Murieta. The WWRP provides secondary and tertiary treatment and disinfection. The treatment process systems are described below and their locations are shown on Attachment B, which is attached hereto and made part of this Order by reference.
 - a. The secondary wastewater treatment plant has a design flow of 1.55 mgd as an average dry weather flow and 3.0 mgd as a peak wet weather flow. Secondary treatment takes place in a series of five clay-lined aerated facultative ponds (Aeration Ponds 1 through 4). Undisinfected secondary treated effluent is stored in two clay-lined storage reservoirs (Reservoirs 1 and 2) with a combined storage capacity of approximately 747 acre feet (AF) with 2 feet of freeboard prior to

tertiary treatment and disinfection. Wastewater is stored in the reservoirs during the rainy season (typically between the months of October and March) until needed for irrigation of the golf courses during the dry season. Solids are removed from the treatment ponds and placed on drying beds prior to offsite disposal. The sludge drying beds were reconstructed in 2002 with reinforced concrete; prior to that time the beds were unlined.

- b. Tertiary treatment and disinfection consists of two dissolved air floatation units, two rapid sand filters, a chlorine gas feed system, chlorine contact basin, and 6,600 linear feet of chlorine contact pipe installed in a concrete lined equalization basin. The design capacity of the tertiary treatment plant is 3.0 mgd and the disinfection system has a design capacity of 2.3 mgd. Disinfected tertiary treated wastewater is stored in the equalization basin prior to reuse. The tertiary treatment plant is operated from April through November.
9. Disinfected tertiary treated wastewater is used to irrigate two 18-hole golf course properties (250 acres) operated by the Rancho Murieta Country Club. The recycled water is pumped to the golf course and stored in five unlined irrigation storage reservoirs (Lake Ten, Lake Eleven, Lake Sixteen, Lake Seventeen, and Bass Lake) situated around the golf courses prior to use. The location of the storage reservoirs is shown on Attachment C, which is attached hereto and made part of this Order by reference. A computer-controlled spray irrigation system is used to discharge the recycled water on to the golf course. The two golf courses have a combined total annual irrigation demand of 550 acre feet (AF) during a typical year.
 10. Disinfected tertiary treated wastewater is also used to irrigate three separate pasture lands on the Van Vleck Ranch. Distribution and use of recycled water at the Van Vleck Ranch is managed by the District. The locations of Field 1 (49 acres), Field 2 (25 acres), and Field 3 (22 acres) are shown on Attachment C. The existing Van Vleck Ranch fields have a combined total annual irrigation demand of 215 AF. An above ground spray irrigation system is used to discharge the recycled water on to the fields.
 11. A summary of the influent flows into the WWRP from 2009 through 2013 is presented in the table below.

	Raw Wastewater Flow to the WWRP, million gallons (MG)				
	2009	2010	2011	2012	2013
January	14.5	15.8	17.1	13.4	13.7
February	15.1	14.0	15.4	11.4	11.2
March	16.6	16.2	21.3	14.3	12.7
April	14.3	15.8	16.1	14.2	12.3
May	15.4	14.9	15.4	13.1	12.3
June	13.9	13.9	13.9	12.3	11.6
July	14.6	13.8	14.4	12.6	12.5
August	14.4	14.0	14.1	12.5	12.6
September	14.3	13.0	13.7	12.1	12.2

	Raw Wastewater Flow to the WWRP, million gallons (MG)				
	2009	2010	2011	2012	2013
October	14.3	14.1	14.7	12.6	12.4
November	13.0	14.9	13.4	12.5	11.8
December	14.6	18.9	13.2	17.7	11.2
Annual Total:	175.0	179.2	182.8	158.8	146.3

12. The average secondary effluent quality from 2010 through 2013 is summarized in the table below.

	Average Secondary Effluent Characteristics, mg/L			
	2010	2011	2012	2013
BOD	12	8.5	10	6.7
TDS	306	325	289	290
Nitrate as N	8.9	10.5	10.3	11.8
Ammonia as N	0.9	2.2	1.2	5.6

13. The average tertiary effluent quality from 2010 through 2013 is summarized in the table below.

	Average Tertiary Effluent Characteristics, mg/L			
	2010	2011	2012	2013
pH	6.8	6.8	6.8	6.8
TDS	316	315	315	351
Chloride	60	64	74	--
Sodium	54	57	73	--
Nitrate as N	2.2	2.8	1.6	4.0
TKN	1.2	0.7	0.5	2.8

“—” denotes no data available.

Proposed Facility and Discharge

14. The District requested revised WDRs and a Master Recycling Permit to allow additional recycled water use within the District’s service areas and the Van Vleck Ranch property. Expansion of recycled water Use Areas include public area landscape irrigation and ancillary uses of future residential developments within the Rancho Murieta community, front and backyard residential landscaping at specified future residential developments, and expansion of the Van Vleck Ranch Use Area from 96 to 282 acres. Location of the expanded Use Areas is shown on Attachment C. Future residential developments are anticipated to be time-phased into two project phases.
- a. Public area landscape irrigation and ancillary recycled water uses include irrigation of parks; greenbelts; playgrounds; athletic fields; common areas; commercial, highway, and street landscaping; and dust control within the District’s service area.
 - b. Future residential landscape irrigation demand for the new Use Areas is summarized below.

Use Areas	Proposed Expanded Recycled Water Use Areas		
	Description	Estimated Irrigation Demand (acre-ft/yr)	Use Area Expansion Phase ¹
Lakeview	99 residential units	15.8	1
Murieta Gardens	99 residential units, 50 commercial units, 1-acre park	19.6	1
Residences of Murieta Hills	198 residential units	73.8	1
Retreats	84 residential units	18.8	1
Riverview	140 residential unit	22.4	1
Stonehouse Park	4-acre park (existing)	14.4	1
Apartments	170 residential units	23.8	2
Escuela	40 residential units, 4-acre park	25.9	2
Highlands	110 residential units	42.1	2
Industrial/ Commercial/ Residential	100 residential units, 125 commercial units	50.9	2
River Canyon	120 residential units	46.4	2
Terrace	177 residential units	59.9	2
Estates of Calero, Estates of Chesbro, and Estates of Clementia	139 residential units, 78 residential units, 94 Residential units	113.3	2
Yearly Total Irrigation Demand²:		413.8	

¹ Use of recycled water for residential developments will be time-phased into two project phases.

² Total irrigation demand does not include potential irrigation demand needs for the Estates of Lake Calero, Estates of Lake Chesbro, and Estates of Lake Clementia developments. Recycled water service to these developments was not included due to higher estimated service costs.

c. Expansion of the Van Vleck Use Areas to 282 acres will result to a 625 AF total annual irrigation demand.

Van Vleck Ranch Use Areas	Proposed Expanded Recycled Water Use Areas		
	Description	Irrigation Demand (acre-ft/yr)	Phase Development ¹
Spray Field 1, Spray Field 2, Spray Field 3	49 acres, 25 acres, 22 acres	215	existing
Van Vleck Ranch– Spray Field 4	186.6 acre	410	1
Yearly Total Irrigation Demand:		625	

¹ Residential developments will be time-phased into two project phases.

15. To support recycled water use in the expanded Use Areas, the District proposes the following improvements to be implemented as needed to provide recycled water to planned developments. The Phase 1 and 2 Developments are shown on Attachment C.
 - a. An additional 195,000 gallons of chlorine contact basin capacity is planned for completion by the end of 2020 or 2025 depending on the level of Phase 1 occupancy achieved or six months prior to initiating recycled water residential landscape irrigation service. This expansion will increase disinfection capacity to 3.0 mgd.
 - b. An additional 240 AF of secondary effluent storage capacity (proposed Reservoir 3) is planned following completion of the Phase I Developments and to accommodate an average dry weather wastewater treatment facility influent flow greater than 0.65 mgd. Completion is anticipated for the end of 2020 or 2025 depending on the level of Phase 1 occupancy achieved. The location of the proposed storage reservoir is west of Aeration Pond 4 as shown on Attachment C.
 - c. Infrastructure improvements to convey recycled water to the new and expanded Use Areas.
 - d. An additional 470 AF of secondary effluent storage capacity (proposed future Reservoir 4) is planned following completion of the Phase 2 Developments and to accommodate an average dry weather wastewater treatment facility influent flow of 1.55 mgd.
16. The two golf courses have the highest priority for recycled water. To allow the Discharger flexibility in changing the size and use of land areas for recycled water storage or use, this Order includes a Master Recycling Permit, as described in Water Code section 13523.1(b).
17. Three separate water balances were submitted to demonstrate storage and water recycling disposal capacity at existing conditions, at the completion of the Phase 1 Development project, and at the completion of the Phase 2 Development project. The water balances were based on a 100-year return period 365-day precipitation event. The treatment, storage, and disposal capacities for each phase of expansion are presented in the table below.

	ADWF Flow mgd	Treatment Capacity			Storage Capacity		Disposal Capacity	
		Secondary Treatment (ADWF/Peak) mgd	Tertiary Treatment mgd	Disinfection Treatment mgd	Effluent Storage Reservoir ¹		Use Area	
					mgal	AF	mgal	AF
Current	0.5	1.55 / 3.0	3.0	2.3	243	747	--	--
2 Golf Courses:	--	--	--	--	--	--	179	550
Van Vleck (3 fields):	--	--	--	--	--	--	70	215
Subtotal:	0.5	1.55 / 3.0	3.0	2.3	243	747²	249	765
Phase 1	0.7	1.55 / 3.0	3.0	2.3	243	747	--	--
2 Golf Courses:	--	--	--	--	--	--	179	550
Van Vleck (4 fields):	--	--	--	--	--	--	204	625
Subtotal:	0.7	1.55 / 3.0	3.0	2.3	243	747²	383	1,175
Phase 2	1.0	1.55 / 3.0	3.0	3.0	314	970	--	--
2 Golf Courses:	--	--	--	--	--	--	179	550
Van Vleck (4 fields):	--	--	--	--	--	--	204	625
Landscape Irrigation:	--	--	--	--	--	--	54	165
Subtotal:	1.0	1.55 / 3.0	3.0	3.0	314	970³	437	1,340

¹ Capacity with 2-foot freeboard.

² Based on two seasonal storage reservoirs.

³ Based on three seasonal storage reservoirs.

Full buildout of the Rancho Murieta community is described in the *Rancho Murieta North Infrastructure Master Plan* dated May 2003, which includes future development beyond the Phase 1 and 2 Development projects and additional potential residential landscape Use Areas. The District has stated that the need to expand the WWRP beyond its current design parameters to accommodate Full Buildout conditions is not necessary at this time. However, at Full Buildout conditions, the anticipated expansion of the WWRP may include the following:

- a. Increasing the average dry weather influent flow limit to 1.55 mgd, the current secondary treatment design capacity.
- b. Expansion of the tertiary and disinfection treatment system that demonstrates adequate disinfection system capacity to accommodate an influent flow of 6.5 mgd as a daily maximum.
- c. An additional 470 AF of secondary effluent storage capacity.

d. An additional 925 AF of Use Area for residential irrigation.

