CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2013-0065-001

WASTE DISCHARGE REQUIREMENTS

FOR
NAPA BERRYESSA RESORT IMPROVEMENT DISTRICT
NAPA BERRYESSA WASTEWATER TREATMENT FACILITY
NAPA COUNTY

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

1. On 1 June 2012, Napa Berryessa Resort Improvement District (hereafter "Discharger" or "NBRID") submitted a Report of Waste Discharge (RWD) that describes major improvements and expansion of an existing wastewater treatment facility (WWTF). A revised RWD was submitted on 17 October 2012 to address the additional information necessary to complete the RWD. Additional information was submitted on 7 December 2012, 3 January 2013, 28 February 2013, 7 March 2013, and 17 April 2013.

2. NBRID owns and operates the WWTF and is responsible for compliance with these waste discharge requirements (WDRs).

3. The WWTF includes a sanitary sewer system, wastewater treatment plant, storage ponds, and effluent disposal spray field. The treatment plant is located at 1465 Steele Canyon Road in Napa County and the spray field and storage pond site is approximately 0.5 miles south of the plant (Section 33, T8N, R3W, MDB&M), as shown on Attachment A, which is attached hereto and made part of this Order by reference. The WWTF occupies Assessor's Parcel Numbers (APN) 019-371-003, 019-220-028, and 019-220-038.

4. WDRs Order 95-173, adopted by the Central Valley Water Board on 23 June 1995, prescribes requirements for the WWTF. Order 95-173 allows a monthly average discharge up to 50,000 gallons per day (gpd).

5. The Discharger proposes to upgrade the WWTF to improve the treatment system and increase effluent storage capacity to comply with Cease and Desist Order (CDO) R5-2010-0101. Therefore, it is appropriate that WDRs Order 95-173 be rescinded and replaced with this Order.

Enforcement History

6. For several years, the Discharger has experienced problems managing severe sewer inflow and infiltration (I/I), which led to exceeding the flow limits set forth in the WDRs, failure to contain wastewater runoff from the spray field, and discharges of treated and partially treated wastewater to surface water drainage courses and to Lake Berryessa.

These violations of the WDRs resulted to the adoption of three CDOs, a $190,000 Administrative Civil Liability Order, and a Time Schedule Order (TSO), as summarized below.

7. The Board issued CDO 96-232 on 20 September 1996 because of excessive I/I and because lack of wastewater storage and disposal capacity led to wastewater discharges to Lake Berryessa during the winters of 1994 and 1995. The 1996 CDO required the Discharger to complete a facility expansion and achieve full compliance with the WDRs by 15 September 2000. With minor exceptions, the Discharger did not complete the work required by the 1996 CDO.

8. The Board issued CDO R5-2006-0113 on 26 October 2006 because of continued wastewater discharges to Lake Berryessa; violations of the influent flow limit; failure to dispose of accumulated sludge; and violations of the monitoring and reporting requirements. A connection restriction was imposed because new connections were being added to the WWTF even though the facility did not have adequate storage and disposal capacity. The 2006 CDO required the Discharger to complete several studies and make the necessary improvements to reduce I/I and increase the facility's storage and disposal capacity. The Discharger submitted the technical reports required by the 2006 CDO. However, the Discharger did not make any of the physical improvements by the required deadline.

9. The Board issued CDO R5-2010-0101 on 23 September 2010 due to continued violations that included wastewater spills to Lake Berryessa; violation of pond freeboard requirements; wastewater applications to spray field during periods of precipitation; and failure to construct the facility upgrades required by the 2006 CDO. The 2010 CDO continued the prohibition against new connections or additional flows into the collection system connected to the WWTF.

10. Among other things, the 2010 CDO required that the Discharge do the following by specific dates:

    a. Submit a *Final Revised Inflow and Infiltration (I/I) Assessment Report*.

    b. Submit an *I/I Correction Project Completion Report* that documents completion of certain sewer system repairs, retrofits, and replacements.

    c. Submit a *Final Revised Wastewater Facilities Plan* that describes the WWTF improvements planned to correct the conditions that caused violations of the WDRs and previous CDOs.

    d. Submit a *Report of Waste Discharge* to apply for revised Waste Discharge Requirements.

    e. Complete the facility improvements described in the approved *Facilities Plan*.

11. On 20 August 2012, the Board issued TSO R5-2012-0900 to address discharges of treated wastewater to Lake Berryessa that occurred in early 2012. The TSO included an accelerated time schedule for completion of the necessary improvements to reduce I/I and increase the facility's storage and disposal capacity as required in CDO R5-2010-0101. Pursuant to the 2012 TSO, the Discharger is required to complete the WWTF expansion and upgrades project by 1 October 2013.

Existing Facility and Discharge

12. The existing WWTF has been in operation since 1968. The WWTF receives wastewater from the Berryessa Highlands Subdivision, which consists of 343 Equivalent Dwelling Units (EDUs). At full build out, the subdivision would have up to 562 EDUs. Steele Park Resort, a United States Bureau of Reclamation (Reclamation) concessionaire-operated facility also discharged domestic wastewater to the WWTF. Steele Park Resort closed in 2009 due to an expired concession contract and all infrastructure, including the sewer connection to the WWTF, was removed. The WWTF also receives approximately 3,000 gpd of filter backwash from the Discharger's potable water treatment plant.

13. Wastewater is conveyed to the WWTF by gravity sewers, lift stations, and force mains. The existing treatment plant provides secondary treatment by an extended aeration activated sludge process. It comprises a single inlet structure, two concrete aeration basins, two clarifiers, and three small geosynthetic-lined effluent storage ponds. The effluent storage ponds have a total capacity of approximately 370,000 gallons.

