CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0114

WASTE DISCHARGE REQUIREMENTS

FOR

OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC.
WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

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

1. Oakwood Lake Water District and Beck Properties, Inc. submitted a Report of Waste Discharge (RWD), in September 2005 for updating existing Waste Discharge Requirements (WDRs) for the Oakwood Lake Water District wastewater treatment plant. The purpose of the update is to treat and dispose of domestic wastewater generated in new residential developments and an existing mobile home park. Supplemental information was received on 13 January 2006, 7 February 2006, and 24 March 2006.

2. For the purposes of this Order, the term "Wastewater Treatment Plant" (WWTP) shall mean the wastewater collection system, the wastewater treatment system, the sludge basin, recycled water distribution piping, recycled water storage ponds, and the land application areas. The general location of the facility is shown on Attachment A, which is attached hereto and made part of this Order by reference.

3. The WWTP is at 874 East Woodward Avenue, Manteca, in Section 10, T2S, R6E and Section 11, T2S, R6E, MDB&M. The Oakwood Lake Water District owns the mechanical treatment system; Beck Properties Inc. owns the land where it is located and the land application areas. The treatment plant site plan is shown on Attachment B, which is attached hereto and made part of this Order by reference. Oakwood Lake Water District and Beck Properties, Inc. are hereafter jointly referred to as "Discharger."

4. WDRs Order No. 5-01-113, adopted by the Regional Water Board on 11 May 2001, prescribes requirements for the Oakwood Lake Water District and Vernalis Partners Ltd. wastewater treatment plant. Continued use of Order 5-01-113 is not consistent with the mitigation measures described in the Oakwood Lake Environmental Impact Report nor would it be adequate or consistent with the current plans and policies of the Regional Water Board.

5. Portions of the WWTP are in various locations. The headworks, treatment ponds, and sludge digestion pond is adjacent to the San Joaquin River and Walthall Slough; land application areas and recycled water storage ponds are in several areas surrounding the lakes. The locations of the wastewater system components and land application areas are presented on Attachment C, which is attached hereto and made part of this Order by reference. The Assessor's Parcel Numbers (APNs) for the headworks and treatment ponds is 241-030-10; the APNs for the land application areas are

241-510-01, 241-510-05, 241-510-06, 241-520-01, 241-520-02, 241-520-05, 241-520-08, and 241-520-09.

6. The WWTP will serve residential and commercial developments. The developments will be constructed in two phases. The phasing and anticipated time of development is presented below:

Phase	Scheduled Construction	Number of Residences	Commercial
Phase I	Late 2006	220 Single Family Residences 56 Mobile Home Units	None Planned
Phase II	Approximately in mid-2008	260 Single Family Residences 56 Mobile Home Units (total)	10.2 Acres of Commercial/Professional Office Space

Existing Facility, Proposed Facility, and Discharge

7. An existing WWTP is in operation at the site serving the mobile home units. Historically, the existing WWTP served all of Oakwood Lake Resort, which provided water slides, campgrounds, and a concert venue. Although the resort closed in 2005, the mobile homes are still occupied. The existing wastewater system is operating to treat wastewater from the mobile homes. Presently, the WWTP is being expanded to provide better treatment for the wastewater that will be generated in the future land development.

8. The WWTP is being constructed to treat wastewater from new residential and commercial developments. The developments will be constructed in phases; initially, the existing flow from the mobile home park will be treated (approximately 15,000 gallons per day (gpd)). The first phase of development will generate a total of approximately 55,000 gpd of domestic wastewater. The second phase of development is expected to bring the total wastewater flow rate to 136,200 gpd. The treatment system equipment will be constructed as part of the Phase I development. Land application areas and recycled water storage ponds will be constructed in phases.

9. The Dischargers have reported that they intend to connect to the City of Manteca wastewater collection system when it is available. The RWD reports, based on conversations with the City of Manteca, treatment capacity should be available in 10 to 15 years.

10. The treatment plant will provide tertiary treatment and disinfection using a sequential batch reactor (SBR) system. The treatment system consists of screening, SBR, flow equalization, sand filtration, disinfection, effluent pumping, and land application. Sludge will be digested and stored on-site pending off-site disposal. A treatment system flowchart is presented in Attachment D, which is attached hereto and made part of this Order by reference. Each of the treatment components is further described below.

11. Wastewater will be delivered to the treatment system from three pump stations; one located adjacent to the treatment plant site and two located within the housing developments.

12. Influent wastewater will be screened with a fine mesh self-cleaning gravity screen to remove larger solids and grit that could damage pumps or interfere with downstream process equipment. Screenings and grit will be stored in a covered container for disposal at an off-site location.

13. Wastewater flow rate will be measured with a magnetic flow meter. A totalizer will record the cumulative flow quantity.

14. Screened wastewater will be treated using an SBR process. The SBR will consist of a 200,000 gallon lined basin that will be aerated and mixed using floating aerators. The aerators will be cycled on and off to create anoxic conditions to facilitate denitrification. The SBR is anticipated to perform four cycles per day. Excess sludge will be wasted to the sludge storage basin.

15. Flow from the SBR will be equalized in a secondary effluent storage basin with a storage capacity of approximately 49,000 gallons. Wastewater from the effluent storage basin will be pumped through sand filters. A polymer (polyaluminum chloride) will be added to the discharge to increase the efficiency of the sand filters.

16. Duplex sand filters will be used to remove suspended solids in the wastewater that remains after clarification. Solids removed by the filters will be flushed in backwash water and returned to the SBR basin.

17. Disinfection will be performed by addition of hypochlorite to the sand filter effluent. Duplex hypochlorite feed units will be used for redundancy. The contact chamber will consist of a 24-inch diameter pipe to maximize contact time.

18. Disinfected wastewater will flow by gravity to the effluent storage basin. From the effluent storage basin the treated wastewater will be pumped to lined recycled water storage reservoirs.

19. Sludge will discharged to the sludge storage basin for digestion and thickening. Decant water from the basin will be returned to the SBR pond. Sludge will be hauled off-site for disposal.

20. An emergency storage reservoir will be available for storage of wastewater during a malfunction of the treatment plant and when effluent doesn't meet effluent requirements. The emergency storage reservoir will provide approximately 233,000 gallons of storage capacity.

21. The wastewater system includes provisions for component malfunction and primary power outage. Critical mechanical components have duplex units or available spare parts. The control system will monitor the status and performance of equipment. An alarm will automatically dial system operators if a problem is detected by the control system.

22. A 100-kilowatt standby power generator will be available for use during power failures. The generator will automatically start in the event of a power outage. The generator will also power the wastewater lift station adjacent to the treatment plant.

23. Recycled water will be stored in the effluent holding basin after disinfection. During Phase I, effluent storage will be provided in a 23.97-acre foot reservoir located in the northeast corner of Oakwood Lake Water District. The location of the pond is presented on Attachment C.

24. Treatment ponds located at the treatment facility are described below. Recycled water storage ponds are described in the "Recycled Water Discharge" portion of this Order. A summary of the treatment facility ponds, their size, and their liners is presented in the table below:

Pond	Size	Use	Liner
SBR Pond	200,000 gallons	Wastewater Treatment	HDPE 40 mil [1]
Secondary Effluent	49,000 gallons	Flow Equalization	HDPE 40 mil [1]
Effluent Storage	330,000	Flow Equalization/Storage	HDPE 40 mil [1]
Sludge Storage	178,000	Recycled Water Storage	HDPE 40 mil [1]
Emergency Storage	233,000 gallons	Emergency Storage	HDPE 40 mil [1]

[1] HDPE 40-mil denotes High Density Polyethylene, or equivalent.

25. Stormwater that falls on the treatment plant concrete paved areas will be collected and directed into the system headworks. Stormwater that falls on turf areas at the treatment plant will infiltrate.

26. Because construction of these developments is not complete, no site-specific data on wastewater quality is available. According to the RWD, the projected wastewater characteristics are presented below:

Constituent	Units	Average
Biochemical Oxygen Demand	mg/L	220
Total Suspended Solids	mg/L	220
Total Nitrogen	mg/L	30
Total Dissolved Solids	mg/L	710 [1]

[1] Total Dissolved Solids estimate is approximately 300 mg/L higher than the potable water supply (410 mg/L).

27. The Discharger estimates the quality of the effluent will be as described below:

Constituent	Units	Treatment Plant Effluent
Biochemical Oxygen Demand	mg/L	Not Provided
Bicarbonate	mg/L	240
Calcium	mg/L	58
Chloride	mg/L	140
Total Coliform Organisms	MPN/100 mL	<2.2
Sodium	mg/L	148
Total Nitrogen	mg/L	<10
pH	Std. Unit	7.5
Sulfate	mg/L	34
Total Dissolved Solids	mg/L	710

MPN denotes Most Probable Number.

Recycled Water Discharge

28. Treated recycled water will be stored in lined storage ponds and applied to landscaped land application areas. All of the ponds and land application areas are within the Oakwood Lake Water District service area boundary (see Attachment C).

29. Storage ponds will be used to store recycled water when not irrigating; the locations of the ponds are presented on Attachment C. The table below lists recycled water storage ponds.

Pond	Size	Use	Liner
Basin No. 1	23.83 ac•ft	Recycled Water Storage	HDPE 40 mil
Basin No. 2	26.86 ac•ft	Recycled Water Storage	HDPE 40 mil
Basin No. 3	1.02 ac•ft	Recycled Water Storage	HDPE 40 mil
Basin No. 4	3.45 ac•ft	Recycled Water Storage	HDPE 40 mil
Totals	55.16 ac•ft		

30. All the ponds will be lined with 40-mil high-density polyethylene (HDPE) or equivalent to minimize percolation.

31. Land application areas will be planted with turf grass, shrubs, and trees. Most irrigation will occur through drip irrigation lines installed approximately one foot below the ground surface (Geoflow). Some spray irrigation will be used to apply wastewater. The acreage, development phase, and application method are described in the table below:

Land Application Area	Acreage	Dev. Phase	Application Type
LAA No. 1	12.5	I	Geo-Flow
LAA No. 2	2.16	I	Spray
LAA No. 3	1.03	I	Geo-Flow
LAA No. 4	0.72	II	Geo-Flow
LAA No. 5	4.34	II	Geo-Flow
LAA No. 6	0.87	II	Spray
LAA No. 7	0.87	II	Spray
LAA No. 8	0.12	II	Geo-Flow
LAA No. 9	9.14	II	Geo-Flow
Total Land Area	31.75		

32. Effluent will be applied at plant uptake rates for both nitrogen and water application. Irrigation tailwater will be controlled through such measures as perimeter berms and/or grading the area to prevent off-site drainage.

33. The RWD contains a Phase I water balance that demonstrates hydraulic capacity for a wastewater flow rate of 55,000 gpd. The Phase I water balance requires 21.1 ac•ft of storage capacity and 13.0 acres of land application area. Basin No. 1 will be constructed for the first phase of development, Basins Nos. 2, 3, and 4 will be constructed for the second phase of development.

34. The RWD contains a Phase II water balance that demonstrates hydraulic capacity for a wastewater flow rate of 136,200 gpd. The Phase II water balance requires a total of 53.0 ac•ft of storage capacity and 30.0 acres of land application area.

35. Phase II land application areas and recycled water ponds will be developed in the future. Authorization to use the Phase II land application areas and wastewater ponds must be obtained from the Executive Officer prior to use.

Wastewater Collection System

36. The wastewater collection system will consist primarily of 6-inch diameter gasketed schedule-40 poly vinyl chloride (PVC) pipe. Most of the existing collection system associated with the previous use as Oakwood Lake Resort will be abandoned. However, the collection system associated with the existing mobile home park is not planned for removal. If excessive inflow and infiltration in that area is identified, the RWD states that portions of the collection system will be replaced as needed to control infiltration and inflow.