18. The immediately applicable influent flow limitation in this Order is based on the current effluent storage and disposal capacity. Under the conditions of the Master Recycling Permit, the Discharger may expand the Use Areas. The influent flow limits may increase with Executive Officer approval, according to Provision H.1.a, H.1.b, and H.1.c, up to the maximum treatment, storage, and disposal capacity of the WWRP (1.55 mgd maximum).

Site-Specific Conditions

19. The District’s source water is the Cosumnes River. Water from the river is stored in the Calero, Chesbro, and Clementia Reservoirs then treated at the District’s water treatment facility. Based on the 2013 Consumer Confidence Report, source water quality is summarized in the table below.

Constituent	Source Water Quality, mg/L unless otherwise specified		
	2011	2012	2013
EC, µmhos/cm	99	110	120
TDS	69	62	53
Chloride	2.7	2.7	2.7
Sodium	5.4	5.3	5.2
Sulfate	3.3	3.1	2.8
Nitrate (NO ₃)	ND	ND	ND
Iron	ND	ND	ND
Manganese	ND	ND	ND

“ND” denotes non-detect.

20. Rancho Murieta is bisected by the Cosumnes River and State Highway 16. The Cosumnes River originates on the western side of the Sierra Nevada Mountain Range at an approximate elevation of 7,500 feet above mean sea level. The Cosumnes River is the nearest surface water drainage to Rancho Murieta.
21. Based on Flood Insurance Rate Maps included in the RWD, the WWRP and the majority of the recycled water Use Areas are outside the 100-year flood zones. A small portion of the South Golf Course is located within the 100-year flood zone of Cosumnes River and a portion of the southern end of the 22-acre Van Vleck Ranch Field 3 Use Area is located within the 100-year flood zone of Arkansas Creek.
22. Surrounding land uses are zoned for agriculture (typically cattle ranching). The reference evapotranspiration rate (ET_o) is approximately 66 inches per year. The

average annual and 100-year return period annual precipitation rates are approximately 25 and 45 inches per year respectively¹.

Groundwater Conditions

23. According to the California Division of Mines and Geology geologic maps, Rancho Murieta is underlain by the Lone Formation (quartzose sandstone interbedded with kaolinitic clay and sandy clay and lignite) and near the Valley Springs Formation (rhyolitic tuff, sandstone, siltstone, claystone, and conglomerate). The presence of lignite has been associated with groundwater quality high in sulfate and iron concentrations and very low pH values. The near surface materials at the WWRP have likely been influenced by overbank deposits from the Cosumnes River, which lies approximately 2,500 feet to the north.
24. According to the Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation Service, the WWRP is located in an area where there are two predominant soil series. Surficial site soils classified as the Mokelumne gravelly loam are mainly at the wastewater storage reservoirs (characterized by low pH 3.6 to 5.0) and dredge tailings are near the wastewater treatment ponds (characterized as neutral to slightly acidic pH, 6.1 to 7.3).
 - a. The Mokelumne series consists of moderately deep, well drained soils on hills and the side slopes of terrace remnants. The saturated hydraulic conductivity (k_{sat}) is very low to moderately low (0.00 to 0.06 in/hr).
 - b. The Dredge tailings consist of very deep, somewhat excessively drained soils. These soils formed in material having a high content of gravel and cobbles derived dominantly from mixed rock sources. The saturated hydraulic conductivity is high to very high (5.95 to 19.98 in/hr).
 - c. The soil survey also indicates the Xerarents-Urban land-San Joaquin complex soil series underlying the WWRP area. These soils consist of moderately deep to very deep, well drained, altered soils. These soils are in filled areas on hills, low terraces, and high terraces. They are formed in fill material mixed by grading, excavation, and leveling activities.
25. The depth to groundwater ranges from 4 to 50 feet below the ground surface at the WWRP site. Groundwater flow direction is to the west-southwest.
26. Pre-discharge groundwater data are not available and the Discharger does not monitor groundwater at the recycled water Use Areas. Groundwater surrounding the WWRP (monitoring wells MW01, MW02, and MW03) has been monitored since 2001; including two observation wells (OW01 and OW02) that were installed during the construction of the storage reservoirs. Three additional wells (MW04, MW05, and

¹ Reference Rancho Murieta DWR Station B00724892 and weather.com, Sloughhouse CA Station.

MW06) have been monitored since 2006. Well locations are shown on Attachment D, which is attached hereto and made part of this Order by reference.

27. Average current groundwater quality based on groundwater monitoring data from February 2010 to August 2013 is summarized below.

Constituent	WQO	Feb 2010 – Aug 2013 Average Groundwater Quality, mg/L							
		Upgradient Wells			Downgradient Wells				
		MW 01	MW 05	MW 06	MW 02	MW 03	MW 04	OW 01	OW 02
pH, std units	6.5 – 8.4	4.1	6.3	6.9	4.6	5.8	3.5	3.8	3.9
TDS	1,000 ⁴	1027	488	1360	3143	738	1588	659	728
Chloride	500 ⁴	108	96	64	96	26	45	37	85
Sodium	69 ¹	89	105	61	102	53	56	61	66
Sulfate	500 ⁴	620	120	293	1480	368	1275	363	275
Nitrate as N	10 ²	0.9	1.1	23	4.3	6.3	3.1	0.5	0.7
Ammonia as N	--	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Nitrogen	--	1.3	1.2	26	5.0	7.0	3.3	0.40	0.6
Iron ⁵	0.3 ³	14	0.73	1.9	0.3	0.1	1.2	9.2	0.53
Manganese ⁵	0.05 ³	0.9	0.18	1.1	1.0	0.06	2.8	1.3	1.6

“—” denotes no data available. “WQO” denotes water quality objective. If concentration was non-detect, data reflects reporting limit.

¹ Agricultural Water Quality Goal.

² Primary Maximum Contaminant Level.

³ Secondary Maximum Contaminant Level.

⁴ Upper Level Secondary Maximum Contaminant Level.

⁵ MW01, MW02, MW03, OW01, and OW02 based on average data from Oct 2001 to Aug 2007. MW03, MW04, and MW05 based on average data from Nov 2006 to Aug 2007

The groundwater data show spatial variability in both upgradient and downgradient wells and salinity constituents and metal constituents (iron and manganese) that exceed water quality objectives. Nitrate concentrations that exceed the water quality objective were observed in one of the three upgradient wells. The high concentrations of general minerals and metal constituents in groundwater are likely the result of mineral dissolution related to the low pH water.

28. Based on groundwater elevation data, MW01 is a background well and not influenced by the discharge. MW01 is upgradient of the storage reservoirs and is located in the Mokelumne gravelly loam. MW05 and MW06 are upgradient of the aeration ponds and located in the xerarents-urban land-San Joaquin complex. MW05 and MW06 were installed to determine whether local background groundwater conditions vary depending on soil types and to confirm that MW01 may be representative of background groundwater quality only for the effluent storage reservoirs. The following describes groundwater data from MW01, MW05, and MW06.

- a. The pH in MW01 is more acidic than in MW05 and MW06, which appear to be neutral.
 - b. Sulfate and iron concentrations in MW01 are much higher than those observed in MW05 and MW06.
 - c. TDS, nitrate, chloride, sodium, and manganese vary between the three wells.
 - d. MW05 and MW06 are approximately 1,000 feet apart; however concentrations vary with respect to TDS, chloride, sodium, sulfate, nitrate, iron, and manganese.
 - e. Sodium concentrations in MW01 and MW05 exceed 69 mg/L, the agricultural water quality goal.
 - f. Nitrate concentrations in MW06 exceed 10 mg/L, the primary MCL.
29. OW01 and OW02 are downgradient of the storage reservoirs and are directly downgradient of the Mokelumne gravelly loam. The pH in OW01 and OW02 is acidic. Surficial soils are borderline dredge tailings and mixed fill material and alluvium.
- a. Groundwater quality in OW01 is similar to OW02, with the exception of chloride and iron. High chloride concentrations were observed in OW02. High iron concentrations were observed in OW01.
 - b. Concentrations for salinity constituents, nitrates, sulfates, and iron observed in OW01 and OW02 is of better quality than those observed in upgradient well MW01; indicating that the discharge is likely improving groundwater quality.
30. MW02, MW03, and MW04 are downgradient of the aeration ponds. Surficial soils near MW02 are borderline dredge tailing and mixed fill material and alluvium. The pH in MW02 is slightly acidic. Surficial soils near MW03 and MW04 is mixed fill material and alluvium. The pH in MW03 and MW04 is slightly acidic and acidic, respectively. Groundwater quality varies with respect to TDS, chloride, sodium, sulfate, iron, and manganese.
- a. Groundwater quality in MW03, approximately 1,000 feet northeast of MW04, has better groundwater quality than both MW02 and MW04.
 - b. TDS concentrations in MW02 and MW04 (both downgradient of Aeration Pond 4) exceed 1,000 mg/L, the upper level secondary MCL. TDS concentrations in MW02 is in the upwards of 3,000 mg/L since 2005 and has been relatively constant thereafter. Effluent TDS concentrations average 300 mg/L.
 - c. Sulfate concentrations in MW02 and MW04 exceed the upper level secondary MCL of 500 mg/L and sulfate groundwater concentrations upgradient of the WWRP. Available effluent data show an average effluent sulfate concentration of 50 mg/L.

- d. Manganese concentrations in MW02, MW03 and MW04 exceed the secondary MCL of 0.05 mg/L.
 - e. Iron concentrations in MW02 and MW04 exceed the secondary MCL of 0.3 mg/L.
31. The groundwater data illustrate high spatial variability and in some cases poor quality of the first encountered groundwater for constituents such as pH, TDS, sulfates, nitrate, iron, and manganese. Based on the soil character and geologic conditions of the site and in consideration of the high quality source water and effluent, the poor quality groundwater is likely naturally occurring and not the result of the discharge.

Basin Plan, Beneficial Uses, and Regulatory Considerations

32. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to California Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.
33. Local drainage is to Cosumnes River, a tributary to the Mokelumne River, which is a tributary to the Sacramento-San Joaquin Delta. The beneficial uses of Cosumnes River as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; estuarine habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.
34. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.
35. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
36. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.
37. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter 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.

38. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.
39. 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. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
40. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

Antidegradation Analysis

41. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
 - a. The degradation is consistent with the maximum benefit to the people of the state.
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses.
 - c. 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, and
 - d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
42. Degradation of groundwater by some of the typical waste constituents associated with discharges from a municipal wastewater utility, after effective source control, treatment, and control measures are implemented, is consistent with the 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 reliance on numerous, concentrated individual wastewater systems, and the impact on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the

State, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

43. Based on the data available, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.
44. Typical constituents of concern that have the potential to degrade groundwater include salts (primarily TDS and sodium), nutrients, and coliform organisms, as discussed below. Because the WWRP ponds have the greatest potential to degrade groundwater quality, this analysis is based on conditions at the WWRP site.