14. Disinfection is accomplished using a sodium hypochlorite feed system. One of the effluent storage ponds serves as a chlorine contact basin and the effluent channel is used for chlorine addition.

15. The treated, disinfected wastewater is pumped to a 50,000 gallon storage tank at the effluent disposal site prior to being discharged to an approximately 60-acre spray field. Manual isolation valves control which zone(s) receive effluent. The effluent disposal site is southeast and approximately 500 feet above the treatment plant.

16. Wasted sludge from the treatment plant is re-circulated with the incoming raw wastewater or pumped into a sludge dewatering container (Geo-Tube or equivalent) for dewatering and drying. Once dried, the sludge is hauled offsite to a permitted landfill for disposal.

17. The spray field consists of four fields (Zones 1 through Zone 4), each with a tailwater collection system to convey tailwater to a 1.5 million gallon tailwater collection pond. Tailwater is recycled back to the spray field. The spray field vegetation consists of native trees, brush, and grasses.

18. Spray field operations are summarized below. Tailwater runoff drains into an intermittent stream located within Zone 1 or into a tailwater collection ditch that is located along the western edge of each spray zone. The intermittent stream and tailwater collection ditch conveys all tailwater to the south side of the tailwater collection pond. The location of each spray field zone is shown on Attachment B, which is attached hereto and made part of this Order by reference.

    a. An east-west trending intermittent stream divides Zone 1 into a northern and southern portion and runs south of the existing tailwater collection pond. A low berm lies between the northern portion of Zone 1 and the stream, channeling run-off from this section to the west and into the tailwater collection pond directly through a drainage culvert. The berm prevents tailwater and storm water from flowing into the intermittent stream. Effluent is discharged to this area year round, and storm water runoff is retained in the tailwater collection pond.

    b. The south side of Zone I drains to the intermittent stream. Based on the topography within Zone 2, the north side of Zone 2 also drains to the intermittent stream. When the spray field is in use, a coffer dam located within the stream is closed to divert tailwater from the stream channel into the tailwater collection pond. These areas are used for effluent disposal only during the dry season. During the rainy season, the coffer dam remains opened to allow storm water runoff to drain to natural drainage courses.

    c. The south side of Zone 2 and all of Zone 3 and Zone 4 drain to a tailwater collection ditch that runs along the western edge of the spray field. The collection ditch conveys the tailwater to the southern side of the tailwater collection pond. These areas are used for effluent disposal only during the dry season. During the rainy season, several gate valves along the tailwater ditch are opened to allow storm water runoff to drain from the ditch to natural drainage courses.

19. The following table summarizes recent influent flow rates at the WWTF. The Steele Park Resort did not have a separate flow meter, so it is not possible to tabulate accurate flows for the resort separately from the Berryessa Highlands subdivision.

	Influent Flow, million gallons					
Month	2007	2008	2009 [1]	2010	2011	2012
January	2.1	4.5	2.1	1.1	1.5	1.4
February	2.6	3.5	3.6	0.6	1.8	0.9
March	2.2	2.5	2.8	0.6	2.6	1.5
April	2.1	1.7	1.6	0.6	1.1	1.2
May	2.1	2.1	2.0	0.5	0.8	0.9
June	2.3	1.9	1.6	0.5	1.2	0.8
July	1.9	2.1	1.4	0.4	1.2	0.7
August	2.3	2.3	1.5	0.4	1.1	0.9

	Influent Flow, million gallons					
Month	2007	2008	2009 [1]	2010	2011	2012
September	1.9	1.9	1.3	0.5	1.1	0.9
October	2.0	2.0	1.8	0.6	1.2	0.9
November	2.3	2.2	0.7	0.6	1.3	2.7
December	2.7	2.1	0.6	1.0	1.2	1.5
Total:	26.5	28.9	21.0	7.5	16.2	14.3

[1] Since November 2009, no wastewater has been discharged from Steele Park Resort to the WWTF.

The values above were recorded by the WWTF operator based on the existing effluent channel weir readings. Based on the variability of the data, particularly in 2010, the accuracy of the inline flow meter is of concern. During the evaluation of the collection system in 2011, the Discharger questioned the accuracy of the meter. It was later determined that the meter calibration was performed accurately, however the installation of the weir may not allow for adequate measurement of flow.

20. As noted above, I/I is a significant problem that has historically caused wet weather flows to exceed the treatment and storage/disposal capacity of the WWTF. To comply with CDO R5-2010-010 Task 5, the Discharger submitted a *Preliminary Revised Inflow/Infiltration Assessment Report and Preliminary Wastewater Facilities Plan* dated October 2011 and a *Wastewater Collection System Infiltration & Inflow Study* received on June 2012.

    The reports were based on two studies conducted from December 2010 to August 2011 and January 2012 to March 2012 to evaluate the NBRID sanitary sewer system. Several structural defects, including broken pipe, offset or separated joints, and root intrusion were identified. Both reports concluded that the Berryessa subdivision does not exhibit excessive rain dependent inflow and infiltration (RDII) from the perspective of percent rainfall entering the sewer system and that the area exhibited less than 2 percent rainfall inflow for all storms that occurred during the study periods. The reports did note that the relative volume of RDII was significant compared to the current very low daily volume of dry weather wastewater flows.