37. The sanitary sewer system collects wastewater and consists of sewer pipes, manholes, and/or other conveyance system elements that direct raw sewage to the treatment facility. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the treatment facility. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities. Sanitary sewer overflow is also defined in State Water Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*. The Internet web location for State Water Board Order No. 2006-0003-DWQ is presented on Attachment E, which is attached hereto and made part of this Order by reference.

38. For the proposed facility, any sanitary sewer overflows would consist of varying mixtures of domestic and commercial wastewater, depending on land uses in the sewage collection system. The chief causes of sanitary sewer overflows include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and/or contractor caused blockages.

39. Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause temporary exceedences of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.

40. The Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system. This Order requires the Discharger to prepare and implement a *Sewer System Management Plan* (SSMP) consistent with State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ.

Site-Specific Conditions

41. Annual precipitation in the vicinity averages approximately 11.18 inches. The mean evapotranspiration rate is approximately 53.06 inches per year. All portions of the facility are

outside the 100-year flood zone. Flood protection is provided by levees maintained by Reclamation District 17.

42. The facility lies within the San Joaquin Delta Hydrologic Unit Area No. 544.00, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

43. Based on the National Resource Conservation Service soil survey, the soils at the development consist of the Merritt silty clay loam and the Egbert silty clay loam. Published infiltration rates for the soils range from 0.06 to 2.0 in/hr.

Groundwater Considerations

44. Groundwater currently used for municipal supply is pumped from two wells that screen a confined aquifer that underlies the site. Well No. 1 will be used on a standby basis to supply non-potable water for use as supplemental irrigation water; Well No. 2 will be abandoned. Two new wells for potable supply will be constructed. The current potable water supply quality was sampled in 2005 and is summarized below:

Analyte	Units	Concentration
Bicarbonate	mg/L	170
Calcium	mg/L	32
Chloride	mg/L	110
Magnesium	mg/L	6
Nitrate	mg/L	ND
Sodium	mg/L	98
Potassium	mg/L	3
Electrical Conductivity	µmhos/cm	650
Sulfate	mg/L	14
Total Dissolved Solids	mg/L	410
Total Hardness	mg/L	110

45. Depth to groundwater varies depending on location, season, and local influences such as irrigation practices, groundwater extraction, the presence and stage of surface water bodies. Historically, the operators of Brown Sand and the Oakwood Lake Resort pumped lake water into the San Joaquin River to lower lake levels to allow mining and operation of water slides. The pumping also lowered the surrounding groundwater elevations. The pumping has now stopped.

46. The RWD presented available groundwater flow direction information that characterizes groundwater elevations in the vicinity prior to beginning dewatering activities in 1969. Maps prepared by the Department of Water Resources (DWR) in 1958 and 1962 indicate that groundwater flow is to the west at the project area. Groundwater is expected to locally reverse flow direction when the San Joaquin River elevation is greater than normal.

47. Groundwater models prepared for the area by Condor Earth Technologies and Kleinfelder predicted groundwater elevations ranging from 2.8 to 4.3 feet mean sea level (msl) with groundwater elevations reaching 8 to 10 feet msl in wet years. With a final ground surface elevation of

approximately 12 feet msl, the depth to groundwater below the surface is likely to vary from 2 to 10 feet.

48. The following table presents a summary of the monitoring wells that have been installed to date and their status. The well locations are presented on Attachment C.

Well Name	Location	Dia. (in.)	Depth (ft.)	Screen Int (ft. bgs)	Status
MW-1	WWTP	4	31.5	14-29	Active
MW-2	WWTP	4	31.5	14-29	Active
MW-3	WWTP	4	31.5	14-29	Active
MW-4	WWTP	4	36.5	15.5-30.5	Active
MW-5	Northeast	4	31.5	13-28	Active
MW-6	Northeast	4	31.5	13-28	Active
MW-7	Northeast	4	31.5	13-28	Active
MW-8	Southeast	4	31.5	13-28	Abandoned
MW-9	Southeast	4	31.5	13-28	Abandoned

WWTP denotes Wastewater Treatment Plant.

49. Groundwater monitoring wells No. MW-8 and MW-9 were destroyed on 13 April 2005. The San Joaquin County Environmental Health Department issued a permit for the well destruction and supervised the grouting.

50. The RWD and the Fourth Quarter, 2005 Groundwater Monitoring Report prepared by Kleinfelder contains the following information about groundwater conditions at the site:

    a. On 22 November 2005 the groundwater flow direction at the wastewater treatment system was to the northeast. This is consistent with previous sample events. However, groundwater flow directions may change with cessation of pumping from Oakwood Lake.

    b. Groundwater elevations vary across the site but presently groundwater flow directions seem to be towards Oakwood Lake. At the southern and western sides of the area, groundwater flows to the north or east; at the eastern and northern sides of the area, groundwater flows to the south or west.

    c. Groundwater elevations vary from approximately 14 to 17 feet bgs in the area of the wastewater treatment facility and approximately 14 to 16 feet bgs in the northeast portion of the facility.

51. Groundwater quality has been characterized by sampling groundwater monitoring wells. Because the wells were installed for different purposes, varying amounts of data exist for each area. A summary of average groundwater quality for all the wells is presented in the table below as well as the Water Quality Objectives for each analyte.

Analyte	Units	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	WQO
pH	std.	6.7	6.8	6.8	6.7	7.5	7.3	7.4	7.1	7.1	6.5-8.4 [1]
TDS	mg/L	411	544	663	536	877	1,027	871	525	535	450 [1]

EC	umhos/cm	675	606	662	873	1,306	1,381	1,299	804	812	700 [1]
NO_3-N	mg/L	0.9	2.9	15.1	0.9	6.6	22.8	13.6	3.7	13.1	10 [2]
NH_3	mg/L	3.1	2.3	1.9	0.5	0.2	0.2	0.2	0.1	0.3	1.5 [3]
TCO	MPN/100 mL	ND	9.2	8.1	13.8	7.4	10.5	5.0	13.1	ND	2.2/100 mL [4]
THMs	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	see below
Chloroform (ug/L)											0.26 [5]
Bromodichloromethane (ug/L)											0.27 [6]
Dibromochloromethane (ug/L)											0.37 [6]
Bromoform (ug/L)											4.0 [7]

TDS denotes Total Dissolved Solids. EC denotes Electrical Conductivity. NO_3-N denotes Nitrate as Nitrogen. NH_3 denotes Ammonia. TCO denotes Total Coliform Organisms. THMs denotes the sum of Trihalomethanes. MPN/100mL denotes Most Probable Number per 100 mL. ND denotes Not Detected. WQO denotes Water Quality Objective. [1] Agricultural Water Quality Goals. [2] Primary Maximum Contaminant Level (Drinking Water). [3] Taste and Odor Threshold. [4] Water Quality Control Plan. [5] National Academy of Sciences Health Advisory. [6] Cal/EPA Cancer Potency Factor. [7] USEPA Integrated Risk Information System.

52. In general, groundwater exceeds Water Quality Objectives for TDS, electrical conductivity, nitrate as nitrogen, ammonia, and total coliform organisms. The trends for each of the analytes is presented below:

    a. TDS concentrations in Wells MW-1 through MW-4 (located at the wastewater treatment facility) range in average from 411 to 663 mg/L with the background well (MW-4) containing an average TDS concentration of 536 mg/L. All the wells except Well MW-1 possess TDS concentrations above the WQO. Because the wastewater treatment facility is located adjacent to the San Joaquin River levee, and historic pumping of Oakwood Lake caused a hydraulic gradient through the levee, the groundwater conditions at the wastewater treatment plant have likely been significantly influenced by river water percolating through the levee.

    TDS concentrations at the northeast portion of the development (Wells MW-5, MW-6, and MW-7) range in average from 871 to 1,027 mg/L with the background well (MW-5) containing an average TDS concentration of 877. Wastewater has not yet been applied at the northeast area so the concentrations may represent background conditions for the area. The concentrations reported exceed the applicable WQO.

    TDS concentrations at the southeast portion of the development (Wells MW-8 and MW-9) range in average from 525 to 535 mg/L. Historically, these wells were outside any waste application area with the exception of private residences equipped with septic tanks. The concentrations reported exceed the applicable WQO.

    b. Nitrate as nitrogen concentrations in Wells MW-1 through MW-4 (located at the wastewater treatment facility) range in average from 0.9 to 15.1 mg/L with the background well (MW-4) containing an average nitrate concentration of 0.9 mg/L. Only Well MW-3 possesses a nitrate as nitrogen concentration above the WQO and it is the well most directly downgradient of the formerly unlined wastewater ponds. Because the wastewater treatment facility is located adjacent to the San Joaquin River levee and historic pumping of Oakwood Lake caused a hydraulic gradient through the levee, the groundwater conditions at the wastewater treatment plant have likely been significantly influenced by river water percolating through the levee.

Nitrate as N concentrations at the northeast portion of the development (Wells MW-5, MW-6, and MW-7) range in average from 6.6 to 22.8 mg/L with the background well (MW-5) containing an average nitrate as N concentration of 6.6 mg/L. Wastewater has not yet been applied at the northeast area so the concentrations may represent background conditions for the area. The cause of the variation of concentrations is unknown. The concentrations reported in Wells MW-6 and MW-7 exceed the applicable WQO.

Nitrate as N concentrations at the southeast portion of the development (Wells MW-8 and MW-9) range in average from 3.7 to 13.1 mg/L. Historically, these wells were outside any waste application area with the exception of private residences equipped with septic tanks. The cause of the variation of concentrations is unknown. The concentration reported in Well MW-9 exceeds the applicable WQO.

c. Ammonia concentrations in Wells MW-1 through MW-4 (located at the wastewater treatment facility) range in average from 0.5 to 3.1 mg/L with the background well (MW-4) containing an average ammonia concentration of 0.5 mg/L. Wells MW-1, MW-2, and MW-3 possesses ammonia concentrations above the WQO. Because the wastewater treatment facility is located adjacent to the San Joaquin River levee and historic pumping of Oakwood Lake caused a hydraulic gradient through the levee, the groundwater conditions at the wastewater treatment plant have likely been significantly influenced by river water percolating through the levee.

   Ammonia concentrations at the northeast portion of the development (Wells MW-5, MW-6, and MW-7) each average 0.2 mg/L. Wastewater has not yet been applied at the northeast area so the concentrations may represent background conditions for the area. The concentrations reported in the wells are below the applicable WQO.

   Ammonia concentrations at the southeast portion of the development (Wells MW-8 and MW-9) range in average from 0.1 to 0.3 mg/L. Historically, these wells were outside any waste application area with the exception of private residences equipped with septic tanks. The variation of concentrations observed in these wells is considered insignificant. The concentration reported in the wells are below the applicable WQO.

d. Total Coliform Organisms (TCO) concentrations in Wells MW-1 through MW-4 (located at the wastewater treatment facility) range in average from not detected to 13.8 Most Probable Number (MPN)/100 mL with the background well (MW-4) containing an average TCO concentration of 13.8 MPN/100 mL. Wells MW-2, MW-3, and MW-4 possesses TCO concentrations above the WQO. The source of the TCO in the wells may be the result of the wastewater treatment facility or sample/well contamination. Because bacteria is normally filtered as it migrates through soil media, the San Joaquin River is not likely to be the source of coliform measured in the wells.

   TCO concentrations at the northeast portion of the development (Wells MW-5, MW-6, and MW-7) range in average from 5.0 to 10.5 MPN/100 mL. Wastewater has not yet been applied at the northeast area so the concentrations may be the result of sample/well contamination. Groundwater does not normally contain measurable TCO. The concentrations reported in the wells are above the applicable WQO.