Constituent	Average Concentrations, mg/L unless specified							
	Potential WQO	Source Water	Effluent		Upgradient of the		Downgradient of the	
			Secondary ¹	Tertiary ¹	Ponds 1 – 4 ³	Reservoirs 1 & 2 ⁴	Ponds 1 – 4 ⁵	Reservoirs 1 & 2 ⁶
pH, std units	6.5 – 8.5 ⁹	7.3	--	6.8	6.9	4.1	4.6	3.8
TDS	1,000 ¹⁰	53	303	326	1,360	1,042	3,143	659
Chloride	500 ¹⁰	2.7	40 ²	63	64	108	96	37
Sodium	69 ⁷	5.2	43 ²	57	61	89	102	61
Sulfate	500 ¹⁰	2.8	51 ²	--	293	620	1,480	363
Nitrate as N	10 ⁸	--	10	4.0	23	0.9	4.3	0.5
Ammonia as N	--	--	2.5	--	0.1	0.4	0.1	0.1
TKN	--	--	--	1.4	--	--	--	--
Iron ⁸	0.30 ⁹	< 0.3	0.08 ²	--	1.9 ¹¹	14 ¹¹	0.3 ¹¹	9.2 ¹¹
Manganese ⁸	0.05 ⁹	< 0.05	0.16 ²	--	1.1 ¹¹	0.9 ¹¹	1.0 ¹¹	1.3 ¹¹
Total Coliform Organisms	2.2 per 100 mL	2.0	--	--	< 1.8	<1.8	<1.8	<1.8

“--“ denotes no data available.

¹ Average of data collected from 2010 – 2013.

² Average of data collected on 2010 and 2012 only.

³ Average of MW06 data collected from 2010-2013, furthest well upgradient of the treatment ponds.

⁴ Average of MW01 data collected from 2010-2013.

⁵ Average of MW02 of data collected 2010-2013, worse case well downgradient of the treatment ponds.

⁶ Average of OW01 data collected from 2010-2013, closest well downgradient of the storage ponds.

⁷ Lowest agricultural water quality goal.

⁸ Primary Maximum Contaminant Level.

⁹ Secondary Maximum Contaminant Level.

¹⁰ Upper Level Secondary Maximum Contaminant Level.

¹¹ MW01, MW02, MW03, OW01, and OW02 based on average data from Oct 2001 to Aug 2007. MW03, MW04, and MW05 based on average data from Nov 2006 to Aug 2007.

- a. **Total Dissolved Solids.** The Discharger’s source water is the Cosumnes River, high quality water with a TDS concentration approximately 50 mg/L. The average effluent TDS concentration is 300 mg/L, which is low for a typical domestic wastewater treatment facility and indicates that current control practices are

effective. Due to water conservation efforts to address drought conditions and the District's desire to increase water conservation practices, the TDS effluent quality may increase in the future. Groundwater TDS concentrations are spatially variable in both upgradient and downgradient wells and for the most part have been relatively constant over time in each well. In consideration of the high quality source water and relatively low salinity of the discharge, the discharge is not likely to degrade groundwater quality due to increased salinity. Because the treatment and storage ponds are unlined, there is the potential for wastewater to seep into the groundwater. However, TDS effluent concentrations are less than those observed in first encountered groundwater and indicate the discharge would not likely cause degradation of groundwater above existing conditions. The high TDS concentrations observed in MW02 and MW04 are likely of natural origin and not the result of the discharge. Therefore, the Basin Plan's Controllable Factors Policy is applicable, which does not allow further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded. This Order will set a performance-based flow-weighted annual average TDS effluent limit that will not cause groundwater to get any worse. Although typical effluent TDS concentrations of about 300 mg/L are anticipated, the effluent limit will allow flexibility for increases due to water conservations as the community grows. The Provisions require submittal of a Report of Waste Discharge if effluent TDS concentrations are forecasted to increase beyond the current effluent limit.

- b. **Sodium.** Effluent sodium concentrations are below the lowest agricultural water quality goal of 69 mg/L and for the most part do not exceed groundwater sodium concentrations upgradient and downgradient of the WWRP. Groundwater sodium concentrations are spatially variable and in several monitoring wells both upgradient and downgradient of the WWRP exceed the agricultural water quality goal. In consideration of the site soil conditions and relatively low sodium concentration in the discharge, the discharge is not likely to degrade groundwater quality. A performance-based annual average TDS effluent limit will effectively restrict the sodium concentration of the wastewater so that the discharge will not cause groundwater quality to get any worse.
- c. **Sulfate.** The average effluent sulfate concentration is 50 mg/L, which is below the upper level secondary MCL of 500 mg/L. Groundwater sulfate concentrations are spatially variable and in some wells exceed 500 mg/L. Groundwater data show sulfate concentrations downgradient of the aeration ponds exceed those upgradient of the aeration ponds. However, in consideration of the low pH values in groundwater and relatively low sulfate concentration in the discharge, it is not likely that the discharge will cause degradation. A sulfate effluent limit is not required to protect groundwater quality.
- d. **Iron and Manganese.** Although groundwater analysis for iron and manganese is no longer required, monitoring for these constituents was performed during the period of April 2001 through August 2007. Manganese concentrations in all the wells exceed the secondary MCL of 0.05 mg/L. Iron concentrations exceed the secondary

MCL of 0.3 mg/L in all the wells with the exception of MW03. Because of the high level of BOD removal and the fact these constituents are present in the upgradient/background wells at similarly high levels, the treatment and storage ponds are likely not the source. An effluent limit for iron or manganese is not required to protect groundwater quality.

- e. **Nitrate.** For nutrients such as nitrate, the potential for degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the treatment ponds and effluent storage reservoirs to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. The annual average total nitrogen concentration in the secondary treated wastewater ranges from 10 to 17 mg/L. Historical data show an occasional effluent nitrate (as N) concentration of 25 mg/L. Total nitrogen concentrations in the final effluent (disinfected tertiary treated wastewater) are below 10 mg/L. Nitrate concentrations in groundwater are spatially variable. Groundwater nitrate concentrations upgradient of the WWRP vary from 1.0 mg/L to 3 mg/L, with the exception of MW06. Nitrate concentrations in MW06 have exceeded the primary MCL of 10 mg/L since groundwater monitoring began in 2006 and is considered not high quality water. Groundwater nitrate concentrations downgradient of the WWRP vary from 1.0 to 6.0 mg/L and have been relatively constant over time within each well. Groundwater nitrate concentrations downgradient of the ponds have not exceeded the Primary MCL. The effluent total nitrogen quality is expected to remain the same. Because of the relatively low effluent total nitrogen concentrations, the discharge is not likely to degrade groundwater quality due to nitrates. However to protect the beneficial uses of groundwater, this Order will set a performance-based flow-weighted monthly average total nitrogen effluent limit that will not cause groundwater to get any worse and impose a nitrate groundwater limitation of 10 mg/L, the Primary MCL.
- f. **Total Coliform Organisms.** For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the treatment ponds and effluent storage reservoirs and saturated soils within the shallow water bearing zone to provide adequate filtration. Total coliform organisms (TCO) detections in groundwater monitoring wells do not exceed the Basin Plan limit. The Discharger provides disinfection, which reduces the potential threat to groundwater quality. However, disinfection does not prevent coliform impacts at the treatment ponds because treatment takes place in unlined ponds prior to disinfection and undisinfected effluent is stored in the reservoirs. Therefore, this Order imposes a groundwater limitation for coliform organisms at the Basin Plan numerical water quality objective.

45. This Order establishes effluent and groundwater limitations for the WWRP that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

For pH, TDS, sulfate, iron, manganese, and nitrate groundwater monitoring data indicate that groundwater is not high quality water, has not been degraded by the

previous discharge, and that the expanded discharge does not pose a threat of significant degradation in the future.

This Order contains effluent limits that will ensure that no water quality objective is exceeded in groundwater. The use of recycled water at the Use Areas does not pose a threat of significant degradation because of the high quality of the effluent and the ability of landscaping and crops to consume nitrogen and salts.

Based on the foregoing findings, this Order does not require groundwater monitoring, but does include groundwater limitations that implement Resolution 68-16 and the Controllable Factors Policy of the Basin Plan. If effluent or other future monitoring data indicates an increased threat to groundwater quality, groundwater monitoring may be required at the Executive Officer's discretion.

46. The Discharger provides treatment and control of the discharge that incorporates:
- a. Treatment ponds with engineered clay liners;
 - b. Technology for secondary treatment;
 - c. Technology for tertiary treatment and disinfection;
 - d. Off-site sludge disposal;
 - e. Alarms to prevent system bypass or overflow;
 - f. Recycled water use at agronomic application rates; and
 - g. Certified operators to assure proper operation and maintenance of the WWRP and Use Areas.

Water Recycling Regulatory Considerations

47. Recycled water is defined in Water Code section 13050 and in Title 22 section 60301.900. Based on the level of treatment at the WWRP, effluent delivered to recycled water users (Users) is "disinfected tertiary recycled water." After tertiary treatment and disinfection, recycled water is stored in the concrete lined equalization basin prior to conveyance to the Use Areas. Title 22 section 60301.920 defines "Use Area" as an area with defined boundaries where recycled water is used or discharged.
48. Undisinfected domestic wastewater contains human pathogens that are typically measured using total or fecal coliform organism 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.

49. In accordance with the statute, this Order includes WDRs and requires the Discharger to comply with uniform statewide recycling criteria; establish and enforce rules and regulations for Users in accordance with statewide recycling criteria; submit quarterly reports summarizing reclaimed water use; and conduct periodic inspections of the recycled water Use Areas. Recycled Water Standards were adopted by the Rancho Murieta Community Services District's Board of Directors on 16 October 2013 which are consistent and in compliance with the District's Recycled Water Code¹. The District's Recycled Water Code establishes and gives the District authority to enforce rules and/or regulations for recycled water, in accordance with statewide recycling criteria. The Recycled Water Standards establish minimum standard procedures, specifications and limitations to ensure the health, safety, and general welfare of the citizens of Rancho Murieta when installing infrastructure for and using recycled water consistent with the laws and regulations of the State of California.
50. A 1998 Memorandum of Agreement (MOA) between CDPH and the State Water Board on the use of recycled water establishes basic principles relative to the agencies and the regional water boards. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California. This Order implements the applicable portions of the Title 22 water recycling regulation in accordance with the MOA.
51. 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 supplies and reduce greenhouse gases.
52. 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).

¹ Chapter 17, The Recycled Water Code, adopted by Ordinance No. 2011-05 on 18 January 2012.

The distribution of disinfected tertiary recycled water by the Discharger is consistent with the intent of State Board Resolution 2009-0011 and Central Valley Water Board Resolution R5-2009-0028.

53. The Discharger submitted a *Title 22 Engineering Report* dated December 2013 to the Central Valley Water Board and the Division of Drinking Water (DDW) pursuant to Title 22 for water recycling of disinfected tertiary recycled water as defined by Title 22, section 60301.230. The Title 22 Report stated that the District may want to deliver 'comingled water' (a mixture of untreated surface water or raw water with tertiary recycled water) to meet the landscape irrigation demands of the community during high water demand periods. DDW expressed concerns that comingled water might contain pathogens from raw surface water and recommended the following mitigation measures for implementation in a 28 August 2014 letter:
- a. A revised monitoring program shall be submitted by the District to the DDW for review and approval prior to implementation of the 'comingled water' option,
 - b. A revised Contingency Plan should be prepared and submitted to the DDW for review and approval prior to implementation of 'comingled water' option, and
 - c. A revised Operations Plan and/or Emergency Plan should be prepared by the District and submitted to the DDW for review and approval prior to implementation of the 'comingled water' option.