21. Historical average effluent quality data are summarized below.

	Average Effluent Quality, mg/L unless noted				
Constituents	2007	2008	2009	2010	2011
pH, std units	7.6	7.7	7.8	7.7	7.7
BOD	21	14	22	11	9.5
TDS	658	418	567	440	811
Nitrate as Nitrogen	20	18	33	34	39
TKN	3.0	1.8	2.0	2.0	1.6
Sodium	60	57	48	47	43

	Average Effluent Quality, mg/L unless noted				
Constituents	2007	2008	2009	2010	2011
Chloride	57	62	68	70	49
Total Coliform, MPN/100 mL	340	80	60	170	250

The effluent samples contained an average nitrate as nitrogen concentration ranging from 18 mg/L to 39 mg/L. The data above appear to indicate an increase in nitrate concentrations since the closure of Steele Park Resort. The effluent total Kjeldahl nitrogen (TKN) concentration, which is primarily ammonia nitrogen, appears relatively consistent, ranging from 1.6 mg/L to 3.0 mg/L.

The effluent samples contained an occasional high total coliform organisms concentration, which is likely the result of the rudimentary nature of the current disinfection system.

22. The Steele Park Resort, now known as Lupine Shores, began limited operations on 29 May 2010, providing portable toilets as the only sanitation facilities. Wastewater from the resort is currently hauled offsite for disposal and is not discharged to the WWTF. A new sewer collection system and new infrastructure to discharge wastewater into the Discharger's collection system and WWTF are planned for the future.

Planned Changes in the Facility and Discharge

23. In order to comply with the 2012 CDO and provide sufficient treatment, storage, and disposal capacity for anticipated build out, including the planned Reclamation Resort at the site of the former Steele Park Resort, the Discharger proposes to make major improvements to the WWTF, as discussed below.

24. The existing manual bar screen will be replaced with a rotary drum screen, and the existing sludge dewatering area will be reconstructed with a concrete pad.

25. A membrane bioreactor (MBR) package treatment plant system with a new flow meter will replace the existing extended aeration treatment system. The MBR system will be located within the largest of the three existing wastewater storage ponds. This existing pond will be excavated, filled, and re-compacted prior to the installation of the MBR system. The pond liner will be removed and disposed of off-site.

26. The Discharger will continue to disinfect the wastewater, using the existing chlorine feed pump. Chlorine contact time will be achieved in one of the existing wastewater storage ponds and pipelines prior to delivery to the new expansion storage ponds.

27. Improvements to the treatment plant will produce disinfected secondary-23 effluent. With respect to BOD, nitrogen and salinity, effluent quality is expected to remain the same.

28. The improvements project includes three new effluent storage ponds at the effluent disposal site and expansion of the existing tailwater collection pond for a total off-site effluent storage capacity of approximately 20.1 million gallons. The ponds will be used to store treated effluent during wet weather months and wastewater will be discharged to the existing spray field primarily during dry weather months. Effluent from the ponds is pumped to the existing 50,000 gallon storage tank prior to distribution to the 60-acre spray field. Each pond will be lined with a 60-mil high density polyethylene (HDPE) geomembrane liner. The ponds will be interconnected to allow flows from the treatment plant to be equalized between the storage ponds. Pond locations are shown on Attachment B. A process flow diagram of the proposed treatment processes is shown on Attachment C, which is attached hereto and made part of this Order by reference. Pond descriptions are discussed below:

    a. Pond 1 is the existing tailwater collection pond, which will be expanded for effluent storage and a collection point for any tailwater returned from the spray field. Storage capacity with a 2-foot freeboard is approximately 2.9 million gallons.

    b. Pond 2 is a new effluent storage pond with a storage capacity approximately 3.9 million gallons with a 2-foot freeboard.

    c. Pond 3 is a new effluent storage pond, with a storage capacity approximately 4.1 million gallons with a 2-foot freeboard.

    d. Pond 4 is a new effluent storage pond with a storage capacity approximately 9.3 million gallons with a 2-foot freeboard.

29. During wet weather months (typically October through May), treated wastewater will be stored in the proposed storage ponds and there will be limited discharges to the spray field as weather permits. The Discharger anticipates between 5 to 16 days available for wastewater disposal (based on the 24 hour post-storm criteria for a 100-year return period) with less than 2 inches of effluent applied over the spray field per month during the wet weather months. During dry weather months (April through October), treated wastewater will be discharged to the spray field at typical rates of 3 to 5 inches per month.

30. The Discharger is anticipating a future connection from the planned Reclamation Resort, which is within the service area of the Resort Improvement District. Influent flows from the resort were projected as follows:

    a. For current land use (year 2012 projections), the average daily wastewater flow rate was estimated to be approximately 14,000 gallons per day (gpd).

    b. For full build out (year 2020 projections), the peak daily wastewater flow rate was estimated to be 35,500 gpd.

c. A proposed aerated flow equalization tank at the Reclamation Resort will allow a maximum of 15,000 gpd of wastewater to be discharged to the NBRID WWTF.

31. The Discharger plans major improvements to the potable water treatment plant that serves the District. Improvements will be completed by October 2013. Anticipated backwash flows to the WWTF will range from 1,500 to 7,500 gpd, with increased water demands anticipated during the dry weather months. Historically, the WWTF received approximately 3,000 gpd of backwash water.

32. The Discharger's April 2013 revised water balance was based on a 100-year return period 365-day precipitation event and 2020 WWTF projections, which includes wastewater from the Berryessa Highlands subdivision at full build-out and a maximum flow of 15,000 gpd from the Reclamation Resort. The water balance demonstrates that the WWTF will have a 36.4 million gallon (MG) total annual flow storage and disposal capacity.

33. Sewer collection system repairs consisting of excavation and repair of certain sewer lines identified in the *Preliminary Revised Inflow/Infiltration Assessment Report and Preliminary Revised Wastewater Facilities Plan* dated October 2011 will be performed to reduce the amount of inflow and infiltration.