TCO concentrations at the southeast portion of the development (Wells MW-8 and MW-9) range in average from not detected to 13.1 MPN/100 mL. Historically, these wells were outside any waste application area with the exception of private residences equipped with septic tanks that are likely too far away to be sources of TCO at the wells. As stated above, groundwater does not normally contain measurable TCO. The concentration reported in Well MW-8 is above the applicable WQO.

e. Trihalomethanes (THMs) were not detected in any groundwater sample collected during two sample events performed at the wastewater treatment facility (Wells MW-1 through MW-4). No other THMs sampling has been reported. The sample events occurred on 1 November 2000 and 22 November 2005. The non-detectable THMs concentrations complies with the applicable WQOs.

53. The monitoring network is not adequate to evaluate groundwater quality at all proposed storage and/or application areas. Therefore, it is appropriate that the Discharger install additional groundwater monitoring wells, continue groundwater monitoring, and complete a technical analysis of groundwater monitoring data to determine final background concentrations.

54. The RWD presents a discussion of nitrogen compounds contained in applied recycled water. Approximately 1,675 pounds per year (107 pounds per acre/year) will be applied in Phase I; approximately 4,146 pounds per year (130.6 pounds per acre/year) will be applied in Phase II. When properly applied to land, the landscape plants should take up all the applied nitrogen. In addition, denitrification and/or conversion to relatively stable organic nitrogen compounds is anticipated to occur. Although not described in the RWD, denitrification in the recycled water storage ponds is also expected, further reducing the amount of applied nitrogen. Groundwater beneath land application areas is not anticipated to be degraded by nitrogen compounds as a result of the wastewater application.

Antidegradation Analysis

55. State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation Policy") requires the Regional Water Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that any discharge that could degrade the waters of the state be regulated to assure use of best practicable treatment or control of the discharge to assure that pollution or nuisance will not occur, and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

56. This Order acknowledges that some degradation may occur as a result of the application of treated wastewater to land, but the Regional Board finds that such degradation at this facility is consistent with the maximum benefit to the people of the state. Economic prosperity of local communities and associated industry is of benefit to the people of California, and therefore sufficient reason exists to accommodate growth and some groundwater degradation around the wastewater recycling areas,

provided that the terms of the Basin Plan are met. State Board resolution No. 77-1, *Policy with Respect to Water Recycling in California*, encourages recycling projects that replace or supplement the use of fresh water, and *The Water Recycling Law* (CWC section 13500-13529.4) declares that utilization of recycled water is of primary interest to the people of the state in meeting future water needs. This Order is consistent with State Water Board policy.

57. The Regional Board further finds that some degradation of the groundwater beneath the WWTP is consistent with the maximum benefit to the people of the state provided that:

    a. The degradation is confined within a specified boundary;

    b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating Best Practicable Treatment and Control (BPTC) measures;

    c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and

    d. The degradation does not result in water quality less than that prescribed in the Basin Plan.

58. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e., background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, waste constituent treatability).

Treatment and Control Practices

59. Resolution No. 68-16 requires the discharge to be regulated to assure use of best practicable treatment or control (BPTC). The Regional Water Board may not, in general, specify the manner of compliance; therefore, to implement Resolution No. 68-16, the Regional Water Board sets forth effluent and receiving water limitations. To be consistent with Resolution No. 68-16, the Discharger must assure that it is complying with the requirements of this Order and complying with the receiving water limits. The Discharger will provide treatment and control of the discharge that incorporates:

    a. Use of a low salinity, low hardness water supply;

    b. Metal, concrete and/or HDPE lined treatment structures that provide complete containment during wastewater treatment;

    c. Alarm and automatic flow diversion systems to prevent system bypass or overflow;

    d. Effluent storage pond liner systems consisting of 40-mil HDPE;

    e. Disinfection of treated effluent;

    f. Recycled water application at plant uptake (for nitrogen and water) rates;

g. Appropriate biosolids storage and disposal practices;
h. An Operation and Maintenance (O&M) manual; and
i. Certified operators to assure proper operation and maintenance.

60. The WWTP design and effluent-recycling program incorporate numerous BPTC measures. In order to determine compliance with Resolution No. 68-16 it is appropriate to establish a schedule for installation and sampling of additional groundwater monitoring wells and to formally determine background groundwater concentrations for selected constituents. Groundwater monitoring is presently insufficient to determine true background conditions at all land application and recycled water storage ponds, which are located across a large area. If groundwater is degraded or there is evidence that the discharge may cause degradation, then the Discharger will be required to evaluate and implement additional BPTC measures for each conveyance, treatment, storage, and disposal component of the system. Completion of these tasks will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved.

61. This Order establishes interim groundwater limitations for the WWTP 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. This Order also contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved. Accordingly, the discharge is consistent with Resolution 68-16 and the Basin Plan. Based on the results of the scheduled tasks, the Regional Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

Basin Plan, Beneficial Uses, and Regulatory Considerations

62. 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 Board. These requirements implement the Basin Plan.

63. The beneficial uses of the San Joaquin River (within the Sacramento San Joaquin Delta Hydrologic Area) are municipal and domestic supply; agricultural supply; industrial process supply; industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.

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

65. The Basin Plan encourages water recycling.

66. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical and narrative water quality objectives are maximum (i.e., least stringent) limits directly applicable to the protection of designated beneficial uses of the water. Controllable water quality factors are not allowed to cause further degradation of water quality in

instances where other factors have already resulted in water quality objectives being exceeded. Controllable factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, are subject to the authority of the State or Regional Board, and that may be reasonably controlled. Controllable factors are not allowed to cause further degradation of water quality in instances where uncontrollable factors have already resulted in water quality objectives being exceeded. In addition, the water quality objectives do not require improvement over naturally occurring background concentrations. The Basin Plan requires that the Regional Water Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.

67. The Basin Plan includes a water quality objective for Chemical Constituents that, at a minimum, requires waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations (CCR): Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449, and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that that the Regional 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.

68. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents objective requires that groundwater "shall not contain chemical constituents in concentrations that adversely affect beneficial uses." The Tastes and Odors objective requires that groundwater "shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses." Chapter IV, Implementation, of the Basin Plan contains the "Policy for Application of Water Quality Objectives." This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.

69. The CWC requires certain issues to be addressed when preparing Water Quality Control Plans and determining Water Quality Objectives (WQOs). CWC Section 13241 requires the following factors that must be considered in those determinations:

    a. Past, present, and probable future beneficial uses of water.

    b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.

    c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.

d. Economic considerations.

e. The need for developing housing within the region.

f. The need to develop and use recycled water.

70. The Delta Protection Act of 1992 established the Delta Protection Commission, a new State entity to plan for and to guide the conservation and enhancement of the natural resources of the Delta, while sustaining agriculture and meeting increased recreational demand. The Act defines a Primary Zone, which comprises the principal jurisdiction of the Delta Protection Commission. The Secondary Zone is the area outside the Primary Zone and within the "Legal Delta;" the Secondary Zone is not within the planning area of the Delta Protection Commission. The Act requires the Commission to prepare and adopt a Land Use and Resource Management Plan for the Delta, which must meet specific goals. This facility is located in the Secondary Zone of the Delta.

71. Under the "Antidegradation" section, the attached Information Sheet lists the various waste constituents identified thus far as fitting the restriction of Findings No. 67 and 68, along with limits of each constituent necessary to maintain beneficial uses known to be adversely affected at certain concentrations of the waste constituent in groundwater. The listing identifies the constituent, the beneficial use and its associated limit, as well as the technical reference for the limit. Some limits become less restrictive when the water supply is limited to certain applications of a beneficial use, but that requires additional factual information. Maintenance of the existing high quality of water means maintenance of background water quality conditions, i.e., the water quality found upstream or upgradient of the discharge, unaffected by other discharges. Therefore, the water quality objectives will define the least stringent limits which will be imposed and background defines the most stringent limits which will be imposed on ambient water quality.

Water Recycling

72. As noted above, State Water Board Resolution No. 77-1, *Policy with Respect to Water Recycling in California*, encourages recycling projects that replace or supplement the use of fresh water, and *The Water Recycling Law* (CWC sections 13500-13529.4) declares that utilization of recycled water is of primary interest to the people of the State in meeting future water needs.

73. The California Department of Health Services (DHS) has established statewide water recycling criteria in Title 22, CCR, Section 60301 et. seq. (hereafter Title 22). The Discharger will treat the wastewater to tertiary standards and disinfect the effluent per Title 22 requirements.

74. A 1988 Memorandum of Understanding between DHS and the State Board on the use of recycled water establishes basic principles relative to the two agencies and the regional water boards. The Memorandum allocates primary areas of responsibility and authority between the agencies and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to use of recycled water.

75. DHS requires that the American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* and *Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water* be implemented in design and construction of recycling equipment. The guidelines

require installation of purple pipe, adequate signs, and adequate separation between the recycled water lines and domestic water lines and sewer lines. The Discharger proposes to fully comply with these requirements.

76. Section 60323(a) of Title 22 states that no person shall produce or supply recycled water for direct reuse from a proposed water recycling plant unless an engineering report is submitted for review and approval by DHS and the Regional Water Board. Irrigation of fodder crops, turf grass, and landscaping, is considered a beneficial reuse. The Discharger submitted a Revised Title 22 Engineering Report to DHS on 27 April 2006. DHS provided comments on the revised Title 22 Report on 20 June 2006, and those comments are addressed in these WDRs.

Other Regulatory Considerations

77. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems General Order No. 2006-0003-DWQ (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 will exceed one mile in length, therefore the General Order is applicable. The application or Notice of Intent (NOI) for coverage under the General Order must be submitted to the State Water Resources Control Board by 2 November 2006.

78. 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.

79. The Regional Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional 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. The RWD states that all biosolids will be hauled to a separate permitted facility.

80. The State Water Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of stormwater associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. This Order requires the Discharger to obtain coverage under the General Permit.

81. An Environmental Impact Report (EIR) was prepared for this project. The EIR was adopted by the San Joaquin Community Development Department on 16 January2001, in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.). The proposed wastewater treatment and disposal system is consistent with the project as analyzed in the EIR when mitigation measures are implemented. Significant impacts are presented in the following table and mitigation measures are discussed in the identified findings:

Impact No.	Description of Significant Impact	Mitigation

Impact No.	Description of Significant Impact	Mitigation
4.4-3	Seepage along Walthall Slough.	See Finding 82a
4.5-1	Stormwater Runoff – Preparation of Stormwater Pollution Prevention Plan.	See Finding 82b
4.5-2A	Accommodation of increased wastewater flow during winter months.	See Finding 82c
4.5-3	Inadequate treatment of wastewater percolating to groundwater.	See Finding 82d
4.5-5	Seepage of partially treated wastewater to groundwater.	See Finding 82e
4.5-5	Need for State Reclamation Board, Reclamation District No. 17, and Department of Water Resources approval for expansion of wastewater systems.	See Finding 82f

82. The EIR identified significant impacts, which require mitigation measures as part of project implementation. Each of the items is discussed below.

a. Levee improvement have been constructed along the outer edge of the patrol road at the toe of Walthall Slough levee. Reclamation District No. 17 issued an acceptance letter regarding the improvements on 14 November 2005.

b. A Stormwater Pollution Prevention Plan (SWPPP) was submitted for the construction stormwater permit. The State Water Resources Control Board (State Board) issued a receipt of the notice to comply with the General Permit to Discharge Stormwater Associated with Construction Activity on 5 November 2004.

c. The accommodation of wastewater during the wet season is addressed in the adoption of WDRs. The RWD submitted demonstrates sufficient treatment and storage capacity for wastewater and 100-year return annual total precipitation.

d. Wastewater treatment is addressed in the adoption of WDRs. The proposed system includes tertiary treatment with disinfection. Wastewater will be highly treated prior to discharge.

e. The possibility of seepage of partially treated wastewater is greatly reduced because wastewater will be treated and stored in ponds that will be constructed with a synthetic liner.

f. The engineer for Reclamation District 17 (Kjeldsen, Sinnock & Neudeck, Inc.) prepared a 27 November 2001 letter addressing slope stability at the wastewater treatment plant which stated the wastewater treatment ponds do not negatively impact the stability of the levee.