This Order prohibits the use of comingled water until these reports are approved by DDW.

Other Regulatory Considerations

54. 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 use.
55. Based on the threat and complexity of the discharge, the facility 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, defined as: "Any discharger not included [as 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."

56. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. 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. 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 RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the 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.(...)

57. The discharge authorized herein (except for the discharge of residual sludge and solid waste), and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:

- a. Aeration Ponds 1, 2, 3, and 4; Storage Reservoirs 1, 2 and 3; Bass Lake, Lake Ten, Lake Eleven, Lake Sixteen, and Lake Seventeen are exempt pursuant to Title 27, section 20090(a) because they are either treatment and storage facilities associated with a municipal domestic wastewater treatment plant.
- b. The recycled water Use Areas are exempt pursuant to Title 27, section 20090(b) because they are areas where recycled water is being applied and the following conditions are met:
 - i. The Central Valley Water Board is issuing WDRs;
 - ii. The discharge is in compliance with the Basin Plan; and

- iii. The treated effluent discharged to the ponds does not need to be managed as hazardous waste.

58. The U.S. EPA published *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (hereafter "Unified Guidance") in 2009. As stated in the Unified Guidance, the document:

...is tailored to the context of the RCRA groundwater monitoring regulations ...

[however, t]here are enough commonalities with other regulatory groundwater monitoring programs ... to allow for more general use of the tests and methods in the Unified Guidance... Groundwater detection monitoring involves either a comparison between different monitoring stations ... or a contrast between past and present data within a given station... The Unified Guidance also details methods to compare background data against measurements from regulatory compliance points ... [as well as] techniques for comparing datasets against fixed numerical standards ... [such as those] encountered in many regulatory programs.

The statistical data analysis methods in the Unified Guidance are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.

59. The State Water Board adopted NPDES General Permit CAS000001 Order 2014-0057-DWQ specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The WWRP has a design capacity of more than 1.0 mgd, but all storm water from the WWTP is collected and disposed of onsite. The Discharger is therefore not required to obtain coverage under NPDES General Permit CAS000001 unless storm water from the WWRP will be discharged to waters of the United States.
60. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order 2006-0003-DWQ (the General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length and the Discharger is enrolled under the General Order.
61. Water Code section 13267(b) states:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports 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.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2014-0149 are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

62. 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 94-81* (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.
63. Rancho Murieta Community Services District certified an Initial Study/Mitigated Negative Declaration dated May 2014 that evaluated the potential environmental effects of the proposed Rancho Murieta Recycled Water System Expansion Project. The project includes expansion of recycled water Use Areas to serve new developments in the Rancho Murieta service area and the Van Vleck Ranch and upgrading and installing the infrastructure necessary to produce and deliver recycled water to the expanded Use Areas, including expansion of the Van Vleck Use Areas. A Final Initial Study/Mitigated Negative Declaration was approved by the Rancho Murieta Community Services District on 19 June 2014 in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The following mitigation measures must be implemented to mitigate potentially significant impacts to water quality:
 - a. For all activities disturbing 1 or more acres, the District will obtain coverage under the State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) storm water permit for general construction activity, Order 2009-0009-DWQ, *Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities*.
 - b. If construction dewatering is required, the District will evaluate reasonable options for dewatering management and ensure that controls on construction site dewatering are implemented during all construction dewatering activities and such that there is no discharge to surface waters. Discharge to surface waters will require coverage under the NPDES storm water permit for general construction activity, Order 2009-0009-DWQ, *Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities*.
 - c. If drilling mud is needed during construction, the District will prepare and implement a *Frac-Out and Undercrossing Contingency Plan* and ensure no discharges to surface waters.

Compliance with this Order will prevent significant impacts to water quality associated with the WWRP and the recycled water Use Areas.

64. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.
65. The Central Valley Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Central Valley Water Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.
66. 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

67. 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 following conditions of discharge.
68. 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 an opportunity for a public hearing.
69. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Orders 5-01-124 and R5-2009-0124 are rescinded, and pursuant to Water Code sections 13263 and 13267, Rancho Murieta Community Services District, 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 wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, Title 23, section 2510 et seq., is prohibited.
3. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the *Standard*

Provisions and Reporting Requirements for Waste Discharge Requirements.

4. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.
5. The Discharger shall not allow toxic substances to be discharged into the wastewater treatment system such that biological treatment mechanisms are disrupted.
6. Discharge of 'comingled water' (mixtures of untreated surface water or raw water with tertiary recycled water) to the Use Areas is prohibited until and unless the Discharger has submitted the reports required pursuant to Provision H.6 and the DDW has approved them.

B. Flow Limitations

1. **Effectively immediately**, influent flows to the WWRP shall not exceed the following limits:

Influent Flow Measurement	Flow Limit
Total Annual Flow ¹	226 mg
Average Dry Weather Flow ²	0.5 mgd
Monthly Average Flow ³	0.8 mgd

¹ As determined by the total flow for the calendar year.

² As determined by the total flow during the months of July through September, inclusive, divided by the number of days in those months.

³ As determined by the total flow during the calendar month, divided by the number of days in that month.

2. **Effective on the date of the Executive Officer's approval of the report submitted pursuant to Provision H.1.b**, influent flow limits to the WWRP shall not exceed the limits specified in the following table.

Influent Flow Measurement	Flow Limit
Total Annual Flow ¹	300 mg
Average Dry Weather Flow ²	0.7 mgd
Monthly Average Flow ³	1.0 mgd

¹ As determined by the total flow for the calendar year.

² As determined by the total flow during the months of July through September, inclusive, divided by the number of days in those months.

³ As determined by the total flow during the calendar month, divided by the number of days in that month.

3. **Effective on the date of the Executive Officer’s approval of each successive WWRP improvements and/or Use Areas and the reports submitted pursuant to Provisions H.1.a, H.1.c, H.2, H.3, and H.4** influent flow limits will be increased in accordance with demonstrated treatment, storage, and disposal capacity, but shall not exceed the maximum limits specified in the following table. Approval is dependent on submittal of a water balance capacity analysis demonstrating that the as-built hydraulic treatment, storage, and Use Area disposal capacity is consistent with the proposed flow limit and demonstration of adequate disinfection system capacity for expected peak day recycled water flows.

Influent Flow Measurement	Flow Limit
Average Dry Weather Flow ¹	1.55 mgd

¹ As determined by the total flow during the months of July through September, inclusive, divided by the number of days in those months.

4. **Effective immediately**, influent flows to the tertiary treatment and disinfection system, shall not exceed 2.3 mgd as a daily maximum.
5. **Effective on the date of the Executive Officer’s approval of the report submitted pursuant to Provisions H.1.a and demonstration of adequate disinfection system capacity**, influent flows to the tertiary treatment and disinfection system will be increased in accordance with demonstrated disinfection system capacity, but shall not exceed 3.0 mgd as a daily maximum.

C. Effluent Limitations

1. Secondary effluent discharged to the WWRP’s storage reservoirs shall not exceed the following limits:

Constituent	Limit	Basis of Compliance Determination
BOD ₅	40 mg/L	Monthly average
	80 mg/L	Daily maximum
TDS	500 mg/L	Flow-weighted annual average
Total Nitrogen	30 mg/L	Flow-weighted monthly average

2. The turbidity of the filtered effluent prior to disinfection shall not exceed 2.0 NTU as a daily average; shall not exceed 5 NTU more than 5 percent of the time during a 24 hour period; and shall never exceed 10 NTU.
3. Prior to discharge to the recycled water Use Areas, disinfected tertiary effluent shall not exceed the following limits for total coliform organisms:
 - a. The 7-day median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed a most probable number (MPN) of 2.2 per 100 milliliters. Compliance with this requirement will be determined using the median result of the seven most recent sampling events.

- b. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause a violation of the 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 and recycled water 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 systems 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 wastewater shall be prevented through such means as fences, signs, or acceptable alternatives.
7. Objectionable odors shall not be perceivable beyond the limits of the WWRP 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 treatment or storage pond shall not be less than 1.0 mg/L for three consecutive weekly 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 Regional 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), except the tertiary effluent equalization basin, for which the minimum freeboard shall be one foot. As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at 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 continuous 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 capacity shall at least equal the volume necessary to comply with Discharge Specifications D.9 and D.10.
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, or herbicides.
 - c. Dead algae, vegetation, and 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 a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
14. Wastewater contained in any unlined pond shall not have a pH less than 6.0 or greater than 10.0.
15. The Discharger shall monitor sludge accumulation in the wastewater treatment ponds at least every five years **beginning in 2015**, and shall periodically remove sludge as necessary to maintain adequate treatment capacity. Specifically, if the estimated dry volume of sludge in any treatment pond exceeds five percent of the permitted capacity, the Discharger shall complete sludge cleanout within **12 months** after the date of the estimate.

E. Groundwater Limitations

1. Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing concentrations of waste constituents in excess of concentrations specified below or background water quality, whichever is greater.
 - a. Nitrate (as nitrogen) of 10 mg/L.
 - b. Total coliform organism level of 2.2 MPN/100 mL over any seven-day period.
 - c. For constituents identified in Title 22 of the California Code of Regulations, concentrations quantified as either the Primary or Secondary MCLs specified therein.
 - d. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

F. Water Recycling Specifications

1. Application of recycled water shall be confined to recycled water storage ponds/lakes described in Finding 9 and Use Areas described in Finding 3 as defined in this Order, or new recycled water ponds and Use Areas approved pursuant to Provision H.2.
2. Recycled water is defined in Water Code section 13050 and Title 22, section 60301.900.
3. 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 Drinking Water Program.
4. The recycled water shall be at least disinfected tertiary 2.2 recycled water as defined in Title 22, section 60301.
5. Recycled water for irrigation 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(a) and 60304(c).
6. Tailwater runoff and spray of recycled water shall not be discharged outside of the Use Areas except in minor, incidental amounts that cannot reasonably be eliminated by implementation and good maintenance of best management practices.
7. Landscape vegetation or crops shall be grown on the Use Areas, and cropping activities shall be sufficient to take up all of the nitrogen applied, including any fertilizers and manure.