Site-Specific Conditions

34. The community water supply is from Lake Berryessa. Based on 2009 through 2011 Consumer Confidence Reports, the chemical character of the water supply is summarized below:

	Water Supply Analytical Results, mg/L unless noted		
Parameter	2009	2010	2011
TDS	180	200	190
EC, µmhos/cm	360	350	350
Total hardness	170	180	160
Chloride	4.2	5.7	6.5
Sodium	10	9.4	11
Nitrate as NO_3, µg/L	< 2.0	4.3	4.6
Sulfate	22	22	21
Iron	< 0.02	0.12	0.12
Manganese	< 0.02	< 0.02	< 0.02

TDS denotes total dissolved solids. EC denotes electrical conductivity.

35. The wastewater treatment plant is at an elevation of approximately 500 feet above mean sea level (MSL), and the area around the plant drains northeast to Lake

Berryessa. The effluent disposal and new storage pond site is on the western slope of Wragg Ridge with elevations ranging from 550 to 1,000 feet MSL and also drains to Lake Berryessa. The effluent disposal site is characterized by moderately steep to steep slopes (30 to 75 percent) with intervening westerly flowing seasonal drainages. The effluent disposal site supports a dense growth of native grasses with scattered oak trees and dense areas of brush.

36. Surrounding land uses are primarily open space. Annual precipitation in the vicinity averages approximately 24 inches, the 100-year total annual precipitation is approximately 74 inches, and the reference evapotranspiration rate is approximately 45 inches per year. All portions of the WWTF are outside the 100-year floodplain.

Groundwater Considerations

37. Based on soil surveys published by the Natural Resource Conservation Service (NRCS), the WWTF is located in areas where predominant surficial soils are of the Bressa-Dibble complex (30 to 75 percent slopes). The Bressa-Dibble complex is characterized by low plasticity clays (silt loams) formed from weathering of the underlying shale and sandstone. The depth to bedrock averages approximately 35 inches. The NRCS characterizes these soils as well-drained, slightly acidic, moderately saline, and poorly suited for wastewater ponds, leach fields, and irrigation disposal of wastewater because of the steep slopes, low permeability, and the shallow depth to bedrock.

38. A total of seven monitoring wells were installed within the effluent storage and disposal site. In April 2007, three monitoring wells, MW-1 through MW-3, were installed around the existing tailwater collection pond. In November 2012, the Discharger installed four additional monitoring wells, MW-1A and MW-4 through MW-6 (previously identified as MW-2A, MW-3A, and MW-4A). Their locations are shown on Attachment B. Well survey data and construction details are summarized below.

Well ID	Total Depth (feet)	Reference Elevation [1,2] (feet)	Top of Screen Elevation (feet)	Bottom of Screen Elevation (feet)	Groundwater Elevation Range
MW-1	40	587	562	547	--
MW-2	40	597	574	557	567-581
MW-3	14.5	600	589	585	587-594
MW-1A	62	587	545	524	534-539
MW-6	39	487	448	438	432-470
MW-5	76	519	473	443	464-465
MW-4	39	524	505	485	498-519

[1] At top of well casing cap.

[2] North American Vertical Datum (NAVD-29).

39. Wells MW-1 through MW-3 have been sampled quarterly since 2007 to monitor groundwater at the effluent storage and disposal site. MW-3 is upgradient of the tailwater collection pond and MW-2 is downgradient or cross gradient of the tailwater collection pond. Both wells are in the apparent downgradient direction of spray field Zone 1. Because of the steep slopes, the Discharger was unable to install wells upgradient of the spray field. MW-1, located outside the influence of the spray field and tailwater pond, has always been dry. MW-1A was installed to replace MW-1 as a background well. Wells MW-4, MW-5, and MW-6 are located around the proposed wastewater storage ponds and were installed to determine baseline groundwater prior to wastewater disposal to the ponds. Based on groundwater elevations, groundwater generally flows from east to west (downhill towards the lake). Based on site topography and the groundwater gradient, MW-1A and MW-6 are outside the influence of the existing tailwater collection pond and spray field, and are representative of ambient background groundwater quality (see Attachment B).

40. A summary of the groundwater quality at the effluent disposal site is summarized in the table below.

	Average Groundwater Concentration, mg/L unless noted						
			Baseline/background				
Constituent	MW-2[1]	MW-3[1]	MW-1A[8]	MW-6[8]	MW-5[8]	MW-4[8]	Protective WQL
pH, std units	7.1	7.2	8.6	8.2	8.4	8.7	6.5-8.4[9]
TDS	1,010	715	2,200	2,300	1,300	1,400	450[11]-1,500[9]
Nitrate as N	0.2[2]	2.6[5]	<0.5	<0.5	<0.5	<0.5	10[10]
TKN	0.3	0.2	0.4	0.3	0.2	0.2	None
Total Coliform, MPN/mL	14[3]	33[6]	23	2,200	50	30	2.2/100
Boron	0.73	0.31	2.0	1.7	1.7	1.2	0.7[11]
Iron	ND	ND	3.6	3.5	8.6	42	0.3[9]
Manganese	0.1	0.02	0.07	0.22	0.11	0.39	0.05[9]-0.2[11]
Potassium	11	6	<0.5	<0.5	<0.5	<0.5	None
Sodium	200[4]	64[7]	<0.5	<0.5	<0.5	<0.5	69[11]
Chloride	37	63	107	769	66	243	106[11]-250[9]

ND denotes ND. NS denotes Not Sampled. WQL denotes water quality limit.

[1] Based on data from February 2007 to November 2011.