The Regional Water Board finds that this Order contains requirements that if complied with, implement the mitigation measures related to wastewater issues and will reasonably protect the beneficial uses of waters of the state and prevent nuisance.

83. Section 13267(b) of the CWC provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state 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 monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2006-0114 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

84. 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 CWC Section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order. Those wells that do not have a construction log, boring log, or County permit may not be used for monitoring associated with this Order.

85. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27 CCR Section 20380. While the WWTP is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

86. The discharge authorized herein and the treatment and storage facilities associated with the discharge, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, CCR, Section 20380 et seq.. The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following

    a. The waste consists primarily of domestic sewage and treated effluent;

    b. The waste discharge requirements are consistent with water quality objectives; and

    c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

87. Pursuant to CWC 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

88. The recommendations of the State Department of Health Services regarding the public health aspects of water recycling have been considered in preparation of this Order.

89. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, as well as the Regional Water Board's administrative record, were considered in establishing the following conditions of discharge.

90. The Discharger and interested agencies and persons have been notified of the Regional 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.

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

IT IS HEREBY ORDERED that Order No. 5-01-113 is rescinded, and that pursuant to Sections 13263 and 13267 of the California Water Code, Oakwood Lake Water District and Beck Properties, Inc. their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of sewage from a sanitary sewer system at any point upstream of a wastewater treatment plant is prohibited. Discharge of treated recycled water downstream of the wastewater treatment plant, other than at the designated storage ponds or land application areas, is prohibited.

4. Discharge of waste classified as "hazardous" under Title 23 CCR Chapter 15, Section 2521, or "designated," as defined in Section 13173 of CWC is prohibited.

5. Application of recycled water in a manner or location other than that described herein is prohibited.

6. The use of recycled water for purposes other than irrigation as defined in Title 22 CCR Section 60304(a) and this Order is prohibited.

B. Discharge Specifications

1. The monthly average flow rate may not exceed 15,000 gpd. Upon approval by the Executive Officer, the monthly average flow rate may be increased as described below.

2. Upon approval by the Executive Officer of the reports required by Provisions G.1.e, G.1.f, and G.1.h for the specified influent flow rate, the monthly average flow may not exceed 55,000 gpd.

3. Prior to the Executive Officer approving a monthly average flow rate over 55,000 gpd, the Regional Board shall consider a resolution approving the RWER and authorizing the flow rate increase. This specification only applies to the RWER request for a flow rate increase above 55,000. The monthly average influent flow rate may increase to 136,200 gpd after the Executive Officer approves the report required by Provision G.1.e, G.1.f, and G.1.h.

4. Wastewater treatment and use of recycled water shall not cause pollution or a nuisance as defined by Section 13050 of the CWC.

5. The maximum total nitrogen loading to each land application area shall not exceed the plant uptake rate for plant available nitrogen (PAN) for the type of plant to be grown, as specified in the most recent edition of the Western Fertilizer Handbook or similar publication unless and until the Discharger demonstrates that another proportion is technically justified. PAN shall be calculated as 100% of the total nitrogen content of the waste plus nitrogen contributions from all other sources, including supplemental fertilizers

6. Public contact with wastewater and recycled water shall be precluded or controlled through such means as fences, signs, or acceptable alternatives.

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

8. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the property owned by the Discharger.

9. As a means of discerning compliance with Discharge Specification B.8, the dissolved oxygen content in the upper one foot of any wastewater or recycled water storage pond shall not be less than 1.0 mg/L.

10. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge. The wastewater shall be filtered at all times.

11. The Discharger shall treat the wastewater such that it complies with Title 22 CCR, Section 60301.230 (“Disinfected Tertiary Recycled Water”).

12. All treatment and storage facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

13. Wastewater and recycled water ponds shall be managed to prevent breeding of mosquitoes. In particular,

    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.

14. The facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration. 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.

15. Freeboard in any pond containing wastewater or recycled water shall never be less than two feet as measured from the water surface to the lowest point of overflow.

16. On or about **15 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications B.14 and B.15.

17. All recycled water conveyance and distribution piping and equipment shall comply with California Department of Health Services requirements and American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* and *Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water* with the exception of the pipe installation addressed in the 9 February 2005 DHS letter titled, *Recycled Water Main & Sanitary Sewer Force Main Separation Requirements*, and as approved by DHS.

18. Coagulation shall be practiced at all times when the SBR effluent is pumped to the filtration units.

19. The discharge of recycled water shall be limited to land application areas where shallow groundwater TDS average concentrations exceed 850 mg/L.

C. Effluent Limitations

1. Effluent discharged from the wastewater treatment plant into the Effluent Storage Basin (ES Basin) shall not exceed the following limits:

Constituent	Units	Monthly Average	Daily Maximum
BOD_5	mg/L	<10	<20
TSS	mg/L	<10	--
Total N	mg/L	<10	<10
TDS	mg/L	750	--

BOD_5 denotes 5-day Biochemical Oxygen Demand. TSS denotes Total Suspended Solids. Total N denotes Total Nitrogen. TDS denotes Total Dissolved Solids.

2. Effluent discharged from the wastewater treatment plant into the ES Basin shall comply with the following limits for total coliform organisms:

   a. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed.

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

   c. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

3. Effluent discharged from the wastewater treatment plant into the ES Basin shall not exceed any of the following:

   a. An average of 2 NTU within a 24-hour period;

   b. 5 NTU more than 5 percent of the time within a 24-hour period;

   c. 10 NTU at any time.

4. No stored wastewater or recycled water shall have a pH less than 6.5 or greater than 10.0.

D. General Solids Disposal Specifications

Sludge 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 facility. Biosolids refers to sludge that has undergone sufficient treatment and testing to qualify for reuse pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land recycling.

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

2. Treatment and storage of sludge shall be confined to the treatment facility property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

3. Any storage of residual sludge, solid waste, and biosolids at the facility shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27 CCR Division 2. Removal for further treatment, disposal, or reuse at disposal sites operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

5. Use and disposal of biosolids shall comply with the self-implementing Federal regulations of 40 CFR 503, which are subject to enforcement by the U.S. EPA, not the Regional Water Board. If during the life of this Order, the state accepts primacy for implementation of 40 CFR 503, the Regional Water Board may also initiate enforcement where appropriate.

E. Water Recycling Specifications

6. Application of recycled water shall be confined to the designated application areas as defined in this Order.

7. Recycled water shall be used in compliance with Title 22, Division 4, Chapter 3, Article 3, *Uses of Recycled Water*.

8. Public contact with recycled water shall be controlled through use of fences, signs, and/or other appropriate means. All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches by 8 inches and include the following wording, "Recycled Water – Do Not Drink." The size and content of these signs shall be as described in Section 60310(g) of Title 22.

9. 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. Quick couplers, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibs shall not be used.

10. Application of recycled water shall comply with the following setback requirements:

Setback Definition	Minimum Setback (feet)
Edge of land application area to domestic well	50
Wastewater/Recycled water storage pond to domestic well	100
Land Application Area to Surface Water[1]	50

11. [1] Excluding ditches used exclusively for tailwater return from the land application area.

12. Any use of recycled water shall comply with the following:

13. Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency.

14. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.

15. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

16. Any connection between the recycled water conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source for the purpose of supplementing recycled water shall be equipped with a DHS-approved backflow prevention device.

17. Application rates for recycled water shall not exceed nitrogen and water uptake rates considering the plant, soil, climate, and irrigation management system in accordance with the water balance submitted with the RWD.

18. Irrigation runoff (i.e., tailwater) shall be completely contained within the designated land application area and shall not enter any surface water drainage course or stormwater drainage system.

19. Sprinkler heads shall be of the type approved for recycled water and shall create a minimum amount of mist. Drainage through sprinkler heads is prohibited.

20. Irrigation with recycled water shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, nor when the ground is saturated.

21. The project shall include a weather station to measure wind velocity and other parameters needed to facilitate best management of the recycled water application.

22. Land application areas that are spray irrigated and allow public access shall be irrigated during periods of minimal use (typically between 9 p.m. and 6 a.m.). Consideration shall be given to allow maximum drying time prior to subsequent public use.

23. Land application areas shall be managed to prevent breeding of mosquitoes. In particular:
    a. There shall be no standing water 48 hours after application of recycled water;
    b. Tailwater ditches must be maintained essentially free of emergent, marginal, or floating vegetation, and;
    c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.

F. Groundwater Limitations

1. Release of waste constituents from any portion of the WWTP and land application areas shall not cause groundwater to:

   a. Contain any of the following constituents in concentrations greater than listed or greater than natural background quality, whichever is greater. Note that natural background conditions have not yet been established for the land application areas.

Constituent	Units	Limitation
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 mL	<2.2
Total Dissolved Solids	mg/L	450
Total Nitrogen	mg/L	10
Nitrite (as N)	mg/L	1
Nitrate (as N)	mg/L	10
Ammonia (as NH_4)	mg/L	1.5
Bromoform	µg/L	4
Bromodichloromethane	µg/L	0.27
Chloroform	µg/L	1.1
Dibromochloromethane	µg/L	0.37

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

   c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

G. Provisions

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision G.3.

   a. By **1 December 2006**, the Discharger shall either apply for coverage or submit a Notice of Non Applicability for Order No. 97-03-DWQ, Discharges of Stormwater Associated With Industrial Activities.

   b. By **31 January 2007**, the Discharger shall submit a Groundwater Monitoring Workplan prepared in accordance with, and including the items listed in, the first section of Attachment F: *"Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports."* The workplan shall describe a proposed expansion to the existing groundwater monitoring network specifically designed to ensure that background water quality is adequately characterized and any potential water quality impacts from the discharge are detected. The system shall be designed to

yield samples representative of the uppermost portion of the first aquifer underlying the site. The Workplan shall include a plan for disinfection of groundwater monitoring wells that contain detectable concentrations of coliform, additional sampling to confirm disinfection was effective, and a discussion of the potential sources of coliform in the well(s). Installation of wells for Phase II land application areas and recycled water storage ponds can be included in the 31 January 2007 workplan or can be addressed in a supplemental workplan that would be submitted at a later date.

c. By **31 May 2007**, the Discharger shall submit a Monitoring Well Installation Report prepared in accordance with, and including the items listed in, the second section of Attachment F: *"Monitoring Well Workplan and Monitoring Well Installation Report Guidance."* The report shall describe the installation and development of the new monitoring wells and explain any deviation from the approved workplan. Installation of wells for Phase II land application areas and recycled water storage ponds can be included in the 31 May 2007 report or can be addressed in a report that would be submitted at a later date.

d. By **2 July 2007**, the Discharger shall submit a Groundwater Well Disinfection Report that describes the disinfection of the site wells, follow-up sampling results, and if bacteria is detected in the wells, additional work to control the discharge of coliform bacteria, well construction repairs, or other methods to prevent groundwater contamination with coliform. If additional work is required, the report shall include an implementation schedule.

e. At least **30 days prior** to each expansion of the WWTP start-up, the Discharger shall submit an *As-Built Report* certifying WWTP construction. The as-built report shall address the mechanical treatment system, pumping stations, collection system, recycled water piping, potable water piping, recycled water storage ponds, land application areas, and construction quality assurance testing to ensure pond liner integrity. The report shall identify and discuss any significant deviation from the system design as presented in the RWD and Title 22 Engineering Report.