8. The volume of recycled water applied to the Use Areas shall not exceed reasonable agronomic rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions.
9. Hydraulic loading of recycled water and supplemental irrigation water (if any) shall be at reasonable agronomic rates designed to:
 - a. Maximize crop nutrient uptake;
 - b. Maximize breakdown of organic waste constituents in the root zone; and
 - c. Minimize the percolation of waste constituents below the root zone.
10. Use Areas shall be inspected to ensure continuous compliance with the requirements of this Order.
11. Use Areas where public access is allowed shall be irrigated during periods of minimal human use (typically between 9 p.m. and 6 a.m.). Consideration shall be given to allow an adequate dry-out time before the irrigated area will be used by the public.
12. Discharge to the Use Areas shall not be performed during rainfall or when the ground is saturated.
13. The irrigation with recycled water shall be managed to minimize erosion within the Use Areas.
14. The Use Areas shall be managed to prevent breeding of mosquitoes. In particular:
 - a. There shall be no standing water 48 hours after irrigation ceases;
 - b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
 - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.
15. 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 manmade or natural surface water drainage course (applies only to agricultural irrigation Use Areas)	25
Edge of Use Area to domestic water supply well	50
Toe of recycled water impoundment berm to domestic water supply well	100

Setback Definition	Minimum Irrigation Setback (feet)
Edge of Use Area to residence	none
Edge of Use Area using spray irrigation to public park, playground, school yard, or similar place of potential public exposure	none

16. Spray irrigation with recycled water is prohibited when wind speed (including gusts) exceeds 30 mph.
17. Sprinkler heads shall be of the type approved for recycled water and shall create a minimum amount of mist.
18. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
19. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.
20. All drinking fountains located within the Use Areas shall be protected by location and/or structure from contact with recycled water spray, mist, or runoff.
21. Public contact with recycled water shall be controlled using fences, signs, or other appropriate means.
22. Recycled water storage ponds/lakes and 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. All signs shall display an international symbol similar to that shown in Attachment E which is attached and forms part of this Order, and shall include the following wording:

“RECYCLED WATER – DO NOT DRINK”
“AGUA DE DESPERDICIO RECLAMADA – NO TOME”
23. All recycling equipment, pumps, piping, valves, and outlets shall be marked to differentiate them from potable water facilities. All recycled water distribution system piping shall be purple pipe or adequately wrapped with purple tape.
24. Recycled water controllers, valves, and similar appurtenances shall be affixed with recycled water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering.
25. Quick couplers, if used, shall be different than those used in potable water systems.
26. Hose bibs and unlocked valves, if used, shall not be used in areas accessible to the public.

27. 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.
28. 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.
29. A public water supply shall not be used as backup or supplemental source of water for a recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of Title 17 of the California Code of Regulations (hereafter Title 17) sections 7602(a) and 7603(a).
30. 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.
31. 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 Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWRP. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially used as a 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, and ponds as needed to ensure optimal plant operation.
2. Any handling and storage of residual sludge, solid waste, and biosolids at the WWRP 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, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, composting sites, soil amendment sites) operated in accordance with valid waste

discharge requirements issued by a Regional 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 will mean the General Biosolids Order (State Water Resources Control Board Water Quality Order 2004-12-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 2004-12-DWQ, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.
5. Use and disposal of biosolids shall comply with the self-implementing federal regulations of 40 Code of Federal Regulations part 503, which are subject to enforcement by the U.S. EPA, not the Central Valley Water Board. If during the life of this Order, the State accepts primacy for implementation of part 503, the Central Valley Water Board may also initiate enforcement where appropriate.
6. 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.

H. Provisions

1. The following reports shall be submitted pursuant to Water Code section 13267 and shall be prepared as described in Provision H.8:
 - a. **Upon completion of any improvements construction work, which may include one or more of the following: expansion of the disinfection system, effluent storage expansion, and/or recycled water distribution system and infrastructure improvements to deliver recycled water to the new and expanded Use Areas and at least 60 days prior to operational use of such facilities or systems,** the Discharger shall submit an *Improvements Completion Report*. The report shall document the construction of the improvements, certify that improvements are fully functional, and certify that any new or expanded Use Areas are ready to receive recycled water in compliance with the requirements of this Order. The report shall include design parameters (for treatment system), final dimensions and volume at 2-feet of freeboard (for ponds), as-built drawings of the WWRP improvements, and a map showing new Use Areas.
 - b. **At least 60 days prior to increasing the WWRP influent flow to more than 0.5 mgd as an average dry weather flow limit,** the Discharger shall submit a *Capacity Increase Report* documenting that the WWRP has sufficient storage and disposal capacity for 0.7 mgd in compliance with all applicable specifications, limitations, and provisions of this Order. The report shall certify

that the expanded Van Vleck Ranch Use Area (Field 4) is ready to receive recycled water in compliance with the requirements of this Order and include a map showing the location of Field 4.

c. At least 60 days prior to increasing the WWRP influent flow beyond the flow limit in effect at the time, the Discharger shall submit a *Capacity Increase Report* documenting that the WWRP has sufficient storage and disposal capacity for the proposed flow limit in compliance with all applicable specifications, limitations, and provisions of this Order. The report shall include a description of all improvements that have been completed including as-built drawings and a water balance that demonstrates the treatment, storage and Use Area disposal capacity. The water balance shall provide the following hydraulic capacity information.

- i. Average daily dry weather flow for the months of July through September, inclusive;
- ii. Maximum monthly average flows based on a reasonable allowance for sewer system inflow and infiltration (I/I) during the 100 year, 365-day precipitation event, and
- iii. Total annual flow volume.

The water balance shall include documentation of, and technical support for, all data inputs used and shall consider at least the following.

- i. The as-built geometry of all ponds and effluent recycling areas;
- ii. A minimum of two feet of freeboard in each pond at all times;
- iii. Historical local pan evaporation data (monthly average values) used to estimate pond evaporation rates;
- iv. Local precipitation data (for the 100-year 365-day event distributed in accordance with mean monthly precipitation patterns) applied as direct precipitation onto all ponds and effluent recycling areas;
- v. Proposed wastewater generation rates based on historical flows and new development to be served by the expansion distributed monthly in accordance with expected seasonal variations;
- vi. Estimated I/I flows for the 100-year 365-day event based on historical flows, new development, and age and type of sewer pipes;
- vii. Recycling area crop evapotranspiration rates, including consideration of the required setbacks; and

- viii. Projected long-term percolation rates (including consideration of percolation from unlined ponds and the effects of solids plugging on all ponds).

This Provision does not supersede or otherwise alter the limitations of Flow Limitation B.2.

2. **At least 60 days prior to conveying recycled water to any Use Area not defined in this Order**, the Discharger shall submit a *Use Area Expansion Report* to the Central Valley Water Board and Division of Drinking Water. The *Use Area Expansion Report* shall include the following:
- a. The site location including a map showing the specific boundaries of the use site and the County Assessor's Parcel Number(s) (if appropriate, if Parcel Number(s) are not appropriate to accurately describe the site location, the Discharger shall provide the Central Valley Water Board with enough information for the Central Valley Water Board to accurately determine the location of the proposed reclamation activities);
 - b. The name of the Use Area property owner and contact information;
 - c. The name of the User and contact information;
 - d. The specific use to be made of the recycled water, the Use Area acreage, the type of vegetation/crops to which the recycled water will be applied, and the anticipated volume of recycled water to be used;
 - e. Identification of the on-site supervisor who is responsible for operation of the recycled water system;
 - f. Description of the recycled water management facilities and operations plan;
 - g. Plans and specifications that include the following:
 - i. Pipe locations of the recycled, potable, and auxiliary non-potable water systems;
 - ii. Type and location of the outlets and plumbing fixtures that will be accessible to the public;
 - iii. The methods and devices to be used to prevent backflow of recycled water into the public water system; and
 - iv. Plan notes relating to recycled water specific installation and use requirements.
 - h. Certification that the new Use Area conforms to the Discharger's rules and regulations;

- i. A copy of the signed User Agreement; and
- j. The results of the cross-connection control test performed in accordance with the American Water Works Association and the Drinking Water Program (Title 17, section 7605). The results shall include a certification that the Drinking Water Program was notified of the initial cross-connection control test and was provided an opportunity to be present.

A copy of the User agreement and the Discharger's rules and regulations governing the distribution and use of recycled water shall be maintained at the User's facilities and be available at all times for inspection by Regional Water Board staff, the Discharger, and Division of Drinking Water staff.

If, in the opinion of the Executive Officer, reclamation at a proposed new Use Area cannot be adequately regulated under the Master Recycling Permit, a Report of Waste Discharge may be requested and individual Water Recycling Requirements may be required.

3. **At least 60 days prior to commencing irrigation with recycled water on any Use Area not identified in this Order**, the Discharger shall submit documentation that the Division of Drinking Water has approved a Title 22 Engineering Report for the project and documentation of compliance with CEQA.
4. **At least 60 days prior to commencing irrigation with comingled water on any Use Area**, the Discharger shall submit documentation that the Division of Drinking Water has approved a revised *Title 22 Engineering Report*, specifically the sections of the Monitoring and Program, Contingency Plan, and Operations and/or Emergency Plan.
5. If secondary effluent TDS concentrations have been increasing, or are projected to increase to a concentration that would violate the Effluent Limitations of this Order for the next year, the Discharger shall submit a Report of Waste Discharge (RWD). The RWD shall contain effluent TDS monitoring data for the last 3 years, the status of the current residential development, a discussion of the current water conservation efforts made throughout the community, TDS concentration projections based on anticipated wastewater flows and water conservation efforts, the proposed effluent TDS concentration limit, and justification for any proposed revision of the effluent limit that is protective of the underlying shallow groundwater quality.
6. If groundwater monitoring is required in a revised MRP and the results show that the discharge of waste is causing groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order, within 120 days of the request of the Executive Officer, the Discharger shall submit an *Action Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control

for each waste constituent that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of each component of the WWRP and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

7. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.
8. 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 workplans 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.
9. 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 the foregoing provisions by the due dates specified.
10. The Discharger shall comply with Monitoring and Reporting Program R5-2014-0149, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
11. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
12. 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.

13. 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 includes 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.
14. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
15. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23, division 3, chapter 26.
16. As described in the Standard Provisions, 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.
17. 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."
18. The Discharger shall comply with the requirements of the Statewide General Waste Discharge Requirements (General WDRs) for Sanitary Sewer Systems (Water Quality Order 2006-0003), the Revised General WDRs Monitoring and Reporting Program (Water Quality Order 2008-0002-EXEC), and any subsequent revisions thereto. Water Quality Order 2006-0003 and Order 2008-0002-EXEC require 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.
19. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
20. 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.