[2] The Feb 2008 sample resulted in a nitrate concentration of 260 mg/L, which appears to be an outlier; therefore was not included in the average.

[3] Based on two samples with total coliform detections greater than 2.2 MPN/mL.

[4] The May 2011 sample resulted in a sodium concentration of 47 mg/L, which appears to be an outlier, therefore was not included in the average.

[5] The February 2008 sample resulted in a nitrate concentration of 200 mg/L, which appears to be an outlier, therefore was not included in the average.

[6] Based on multiple samples with total coliform detections greater than 2.2 MPN/mL.

[7] The May 2011 sample resulted in a sodium concentration of 207 mg/L, which appears to be an outlier, therefore was not included in the average.
[8] Based on data from the 28 November 2012 sampling event.
[9] Secondary Maximum Contaminant Level.
[10] Primary Maximum Contaminant Level.
[11] Agricultural Water Quality Goals.

41. Wells MW-4, MW-5, and MW-6 were sampled prior to the construction of the new storage ponds. Therefore, the above data for these wells and MW-1A represent pre-discharge or baseline groundwater quality. Once the storage ponds are constructed, these wells will serve as background or compliance wells as follows:

    a. MW-6 will be downgradient of proposed Ponds 2 and 3;

    b. MW-5 will be cross gradient of proposed Ponds 2, 3, and 4;

    c. MW-4 will be upgradient of proposed Pond 4 and downgradient of the existing tailwater collection pond (proposed Pond 1);

    d. MW-2 and MW-3 are in the apparent downgradient direction from the spray field and the existing tailwater collection pond; and

    e. MW-1A will continue to serve as a background well;

42. The data above indicate that baseline/background groundwater quality (as represented by MW-1A and MW-4 through MW-6 data) exceeds protective groundwater quality limits with respect to TDS, chloride, boron, iron, manganese, and total coliform. TDS concentrations in the baseline/background groundwater ranged from 1,300 mg/L to 2,300 mg/L. Chloride concentrations ranged from 66 mg/L to 769 mg/L in the baseline/background data set. Boron, iron, and manganese naturally occur in water; however the concentrations detected in the baseline/background groundwater exceeded the protective water quality limits. The poor water quality in these wells is likely naturally occurring. Total coliform concentrations ranging from 23 MPN/100 mL to 2,200 MPN/100 mL were detected in the baseline/background groundwater.

43. The baseline/background data reflect a single sample event and may not be representative of actual groundwater quality for a specific constituent. However, based on average effluent quality and groundwater quality downgradient of the LAAs, it appears that the discharge has caused some groundwater degradation with respect to sodium, nitrate, and total coliform.

Basin Plan, Beneficial Uses, and Regulatory Considerations

44. 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 Water Code section 13263 (a), waste discharge requirements must implement the Basin Plan.

45. Local drainage is to Lake Berryessa. The beneficial uses of Lake Berryessa, 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; spawning, reproduction, and/or early development; and wildlife habitat.

46. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, and industrial supply.

47. 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.

48. 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.

49. 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.

50. 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.

51. 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.

52. 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 µmhos/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 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. No crops are grown in the area of the WWTF.

Antidegradation Analysis

53. 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.

    Due to the high degree of spatial variability in the groundwater quality, this Order requires that determination of compliance with the groundwater limits be made using an intrawell evaluation.

54. 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.

55. The Discharger has been monitoring groundwater quality at the site since 2007. Based on the data available, it is not possible to determine pre-1968 groundwater quality and it may not be possible to establish background groundwater concentrations due to the geologic complexity of the site. Therefore determination of compliance with Resolution 68-16 for this facility must be based on ambient pre-discharge/background groundwater quality for the monitoring wells that are outside the influence of the current discharge.

56. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride), nutrients, and coliform organisms, as summarized in the following table and discussion below:

Constituent	Average Effluent[1]	Baseline/Background Groundwater[2]	Downgradient Groundwater[3]	Protective WQL
TDS, mg/L	420 - 810	1,300 – 2,300	950 – 1,200	450[6] - 1,500[4]
Chloride, mg/L	50 – 70	66 - 769	27 – 57	106[6] – 250[4]
Sodium, mg/L	40 - 60	< 0.5	200 – 350	69[6]
Nitrate as N, mg/L	15 - 40	< 0.5	0.1 – 0.5	10[5]
Boron	--	1.2 - 1.7	0.16 - 1.22	0.7[6]
Iron	--	3.5 - 42	ND	0.3[4]
Manganese	--	0.07 - 0.39	26 - 55	0.05[4]
Total Coliform. MPN/100 mL	< 2 - 340	23 – 2,200	2 - 130	2.2/100

[1] Range of average effluent quality from 2007 – 2011 data.
[2] Range of data from wells MW-1A and MW-4 to MW-6 collected on 28 November 2012.
[3] MW-2 range of data from 2007 – 2011; downgradient of the spray field.
[4] Secondary MCL.
[5] Primary MCL.
[6] Lowest Agricultural Water Quality Goal.

a. Total Dissolved Solids. Baseline/background groundwater quality is poor and exceeds protective water quality limits. The average TDS concentration in the downgradient groundwater is approximately 1,010 mg/L. Effluent TDS quality is better quality than the baseline/background groundwater and downgradient groundwater quality. The effluent TDS concentration currently averages 580 mg/L. Effluent quality with respect to TDS is not anticipated to change once the WWTF expansion project is complete. Therefore, the discharge is not likely to degrade groundwater quality due to TDS and a TDS effluent limit is not required to protect groundwater quality. However, this Order sets a groundwater limitation that prohibits any statistically significant increase in TDS concentrations in any compliance monitoring well.