f. At least **30 days prior** to irrigating with recycled water on any of the land application areas, the Discharger shall submit a *Recycled Water Application Plan*. For each area listed in Finding No. 31, the Plan shall include the following elements:

   i. Documentation of operational status of the wastewater treatment system and compliance with all requirements for disinfection system performance. The documentation shall include written approval of the disinfection system from DHS as required by the 20 June 2006 *Oakwood Lake Water District* letter prepared by DHS.

   ii. Documentation of cross connection control tests.

   iii. Operation and Maintenance Plan for the Recycled Water System. The O&M Plan shall provide a description of the irrigation system and best practicable treatment and control methods employed in the installation and operation to prevent runoff, describe how the irrigation system will be operated and maintained to prevent spills, prevent over application of recycled water, perform inspections to confirm proper operation, training requirements for operators, and response to spills or

broken equipment procedures. Methods to contain and return tailwater to recycled water storage ponds or land application areas shall also be described.

iv. Confirmation that the expansion will comply with setbacks described in Water Recycling Specification E.5.

g. By **31 January 2007**, the Discharger shall submit an *Interim Sewer System Management Plan* (SSMP), which shall contain technical reports consistent with the requirements of the State Water Board General Order No. 2006-0003-DWQ. A Internet web link to the General Order is included as Attachment E. The following portions of the SSMP shall be submitted in the Interim SSMP:

i. Item D.13.ii, Organization.

ii. Item D.13.iv, Operation and Maintenance Plan.

iii. Item D.13.vi, Overflow Emergency Response Plan.

iv. Item D.13.xi, Communication Program.

h. **At least 60 days** before the Discharger wishes to increase the wastewater flow rate to 55,000 gpd or to 136,200 gpd, the Discharger shall submit a *Recycled Water Expansion Report*, which shall contain the following:

i. An updated water balance.

ii. At least two groundwater well sampling events at wells installed at the new land application areas and/or recycled water storage ponds. It is the Discharger's responsibility to submit, as needed, the *Groundwater Monitoring Workplan* and the *Monitoring Well Installation Report* in accordance with a schedule that allows the sample event data to be included in the *Recycled Water Expansion Report*.

iii. Documentation that notification signs are installed as required by Water Recycling Specification E.3.

iv. Updates to the *As Built Report; Recycled Water Application Plan;* and *SSMP Plan.*

v. As part of the first RWER submittal, the Discharger shall submit a report describing the procedure that will be followed to connect the wastewater discharge to the City of Manteca or other regional treatment plant. The report shall include a written statement from the City of Manteca or other regional treatment plant regarding future allocation of capacity with an estimated schedule for connection. The report shall also include a schedule of implementation and a financing plan. The schedule of implementation shall include dates by which payments will be made to the regional plant to purchase capacity in future expansions. The schedule shall provide for connection to the regional treatment plant by **26 October 2016**. All subsequent RWERs shall include a status report on the progress made to connect to a regional treatment plant.

vi. Confirmation that the proposed land application area overlies shallow groundwater with an average TDS concentration of 850 mg/L or greater.

i. By **11 September 2009**, the Discharger shall submit a *Background Groundwater Quality Study Report*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data and calculation of the concentration in background monitoring wells. Determination of background quality shall be made using the methods described in Title 27 CCR, Section 20415(e)(10), and shall be based on data from at least eight consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare the calculated background concentration with the interim numeric limitations set forth in Groundwater Limitation F.1.a. Where background concentrations are statistically greater than the interim limitations specified in Groundwater Limitation F.1.a, the report shall recommend final groundwater limitations which comply with Resolution 68-16 for the waste constituents listed therein. Subsequent use of a concentration as a final groundwater limitation will be subject to the discretion of the Executive Officer.

j. By **31 August 2009**, the Discharger shall submit the *Final Sewer System Management Plan* (Final SSMP) that has been certified by the responsible public agency. The Final SSMP shall be consistent with the requirements contained in State Water Board General Order No. 2006-0003-DWQ. The Final SSMP may be updated in the future as the collection system is expanded. Revisions to SSMP will be contained in the *Recycled Water Expansion Report* (RWER).

2. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain waste constituents in concentrations statistically greater than background water quality then, 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 listed in the Groundwater Limitation F.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the WWTP 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.

3. 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.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2006-0114, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

5. 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)."

6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

7. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23CCR, Division 3, Chapter 26.

8. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.

9. Upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow, the Discharger shall take any necessary remedial action to (a) control or limit the volume of sewage discharged, (b) terminate the sewage discharge as rapidly as possible, and (c) recover as much as possible of the sewage discharged (including wash down water) for proper disposal. The Discharger shall implement all applicable remedial actions including, but not limited to, the following:

    a. Interception and rerouting of sewage flows around the sewage line failure;

    b. Vacuum truck recovery of sanitary sewer overflows and wash down water;

    c. Use of portable aerators where complete recovery of the sanitary sewer overflows are not practicable and where severe oxygen depletion is expected in surface waters; and

    d. Cleanup of sewage-related debris at the overflow site.

10. The Discharger shall report to the Regional 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."

11. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system 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.

12. The Discharger shall submit to the Regional Water Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge 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 Regional Water Board in writing when it returns to compliance with the time schedule.

13. In the event of any change in control or ownership of the facility or wastewater disposal 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. 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 Regional 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 California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

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 Regional 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 must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.

16. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

17. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

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 26 October 2006.

_____
PAMELA C. CREEDON, Executive Officer

AMENDED
TRO: 10/26/06

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0114

FOR

OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC.
WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring influent wastewater, treated effluent, effluent storage ponds, recycled water land application areas, groundwater, sludge, and water supply. 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. Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities.

This MRP is effective upon date of signature; however, portions of the MRP will not be relevant until the Wastewater Treatment Plant (WWTP) is expanded and is in use. In the meantime, the Discharger shall submit the monitoring data that is possible to collect, monthly construction status reports, and quarterly groundwater monitoring reports as described in the "Reporting" section of this MRP.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. 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 measure pH and dissolved oxygen) 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 each monitoring event;
3. The 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 the MRP.

INFLUENT MONITORING

Influent flow monitoring shall be performed at the headworks. Influent monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow[1]	gpd	Continuous Meter	Daily	Monthly
Average Daily Flow[2]	gpd	Calculated	Monthly	Monthly
BOD_5[3]	mg/L	Grab	Weekly	Monthly
Total Suspended Solids[4]	mg/L	Grab	Weekly	Monthly

[1] Flow represents the daily flow rate.
[2] Average Daily Flow represents the daily flow rate averaged over the month.
[3] BOD denotes 5-day Biochemical Oxygen Demand.
[4] Total Suspended Solids shall be performed using a Whatman glass fiber filter with a nominal pore size of about 1.58 µm or equivalent.

EFFLUENT MONITORING

Effluent samples shall be collected before discharge to any effluent storage pond and shall be representative of the volume and nature of the discharge. Effluent monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD_5	mg/L	Grab/Composite[1]	Weekly	Monthly
Total Coliform Organisms [2]	MPN/100 ml [3]	Grab	Daily	Monthly
Turbidity	NTU [4]	Meter	Continuous	Monthly
Total Dissolved Solids	mg/L	Grab/Composite[1]	Monthly	Monthly
Sodium	mg/L	Grab/Composite[1]	Monthly	Monthly
Chloride	mg/L	Grab/Composite[1]	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab/Composite[1]	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab/Composite[1]	Monthly	Monthly
Total Nitrogen (as N)	mg/L	Grab/Composite[1]	Monthly	Monthly
Total Suspended Solids[5]	mg/L	Grab/Composite[1]	Monthly	Monthly
pH	Standard	Grab/Composite[1]	Monthly	Monthly
Standard Minerals [6]	mg/L	Grab/Composite[1]	Annually	Annually

1. Grab/Composite indicates samples may be collected by composite sampler or grab method.
2. Using a minimum of 15 tubes or 3 dilutions.
3. Most probable number per 100 ml.
4. NTU denotes Nephelometric Turbidity Units.
5. Total Suspended Solids shall be performed using a Whatman glass fiber filter with a nominal pore size of about 1.58 μm or equivalent.
6. Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, potassium, sulfate, iron, manganese, total alkalinity (including alkalinity series), and hardness.

TREATMENT AND STORAGE POND MONITORING

Each treatment and recycled water storage pond shall be monitored as specified below:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen [1]	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
pH	Standard	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Liner condition	--	Observation	Weekly	Monthly
Berm condition	--	Observation	Monthly	Monthly

1 Samples shall be collected at a depth of one foot from each pond in use, opposite the inlet. Samples shall be collected between 0700 and 0900 hours.

RECYCLED WATER LAND APPLICATION AREA MONITORING

Monitoring of each recycled water land application area shall be conducted **daily** during the irrigation season, and the results shall be included in the monthly monitoring report. All land application areas shall be inspected following an irrigation event to identify any equipment malfunction or other circumstance that might allow recycled water to runoff the land application area and/or create ponding conditions that violate the Waste Discharge Requirements. Evidence of erosion, saturation, irrigation runoff, or the presence of nuisance conditions shall be noted in the report. A log of these inspections as well as any public complaints of runoff shall be kept at the facility and made available for review upon request.

Effluent monitoring results shall be used in calculations to ascertain loading rates at the land application area. Monitoring of the land application area shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	Gallons	Continuous	Daily	Monthly
Rainfall	Inches	Observation	Daily	Monthly
Acreage Applied [1]	Acres	Calculated	Daily	Monthly
Water Application Rate [2]	gal/acre·day	Calculated	Daily	Monthly
Total Nitrogen Loading Rate [2]	lbs/ac·month	Calculated	Monthly	Monthly
Nitrogen from Fertilizer Application	lbs/ac·month	Calculated	Monthly	Monthly
Total Dissolved Solids Loading Rate [2]	lbs/ac·month	Calculated	Monthly	Monthly

[1] Land application areas shall be identified and a map identifying all land application areas included.
[2] For each land application area, including other sources of nitrogen including fertilizers.

GROUNDWATER MONITORING

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. All wells identified in the groundwater monitoring well network shall be sampled and analyzed according to the schedule below. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling and Reporting Frequency
Depth to Groundwater	0.01 feet	Measurement	Quarterly
Groundwater Elevation [1]	0.01 feet	Calculated	Quarterly
Gradient	feet/feet	Calculated	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly

Constituent	Units	Type of Sample	Sampling and Reporting Frequency
Nitrate as Nitrogen	mg/L	Grab	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly
pH	pH units	Grab	Quarterly
Trihalomethanes [2]	µg/l	Grab	Quarterly
Boron	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Iron	mg/L	Grab	Quarterly
Manganese	mg/L	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Total Coliform Organisms	MPN/100 mL	Grab	Quarterly
Standard Minerals [3]	mg/L	Grab	Annually

[1] Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

[2] Individual trihalomethane constituent concentrations shall be identified, using EPA Method 8260B or equivalent.

[3] Standard Minerals shall include, at a minimum, the following elements/compounds: calcium, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

SLUDGE MONITORING

A composite sample of digested sludge shall be collected at least once per year when sludge is removed from the wastewater treatment system for disposal in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and analyzed for cadmium, copper, nickel, chromium, lead, and zinc.

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following for each water source used during the previous year:

Constituents	Units	Sampling Frequency
Total Dissolved Solids	mg/L	Annually
pH	Std. Unit	Annually
Standard Minerals [1]	mg/L	Annually

[1] Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, sodium, potassium, chloride, nitrogen, sulfate, iron, manganese, total alkalinity (including alkalinity series), and hardness.