21. In the event of any change in control or ownership of the WWRP, the Discharger must 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.
22. 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 name and 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.
23. A copy of this Order including the 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.
24. 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 California Code of Regulations, title 23, sections 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 filing petitions may be found on the Internet at:

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

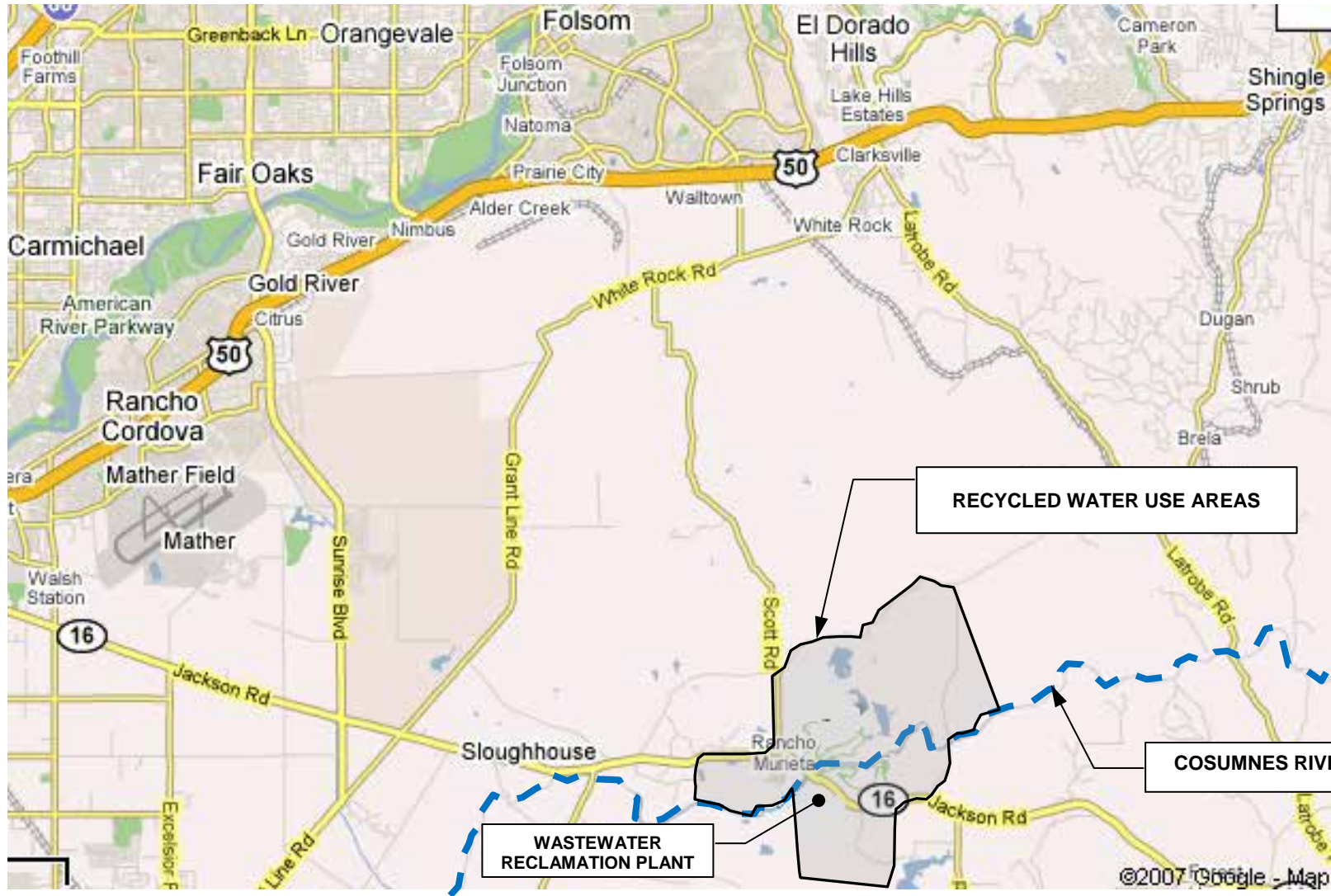
or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 4 December 2014.

- Original signed by -

PAMELA C. CREEDON, Executive Officer

LLA: 110514



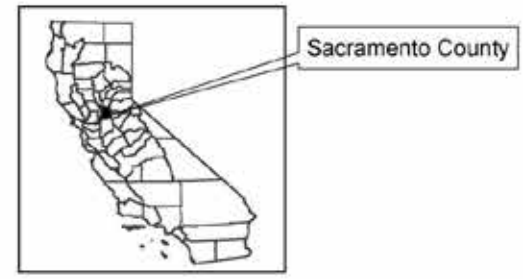
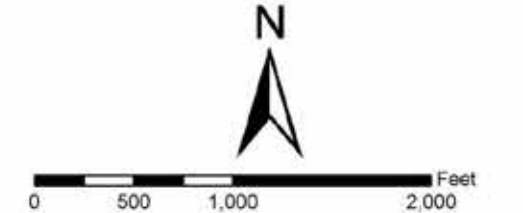
Approximate Scale:



Drawing Reference:
Google Maps

SITE LOCATION MAP

Rancho Murieta Community Services District
Wastewater Reclamation Plant
Sacramento County



Legend

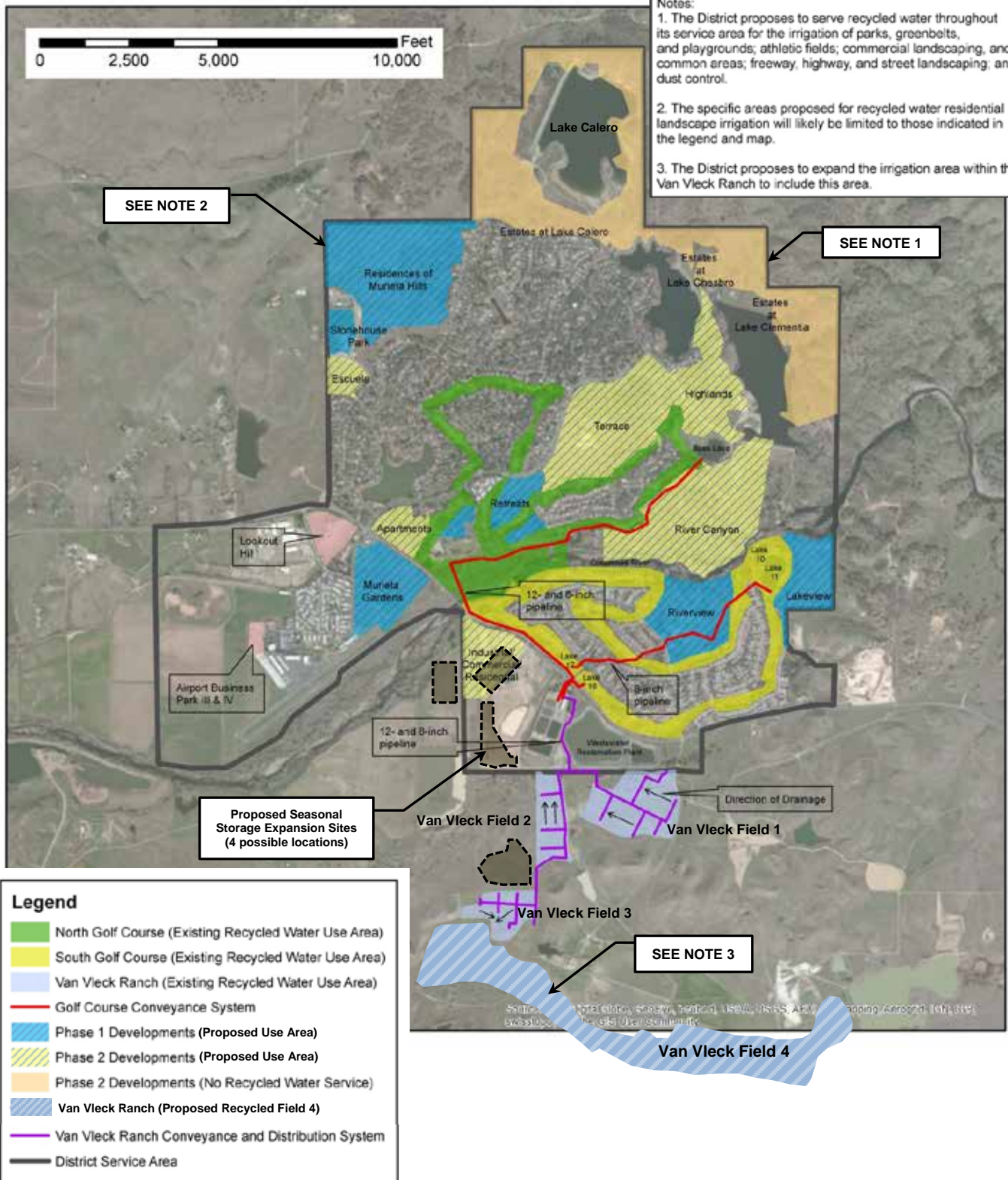
- ⊕ Ground Water Monitoring Well
- ⊕ Ground Water Observation Well
- - - WWRP Site Limits

Approximate Scale:
As Noted Above



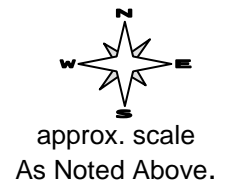
Drawing Reference:
Report of Waste Discharge
December 2013

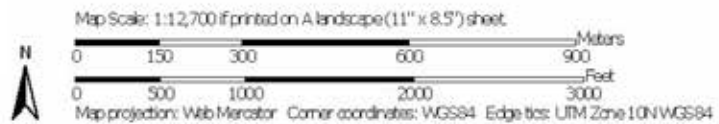
WWRP SITE PLAN
Rancho Murieta Community Services District
Wastewater Reclamation Plant
Sacramento County



Drawing Reference:
Report of Waste Discharge
December 2013

RECYCLED WATER USE AREAS
Rancho Murieta Community Services District
Wastewater Reclamation Plant
Sacramento County





Surficial Site Soils/Geologic Mapping Legend:

- 178 - Mokelumne gravelly loam
- 240 - Xerarents-urban land-San Joaquin complex
- 245 - Dredge tailings
- Lone Formation (approximate location)

Approximate Scale:
As Noted Above



Drawing References:
USDA Natural Resources Conservation Service,
CA Division of Mines & Geology

SOILS MAP
Rancho Murieta Community Services District
Wastewater Reclamation Plant
Sacramento County



INTERNATIONAL SYMBOL FOR NONPOTABLE WATER

ORDER R5-2014-0149
WASTE DISCHARGE REQUIREMENTS
AND
MASTER RECYCLING PERMIT
RANCHO MURIETA COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT AND RECLAMATION PLANT
SACRAMENTO COUNTY

ATTACHMENT E

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2014-0149

FOR
RANCHO MURIETA COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT AND RECLAMATION PLANT
SACRAMENTO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring WWRP influent, tertiary influent, secondary effluent, WWRP ponds, tertiary effluent, recycled water storage ponds, Use Areas, and biosolids. This MRP is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and electrical conductivity) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to monitoring event;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

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 Division of Drinking Water's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

WWRP INFLUENT MONITORING

The Discharger shall monitor WWRP influent flows in accordance with the following. Samples shall be representative of the influent to the first wastewater treatment pond. Time of collection of the grab sample shall be recorded. Grab samples are considered adequately composited to represent the influent. Influent flow monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Measurement	Monitoring Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly
Average Daily Flow ¹	gpd	Calculated	Monthly	Monthly
BOD ₅ ²	mg/L	Grab	Weekly	Monthly

¹ Represents the daily flow rate averaged over the calendar month.

² Five-day, 20° Celsius biochemical oxygen demand.

TERTIARY INFLUENT MONITORING

The Discharger shall monitor tertiary influent flows in accordance with the following. Samples shall be collected downstream of the tertiary water pump station prior to treatment in the DAF system. Influent flow monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Measurement	Monitoring Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly

SECONDARY EFFLUENT MONITORING

The Discharger shall monitor secondary effluent in accordance with the following. Secondary effluent samples shall be collected downstream of the last wastewater treatment pond prior to discharge to the secondary effluent storage reservoirs. Time of collection of the grab sample shall be recorded. Grab samples are considered adequately composited to represent the secondary effluent. Secondary effluent monitoring shall include, at a minimum, the following:

Constituents	Units	Sample Type	Sample Frequency	Reporting Frequency
pH	pH units	Grab	Weekly	Monthly
BOD ₅	mg/L	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Weekly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Weekly	Monthly
Total Nitrogen	mg/L	Calculated	Monthly	Monthly

Constituents	Units	Sample Type	Sample Frequency	Reporting Frequency
Priority Pollutants ¹	mg/L	Grab	Every 5 years	The following annual report

¹ Monitoring for priority pollutants is required if recycled water is used for irrigation of landscape areas ¹. Priority pollutants are listed in Appendix A of 40 Code of Federal Regulations (CFR) Part 423. Monitoring shall include, at a minimum, the constituents listed in Table 1 of this MRP. Analytical methods shall be selected to provide reporting limits below Water Quality Objectives for each constituent.

WWRP POND MONITORING

The Discharger shall monitor all ponds at the WWRP in accordance with the following. Samples shall be collected from permanent monitoring locations that will provide samples representative of the wastewater in the aeration ponds, polishing ponds, secondary effluent storage reservoirs, and tertiary effluent equalization basin. Freeboard shall be measured vertically from the water surface to the lowest elevation of pond berm (or spillway/overflow pipe invert), and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Freeboard	Feet	Measurement	Weekly	Monthly
Dissolved Oxygen ¹	mg/l	Grab	Weekly	Monthly
pH	pH units	Grab	Weekly	Monthly

¹ Samples shall be collected opposite each pond inlet at a depth of one foot.

TERTIARY EFFLUENT MONITORING

During operation of the tertiary treatment and disinfection systems, the Discharger shall monitor tertiary effluent in accordance with the following. Disinfected tertiary effluent samples shall be taken downstream of the concrete lined tertiary effluent equalization basin. Grab samples are considered representative. Tertiary effluent monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly
Turbidity ¹	NTU	Continuous	Daily	Monthly ¹
Total Chlorine Residual	mg/L	Continuous	Daily	Monthly

¹ Landscape areas are defined as parks; greenbelts, playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping; common areas; commercial landscaping (except eating areas); industrial landscaping (except eating areas); freeway, highway, and street landscaping.

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Total Coliform Organisms ²	MPN/100 mL	Grab	Daily	Monthly

¹ For each day, report the average turbidity, the total amount of time that turbidity exceeded 5 NTU, and the total amount of time that turbidity exceeded 10 NTU.

² Using a minimum of 15 tubes.

RECYCLED WATER STORAGE POND MONITORING

Recycled water storage ponds or lakes used to store recycled water, shall be monitored for the following. Samples shall be collected from permanent monitoring locations that will provide samples representative of the recycled water in Bass Lake and Lakes 10, 11, 16, and 17. Freeboard shall be measured vertically from the water surface to the lowest possible point of overflow (or spillway/overflow pipe invert), and shall be measured to the nearest 0.10 feet.

Parameter	Units	Sample Type	Sample Frequency	Reporting Frequency
Freeboard	0.1 feet	Measurement	Monthly	Monthly
Dissolved Oxygen ¹	mg/L	Grab	Monthly	Monthly
Odors	--	Observation	Monthly	Monthly
Berm Condition	--	Observation	Monthly	Monthly

¹ If offensive odor is detected by or brought to the attention of WWRP personnel or Water Board staff, the Discharger shall monitor the potential source pond(s) at least daily until dissolved oxygen > 1.0 mg/L and weekly (between 8:00 am and 9:00 am) for a minimum of two weeks following, consistent with Discharge Specification D.8.

USE AREA MONITORING

Each discrete Use Area shall be monitored for the following. For residential irrigation uses, monitoring and reporting of each Use Area can be aggregated to combine flow and acreage for calculation or observation purposes for each subdivision.

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Recycled Water User	--	--	--	Annually
Recycled Water Use Area	--	--	--	Annually
Recycled Water Flow	gpd	Meter	Monthly	Annually
Acreage Applied ¹	acres	Calculated	Monthly	Annually
Application Rate	inches/acre/year	Calculated	Monthly	Annually
Precipitation	0.1 inches	Rain gauge ²	Daily	Annually
Soil Saturation/Ponding	--	Observation	Monthly	Annually
Nuisance Odors/Vectors	--	Observation	Monthly	Annually
Discharge Off-site	--	Observation	Monthly	Annually

¹ Acreage applied denotes the acreage to which recycled water is applied.

² Data obtained from the nearest National Weather Service, California Irrigation Management Information System (CIMIS), or on-site rain gauge is acceptable.

BIOSOLIDS MONITORING

The Discharger shall keep records regarding the quantity of biosolids removed from the treatment ponds; any sampling and analytical data; the quantity of biosolids stored on site; and the quantity removed for disposal. The records shall also indicate that steps taken to reduce odor and other nuisance conditions. Records shall be stored onsite and available for review during inspections.

If biosolids are transported off-site for disposal, then the Discharger shall submit records identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the location of disposal, and copies of all analytical data required by the entity accepting the waste. All records shall be submitted as part of the Annual Monitoring Report.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Central Valley Water Board.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in the monthly monitoring report. Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Tabulated influent wastewater flow monitoring data for each month of the calendar year, including average daily flow, cumulative flow to date, and comparison to the Flow Limitations of the WDRs.
2. Tabulated tertiary influent flow monitoring data for each month of the calendar year, including maximum daily flow and comparison to the Flow Limitations of the WDRs.

3. Tabulated secondary effluent wastewater monitoring and comparison to the Effluent Limitations of the WDRs.
4. Tabulated WWRP pond monitoring data.
5. Tabulated tertiary effluent monitoring data.
6. Tabulated recycled water storage pond monitoring data.
7. A comparison of monitoring data to the flow limitations, effluent limitations, and discharge specifications and an explanation of any violation of those requirements.
8. Copies of laboratory analytical report(s).
9. Copies of current calibration logs for all field test instruments.

B. Annual Monitoring Report

An Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year and shall include the following:

1. Total annual influent flow for the calendar year and comparison to the annual maximum flow limit.
2. Tabulated secondary effluent wastewater monitoring for priority pollutants for the calendar year.
3. Tabulated Use Area monitoring for the calendar year including:
 - a. A summary table of all recycled water Users and Use Areas. For residential irrigation uses, monitoring and reporting of each Use Area can be aggregated for each subdivision.
 - b. A map identifying all Use Areas. Newly permitted recycled water Users and Use Areas shall be identified.
 - c. Tabulated total annual flow of recycled water discharged to each discrete Use Area for the calendar year.
 - d. A summary of all inspections and enforcement activities initiated by the Discharger.
 - e. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into compliance with the Order.
4. Summary of information on the disposal of biosolids as described in the "Biosolids Monitoring" section.

5. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
6. An evaluation of the performance of the WWRP, including discussion of capacity issues, system problems, and a forecast of the flows anticipated in the next year.
7. A discussion of the following:
 - a. Waste constituent reduction efforts implemented in accordance with any required workplan;
 - b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order;
 - c. A discussion of anticipated pond sludge removal in the coming year, and if so, include anticipated schedule for cleaning, drying, and disposal; and
 - d. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
8. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
- Original signed by -
PAMELA C. CREEDON, Executive Officer
4 December 2014

(Date)

Table 1 Priority Pollutant Scan

<u>Inorganics</u> ¹	<u>Organics</u>	3-Methyl-4-Chlorophenol	Hexachlorobenzene
Antimony	Acrolein	Pentachlorophenol	Hexachlorobutadiene
Arsenic	Acrylonitrile	Phenol	Hexachlorocyclopentadiene
Beryllium	Benzene	2,4,6-Trichlorophenol	Hexachloroethane
Cadmium	Bromoform	Acenaphthene	Indeno(1,2,3-c,d)pyrene
Chromium (III)	Carbon tetrachloride	Acenaphthylene	Isophorone
Chromium (VI)	Chlorobenzene	Anthracene	Naphthalene
Copper	Chlorodibromomethane	Benidine	Nitrobenzene
Lead	Chloroethane	Benzo(a)Anthracene	N-Nitrosodimethylamine
Mercury	2-Chloroethylvinyl Ether	Benzo(a)pyrene	N-Nitrosodi-n-Propylamine
Nickel	Chloroform	Benzo(b)fluoranthene	N-Nitrosodiphenylamine
Selenium	Dichlorobromomethane	Benzo(g,h,i)perylene	Phenanthrene
Silver	1,1-Dichloroethane	Benzo(k)fluoranthene	Pyrene
Thallium	1,2-Dichloroethane	Bis(2-chloroethoxy) methane	1,2,4-Trichlorobenzene
Zinc	1,1-Dichloroethylene	Bis(2-chloroethyl) ether	
Cyanide	1,2-Dichloropropane	Bis(2-chloroisopropyl) ether	<u>Pesticides</u>
Asbestos	1,3-Dichloropropylene	Bis(2-Ethylhexyl)phthalate	Aldrin
	Ethylbenzene	4-Bromophenyl phenyl ether	alpha-BHC
	Methyl Bromide	Butylbenzyl Phthalate	beta-BHC
<u>Dioxin Congeners</u>	Methyl Chloride	2-Chloronaphthalene	gamma-BHC (Lindane)
2,3,7,8-TCDD	Methylene Chloride	4-Chlorophenyl Phenyl Ether	delta-BHC
1,2,3,7,8-PentaCDD	1,1,2,2-Tetrachloroethane	Chrysene	Chlordane
1,2,3,4,7,8-HexaCDD	Tetrachloroethylene (PCE)	Dibenzo(a,h)Anthracene	4,4'-DDT
1,2,3,6,7,8-HexaCDD	Toluene	1,2-Dichlorobenzene	4,4'-DDE
1,2,3,7,8,9-HexaCDD	1,2-Trans-Dichloroethylene	1,3-Dichlorobenzene	4,4'-DDD
1,2,3,4,6,7,8-HeptaCDD	1,1,1-Trichloroethane	1,4-Dichlorobenzene	Dieldrin
OctaCDD	1,1,2-Trichloroethane	3,3'-Dichlorobenzidine	alpha-Endosulfan
1,2,3,7,8-PentaCDF	Trichloroethylene (TCE)	Diethyl phthalate	beta-Endosulfan
2,3,4,7,8-PentaCDF	Vinyl chloride	Dimethyl phthalate	Endosulfan Sulfate
1,2,3,4,7,8-HexaCDF	2-Chlorophenol	Di-n-Butyl Phthalate	Endrin
1,2,3,6,7,8-HexaCDF	2,4-Dichlorophenol	2,4-Dinitrotoluene	Endrin Aldehyde
1,2,3,7,8,9-HexaCDF	2,4-Dimethylphenol	2,6-Dinitrotoluene	Heptachlor
2,3,4,6,7,8-HexaCDF	2-Methyl-4,6-Dinitrophenol	Di-n-Octyl Phthalate	Heptachlor epoxide
1,2,3,4,6,7,8-HeptaCDF	2,4-Dinitrophenol	1,2-Diphenylhydrazine	Polychlorinated biphenyls
1,2,3,4,7,8,9-HeptaCDF	2-Nitrophenol	Fluoranthene	Toxaphene
OctaCDF	4-Nitrophenol	Fluorene	

¹ With the exception of wastewater samples, samples for metals analysis must first be filtered. If filtering in the field 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.

² Samples to be analyzed for volatile compounds and phthalate esters shall be grab samples; the remainder shall be 24-hour composite samples.

INFORMATION SHEET

ORDER R5-2014-0149
RANCHO MURIETA COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT AND RECLAMATION PLANT
SACRAMENTO COUNTY

Current Facility Description

Rancho Murieta Community Services District (RMCS D or District) owns and operates the Rancho Murieta Wastewater Reclamation Plant (WWRP) located at 15160 Jackson Road in Rancho Murieta. The WWRP receives domestic and a relatively small amount of commercial wastewater from the community of Rancho Murieta.

The WWRP provides secondary and tertiary treatment and disinfection. Secondary treatment takes place in five clay-lined aerated facultative ponds. Undisinfected secondary treated effluent is stored in two clay-lined reservoirs between the months of October and March prior to tertiary treatment and disinfection. The tertiary treatment plant is operated from April through November to provide recycled water to Use Areas.

WDRs Order 5-01-124 allows a 30-day average dry weather influent flow into the secondary wastewater treatment ponds up to 1.5 MGD and a 30-day average dry weather effluent flow from the tertiary plant up to 3.0 MGD. Disinfected tertiary treated wastewater is land applied on two 18-hole golf courses as well as landscape around the WWRP. The recycled water is pumped to the golf course and stored in five unlined irrigation storage reservoirs (Lake Ten, Lake Eleven, Lake Sixteen, Lake Seventeen, and Bass Lake) prior to use. A spray irrigation system is used to discharge the recycled water on to the golf course.

WDRs Order R5-2009-0124 prescribes requirements for the use of disinfected tertiary treated wastewater (produced at the WWRP) at the Van Vleck Ranch (92 acres). An above ground spray irrigation system is used to discharge the recycled water on to the fields. Discharges of recycled water at the Van Vleck Ranch are prohibited after 31 December 2014.

Proposed Changes to the Facility and Discharge

The District requested revised WDRs and a Master Recycling Permit to allow additional recycled water use within the District's service areas and the Van Vleck Ranch property. Expansion of recycled water Use Areas include public area landscape irrigation and ancillary uses of future residential developments within the Rancho Murieta community, front and backyard residential landscaping at specified future residential developments, and expansion of the existing Van Vleck Ranch Use Area from 96 to 282 acres. The locations of existing and future recycled water Use Areas are presented in the table below.

INFORMATION SHEET
 ORDER R5-2014-0149
 RANCHO MURIETA COMMUNITY SERVICES DISTRICT
 WASTEWATER TREATMENT AND RECLAMATION PLANT
 SACRAMENTO COUNTY

Recycled Water Use Areas	Existing/Proposed Use Areas	Description	Assessor's Parcel Numbers
North Golf Course	Existing	18-hole golf course	07301900060000, 07301900070000, 07301900080000, 07301900090000, 07301900100000, 07301901080000
South Golf Course	Existing	18-hole golf course	07307900090000, 07307900100000, 07307900210000, 07307900350000
Van Vleck Ranch (Field 1, Field 2, and Field 3)	Existing	Field 1 (49 acres), Field 2 (25 acres), Field 3 (22 acres)	12800800670000, 12800800680000
Wastewater Reclamation Plant	Existing	District office and wastewater treatment site	07301800300000
Van Vleck Ranch (Field 4)	Proposed	150 acre spray field	12800800670000, 12801000290000, 12800800680000
Lakeview	Proposed	99 residential units	07307900460000
Murieta Gardens	Proposed	99 residential units, 50 commercial units, 1-acre park	07304700040000, 07304700050000, 07304700060000
Residences of Murieta Hills	Proposed	198 residential units	07301901060000, 07301901050000
Retreats	Proposed	84 residential units	07307900440000, 07301900990000
Riverview	Proposed	140 residential unit	07307900070000
Stonehouse Park	Proposed	existing 4-acre park	07301900460000
Apartments	Proposed	170 residential units	07301900690000
Escuela	Proposed	40 residential units, 4-acre park	07301900250000
Highlands	Proposed	110 residential units	07308000090000, 07308000050000
Industrial/ Commercial/ Residential	Proposed	100 residential units, 125 commercial units	07301800290000

Recycled Water Use Areas	Existing/Proposed Use Areas	Description	Assessor's Parcel Numbers
River Canyon	Proposed	120 residential units	07307900230000
Terrace	Proposed	177 residential units	07308000080000, 07308000060000, 07308000070000

Landscape irrigation and ancillary recycled water uses include the irrigation of parks; greenbelts; playgrounds; athletic fields; common areas; commercial, highway, and street landscaping; and dust control within the District's service area.

Residential landscaping is proposed for the new developments of Murieta Gardens, Residences at Murieta Hills, Retreats, Lakeview, Riverview, Terrace, Highlands, River Canyon, Apartments, and Escuela.

To support recycled water use in the expanded Use Areas, the following improvements will be implemented as needed to provide recycled water to planned developments.

- An additional 195,000 gallons of chlorine contact basin capacity. This expansion will increase disinfection capacity to 3.0 mgd.
- An additional 240 AF of secondary effluent storage capacity (proposed Reservoir 3).
- Infrastructural improvements to convey recycled water to the new and expanded Use Areas.
- An additional 470 AF of secondary effluent storage capacity (proposed future Reservoir 4) to accommodate an average dry weather wastewater treatment influent flow of 1.55 mgd.

Site-Specific Conditions

Rancho Murieta is bisected by the Cosumnes River and State Highway 16. The District's water supply source is the Cosumnes River. Surrounding land uses are zoned for agriculture (typically cattle ranching). A small portion of the South Golf Course is located within the 100-year flood zone of Consumnes River and a portion of the southern end of the 22-acre Van Vleck Ranch Field 3 Use Area is located within the 100-year flood zone of Arkansas Creek.

The reference evapotranspiration rate (ET_o) is approximately 66 inches per year. The annual average precipitation and 100-year return period annual precipitation is approximately 25 and 45 inches per year respectively.

Groundwater Conditions

Rancho Murieta is located in the lone Formation (quartzose sandstone interbedded with kaolinitic clay and sandy clay and lignite) and near the Valley Springs Formation (rhyolitic tuff, sandstone, siltstone, claystone, and conglomerate). The presence of lignite has been associated with groundwater quality high in sulfate and iron concentrations and low pH values. The near surface materials at the WWRP have likely been influenced by overbank deposits from the Cosumnes River that lies approximately 2,500 feet to the north.

The WWRP is in an area where there are two predominant soil series. Surficial site soils classified as the Mokelumne gravelly loam are mainly at the wastewater storage reservoirs (characterized by low pH 3.6 to 5.0) and dredge tailings near the vicinity of the wastewater treatment ponds (characterized as neutral to slightly acidic pH, 6.1 to 7.3).

The depth to groundwater ranges from 4 to 50 feet below the ground surface. Groundwater flow direction is to the west-southwest. Pre-discharge groundwater data are not available. Groundwater surrounding the WWRP (monitoring wells MW01, MW02, and MW03) has been monitored since 2001; including two observation wells (OW01 and OW02) that were installed during the construction of the storage reservoirs. Three additional wells (MW04, MW05, and MW06) have been monitored since 2006.

The groundwater data from February 2010 to August 2013 shows spatial variability in both upgradient and downgradient wells and salinity constituents and metal constituents (iron and manganese) that exceed water quality objectives. Nitrate concentrations that exceed the water quality objective were observed in one of the three upgradient wells. The high concentrations of general minerals and metal constituents in groundwater are likely the result of soil mineral dissolution related to low pH water.

The groundwater data illustrate high spatial variability and in some cases poor quality of the first encountered groundwater for constituents such as pH, TDS, sulfates, nitrate, iron, and manganese. Based on the soil character and geologic conditions of the site and in consideration of the high quality source water and effluent, the poor quality groundwater is likely naturally occurring and not the result of the discharge.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Local drainage is to Cosumnes River, a tributary to the Mokelumne River, which is a tributary to the Sacramento-San Joaquin Delta. The beneficial uses of Cosumnes River as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; estuarine habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

Antidegradation Analysis

Typical constituents of concern that have the potential to degrade groundwater include salts (primarily TDS and sodium), nutrients, and coliform organisms. Because the WWRP ponds have the greatest potential to degrade groundwater quality, an analysis based on conditions at the WWRP site was performed.

This Order establishes effluent and groundwater limitations for the WWRP that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

For pH, TDS, sulfate, iron, manganese, and nitrate groundwater monitoring data indicate that groundwater is not high quality water, has not been degraded by the previous discharge, and that the expanded discharge does not pose a threat of significant degradation in the future. This Order contains effluent limits that will ensure that groundwater quality does not get any worse. The use of recycled water at the Use Areas does not pose a threat of significant degradation because of the high quality of the effluent and the ability of landscaping and crops to consume nitrogen and salts.

Based on the foregoing findings, this Order does not require groundwater monitoring, but does include groundwater limitations that implement Resolution 68-16 and the Controllable Factors Policy of the Basin Plan. If effluent or other future monitoring data indicate an increased threat to groundwater quality, groundwater monitoring may be required at the Executive Officer's discretion.

Discharge Prohibitions, Specification, and Provisions

This Order prohibits the discharge of 'comingled water' (mixtures of untreated surface water or raw water with tertiary recycled water) to the Use Areas until and unless the Discharger has submitted the required reports and documentation that a *Revised Title 22 Engineering Report* has been approved by the Division of Drinking Water.

This Order restricts influent flows to the WWRP as an average dry weather flow (ADWF) of 0.5 MGD until the Discharger can demonstrate that the WWRP has the treatment, storage, and disposal capacity to accommodate an ADWF of 0.7 MGD and up to a maximum of 1.55 MGD.

This Order restricts influent flows to the tertiary treatment and disinfection system as a daily maximum of 2.3 mgd, until the Discharger can demonstrate adequate disinfection system capacity, but shall not exceed a daily maximum of 3.0 mgd.

This Order contains a secondary effluent limit for BOD, TDS, and total nitrogen; a turbidity limit of the filtered effluent prior to disinfection; and a tertiary effluent limit for total coliform organisms prior to discharge to the Use Areas. Effluent limits are prescribed to ensure that the discharge will not cause exceedance of a water quality objective in groundwater and comply with Title 22.

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

This Order is also a Master Recycling Permit with requirements consistent with the Water Code section 13523.1, including the requirement to establish and have authority to enforce rules and/or regulations for recycled water Users governing the design and construction of recycled water use facilities and the use of recycled water in accordance with water recycling criteria established in Title 22, California Code of Regulations and this Order.

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations and operational requirements of the WDRs.