b. Chloride. Baseline/background groundwater quality appears to be poor quality as reflected in wells MW-6 and MW-4, for which there is only one sample per well. Chloride concentrations in the baseline/background groundwater varied depending on well location, with 66 mg/L in MW-5 to 769 mg/L in MW-6. Data collected from wells MW-1A and MW-4 through MW-6 are based on a single monitoring event and may not be representative of actual groundwater quality. Chloride concentrations in the downgradient groundwater do not exceed protective water quality limits. Effluent chloride concentrations have been relatively constant, averaging approximately 61 mg/L, and do not exceed protective water quality limits. Effluent quality with respect to chloride is not anticipated to increase with the completion of the WWTF expansion. However, the discharge has the potential to degrade groundwater but not exceed a water quality objective. An effluent chloride limit is not required to

protect groundwater quality. However, this Order sets a groundwater limitation that prohibits an exceedance of the water quality objective.

c. Sodium. The limited baseline/background monitoring data for sodium are extremely low and therefore suspect, so baseline/background groundwater quality cannot be determined at this time. However, effluent quality does not exceed protective water quality limits and is better quality than the downgradient groundwater, which averages approximately 240 mg/L. Based on the lack of evidence of degradation from chloride, it appears that the high sodium detections downgradient of the tailwater pond and spray fields were not caused by the discharge. Effluent quality with respect to sodium is not anticipated to increase with the completion of the WWTF expansion, so an effluent sodium limit is not required to protect groundwater quality. However, this Order sets a groundwater limitation for sodium that prohibits an exceedance of the water quality objective.

d. 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 spray field LAAs 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. Baseline/background groundwater and downgradient groundwater do not exceed protective water quality limits for nitrate. However, effluent nitrate quality exceeds the primary MCL of 10 mg/L, with increased concentrations recently observed.

   The discharge to the spray field has the potential to degrade groundwater with respect to nitrate; however, the lined ponds do not. Total nitrogen in the effluent after expansion of the WWTF is expected to remain the same. The revised water balance indicates a total flow of 42.6 MG of wastewater discharged to the spray fields. Based on an average total nitrogen concentration of 31 mg/L, approximately 184 pounds per acre per year of nitrogen will be applied to the land. The nutrient uptake rate for oak trees is unknown. However, fruit trees and grasses have a nutrient uptake rate that range from approximately 85 lb/ac/yr to 300 lb/ac/yr, respectively. In addition, application rates consistent with the vegetation grown are best practical treatment and control. Therefore, this Order sets an effluent total nitrogen limit to protect groundwater quality and a groundwater limitation that prohibits an exceedance of the water quality objective.

e. For total coliform organisms (TCO), the potential for exceedance of the Basin Plan's numeric water quality objective depends on the level of disinfection, waste containment features, and the ability of vadose zone soils within the shallow water bearing zone to provide adequate filtration. TCO detections were observed in the newly installed monitoring wells, which represent baseline/background groundwater quality. Multiple TCO detections exceeding the Basin Plan limit were observed in the effluent and downgradient groundwater. As discussed in Finding 21, average effluent TCO concentrations have often exceeded 200 MPN/100mL as an annual average. These detections are likely due to the discharge of poorly disinfected

effluent to the spray field or cross-contamination of the monitoring wells during construction and/or subsequent sampling. Because the improved WWTF will provide lined ponds and a high level of disinfection, coliform organisms will not pose a threat to water quality once the improvements are completed. If coliform detections continue to exceed the Basin Plan water quality objective in groundwater, it may be appropriate to disinfect the wells to rule out cross-contamination as the cause. This Order requires that the Discharger disinfect treated effluent to achieve a median total coliform level no greater than 23 MPN/100 mL and includes a numerical groundwater limitation of 2.2 MPN/100 mL for total coliform organisms.

f. Boron, iron, and manganese. Baseline/background quality exceeds protective water quality limits for these constituents in most or all of the monitoring wells. The elevated concentrations in groundwater are likely naturally occurring due to geologic conditions at the site, and not degradation from the discharge. Therefore, effluent limits are not required to protect groundwater. However, this Order does prohibit any statistically significant increases in concentrations for these constituents in any compliance monitoring well.

57. This Order establishes effluent and groundwater limitations for the WWTF 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 TDS, groundwater monitoring data indicates that groundwater has not been degraded beyond background groundwater quality by the previous discharge and that the expanded discharge does not pose a threat of degradation in the future. Because pre-discharge/background groundwater quality exceeds the water quality objective, this Order does not allow any further degradation to occur.

For chloride, groundwater monitoring data indicates that groundwater has not been degraded beyond background groundwater quality by the previous discharge. However, the discharge has the potential to degrade groundwater but not exceed a water quality objective. This Order does not allow an exceedance of a water quality objective.

For sodium, groundwater monitoring data indicates an exceedance of the lowest agricultural water quality goal. However, there are no crops grown in the area, and therefore no impacts to agricultural beneficial use are expected. This Order requires the Discharger to implement best practical treatment and control (BPTC), so the degradation is allowable under Resolution 68-16. This Order does not allow an exceedance of a water quality objective in groundwater.

For nitrate, the nature of the waste, site-specific conditions, and current groundwater monitoring data indicate that the expanded discharge could cause degradation. The provisions of this Order require that the Discharger implement BPTC; contain a time schedule to ensure that the discharge will comply with water quality limits; and do not allow an exceedance of a water quality objective in groundwater.

For total coliform, the Discharger proposes BPTC which includes disinfection and lined ponds. No degradation is expected or allowed.

For boron, iron, and manganese, groundwater monitoring data indicates that groundwater has not been degraded by the previous discharge and that the expanded discharge does not pose a threat of degradation in the future. Background groundwater quality exceeds the water quality objectives for boron, iron, and manganese. The high mineral concentrations are likely naturally occurring. Therefore this Order does not allow any further degradation to occur.

58. The Discharger currently provides treatment and control of the discharge that incorporates:

    a. Screening to remove large solids and debris from the raw sewage;

    b. Secondary treatment of the wastewater;

    c. Some disinfection;

    d. A tailwater return system to capture all tailwater runoff;

    e. Biosolids storage activities and disposal off-site;

    f. The use of certified operators to assure proper operation and maintenance.

59. The proposed facility and operational improvements that this Order requires will provide the following additional treatment and control measures:

    a. Advanced secondary treatment;

    b. Disinfection to 23 MPN/100 mL;

    c. Wastewater storage ponds lined with high density polyethylene geomembrane;

    d. Spray field application rates that minimize leaching;

    e. Nutrient loading consistent with the vegetation grown in the spray field.

    These measures constitute best practicable treatment or control for this small facility, and the limited groundwater degradation allowed by this Order is consistent with the Antidegradation Policy.

Other Regulatory Considerations

60. 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. (…)

61. The discharge authorized herein and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:
    a. The MBR treatment system, wastewater storage ponds, and appurtenant structures are exempt pursuant to Title 27, section 20090(a) because they are treatment and storage facilities associated with a municipal domestic wastewater treatment plant.
    b. The spray fields are exempt pursuant to Title 27, section 20090(b) because they are used for the discharge of wastewater to land, and:
        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 fields does not need to be managed as hazardous waste.

62. Although the WWTF is exempt from Title 27, the statistical data analysis methods of Title 27, section 20415(e) are appropriate for determining whether the discharge complies with Groundwater Limitations specified in this Order.

63. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) 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 WWTF does not have a design capacity of more than 1.0 mgd, and therefore the Discharger is not required to obtain coverage under NPDES General Permit CAS000001.

64. 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 therefore the General Order is applicable.

65. 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 R5-2013-0065 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.

66. 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.

67. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.

68. An Initial Study/Final Mitigated Negative Declaration (MND) was certified by the Board of Directors of the Napa Berryessa Resort Improvement District on 13 November 2012 in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The Initial Study describes improvements to the wastewater treatment facility that include:

a. Pond Expansion – expand capacity of the existing tailwater collection pond and construct three additional wastewater storage ponds for a total holding capacity from 1.3 million gallons to approximately 22.3 million gallons.

b. Pond Pump Station Improvements – change to the utilities to allow for filling of the new pond system from the wastewater treatment plant.

c. Enhanced Compliance Action, Sewer Lift Station Upgrades – improvements to the existing lift stations to improve reliability to convene effluent to the ponds.

d. Wastewater Treatment System Upgrade – provide tertiary level treatment.

e. WWTF Screen Improvements – replacement of the existing manual bar screen with a rotating drum screen.

f. Sewer Collection System Repairs – repairs to various critical sections to reduce the amount of inflow and infiltration seen by the WWTF.

The Initial Study evaluated potential impacts to groundwater quality and found that compliance with the new WDRs would result in a less than significant impact to no impact on water quality. Compliance with these waste discharge requirements will mitigate or avoid significant impacts to water quality.

69. 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

70. 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.

71. 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.

72. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order 95-173 is rescinded except for purposes of enforcement, and, pursuant to Water Code sections 13263 and 13267, the Napa Berryessa Improvement 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. Discharge of waste classified as 'designated', as defined in Water Code section 13173, is prohibited.

4. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provisions E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.

5. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.

6. Discharge of toxic substances into the wastewater treatment system or land application areas such that biological treatment mechanisms are disrupted is prohibited.

B. Flow Limitations

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

Flow Measurement	Flow Limit
Monthly Average Flow [1]	0.050 mgd

[1] As determined by the total flow during the calendar month divided by the number of days in the month.

2. **Effective on the date of the Executive Officer approval of the certification report submitted pursuant to item 13 of CDO R5-2010-0101[1]**, influent flows to the WWTF shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow [1]	36.4 MG
Total Monthly Flow [2]	4.50 MG

[1] As determined by the total flow for the calendar year.
[2] As determined by the total flow during the calendar month.

[1] Which is due by 30 November 2013.

C. Effluent Limitations

1. Effluent discharged to the wastewater storage ponds shall not exceed the following limits:

Constituent	Units	Limit	Basis of Compliance Determination
BOD_5 [1]	mg/L	50	Monthly maximum
Total nitrogen	mg/L	35	Annual average

[1] 5-day biochemical oxygen demand at 20˚C.

2. Effluent discharged to the wastewater storage ponds shall not exceed the following limits for total coliform organisms:

   a. The monthly median concentration of total coliform bacteria measure in the disinfected effluent shall not exceed a most probable number (MPN) of 23 per 100 milliliters. Compliance with this requirement will be determined using data for each calendar month.

   b. The number of total coliform bacteria shall not exceed an MPN of 240 per 100 milliliters in more than one sample in any calendar month.

   Compliance with this requirement shall be determined based on samples obtained at the sampling locations shown on Attachment C.

D. Mass Loading Limitations

1. The total annual nitrogen mass loading to the spray field shall not exceed the agronomic rate for the vegetation grown. Compliance with this requirement shall be determined using published nitrogen uptake rates for the vegetation grown and the following formula:

$$M = \sum_{i=1}^{n} \frac{C_i \times V_i}{A}$$

Where M = Annual total nitrogen loading rate in lb/ac/year;

C_i = Arithmetic mean of total nitrogen monitoring results for calendar month i in mg/L;

V_i = Total effluent flow to the LAA for the calendar month in MG;

i = The number of the month (i.e., January = 1, February = 2, etc.);

A = Area of the LAA or field in acres;

Total nitrogen = (nitrate as nitrogen + TKN) in mg/L.

E. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order.

2. The discharge shall not cause degradation of any water supply.

3. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

4. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.

5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.

6. 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.

7. Public contact with wastewater shall be prevented through such means as fences, signs, or acceptable alternatives.

8. Objectionable odors shall not be perceivable beyond the limits of the WWTF property at an intensity that creates or threatens to create nuisance conditions.

9. As a means of discerning compliance with Discharge Specification F.8, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive 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.

10. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain 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.

11. 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.

12. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications F.10 and F.11.

13. 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.

14. 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.

F. Groundwater Limitations

Release of waste constituents from any portion of the WWTF shall not cause groundwater to:

1. Contain TDS, boron, iron, and manganese in concentrations statistically greater than current groundwater quality.

2. Exceed a total coliform organism level of 2.2 MPN/100mL.

3. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.

4. For constituents identified in Title 22 (except TDS, iron, and manganese), contain constituents in concentrations that exceed either the Primary or Secondary MCLs established therein.

5. Except boron, contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect benefical uses.

Compliance with these limitations shall be determined annually based on intrawell analysis of data from monitoring wells MW-2, MW-3, MW-4, MW-5, and MW-6 using approved statistical methods.

G. Land Application Area ~~(Spray Field)~~ Specifications

Requirements G.1. through G.10. below apply only to the spray field LAAs.

1. Any irrigation runoff (tailwater) shall be confined to the LAA and shall not enter any surface water drainage course or storm water drainage system.

2. Vegetation (which may include native grasses, shrubs and trees) shall be grown in the LAAs.

3. Land application of wastewater shall be managed to minimize erosion.

4. The LAAs 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.

5. LAAs shall be designed, maintained, and operated to comply with the following setback requirements:

Setback Definition	Minimum Irrigation Setback (feet)
Edge of LAA to property boundary	25
Edge of LAA to public road right of way	30
Edge of LAA to domestic water supply well	100
Edge of LAA to residence	100

Setback Definition	Minimum Irrigation Setback (feet)
Edge of LAA using spray irrigation to public park, playground, school yard, or similar place of potential public exposure	100

6. LAAs shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.

7. Spray irrigation with wastewater is prohibited when wind speed (including gusts) exceeds 30 mph.

8. Sprinkler heads shall be designed, operated and maintained to create a minimum amount of mist.

9. Discharge to the LAAs shall not be performed during rainfall or when the ground is saturated.

10. Discharge of storm water runoff from the LAAs to off-site land or surface water drainage courses is allowed if the Discharger complies with Specification G.9 above.

11. The following requirements apply to the Oak Tree Mitigation Areas shown on Attachment D:

    a. The Oak Tree Mitigation Areas shall be irrigated by the subsurface drip system only;

    b. Vegetation (e.g., native grasses and trees) shall be grown in the oak tree mitigation areas.

    c. Mitigation areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.

    d. The generation of irrigation runoff (tailwater) is prohibited.

    e. Discharge to the mitigation areas shall not be performed during rainfall or when the ground is saturated.

H. 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 WWTF. 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, ponds, and clarifiers as needed to ensure optimal plant operation.

2. Any handling and storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.

3. Residual sludge, 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, WWTFs, 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.

I. Provisions

1. The following report shall be submitted pursuant to Water Code section 13267 and shall be prepared as described in Provision I.4:

a. In addition to the requirements of Item 13 of CDO R5-2010-0101, the certification report due by **30 November 2013** pursuant to the CDO shall also:

   i. Certify that a new influent flow meter has been installed and calibrated and is fully operational;

   ii. Include a Land Application Area (Spray Field) Operations Plan that details the specific operational procedures that will be used to ensure compliance with each of the Land Application Area (Spray Field) Specifications (G.1 through G.10); and

   iii. Include a SCADA System Irrigation Operations Plan that details all switches, valves, meters, etc. that the SCADA system will monitor and/or control; a list of conditions that will cause an alarm; a list of manual overrides that can be performed remotely; operator procedures for determining flow rates for land applications, application durations, and rest cycles; and details regarding SCADA operations during a power outage and/or backup power system.

b. By **30 November 2013**, the Discharger shall submit a *Groundwater Limitations Compliance Assessment Plan*. The plan shall describe and justify the statistical methods used to evaluate compliance with the Groundwater Limitations of this Order for the compliance wells and constituents listed in the groundwater monitoring section of the Monitoring and Reporting Program. Compliance shall be determined annually based on an intrawell statistical analysis that uses methods prescribed in Title 27, section 20415(e)(10) to compare monitoring data collected at each compliance well to the groundwater limitations of this Order.

2. If groundwater monitoring 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 a BPTC Evaluation 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 WWTF 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 from the date of written request.

3. 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**.

4. 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.

5. 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.

6. The Discharger shall comply with Monitoring and Reporting Program (MRP) R5-2013-0065, 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.

7. 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)."

8. 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.

9. 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.

10. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

11. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23, division 3, chapter 26.

12. 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.

13. 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.

14. 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.

15. 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.

16. In the event of any change in control or ownership of the facility or land application areas, 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 this office.

17. 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.

18. 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.

19. 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 or with the WDRs 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 the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 31 May 2013 and amended by Order R5-2013-0135 on 4 October 2013.

- Original signed by Kenneth Landau for -

PAMELA C. CREEDON, Executive Officer