REPORTING

In reporting monitoring data, the District 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 Regional 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 Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in monthly monitoring reports. Monthly reports shall be submitted to the Regional 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. Until construction is complete at the expanded WWTP, the report shall describe the construction progress to date.
2. The report shall include the following:
    a. Results of influent; effluent; treatment and recycled water storage ponds; and recycled water land application area monitoring.
    b. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
    c. If requested by staff, copies of laboratory analytical report(s); and
    d. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

B. Quarterly Monitoring Reports

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1st) and may be combined with the monthly report. The Quarterly Report shall include the following:

1. Results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to

verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of historical and current water table elevations and analytical results;
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular groundwater monitoring report for the last sampling event of the year;
2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. An evaluation of the groundwater quality beneath the wastewater treatment facility, recycled water storage ponds, and land application areas;
4. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
5. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
6. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Discharger is in compliance with Title 23, CCR, Division 3, Chapter 26.
7. Summary of information on the disposal of sludge and/or solid waste;

8. The results from annual monitoring of the groundwater wells and water supply;
9. The results from any sludge monitoring required by the disposal facility;
10. Equipment maintenance and calibration records, as described in Standard Provision No. C.4; and
11. A forecast of influent flows, as described in Standard Provision No. E.4.

A letter transmitting the self-monitoring reports shall accompany each report. Such a 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 on the first day of the month following adoption of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

26 October 2006
(Date)

TRO: 10/26/06

INFORMATION SHEET

ORDER NO. R5-2006-0114
OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC.
WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

Background

Oakwood Lake Water District and Beck Properties, Inc. are constructing a wastewater facility for a new planned community that will consist of residential and commercial developments. Because land development is continuing in phases, expansion of the recycled water storage ponds and land application areas will also be phased. The Wastewater Treatment Plant (WWTP) includes the wastewater treatment equipment, wastewater collection system, recycled water storage ponds, recycled water delivery system, and land application areas. Beck Properties, Inc. owns portions of the land application areas; Oakwood Lake Water District owns the mechanical treatment equipment. Oakwood Lake Water District and Beck Properties are jointly referred to as "Discharger."

The facility is presently treating a small amount of wastewater generated at a mobile home park. The mobile home park was part of the Oakwood Lake Resort, a water slide, campground, and a concert venue. Although the resort closed in 2005, the mobile homes are still occupied. Presently, the WWTP is being expanded to provide better treatment for wastewater that will be generated as a result of future land development. The existing discharge is regulated by Waste Discharge Requirements (WDRs) Order No. 5-01-113.

Initially the flow limit will allow discharge of up to 15,000 gallons per day (gpd) to the existing facility. Continued construction will be performed in phases; the first phase will allow treatment of approximately 55,000 gpd of domestic wastewater. The second phase of development is expected to generate 136,200 gpd. Treatment system equipment, recycled water storage ponds, and some land application areas will be constructed as part of the Phase I development. Additional land application areas and recycled water storage ponds will be constructed in Phase II.

The Discharger has reported an intention to connect to the City of Manteca wastewater collection system when capacity in that system is available. The Discharger anticipates capacity should be available in 10 to 15 years.

The treatment plant will provide tertiary treatment and disinfection using a Sequential Batch Reactor (SBR) system. The treatment system consists of screening, SBR, flow equalization, sand filtration, disinfection, effluent pumping, recycled water storage, and land application. Sludge will be digested and stored on-site pending off-site disposal. Wastewater will be delivered to the treatment system from three pump stations; one located adjacent to the treatment plant site and two located within the housing developments.

Addition of storage ponds and land application areas can be accomplished through submittal of technical reports and Recycled Water Expansion Reports (RWERs) that must be approved by the Executive Officer prior to increased discharge. This Order will allow the wastewater flow rate to grow to a maximum of 136,200 gpd. However, it does not guarantee that the maximum wastewater flow rate will be allowed.

The Discharger has identified approximately 30 acres of land application areas, and 50.3 ac•ft of storage pond capacity.

All the wastewater treatment, treatment and/or storage ponds, and recycled water storage ponds will be lined with 40-mil thick HDPE liners. An emergency storage reservoir will be available for storage of wastewater during a malfunction of the treatment plant and when effluent does not meet effluent requirements. The wastewater system includes provisions for component malfunction and primary power outage. Critical mechanical components have duplex units or available spare parts. The control system will monitor the status and performance of equipment. An alarm will automatically dial system operators if a problem is detected by the control system. A 100-kilowatt standby power generator will be available for use during power failures. The generator will automatically start in the event of a power outage. The generator will also power the wastewater lift station adjacent to the treatment plant. Operation of the generator will also alert operating personnel to the malfunction.

Recycled water will be applied during spring, summer, and fall months but if conditions allow, application during winter months is acceptable. Recycled water will be applied to cropped land application areas. Land application areas consist of landscaped areas and turf areas. Recycled water will be applied by drip irrigation or sprinklers at agronomic rates for both nitrogen and water application. Irrigation tailwater will be controlled using perimeter berms, grading the area to prevent off-site drainage, and/or management controls.

Solids and Biosolids Disposal

Screenings and grit removed from the wastewater will be dewatered and sent to a dumpster, prior to being hauled off-site to the local landfill for disposal. Sludge will discharged to the sludge storage basin for digestion and thickening. Decant water from the basin will be returned to the SBR pond. Sludge will be hauled off-site for disposal.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Surface water from the WWTP is to the San Joaquin River (within the Sacramento San Joaquin Delta). The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (industrial, agricultural, and domestic and municipal supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan.

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation below water quality objectives.

In allowing a discharge, the Regional Board must comply with CWC Section 13263 in setting appropriate conditions. The Regional Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Certain domestic wastewater constituents are not fully amenable to waste treatment and control and it is reasonable to expect some impact on groundwater. Some degradation for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, water recycling, and waste management advantages of municipal utility service to the State far outweigh the environmental impact of a community that would otherwise be reliant on numerous concentrated individual wastewater systems. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore sufficient reason to accommodate wastewater discharge provided terms of reasonable degradation are defined and met. The proposed Order authorizes some degradation consistent with the maximum benefit to the People of the State but does not authorize pollution (i.e., violation of any water quality objective).

Groundwater monitoring has been conducted at the site but the area monitored is large and some data was collected without sampling and analysis plans or quality assurance plans; therefore staff are unable

to establish the most appropriate groundwater limits. In addition, certain aspects of wastewater treatment and control practices may not be justified as representative of Best Practicable Treatment and Control (BPTC). Reasonable time is necessary to gather specific information about the WRP to make informed, appropriate, long-term decisions. This proposed Order, therefore, establishes interim receiving water limitations to assure protection of the beneficial uses of groundwater of the State pending the completion of certain tasks and provides time schedules to complete specified tasks. During this period, degradation may occur from certain constituents, but can never exceed water quality objectives (or natural background water quality should it exceed objectives) or cause nuisance.

Water quality objectives define the least stringent limits that could apply as water quality limitations for groundwater at this location, except where natural background quality unaffected by the discharge of waste already exceeds the objective. The values below reflect water quality objectives that must be met to maintain specific beneficial uses of groundwater. Unless natural background for a constituent proves higher, the groundwater quality limit established in proposed Order is the most stringent of the values for the listed constituents.

Constituent	Units	Value	Beneficial Use	Criteria or Justification
Ammonia	mg/L	1.5	MUN [1]	Taste and Odor [2]
Boron	mg/L	0.7	AGR [3]	Boron Sensitivity [4]
	mg/L	1.0	MUN[1]	Calif. Drinking Water Action Level[11]
Chloride	mg/L	106	AGR [3]	Chloride sensitivity on certain crops irrigated via sprinklers [4]
		142	AGR [3]	Chloride sensitivity on certain crops [4]
		250	MUN [1]	Recommended Secondary MCL [5]
		500	MUN [1]	Upper Secondary MCL [5]
Iron	mg/L	0.3	MUN [1]	Secondary MCL [6]
Manganese	mg/L	0.05	MUN [1]	Secondary MCL [6]
Nitrate plus Nitrite as N	mg/L	10	MUN [1]	Primary MCL [7]
Nitrite as N	mg/L	1	MUN [1]	Primary MCL [7]
Sodium	mg/L	69	AGR [3]	Sodium sensitivity on certain crops [4]
Total Dissolved Solids	mg/L	450[8]	AGR [3]	Salt sensitivity [4]
		500	MUN [1]	Recommended Secondary MCL [5]
		1,000	MUN [1]	Upper Secondary MCL [5]
Total Coliform Organisms	MPN/100 ml	<2.2	MUN [1]	Basin Plan
Trihalomethanes	µg/L	100	MUN [1]	MCL [8]
Bromoform	µg/L	4	MUN [1]	USEPA Cancer Potency Factor [9]
Bromodichloromethane	µg/L	0.27	MUN [1]	Cal/EPA Cancer Potency Factor [12]
Chloroform	µg/L	1.1	MUN [1]	Cal/EPA Cancer Potency Factor [12]
Dibromochloromethane	µg/L	0.37	MUN [1]	Cal/EPA Cancer Potency Factor [12]
pH	pH Units	6.5 to 8.5	MUN [1]	Secondary MCL [10]
		6.5 to 8.4	AGR [3]	Protect sensitive crops [4]

Municipal and domestic supply

J.E. Amoore and E. Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No. 6 (1983).

Agricultural supply

Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985)
Title 22, California Code of Regulations (CCR), Section 64449, Table 64449-B
Title 22, CCR, Section 64449, Table 64449-A
Title 22, CCR, Section 64431, Table 64431-A
Title 22, CCR, Section 64439
USEPA Integrated Risk Information System
Title 40, Code of Federal Regulations, Section 143.3
California Department of Health Services, Division of Drinking Water and Environmental Management, Drinking Water Action Levels, http://www.dhs.cahwnet.gov/ps/ddwem.
CAL/EPA Toxicity Criteria Database (OEHHA)

Domestic wastewater contains numerous dissolved organic and inorganic constituents that together comprise Total Dissolved Solids (TDS). Each component constituent is not individually critical to any beneficial use. Critical constituents are individually listed. The cumulative impact from the other constituents, along with the cumulative affect of the constituents that are individually listed can be effectively controlled using TDS as a generic indicator parameter.

Not all TDS constituents pass through the treatment process and soil profile in the same manner or rate. Chloride tends to pass through both rapidly to groundwater. However, groundwater chloride concentrations in the region are highly variable, which might limit the use of chloride as an indicator parameter of groundwater degradation. Boron is another TDS constituent that may occur in recycled water in concentrations greater than in groundwater because it is a common ingredient of detergents. Other indicator constituents for monitoring for groundwater degradation due to land application of recycled water include total coliform bacteria, ammonia, total nitrogen, and Total Trihalomethanes (TTHMs) a by-product of chlorination. Dissolved iron and manganese are useful indicators to determine whether components of the WWTP with high-strength wastewater constituents, such as sludge handling facilities, are ineffective in containing waste. Exceptionally high TDS and nitrogen also typifies this type of release.

Treatment Technology and Control

Given the character of domestic wastewater, secondary treatment technology is generally sufficient to control degradation of groundwater from decomposable organic constituents. Adding disinfection significantly reduces populations of pathogenic organisms, and reasonable soil infiltration rates and unsaturated soils can reduce them further. Neither organics nor total coliform organisms, the indicator parameter for pathogenic organisms, should be found in groundwater in a well-designed, well-operated facility. Due to the level of potential exposure to residents, the Discharger has elected to perform tertiary treatment with chlorine disinfection on the wastewater. Chlorine disinfection of effluent causes formation of trihalomethanes, which are toxic priority pollutants. Treatment to reduce these in wastewater generally has not been performed, and little is known at this point on the typical impact on groundwater.

Domestic wastewater typically contains nitrogen in concentrations greater than water quality objectives, which vary according to the form of nitrogen. Groundwater degradation by nitrogen can be controlled by an appropriate secondary treatment system (e.g., oxidation ditch), tertiary treatment with nitrogen reduction, and agronomic reuse crops that are harvested and removed from the land application area. The effectiveness varies, but generally best practicable treatment and control is able to control nitrogen degradation of groundwater at a concentration well below the water quality objectives. The proposed interim limitation reflects water quality objectives.

Dissolved solids can pass through the treatment process and soil profile; effective control of such constituents relies primarily upon source control and pretreatment measures. In the best of circumstances, long-term land discharge of recycled water will degrade groundwater with dissolved solids (as measured by TDS and EC). The proposed Order sets water quality objectives for the interim while site-specific, constituent-specific limits are developed in conjunction with a BPTC evaluation of source control and pretreatment.

Other constituents in domestic wastewater that may pass through the treatment process and the soil profile, include recalcitrant organic compounds, radionuclides, and pharmaceuticals. Hazardous compounds are not usually associated with domestic wastewater and when present are reduced in the discharge to inconsequential concentrations through dilution and treatment. It is inappropriate to allow degradation of groundwater with such constituents, so proposed limits are nondetectable concentrations.

A discharge of recycled water that overloads soils with nutrients and organics can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (below 5), iron and manganese compounds in the soil can solubilize and leach into groundwater. Overloading the land application areas is preventable. Though iron and manganese limits are set at the water quality objective, groundwater pH is expected to remain the same as background.

Title 27

Title 27, CCR, Section 20005 et seq. (“Title 27”), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable under Title 27 regulations.

Discharges of domestic sewage and recycled water can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27. Discharges of domestic sewage and treated effluent which are regulated by WDRs and treatment and storage facilities associated with the WWTP are considered exempt from Title 27 under Section 20090(a), provided that the discharges and facilities will not result in a violation of any water quality objective. As the exemption specifically excludes the discharge to land of: 1) solid

waste such as grit and screenings that result from treatment of domestic sewage, and 2) residual sludge that will not be further treated at the WWTP, such discharges must comply with provisions of Title 27. The discharge of recycled water and the operation of treatment and/or storage facilities associated with a wastewater treatment plant can be allowed without requiring compliance with Title 27 only if groundwater degradation complies with the Basin Plan, Resolution No. 68-16 (Antidegradation Policy), and does not violate any water quality objectives.

Proposed Order Terms and Conditions

Discharge Prohibitions and Specifications

The Order allows the flow rate to increase based on submittal, and approval by the Executive Officer, of *Recycled Water Expansion Reports* which will document the treatment system capacity, the availability of land application areas, and updates to technical reports such as the *As-Built Report, Recycled Water Application Plan, Interim Sewer System Management Plan,* and *Recycled Water Expansion Report.*

The proposed Order's Effluent Limitations for BOD_5 and TSS are based on the predicted recycled water quality as stated in the RWD. The RWD did not predict TDS quality; that limit is based on the municipal supply water quality plus 300 mg/L, which is a reasonable increase in salinity based on domestic water use. The discharge specifications regarding dissolved oxygen and freeboard are consistent with Regional Board policy for the prevention of nuisance conditions and overtopping, and are applied to all such facilities.

In order to protect public health and safety, the proposed Order requires the Discharger to comply with the provisions of Title 22 and to implement best management practices with respect to recycled water application (application at reasonable rates considering the crop, soil, and climate).

Monitoring Requirements

Section 13267 of the CWC authorizes the Regional Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The proposed Order includes influent and effluent monitoring requirements, recycled water storage pond monitoring, recycled water land application area monitoring, groundwater monitoring, sludge monitoring, and water supply monitoring. In order to adequately characterize recycled water, the Discharger is required to monitor for BOD, total coliform organisms, turbidity, TDS, sodium, chloride, nitrogen, pH, and other constituents. Monitoring of additional minerals is required on an annual basis. To ensure that recycled water storage ponds do not create nuisance conditions, the Discharger is required to monitor freeboard and dissolved oxygen weekly.

The Title 27 zero leakage protection strategy relies heavily on extensive groundwater monitoring to increase a discharger's awareness of, and accountability for, compliance with the prescriptive and performance standards. With recycled water applied to land, monitoring takes on even greater importance. The proposed Order includes monitoring of recycled water quality, application rates, and groundwater quality.

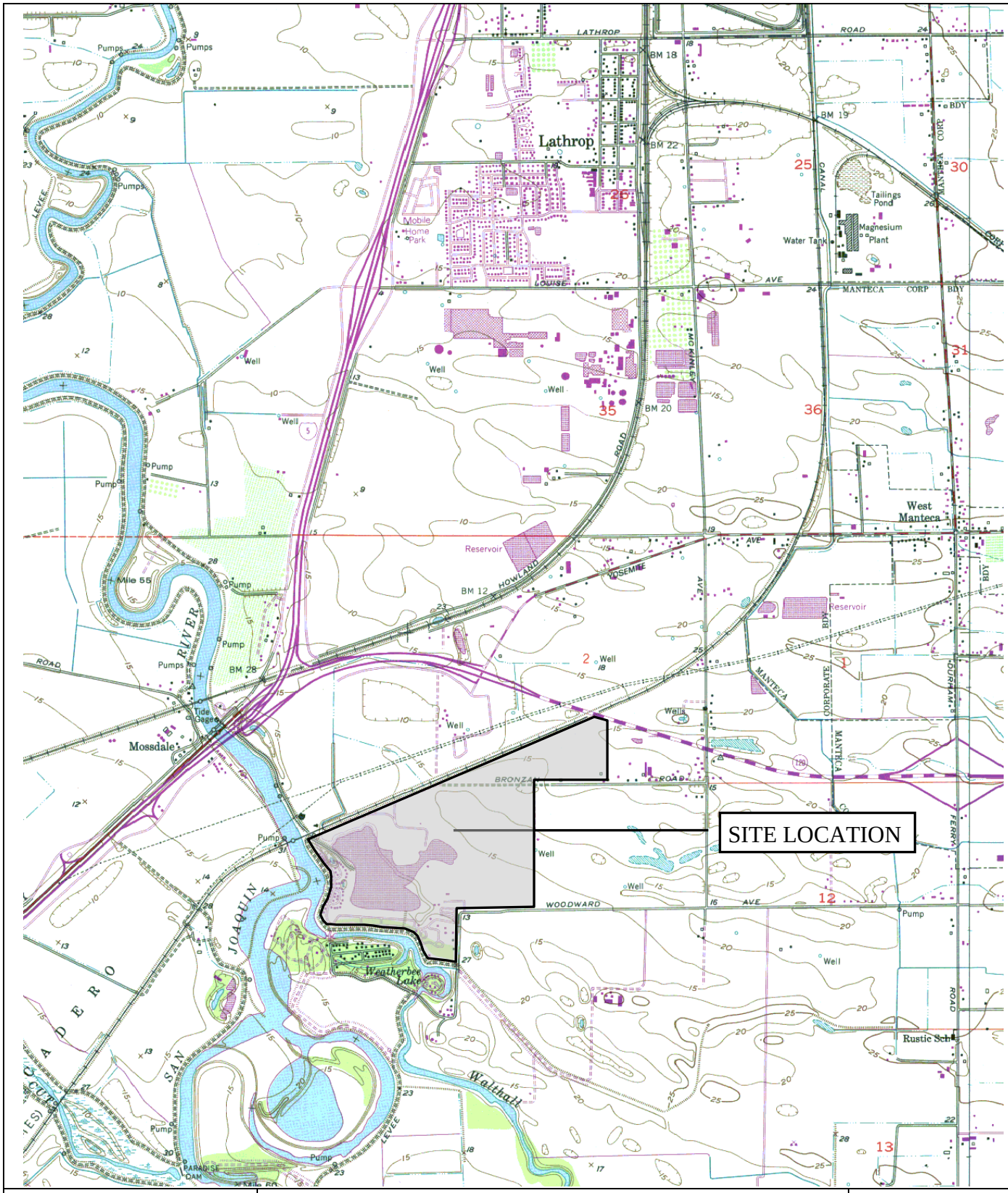
Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been in effect and successfully implemented for many years. No regulation currently specifies similar criteria more suitable for a situation where extensive land application of recycled water occurs. It is appropriate that the Title 27 groundwater monitoring procedures be extended and applied on a case-by-case basis under Water Code Section 13267.

The Discharger must monitor groundwater for recycled water constituents expected to be present in the discharge, and capable of reaching groundwater, and violating groundwater limitations if its treatment, control, and environmental attenuation, proves inadequate. Background groundwater quality is poorly defined; this Order requires evaluation of the existing monitoring wells for suitability, and additional wells to be installed in areas most likely to detect groundwater impacts. Those areas were identified to be locations of recycled water storage ponds or large land application areas. There are a number of small land application areas for which groundwater monitoring is not required. Monitoring at those areas is not required due to their small size and the relatively small amount of recycled water that will be applied. However, the monitoring network is expected to include regional and site specific monitoring wells.

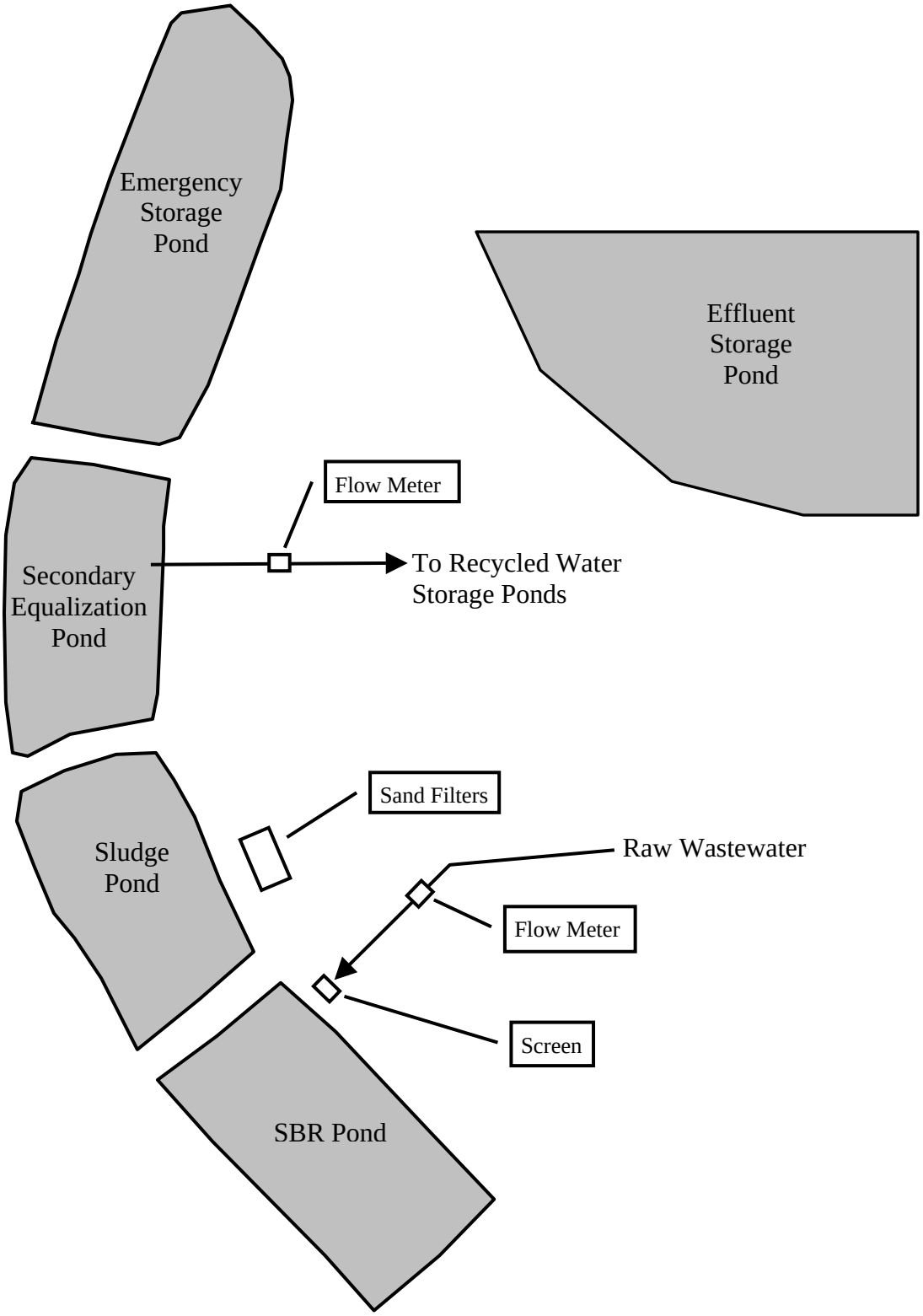
For each constituent listed in the Groundwater Limitations section, the Discharger must, as part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentration or to prescribed numerical limitations to determine compliance.

Reopener

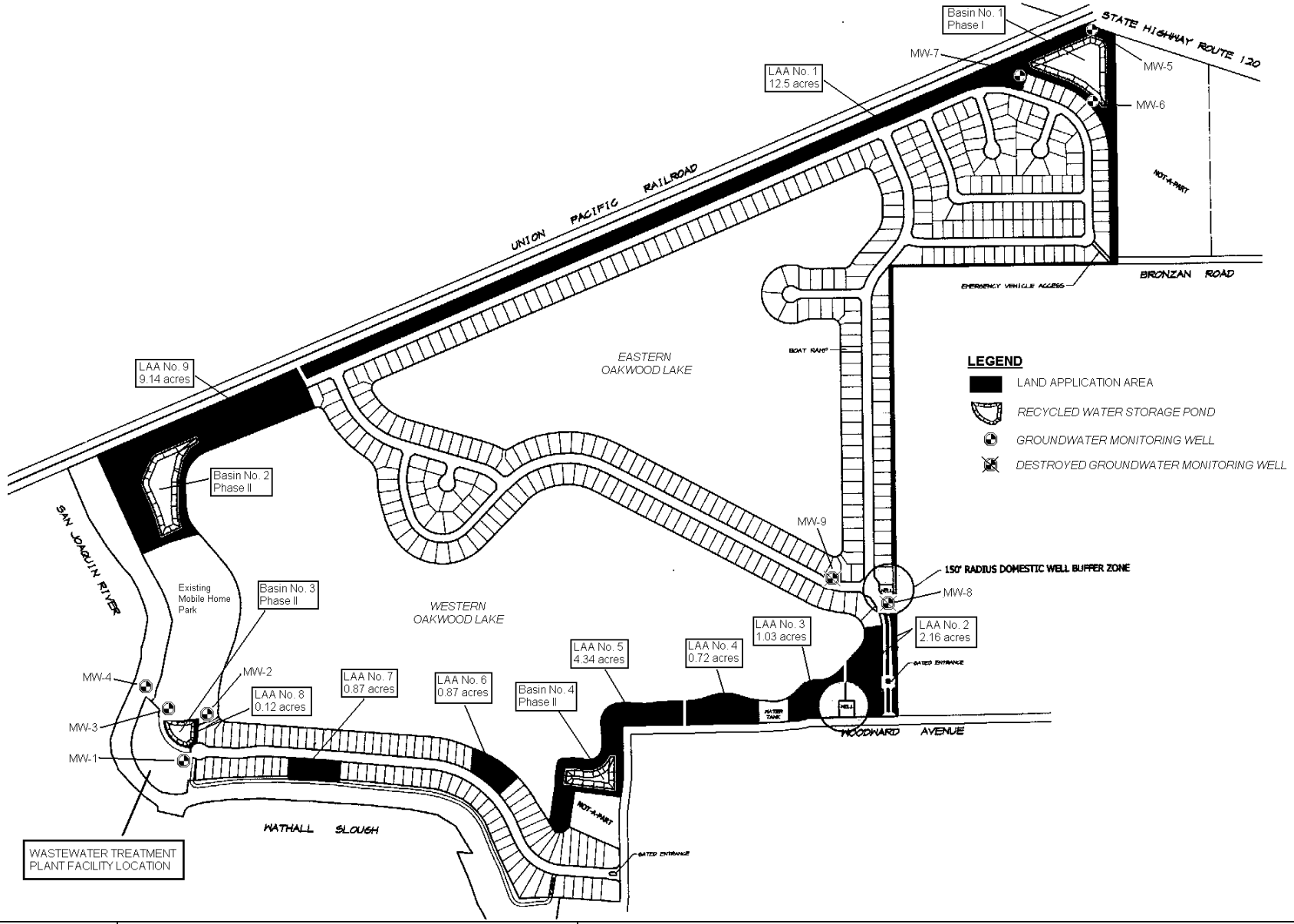
The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final recycled water and groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by schedules set forth in the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.



Drawing Reference: U.S.G.S Quad Name TOPOGRAPHIC MAP 7.5 MINUTE QUAD	**SITE LOCATION MAP** Oakwood Lake Water District and Beck Properties, Inc. 874 E. Woodward Avenue, Manteca San Joaquin County	N W E S approx. scale 1 in. = 2,950 ft.



Drawing Reference: Modified from: Site Piping Plan, Drawing C5 Bracewell Engineering, Inc. April, 2005	**TREATMENT SYSTEM SITE PLAN** OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC. WASTEWATER TREATMENT FACILITY SAN JOAQUIN COUNTY	N W E S not to scale



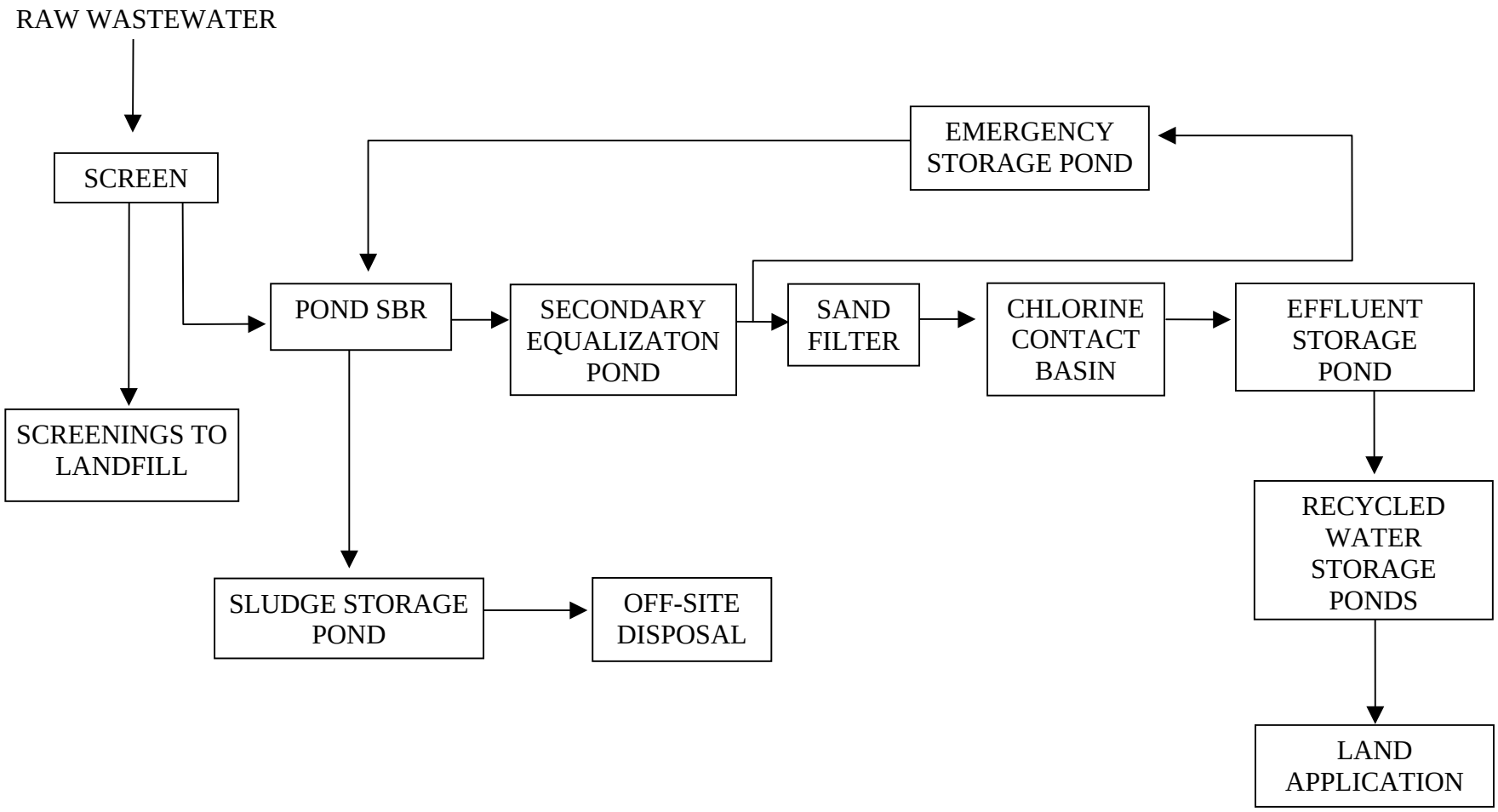
Approx. Scale
1 in = 800 ft.

Drawing Reference:

Figure 4-3, Report of Waste Discharge
March 2006, Allied Engineers, Inc.

SITE PLAN – LOCATION OF LAND APPLICATION AREAS

OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC.
WASTEWATER TREATMENT FACILITY
SAN JOAQUIN COUNTY



WASTEWATER TREATMENT SYSTEM FLOW CHART

OAKWOOD LAKE WATER DISTRICT AND BECK PROPERTIES, INC.
MANTECA, SAN JOAQUIN COUNTY

ATTACHMENT E

STATE WATER RESOURCES CONTROL BOARD
ORDER NO. 2006-0003-DWQ
STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
SANITARY SEWER SYSTEMS

AVAILABLE AT:

http://www.swrcb.ca.gov/resdec/wqorders/2006/wqo/wqo2006_0003.pdf

Linda Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region

Robert Schneider, Chair

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

ORDER NO. R5-2006-0114
ATTACHMENT F
REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:
- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:
- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):
- Diagram of proposed well construction details
  - Borehole diameter
  - Casing and screen material, diameter, and centralizer spacing (if needed)
  - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
  - Anticipated depth of well, length of well casing, and length and position of perforated interval
  - Thickness, position and composition of surface seal, sanitary seal, and sand pack
  - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
Method of development to be used (i.e., surge, bail, pump, etc.)
Parameters to be monitored during development and record keeping technique
Method of determining when development is complete
Disposal of development water

E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

F. Schedule for Completion of Work

G. Appendix: Groundwater Sampling and Analysis Plan (SAP)
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:
- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
  - General sampling techniques
  - Record keeping during sampling (include copies of record keeping logs to be used)
  - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
Number of monitoring wells installed and copies of County Well Construction Permits
Topographic map showing facility location, roads, surface water bodies

Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):
On-site supervision of drilling and well installation activities
Drilling contractor and driller's name
Description of drilling equipment and techniques
Equipment decontamination procedures
Soil sampling intervals and logging methods
Well boring log
- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):
Well construction diagram, including:
- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:
Date(s) and method of development
How well development completion was determined
Volume of water purged from well and method of development water disposal
Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):
Identify the coordinate system and datum for survey measurements
Describe the measuring points (i.e. ground surface, top of casing, etc.)
Present the well survey report data in a table
Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix