

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0123

WASTE DISCHARGE REQUIREMENTS
FOR
PIXLEY PUBLIC UTILITY DISTRICT
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

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

1. The Pixley Public Utility District (hereafter Discharger or District) submitted a Report of Waste Discharge (RWD), dated 5 April 2005, for modification and expansion (hereafter Expansion Project) of its wastewater treatment facility (WWTF) for the unincorporated community of Pixley, Tulare County. The RWD proposes to expand the existing WWTF to 0.5 million gallons per day (mgd). The WWTF provides services for about 2,600 residents and is running at or near its average daily flow limit of 0.29 mgd. Currently there are no industrial users connected to the WWTF.
2. The WWTF is at 2051 Avenue 96, approximately one mile east of the community of Pixley, in Section 6, Township 23 South, Range 25 East, MDB&M, as shown on [Attachment A](#), which is attached hereto and made part of this Order by reference.
3. Waste Discharge Requirements (WDRs) Order No. R5-2000-096 adopted on 28 April 2000, restricted the monthly average discharge flow to 0.29 mgd following modifications completed in 2001. The WDRs prescribed effluent limitations on a monthly average basis for 5-day biochemical oxygen demand (BOD₅), total suspended solids, and settleable solids (SS). This Order does not reflect the conditions of the Expansion Project. Cease and Desist Order No. R5-2000-097 (CDO), adopted on 28 April 2000, required the Discharger to perform a series of tasks according to a time schedule to complete the expansion of the WWTF. The Discharger missed several of the completion dates in the time schedule in the CDO, but eventually completed all tasks except for construction of an expanded WWTF. An updated enforcement order that is to be considered separately requires the Discharger to complete the Expansion Project.
4. The purpose of this Order is to rescind WDRs Order No. R5-2000-096 and prescribe requirements that reflect the Discharger's Expansion Project.
5. The RWD presents information on site conditions, the existing wastewater treatment process and quality, and the conceptual design of the Expansion Project.

Existing Wastewater Treatment Facility

6. The existing WWTF consists of headworks with a comminutor and three lift pumps. Wastewater is treated in a clarigester and two unlined aerated treatment ponds operated in series. The headworks, lift station, and clarigester are old, difficult to maintain, and being operated at or above their designed capacity. The undisinfected secondary treated effluent is stored in five unlined stabilization/storage ponds until used to irrigate approximately 43 acres of pasture owned by the District for grazing non-milking cattle.
7. Wastewater enters the headworks via a 12-inch Vitrified Clay Pipe (VCP) sewer main. The sewer enters below the ground surface through an open channel and the comminutor. The invert of the sewer at the headworks is 14.8 feet below grade. Flow from the comminutor enters a pump pit/wet well. The WWTF has three vertical shaft dry pit centrifugal pumps to lift the wastewater to the clarigester.
8. The Clarigester is an Imhoff type tank which doubles as a primary clarifier and unmixed anaerobic digester. From the clarigester the effluent is directed into the first of two aerated Treatment Ponds with a combined capacity of about 9.8 acre-feet. Aeration in the Treatment Ponds is provided by two 10-horsepower mechanical surface aerators.
9. After the Treatment Ponds, the WWTF has five stabilization/storage ponds, which range from 4 to 15 feet deep and have a combined storage capacity of about 72 acre-feet.
10. Sludge from the clarigester is wasted about once every three months to one of the unlined sludge drying beds. After it is dried, the sludge is removed and stockpiled at the WWTF. The Discharger estimates that the WWTF generates about 30 tons of sludge annually. Current sludge storage and handling facilities are unlined.
11. Since 1993, the Discharger has stockpiled dried sludge at the WWTF. Prior to 1993, the Discharger used dried sludge as a soil amendment on agricultural lands. The Discharger proposes that the existing sludge stockpile and sludge settled from the bottom of the Treatment Ponds be removed during the construction phase of the Expansion Project.
12. Self-monitoring reports from 2006 indicate that winter flows are not higher than summer flows, demonstrating insignificant inflow and infiltration to the collection system during winter months.
13. Self-monitoring data from January 2006 to December 2006 characterize the discharge as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Influent</u>	<u>Effluent</u>	<u>% Removal¹</u>
Monthly Average Discharge Flow	mgd	0.284	NS ²	--
BOD ³	mg/L	207	43	79%
Settleable Solids	mL/L	NS	0.1	--
TSS ⁴	mg/L	NS	43.6	--
EC ⁵	µmhos/cm	NS	580	--
Total Nitrogen ⁶	mg/L	NS	25.5	--

¹ Percent removal (% removal)

² Not sampled (NS)

³ 5-day biochemical oxygen demand (BOD)

⁴ Total suspended solids (TSS)

⁵ Electrical conductivity at 25°C (EC)

⁶ Calculated by summing the concentrations of nitrate as nitrogen and TKN, and assuming the concentration of nitrite is negligible.

14. On average, the EC of the WWTF effluent is about 340 µmhos/cm over the source water.

Expansion Project

15. The design of the Expansion Project is not complete; however, the conceptual design is described below. [Attachment B](#) depicts the conceptual process flow diagram for the proposed Expansion Project.
16. The RWD describes the District's plans to provide a hydraulic capacity of 0.5 mgd and provide redundancy in case of emergencies. The new headworks will include a self-cleaning spiral fine mesh screen to remove solids, and a triplex pumping lift station that will discharge to a force main with a magnetic flow meter.
17. Plans for the expansion project include construction of a new treatment system to replace the existing clarigester and mechanical aerated pond system. The new treatment system will include two aerated basins with an anoxic tank for nitrification and denitrification to reduce nitrogen in the effluent, two clarifiers, and an aerated sludge digester. The expansion project will also include construction of a new effluent storage pond, modification of the existing pond system, and new lined sludge handling and storage facilities.
18. A revised water balance submitted by the Discharger indicates that the District will need approximately 127 acre-feet of effluent storage. The District plans to retain the existing stabilization/storage ponds with a combined capacity of about 82 acre-feet, and construct a new 3.8 acre effluent storage pond at the WWTF with a capacity of about 45 acre-feet and a percolation rate of about 1 inch/day, based on percolation tests conducted on the property, to achieve the necessary storage capacity.

19. The Discharge Projects that the proposed discharge will achieve the following effluent quality.

<u>Constituent/Parameter</u>	<u>Units¹</u>	<u>Monthly Average</u>
Monthly Average Discharge Flow	mgd	0.5
PH	s.u.	6.0-9.0 ²
BOD ₅ ³	mg/L	40
TSS ⁴	mg/L	40
Total Nitrogen	mg/L	10

1 mgd = million gallons per day. mg/L = milligrams per liter

2 Shown as a daily minimum and maximum range

3 5-day biochemical oxygen demand (BOD)

4 Total suspended solids (TSS)

Sanitary Sewer Overflows

20. 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.
21. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality Order No. 2006-003-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 is greater than one mile in length; therefore, the General Order is applicable.

Water Recycling

22. WDRs Order No. R5-2000-096 incorporated water-recycling specifications to allow the Discharger to implement water recycling. The Discharger currently uses undisinfected secondary-treated effluent to irrigate approximately 43 acres of pasture owned by the Discharger for grazing non-milking cattle.
23. As part of the Expansion Project the Discharger plans to enter a [long term lease](#) agreement and add about 160 acres of privately owned farmland to its existing pasture for water recycling (hereafter Reclamation Area). Recycled undisinfected secondary-treated effluent will be combined with irrigation water to irrigate feed and fodder crops grown in the Reclamation Area such as cotton, alfalfa, silage corn, and pasture for non-milking cattle.

24. According to the RWD, treated 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.
25. The revised water balance demonstrates that with the existing 82 acre feet of storage capacity and the addition of the proposed 3.8-acre effluent storage pond, with approximately 45 acre-feet of additional storage capacity, the Reclamation Area will be sufficient to maintain the water balance at the proposed flow capacity of 0.5 mgd. Based upon a maximum permitted daily flow limit of 0.5 mgd, the hydraulic load to the Reclamation Area would be about 441 acre-feet/year. With a nitrogen concentration of 25 mg/L in the effluent (based on current wastewater characteristics), the nitrogen provided to the Reclamation Area would only satisfy between 30 and 50 percent of the crop demand, based on a nitrogen uptake of 480 lbs/acre/year for alfalfa as shown in the Western Fertilizer Handbook. This would decrease with the introduction of a nitrogen reduction process in the treatment system as part of the Expansion Project.

Site-Specific Conditions

26. The WWTF is in an arid climate characterized by hot dry summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and evaporation in the discharge area are about 8.18 inches and 78.14 inches, respectively, according to information published by California Department of Water Resources (DWR).
27. Soils in the vicinity of the WWTF and the Reclamation Area consist of Akers and Akers saline-sodic fine sandy loam according to the U.S. Soil Conservation Service (now the Natural Resources Conservation Service). Permeability of the surface soils is moderate to moderately slow. Published infiltration rates for these soils range from about 0.06 to 2.0 inches per hour.
28. Surface water drainage in the area is by sheet flow. Runoff in the region is toward Deer Creek, three miles south of the WWTF and Reclamation Area.
29. The WWTF is not within a 100-year floodplain according to Federal Emergency Management Agency maps.
30. The Discharger is not required to obtain coverage under a National Pollutant Discharge Elimination System general industrial storm water permit for the WWTF because all storm water runoff is retained onsite and does not discharge to a water of the United States.
31. Land use in the WWTF vicinity is primarily agricultural. Immediately east of the WWTF is an abandoned airport, Harmon Field, owned by Tulare County. The closest residential development is approximately one half mile east of the WWTF. Primary crops grown in the vicinity of the WWTF include cotton, alfalfa, corn (forage), almonds, walnuts, and other row crops. Additional crops including grapes, plums, and hay and grain crops are typically grown in the vicinity of the WWTF according to DWR land use data published in

1999. Most crops in this area are furrow irrigated, although some are sprinkler irrigated, according to the University of California Cooperative Extension. Irrigation water is supplied primarily by groundwater.

Groundwater Considerations

32. Regional Groundwater in the area of the WWTF is generally encountered at about 200 feet below ground surface (bgs) and flows northwesterly, according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by Department of Water Resources in Spring 2004.
33. Source water for the community of Pixley is provided by four wells. With the exception of arsenic, which exceeds the primary maximum contaminant level (MCL) of 10 ug/L, the source water is of relatively good quality, as indicated by the 2003 Annual Water Quality Report. Concentrations of nitrate and iron exceed the drinking water primary and secondary maximum contaminant levels (MCL) specified in Title 22 of California Code of Regulations (CCR) of 45 mg/L and 0.3 mg/L, respectively, in one or more of these wells. However, the average of the concentrations between the four wells is within acceptable levels. Excerpts from this report are presented below.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Range</u>	<u>Average</u>
Arsenic	ug/L	3.0 – 25	14.0
Chloride	mg/L	5 – 41	19.8
Sulfate	mg/L	8 – 32	17.2
Iron	mg/L	< 0.05 – 7.9	1.0
Boron	mg/L	< 0.05 – 0.06	< 0.05
Hardness	mg/L	2 – 47	20.8
Nitrate (as NO ₃)	mg/L	< 0.4 – 84	17.9
Sodium	mg/L	39 – 46	42
TDS	mg/L	150 – 680	388

34. The Discharger installed three groundwater-monitoring wells around the WWTF and the existing Reclamation Area in 2001. MW-1, directly south of the WWTF, is within 10 feet of the existing unlined sludge drying beds and 120 feet of the effluent storage ponds. MW-2, at the southwestern boundary of the property, is generally up-gradient of the WWTF and within 300 feet of the effluent storage ponds. MW-3, at the southeastern corner of the Reclamation Area, is generally down-gradient of the WWTF and effluent storage ponds. Since 2001, depth-to-groundwater has ranged between 130 to 160 feet bsg. The three monitoring wells were reported as dry in 2005 but recovered in 2006. Groundwater data shows that the flow direction in the area has varied somewhat, but that it is generally to the north-northeast or northwest.

35. Groundwater data for selected constituents in 2006 is presented below:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>
EC	µmhos/cm	927 – 1020	570 – 679	545 – 694
Total Dissolved Solids	mg/L	600 – 660	320 – 430	360 – 470
Nitrate (NO ₃ -N)	mg/L	4.8 – 8.7	3.4 – 5.0	11.6 – 14.8
Iron	mg/L	0.06	0.07	0.05

36. Based on existing groundwater data, first-encountered groundwater beneath the WWTF is generally of good quality. However, elevated EC concentrations detected in MW-1, adjacent to the unlined sludge drying beds, and nitrate concentrations in MW-3, down-gradient of the wastewater ponds, in excess of the MCL indicate that first-encountered groundwater may have been impacted by operations at the WWTF.

Basin Plan, Beneficial Uses, and Water Quality Objectives

37. The Water Quality Control Plan for the Tulare Lake Basin, 2nd Edition, (hereafter Basin Plan) designates beneficial uses, establishes **numerical and narrative** water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board. Pursuant to Section 13263(a) of the California Water Code (CWC), these waste discharge requirements implement the Basin Plan.
38. The WWTF is in Detailed Analysis Unit (DAU) No. 243 within the Tule Basin hydrologic unit. The Basin Plan designates the beneficial uses of groundwater in this DAU as municipal and domestic supply, agricultural supply, industrial service supply, and wildlife habitat.
39. 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 MCLs specified in Title 22. 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 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.
40. The Basin Plan establishes 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. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
41. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the

intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including:

- a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC shall not exceed the EC of the source water plus 500 $\mu\text{mhos/cm}$. When the source water is from more than one source, the EC shall be a weighted average of all sources.
- b. Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.

These effluent limits are considered best practicable treatment or control (BPTC).

42. The list of crops in [Finding 31](#) is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but is representative. Based on climate, and soil type, it is not likely that crops sensitive to salt and boron will be capable of being grown in the area; however, further information regarding the types of crops grown, background groundwater conditions, and overall effluent quality is necessary to make a final determination.
43. The Basin Plan requires municipal WWTFs that discharge to land to comply with treatment performance standards for BOD₅ and TSS. WWTFs that preclude public access and discharge less than 1 mgd must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, of both BOD₅ and TSS. WWTFs that discharge less than 1 mgd must provide reduction to 40 mg/L of both BOD₅ and TSS.

Antidegradation Analysis

44. State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
 - a. The degradation is consistent with the maximum benefit to the people of the State;
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and
 - d. The discharger employs BPTC to minimize degradation.
45. Constitutes of concern that have the potential to degrade groundwater include, in part, salts and nutrients. However, the discharge will likely not degrade the beneficial uses of groundwater because:

- a. For salinity, the Basin Plan contains effluent limits (EC of SW + 500 μ mhos/cm, and/or 1,000 μ mhos/cm max.) that considered antidegradation when adopted. The EC of the discharge meets both limits and should therefore not unreasonably degrade the beneficial uses of groundwater with respect to salinity.
- b. For nitrogen, practicable measures are: 1) treating the effluent such that it is below objectives for drinking water, or 2) storing the effluent in a manner that protects the underlying groundwater from percolation from ponds until it can be beneficially used on crops. The conditions of this Order establishing a nitrogen limit or adequate effluent storage ponds and recycling wastewater on crops should preclude further degradation of groundwater for nitrate.

Treatment and Control Practices

46. The Expansion Project described in [Findings 15 through 19](#), once completed, provides treatment and control of the discharge that incorporates:
 - a. secondary treatment;
 - b. a nitrogen reduction process;
 - c. appropriate biosolids storage and disposal practices;
 - d. an operation and maintenance (O&M) manual; and
 - e. certified operators to ensure proper operation and maintenance.
47. This Order establishes groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order includes a monitoring and reporting program that contains groundwater monitoring to assure that the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

Water Recycling Criteria

48. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. California Department of Health Services (DHS), which has primary statewide responsibility for protecting public health, has established statewide criteria in Title 22, California Code of Regulations, Section 60301 et seq., (hereafter Title 22) for the use of recycled water and has developed guidelines for specific uses. Revisions of the water recycling criteria in Title 22 became effective on 2 December 2000. The revised Title 22 expands the range of allowable uses of recycled water, establishes criteria for these uses, and clarifies some of the ambiguity contained in the previous regulations.
49. A 1988 Memorandum of Agreement (MOA) between DHS and the State Water Resources Control Board (State Water Board) on the use of recycled water establishes basic principles relative to the agencies and the regional water boards. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and

provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California.

50. 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 (California Water Code 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.
51. The Basin Plan encourages recycling on irrigated crops wherever feasible and indicates that evaporation of recyclable wastewater is not an acceptable permanent disposal method where the opportunity exists to replace an existing use or proposed use of fresh water with recycled water.
52. Title 22, Section 60323 requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards. The Discharger submitted an engineering report to the Regional Water Board and DHS pursuant to Title 22, Section 60323, for its water recycling operations for the Reclamation Area including the proposed 160-acre farmland and existing 43-acre pasture in January 2003. The DHS provided comments on the Title 22 Engineering report on 11 February 2003. The most recent Update to the Title 22 Engineering report submitted was approved by the DHS on 2 May 2007.

Other Regulatory Considerations

53. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in Title 40, Code of Federal Regulations, Part 503, Standards 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. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to EPA. The RWD states that all biosolids will be hauled to a separate permitted facility.
54. As the discharge consists of treated municipal sewage and incidental discharges from treatment and storage facilities associated with a municipal wastewater treatment plant, and as these discharges are regulated by waste discharge requirements consistent with applicable water quality objectives, the Facility and its discharge is exempt from containment pursuant to Title 27, Section 20090(a).

CEQA

55. The Discharger certified a mitigated negative declaration (MND) on [3 May 2005](#) in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended). The MND indicates that the discharge will comply with Regional Water Board regulations, which will mitigate any groundwater impacts.

56. This Order implements measures necessary to mitigate any adverse impacts to groundwater from the Expansion Project to less than significant levels, including:
- a. [Effluent Limitation B.1](#), which restricts flow to 0.29 mgd until the Discharger can treat and dispose of the proposed increase in discharge flow in accordance with the terms and conditions of this Order and the CWC.
 - b. [Effluent Limitations B.2 and B.4](#), which establish effluent limitations consistent with the Basin Plan.
 - c. [Discharge Specification C.7](#), which stipulates waste constituents cannot be released or discharged in a concentration or mass that causes violation of the Order's groundwater limitations.

General Findings

57. 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.
58. The Regional Water Board will review this Order periodically and will revise requirements when necessary.
59. California Water Code Section 13267(b) states that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."
60. The technical reports required by this Order and the attached Monitoring and Reporting Program No. [R5-2007-0123](#) are necessary to assure compliance with these waste discharge requirements. The Discharger operates the Facility that discharges the waste subject to this Order.
61. The California Department of Water Resources set standards for the construction and destruction of groundwater wells, 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 California Water Code Section 13801, apply to all monitoring wells.

Public Notice

- 62. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
- 63. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
- 64. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order No. R5-2000-096 is rescinded and that, pursuant to Sections 13263 and 13267 of the CWC, the Pixley Public Utility District and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

- 1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
- 2. Bypass or overflow of untreated wastes, except as allowed by Provision E.2 of Standard Provisions and Reporting Requirements, is prohibited.
- 3. Discharge of waste classified as 'hazardous', as defined in Section 2521(a) of Title 23, California Code of Regulations, Section 2510 et seq., is prohibited. Discharge of waste classified as 'designated,' as defined in California Water Code Section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

B. Effluent Limitations

- 1. The monthly average discharge flow shall not exceed:
 - a. 0.29 mgd until the Expansion Project is complete; or
 - b. 0.5 mgd after the Expansion Project is complete
- 2. The discharge shall not exceed the following limitations:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅	mg/L	40	80
TSS ¹	mg/L	40	80

¹ total suspended solids

3. After the Expansion Project is complete, the arithmetic mean of BOD₅ and TSS in effluent samples collected over a monthly period shall not exceed 20 percent of the arithmetic mean of the values for influent samples collected at the same times during the same period (80 percent removal).
4. After the Expansion Project is complete, the Total Nitrogen of the discharge shall not exceed a monthly average of 10 mg/L unless [Provision G.14](#) is satisfied.
5. The annual flow-weighted average EC of the discharge shall not exceed the flow-weighted average EC of the source water plus 500 µmhos/cm, or a maximum of 1000 µmhos/cm, whichever is less. The flow-weighted average of the source water shall be a moving average for the most recent 12 months.

C. Discharge Specifications

1. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
2. Public contact with effluent shall be precluded through such means as fences, signs, or acceptable alternatives.
3. Objectionable odors shall not be perceivable beyond the limits of the WWTF property or the Reclamation Area at an intensity that creates or threatens to create nuisance conditions.
4. Effluent storage ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter. 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.
5. On or about **1 October** of each year, the available storage pond capacity shall at least equal the volume necessary to comply with [Discharge Specification C.4](#).
6. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
 - c. Dead algae, vegetation and other debris shall not accumulate on the water surface.
 - d. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but not during, the 1 April to 30 June bird nesting season.

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 groundwater limitations.

D. Recycling Specifications

The following specifications apply to use areas under the ownership or control of the Discharger. Other use areas are covered by separate water recycling requirements.

1. Recycled water (i.e., effluent) shall remain within the Reclamation Area. Recycled water provided off-site shall only be provided to users that hold Regional Water Board adopted water reclamation requirements, or users who have obtained a waiver of reclamation requirements from the Regional Water Board.
2. Use of recycled water shall be limited to flood irrigation of fodder, fiber, seed crops not eaten by humans or for grazing of non-milking cattle and shall comply with the provisions of Title 22.
3. The Discharger will maintain the following setback distances from areas irrigated with recycled water:

<u>Setback Distance (feet)</u>	<u>To</u>
25	Property Line
30	Public Roads
50	Drainage courses
100	Irrigation wells
150	Domestic wells

4. No physical connection shall exist between recycled water piping and any domestic water supply or domestic well, or between recycled water piping and any irrigation well that does not have an air gap or reduce pressure principle device.
5. The perimeter of the Reclamation Areas shall be graded to prevent ponding along public roads or other public areas and prevent runoff onto adjacent properties not owned or controlled by the Discharger.
6. Areas irrigated with recycled water shall be managed to prevent nuisance conditions or breeding of mosquitoes. More specifically:
 - a. All applied irrigation water must infiltrate completely within a 48-hour period;
 - b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation; and

- c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.
7. Areas irrigated with recycled water shall be posted with warning signs in accordance to Title 22, Section 60310 (g). Signs with proper wording (shown below) of a size no less than four inches high by eight inches wide shall be placed at all areas of public access and around the perimeter of all areas used for effluent disposal or conveyance to alert the public of the use of recycled water. All signs shall display an international symbol similar to that shown in Attachment C, which is attached hereto and made a part of this Order by reference, and present the following wording:

“RECYCLED WATER – DO NOT DRINK”

“AGUA DE DESPERDICIO RECLAMADA – POR FAVOR NO TOME”

8. Reclamation of WWTF effluent shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management plan. The annual nutrient loading of reclamation areas, including the nutritive value of organic and chemical fertilizers and of the recycled water, shall not exceed crop demand.

E. Sludge Specifications

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has 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 reclamation.

1. Sludge and solid waste shall be removed from screens, sumps, aeration basins, ponds, clarifiers, etc. as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property.
3. Any handling and storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate 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. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board or State Water Board. In most cases, this means the General Biosolids Order (State Water Board Water Quality Order No. 2004-12-DWQ "General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities"). For a biosolids use project to be authorized by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.
6. Any proposed change in sludge use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

F. Groundwater Limitations

1. Release of waste constituents from any treatment or storage component associated with the WWTF shall not cause or contribute to groundwater:
 - a. Containing concentrations of constituents identified in Title 22 in excess of the MCLs quantified therein, or natural background quality, whichever is greater; or
 - b. Containing taste or odor-producing constituents, or toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

G. Provisions

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as Standard Provisions.
2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. [R5-2007-0123](#), which is part of this Order, and any revisions thereto as adopted by the Regional Water Board or approved by the Executive Officer. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger self-monitoring reports.
3. The Discharger shall keep at the WWTF a copy of this Order, including its MRP, Information Sheet, attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.
4. The Discharger shall not allow pollutant-free wastewater to be discharged into the Facility collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.
5. The Discharger must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the

Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger only when the operation is necessary to achieve compliance with the conditions of the Order.

6. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
7. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the Discharger shall submit to the Regional Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the time schedule. 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 rescission of this Order.
8. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the appropriate Regional Water Board office.
9. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the 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. If approved by the Executive Officer, the transfer request will be submitted to the Regional Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
10. As a means of discerning compliance with [Discharge Specification C.3](#), the dissolved oxygen content in the upper zone (1 foot) of effluent in the effluent storage ponds shall

not be less than 1.0 mg/L for three consecutive sampling events. Should the DO be below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board and propose a remedial approach to resolve the low DO results **within 30 days**.

11. The Discharger shall maintain and operate all ponds sufficient to protect the integrity of containment levees and prevent overtopping or overflows. Unless a California civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain in each pond permanent markers with calibration that indicates the water level at design capacity and enables determination of available operational freeboard.
12. The Discharger shall obtain coverage under, and comply with Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality Order NO. 2006-003-DWQ.
13. Following completion of the Expansion Project the Discharger shall submit a report documenting that all stockpiled sludge at the WWTF including all sludge removed from the treatment ponds has been characterized and hauled offsite to an appropriate disposal facility in accordance with Title 40, Code of Federal Regulations, Part 503, *Standards for the Use or Disposal of Sewage Sludge*.
14. The Discharger shall comply with the Effluent Nitrogen Limitation ([Discharge Specification B.4](#)), or alternatively, the Discharger shall submit a design report and performance demonstration for the effluent storage ponds, and a wastewater management plan and water balance for the Reclamation Area. If this alternative is pursued, the performance demonstration shall establish that the pond design will be protective of groundwater quality and that seepage from the ponds will not contribute to nitrogen in groundwater exceeding groundwater limitations. The wastewater management plan and water balance shall demonstrate that the Reclamation Area is sufficient for the reclaimed water to be applied at plant uptake rates for both nutrient and hydraulic loading. This provision will be considered satisfied, following written acceptance from the Executive Officer.

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 14 September 2007.

PAMELA C. CREEDON, Executive Officer

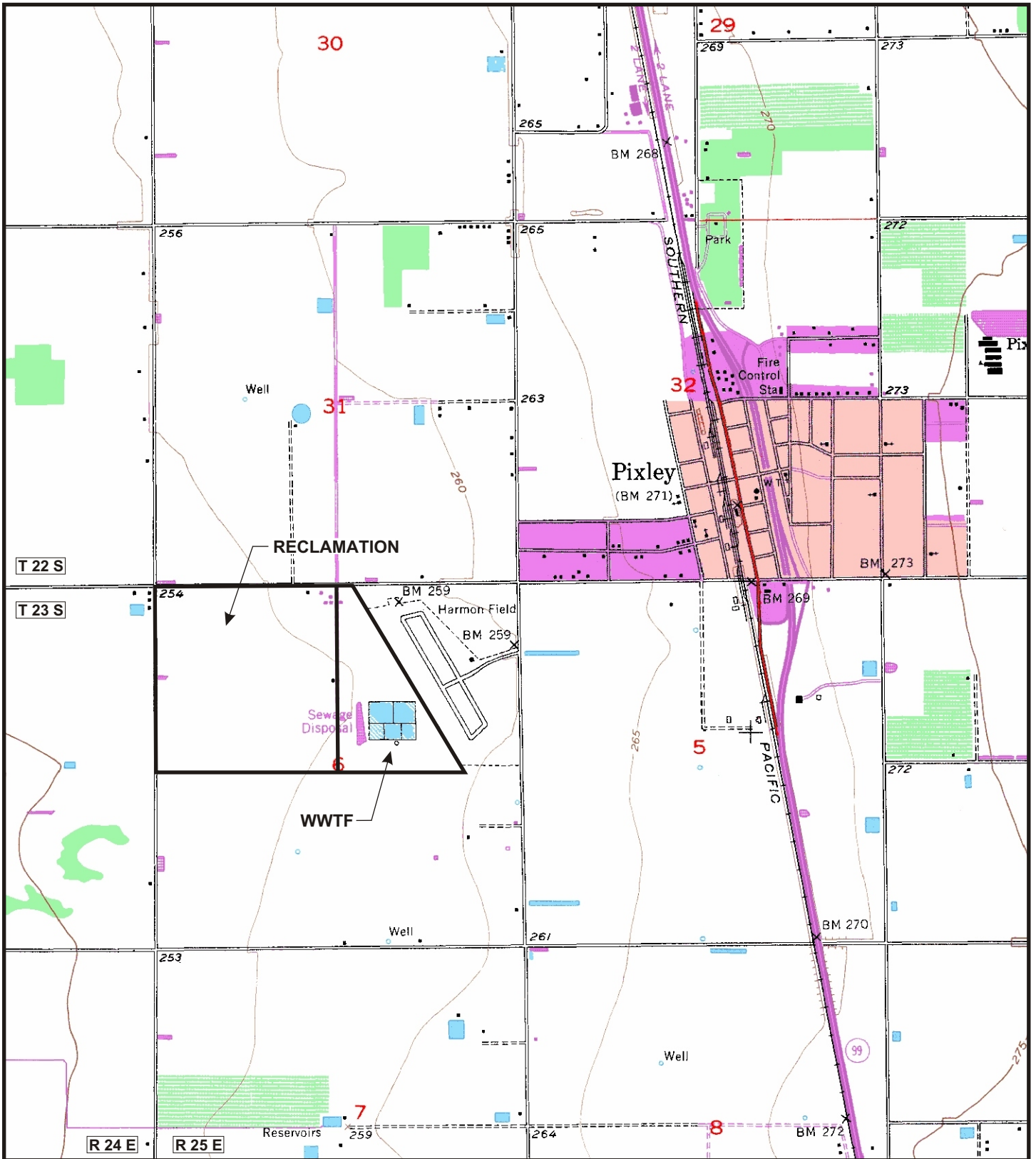
Order Attachments:

- A. Vicinity Map – WWTF
- B. Process Flow Diagram – Expansion Project
- C. Nonpotable International Water Symbol

Monitoring and Reporting Program No. R5-2007-0123
Information Sheet

Standard Provisions (1 March 1991) (separate attachment to Discharger only)

kc/DKP/kes: 6/19/07



Map Source:
 PIXLEY 7.5 Minute USGS Quadrangle
 Section 6, T23S, R25E, MDB&M



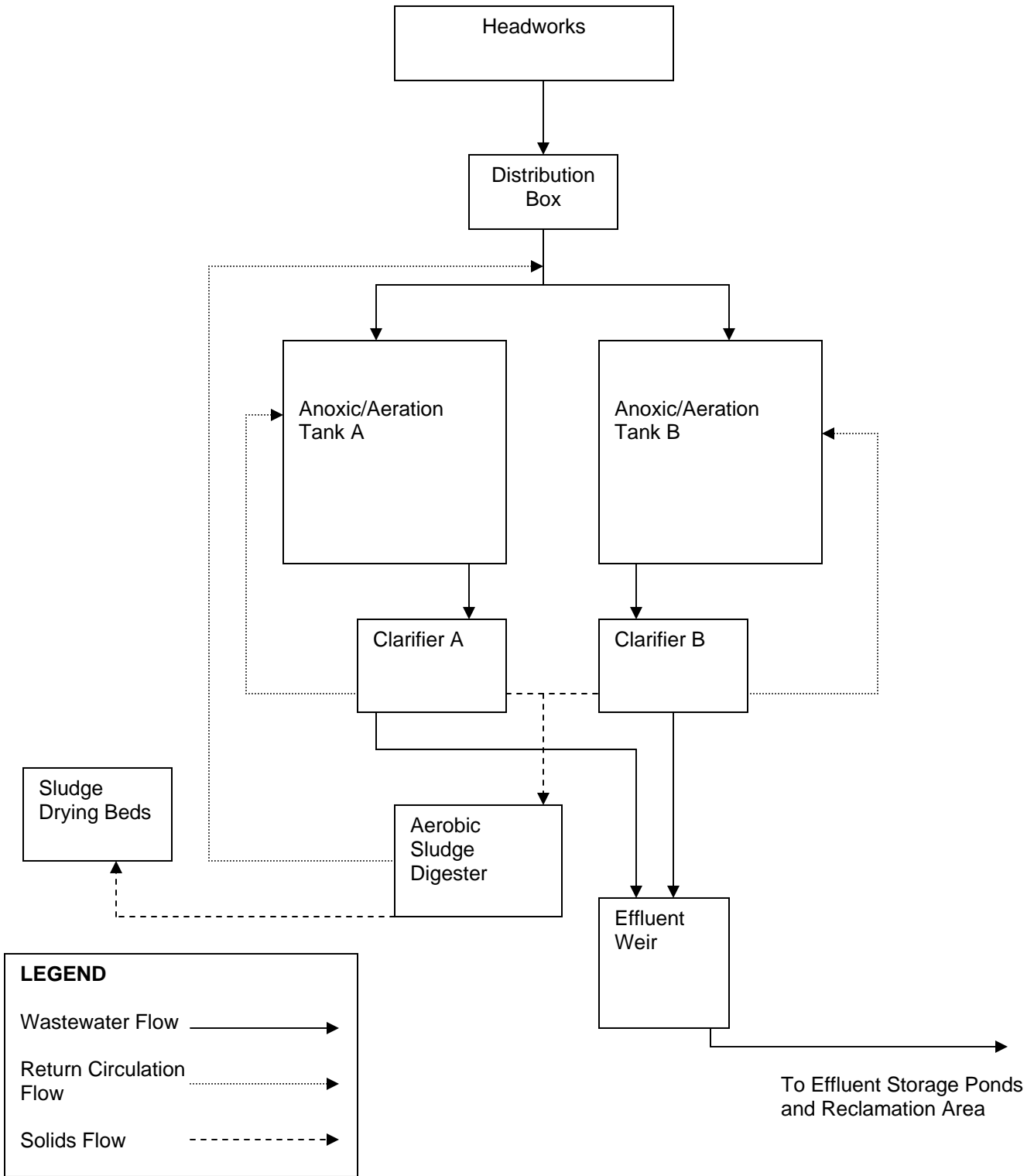
SCALE
 1 INCH = 2,000 FEET

SITE LOCATION MAP

ORDER NO. R5 -2007-0123
 WASTE DISCHARGE REQUIREMENTS
 FOR
 PIXLEY PUBLIC UTILITY DISTRICT
 WASTEWATER TREATMENT FACILITY
 TULARE COUNTY

ATTACHMENT A

PROPOSED EXPANSION PROJECT



PROCESS FLOW DIAGRAM
Order No. R5-2007-0123
Waste Discharge Requirements
For
Pixley Public Utility District
Wastewater Treatment Facility
Tulare County

ATTACHMENT B



RECYCLED WATER SIGN SYMBOL

Order No. R5-2007-0123
Waste Discharge Requirements
For
Pixley Public Utility District
Wastewater Treatment Facility
Tulare County

ATTACHMENT C

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2007-0123
FOR
PIXLEY PUBLIC UTILITY DISTRICT
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code (CWC) section 13267. The Discharger shall not implement any changes to this MRP unless and until the Regional Board adopts or the Executive Officer issues a revised MRP. Changes to sample location shall be established with concurrence of Regional Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer. All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions). The results of analyses performed in accordance with specified test procedures, taken more frequently than required at the locations specified in this MRP, shall be reported to the Regional Water Board and used in determining compliance.

Field test instruments (such as pH) may be used provided that:

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

In addition to details specified in Standard Provision, Provisions for Monitoring C.3, records of monitoring information shall also include the following:

1. Method detection limit (MDL);
2. Reporting limit (RL) (i.e., a practical quantitation limit or PQL); and
3. Documentation of cation/anion balance for general minerals analysis of supply water, and groundwater samples.

All laboratory results shall be reported down to the MDL. Non-detected results shall be reported as less than the MDL (<MDL). Results above the MDL, but below the concentration of the lowest calibration standard for multipoint calibration methods or below the reporting limit for other methods shall be flagged as estimated.

All analyses shall be performed in accordance with the latest edition of *Guidelines Establishing Test Procedures for Analysis of Pollutants*, promulgated by EPA (40 CFR 136) or other procedures approved by the Executive Officer, provided the methods have method detection limits equal to or lower than the analytical methods specified in this MRP. In reporting data, the Discharger shall indicate whether any analysis was performed using a method not in conformance with EPA's Guidelines. Analyses may also comply with the methods and holding times specified in: *Methods for Chemical Analysis of Water and Wastes* (EPA-600/4-79-020,

1983); *Methods for Determination of Inorganic Substance in Environmental Samples* (EPA/600/R-93/100, 1993); *Standard Methods for the Examination of Water and Wastewater*, 20th Edition (WEF, APHA, AWWA); and *Soil, Plant and Water Reference Methods for the Western Region*, 2003, 2nd Edition, 2003.

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

INFLUENT MONITORING

The Discharger shall collect influent samples at the headworks of the treatment facility prior to any treatment of waste. Time of a grab sample shall be recorded. Influent monitoring shall include at least the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	mgd	Continuous	Daily ¹
Monthly Average Daily Flow	mgd	Computed	Monthly
BOD ₅ ²	mg/L	Grab	Weekly
TSS ³	mg/L	Grab	Weekly

¹ Sample frequencies referenced hereafter in this program as daily shall not include weekends or holidays.

² Five-day, 20°C biochemical oxygen demand (BOD₅)

³ Total suspended solids (TSS)

EFFLUENT MONITORING

The Discharger shall collect effluent samples at a point in the system following treatment and before discharge to the effluent storage ponds. Time of collection of a grab sample shall be recorded. Effluent monitoring shall include the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u> ¹
pH	s.u. ²	Grab	Weekly
BOD ₅			
Concentration	mg/L	Grab	Weekly
Monthly Average	mg/L	Calculated	Monthly
Percent Removal	Percent	Calculated	Monthly
TSS			
Concentration	mg/L	Grab	Weekly
Monthly Average	mg/L	Calculated	Monthly
Percent Removal	Percent	Calculated	Monthly

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u> ¹
Salinity			
EC ³	µmhos/cm	Grab	Monthly
Nitrogen Forms			
Nitrate (as N)	mg/L	Grab	2/Monthly ⁵
TKN ⁴	mg/L	Grab	2/Monthly
Total Nitrogen	mg/L	Calculated	2/Monthly
Metals ⁷	varies	Grab	Annually ⁶
General Minerals ⁸	mg/L	Grab	Annually

¹ If results of monitoring a pollutant appear to indicate either the failure to achieve the design treatment goals of the wastewater treatment facility (e.g., the monthly mean for BOD₅ or TSS exceeds 40 mg/L) or potential upset of the treatment process, but monitoring frequency is not sufficient to validate the results, the frequency of sampling shall be increased to confirm the magnitude and duration of such treatment failures, if any, and aid in identification and resolution of the problem.

² pH standard units (s.u.)

³ Electrical conductivity at 25°C

⁴ Total Kjeldahl Nitrogen (TKN)

⁵ Non-consecutive weeks

⁶ In October

⁷ Metals as referred to in this program shall include the constituents in the Metals Analyte List presented below.

⁸ General Minerals as referred to in this program shall include the constituents in the General Minerals Analyte List presented below.

Metals Analyte List¹

Aluminum	Iron	Selenium
Barium	Lead	Silver
Copper	Manganese	Zinc
Cadmium	Mercury	Nickel
Chromium	Molybdenum	

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

General Minerals Analyte List¹

Alkalinity (as CaCO ₃)	Carbonate (as CaCO ₃)	pH
Arsenic	Chloride	Potassium
Bicarbonate (as CaCO ₃)	EC	Sodium
Boron	Hardness (as CaCO ₃)	Sulfate
Calcium	Magnesium	TDS

¹. General Minerals Analyte lists may vary depending on the laboratory, but shall include at least the above analytes and properties. An anion cation balance shall accompany results.

POND MONITORING

The effluent storage ponds shall be sampled systematically for the parameters specified below. Pond monitoring shall include at least the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
DO ^{1,2}	mg/L	Grab ³	Weekly
Freeboard	Feet ⁴	Observation	Weekly

¹ Dissolved oxygen (DO)

² To address potential for the creation of objectionable odors, the DO content in the upper one foot of either effluent storage reservoir should not be less than 1.0 mg/L for three consecutive sampling events. If results of monitoring indicate DO concentrations less than 1.0 mg/L, but monitoring frequency is not sufficient to validate the results, the frequency of sampling shall be increased to confirm the magnitude and duration of such low concentrations of DO, if any, and aid in identification and resolution of the problem.

³ Samples shall be collected at a depth of one foot from the storage reservoirs, opposite the inlet, and analyzed for DO. Samples shall be collected between 0700 and 0900 hours.

⁴ Freeboard shall be monitored to the nearest tenth of a foot.

In addition, the Discharger shall inspect the condition of the effluent storage ponds once per week and write visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating on the disposal pond surface and their location; whether burrowing animals or insects are present; and the color of the reservoirs (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.). A **summary** of the entries made in the log during each month shall be submitted along with the monitoring report the following month.

GROUNDWATER MONITORING

Concurrently with groundwater quality sampling, the Discharger shall measure the water level in each well as groundwater depth (in feet and hundredths) and as groundwater surface elevation (in feet and hundreds above mean sea level). The horizontal geodetic location of each monitoring well shall be provided where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum.

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

The Discharger shall include in its submittal of groundwater elevation data, a contour map based on said data showing the gradient and direction of groundwater flow under/around the facility and effluent disposal area(s). The groundwater contour map shall also include the location of the monitoring wells and active storage and land disposal areas (i.e., areas receiving treated effluent).

The Discharger shall monitor groundwater for the constituents and frequencies specified below.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency</u>
Depth to groundwater	Feet ¹	Measured	Quarterly ²
Groundwater elevation	Feet above mean sea level	Calculated	Quarterly ²
Salinity			
EC	µmhos/cm	Grab	Quarterly ²
TDS	mg/L	Grab	Quarterly ²
Nitrogen compounds:			
Nitrate (as N)	mg/L	Grab	Quarterly ²
Total Nitrogen	mg/L	Calculated	Quarterly ²
Iron	mg/L	Grab	Annually ^{3,4}
Manganese	mg/L	Grab	Annually ^{3,4}
Total Organic Carbon	mg/L	Grab	Annually ⁴
General Minerals ⁵	mg/L	Grab	Annually ⁴
Metals ⁶			Once per three years ⁴

¹ To the nearest hundredth of a foot.

² January, April, July and October.

³ Samples must be filtered prior to preservation

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency</u>
⁴ In October			
⁵ General Minerals shall include at least the constituents listed in General Minerals Analyte List included herein in the Effluent Monitoring section. An anion/cation balance demonstrating that analyses are complete shall accompany the results.			
⁶ Metals shall include at least the constituents listed in the Effluent Monitoring section.			

SOURCE WATER MONITORING

The District's municipal source water supply shall be monitored as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Measurement</u>	<u>Frequency</u>
EC ¹	µmhos/cm	Grab	Quarterly ²
General Minerals ³	mg/L	Grab	Once per Three years ⁴
Iron	mg/L	Grab	Once per Three years ^{4,5}
Manganese	mg/L	Grab	Once per Three years ^{4,5}

¹ EC shall be reported as a flow-weighted average from all supply wells. Include copies of supporting calculations with monitoring reports.

² January, April, July and October.

³ General minerals shall include at least the constituents listed in the General Minerals Analyte List included herein in the Effluent Monitoring section.

⁴ In October

⁵ Samples shall be filtered prior to preservation.

SLUDGE MONITORING

To ensure that industrial and other discharges to the wastewater treatment facility are not interfering with treatment process, the Discharger shall collect a composite sample of sludge annually, as set forth by Title 40 Code of Federal Regulations (CFR) Part 503.16. Any Notice of Necessary Information (NANI) form prepared for submittal to the United States Environmental Protection Agency shall be forwarded to the Regional Water Board.

Composite samples shall be collected in accordance with the Environmental Protection Agency's *POTW Sludge Sampling And Analysis Guidance Document* (EPA/ 833B89100, August 1989) and test for metals:

Arsenic	Copper	Nickel
Cadmium	Lead	Selenium
Molybdenum	Mercury	Zinc

The control of pathogens and the reduction of vector attraction shall be achieved in accordance with the Environmental Protection Agency's *Control of Pathogens and Vectors In sewage Sludge* (EPA/625-R-92/013, July 2003).

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

USE AREA MONITORING

Monitoring of the land application area shall be conducted daily (when recycled water is being applied) and the results shall be included in an annual monitoring report. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the annual monitoring report. Effluent monitoring results shall be used in calculations to ascertain loading rates at the application area. Monitoring of the land application areas shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Acreage Applied ¹	Acres	Calculated	Daily ²
Application Rate ³	Gal/acre/day	Calculated	Daily ²
BOD ₅ Loading Rate ³	lbs/acre/day	Calculated ⁴	Monthly
Total Nitrogen Loading Rate ³	lbs/acre/month	Calculated ⁴	Monthly

¹ Land application areas shall be identified.

² While recycled water is being applied and for at least 48-hours following application.

³ For each land application area.

⁴ BOD₅ and Total Nitrogen loading rates shall be calculated using the daily applied volume of wastewater, daily application area, and a running average of the three most recent results of BOD₅ and Total Nitrogen, which shall also be reported along with supporting calculations.

REPORTING

The Discharger shall report monitoring data and information as required in this MRP and as required in the Standard Provisions. Daily, weekly, semi-monthly, and monthly data shall be reported in monthly monitoring reports.

Monitoring data and/or discussions submitted concerning WWTF performance must also be signed and certified by the chief plant operator. When reports contain laboratory analyses

performed by the Discharger and the chief plant operator is not in the direct line of supervision of the laboratory, reports must also be signed and certified by the chief of the laboratory.

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the discharge monitoring report.

A. Monthly Reports

Daily, weekly, bimonthly, and monthly monitoring data shall be reported in monthly monitoring reports. Monthly monitoring reports shall be submitted to the Regional Board **by 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. Results of influent, effluent, and disposal pond monitoring;
2. Calculated Monthly Average Daily Flow;
3. 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;
4. Copies of laboratory analytical reports; and
5. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

B. Quarterly Reports

Wastewater: Daily, weekly, monthly, and quarterly monitoring data shall be reported in quarterly monitoring reports. Quarterly monitoring reports shall be submitted to the Regional Water Board **by the 1st day of the second month after the calendar quarter** (i.e., the 1st Quarter Report is due by 1 May, 2nd Quarter Report is due by 1 August, and the 3rd Quarter Report is due 1 November). The monthly reports required on 1 May, 1 August, and 1 November shall be combined with the quarterly report for ease of submittal. Quarterly monitoring reports shall include all monitoring data required in the monthly monitoring schedule, and the data from quarterly effluent and water supply monitoring events.

Groundwater: Quarterly groundwater monitoring data shall be reported in quarterly monitoring reports and submitted to the Regional Water Board as detailed in the previous section. Quarterly monitoring reports shall include all monitoring data required from quarterly groundwater monitoring events. The quarterly groundwater monitoring reports shall contain:

1. Quarterly groundwater contour maps;
2. Graphs of the laboratory analytical data for all samples taken from each well within at least the previous five calendar years. Each such graph shall plot over time for a given monitoring well the concentration of one or more waste constituents; and
3. All monitoring analytical data obtained during the quarter presented in tabular form and included with previous data obtained for the given well.

C. Annual Reports

Wastewater: An Annual Report shall be prepared as a fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule plus the results of any annually sampled constituents (general minerals, selected metals, etc). The Annual Report shall be submitted to the Regional Board **by 1 February of the year following the year the samples were collected.** In addition to the data normally presented, the Annual Report shall include the following:

1. The names, certificate grades, and general responsibilities of all persons in charge of wastewater treatment and disposal;
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations;
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (standard Provision C.4);
4. A statement whether the current operation and maintenance manual, and contingency plan, reflect the WWTF as currently constructed and operated, and the dates when these documents were last reviewed for adequacy;
5. The results of an annual evaluation conducted pursuant to Standard Provisions E.4 and a figure depicting monthly average discharge flow for the previous five calendar years;
6. The most recent water supply report including laboratory data;
7. A summary of sludge monitoring, including:
 - a. Annual sludge production in dry tons and percent solids;
 - b. A schematic diagram showing sludge handling facilities and solids flow diagram; and
 - c. A description of disposal methods, including the following information related to the disposal methods used at the WWTF. If more than one method is used, include the percentage of sludge production disposed of by each method.
 - i. For **landfill disposal**, include (a) the Order numbers that regulate the landfill(s) used, (b) the present classifications of the landfill(s) used, and (c) the names and locations of the facilities receiving the sludge.
 - ii. For **land application**, include: (a) the locations of the site(s), and (b) the Order number of any WDRs that regulates the site(s).

- iii. For **incineration**, include: (a) the names and location of the site(s) where sludge incineration occurs, (b) the Order numbers of WDRs that regulate the site(s), (c) the disposal method of ash, and (d) the names and locations of facilities receiving ash (if applicable); and
 - iv. For **composting**, include: (a) the location of the site(s), and (b) the order numbers of any WDRs that regulate the site(s).
8. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with this Order.

Groundwater: An Annual Groundwater Monitoring Report shall be prepared as a fourth quarter groundwater monitoring report. The Annual Groundwater Monitoring Report will include all groundwater monitoring data required in the monthly/quarterly groundwater monitoring schedule plus the results of any annually sampled groundwater constituents (general minerals, selected metals, etc). The Annual Groundwater Monitoring Report shall be submitted to the Regional Board **by 1 February of the year following the year the samples were collected.** In addition to the data normally presented in the quarterly groundwater monitoring reports, the Annual Report shall include the following:

1. Quarterly groundwater contour maps from the previous four quarters;
2. Graphs of the analytical data for all samples collected from each monitoring well for at least five calendar years. Each such graph shall plot over time for a given monitoring well the concentration of one or more waste constituents specified herein and selected in concurrence with Regional Water Board staff. Graphs shall be plotted at a scale appropriate to show trends or variations in water quality, and shall plot each datum, rather than plotting mean values.
3. All monitoring data obtained during the previous monitoring events for at least the last five calendar years.

All technical reports required herein must be overseen and certified by a California registered civil engineer, certified engineering geologist, or certified hydrogeologist in accordance with California Business and Professions Code, sections 6735, 7835, and 7835.1.

All reports submitted in response to this Order shall comply with the signatory requirements in Standard Provision B.3.

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

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

(Date)

kc/DKP/kes: 6/19/07

INFORMATION SHEET

ORDER NO. R5-2007-0123
PIXLEY PUBLIC UTILITY DISTRICT WWTF
TULARE COUNTY

Background

Pixley Public Utilities District (Discharger) operates a Wastewater Treatment Facility (WWTF) for the unincorporated community of Pixley, which has an estimated population of 2,600 people. Currently there are no industrial users connected to the WWTF. The WWTF was constructed in 1949; some of the existing structures including the headworks, clarigester, and pump structure date from the original construction. Modifications were made in 2001 to add treatment and storage capacity in order to increase flow limits from 0.2 million gallons per day (mgd) to 0.29 mgd and bring the WWTF into compliance.

The Discharger submitted a report of waste discharge (RWD) dated 5 April 2005 in support of a modification and expansion (hereafter Expansion Project) of the WWTF. Waste Discharge Requirements (WDRs) Order No. R5-2000-096 currently authorizes discharge of up to 0.29 mgd of undisinfected secondary-treated effluent to unlined ponds. In addition, current WDRs allow for the use of reclaimed water to irrigate approximately 43 acres of pasture owned by the Discharger for grazing non-milking cattle. The WDRs also establish quarterly effluent limitations for settleable solids (SS) and 5-day biological oxygen demand (BOD₅) of 0.2 mL/L and 40 mg/L, respectively. WDRs Order No. R5-2000-096 does not reflect the configuration of the Expansion Project.

The Expansion Project will consist of a new treatment system to replace the existing clarigester and mechanical aerated pond system. The expansion is intended to provide the WWTF with a hydraulic capacity of 0.5 mgd and provide redundancy in case of emergencies. The new treatment system will include two aerated basins with an anoxic tank for nitrification and denitrification to reduce nitrogen in the effluent, two clarifiers, and an aerated sludge digester. The Expansion Project will also include a modified pump station and headworks, a new blower building, a new effluent storage pond, modification of the existing pond system, lined sludge handling and storage facilities, and addition of 160 acres of farmland for disposal of reclaimed water.

Solids and Biosolids Disposal

Screenings from the headworks is placed in a dumpster prior to disposal at an offsite landfill. Sludge from the clarigester is wasted about every three months to one of the sludge drying beds. After it is dried, sludge is removed and stockpiled at the WWTF. The Discharger estimates that the WWTF generates about 30 tons of sludge annually. Current sludge storage and handling facilities are unlined. The Discharger does not remove accumulated solids from the treatment and storage/stabilization ponds. The Discharger proposes that the existing sludge stockpile and settled sludge from the bottom of the treatment ponds be removed during the construction phase of the Expansion Project.

The Discharger has not completed the design of the sludge handling and storage facilities for the Expansion Project, but is considering installing three sludge drying beds lined with 6 inches of soil cement.

The Discharger will need to submit plans for the sludge drying beds along with an evaluation of the permeability of the proposed liner and demonstration that it is protective of groundwater.

Groundwater Conditions

The Discharger installed three groundwater-monitoring wells around the WWTF and the existing Reclamation Area in 2001. Since 2001 depth-to-groundwater has been between 130 to 160 feet. The three monitoring wells were reportedly dry in 2005 but recovered in 2006. Groundwater data shows that gradient and flow direction in the area has varied, but is generally to the north-northeast or northwest.

Based on existing groundwater data first-encountered groundwater beneath the WWTF is generally of good quality. However, elevated EC concentrations detected in MW-1, adjacent to the unlined sludge drying beds, and nitrate concentrations in MW-3, down-gradient of the wastewater ponds, in excess of the MCL indicate that first-encountered groundwater may have been impacted by operations at the WWTF.

Compliance History

In general, the District has failed to consistently comply with the flow limit of 0.2 mgd specified in WDRs Order No. R5-2000-0096. As a result, the Regional Water Board adopted Cease and Desist Order (CDO) No. R5-2000-0097 on 28 April 2000. Relevant Tasks in the CDO required the Discharger to complete and certify modification to comply with interim measures and increase WWTF treatment capacity to 0.29 mgd, provide safeguards in the event of a loss of power, conduct a population growth study to project future flows, submit a RWD, and complete construction of an expanded WWTF.

The Discharger missed several of the completion dates in the time schedule in the CDO, but eventually completed all tasks except for construction of an expanded WWTF.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan indicates the greatest long-term problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man's activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. The Regional Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental EC limitation of 500 μ mhos/cm. Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 μ mhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

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. Policy and procedures for complying with this directive are set forth in the basin plan.

Existing data shows high EC and TDS concentrations in groundwater adjacent to the unlined sludge drying beds, and nitrate concentrations in excess of the MCL down-gradient of the effluent storage ponds, indicating that shallow groundwater may have been impacted by operations at the WWTF. However, discharge from the Expansion Project will likely not degrade the beneficial uses of groundwater because:

- a. For salinity, the Basin Plan contains effluent limits (EC of SW + 500 $\mu\text{mhos/cm}$, and/or 1,000 $\mu\text{mhos/cm}$ max.) that considered antidegradation when adopted. The discharge meets both these limits and should therefore not unreasonably degrade the beneficial uses of groundwater with respect to salinity.
- b. For nitrogen, practicable measures are: 1) treating the effluent such that it is below objectives for drinking water, or 2) storing the effluent in a manner that protects the underlying groundwater from percolation from ponds until it can be beneficially used on crops. The conditions of this Order establishing a nitrogen limit or lined effluent storage ponds should preclude further degradation of groundwater for nitrate.

Treatment Technology and Control

The Expansion Project will provide treatment and control of the discharge that incorporates:

- a. Secondary treatment of the wastewater;
- b. A nitrogen reduction process;
- c. Appropriate biosolids storage and disposal practices;
- d. An Operation and Maintenance (O&M) manual; and
- e. Certified operators to ensure proper operation and maintenance.

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 full 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 in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent 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. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan.

CEQA

The Discharger certified a Mitigated Negative Declaration (MND) for the Expansion Project on [3 May 2005](#) in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended). The MND for the Expansion Project indicates that the discharge will comply with Regional Water Board regulations, which will mitigate any groundwater impacts. The Regional Water Board, as a responsible agency under CEQA, has reviewed the MND. To mitigate the Expansion Project's groundwater quality impacts to less than significant levels, the terms and conditions of this proposed Order are appropriate and necessary.

Proposed Order Terms and Conditions

Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions

The proposed Order prohibits discharge to surface waters and water drainage courses.

The proposed Order would carry over the current Order's monthly average daily discharge flow limitation until the Discharger completes the Expansion Project. The proposed Order would carry over the previous Order's effluent limits for BOD₅ and TSS of 40 mg/L (monthly average), and 80 mg/L (daily maximum).

Once the Expansion Project is complete, the proposed Order would prescribe effluent limitations for BOD₅ and TSS of 40 mg/L or 80 percent removal of both, whichever is more restrictive. These limitations are based on Basin Plan minimum performance standards for municipal facilities. The advanced secondary treatment technology being implemented, as part of the Expansion Project should result in an effluent of much higher quality than that reflected in the effluent limitations set forth in the WDRs. Effluent limits attached to the proposed Expansion Project include a nitrogen effluent limit of 10 mg/L unless the Discharger provides a design report and performance demonstration that establishes that the effluent storage ponds will be protective of groundwater quality and that the effluent will be applied to the Reclamation Area at agronomic rates.

The proposed Order would establish an effluent limitation for EC of 1,000 µmhos/cm or 500 µmhos/cm over source water that reflects the Regional Water Board policy for managing salts within the Tulare Lake Basin.

The discharge specifications and provisions regarding dissolved oxygen and freeboard are consistent with Regional Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed WDRs would prescribe groundwater limitations that implement Basin Plan water quality objectives for groundwater. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background water quality, whichever is greatest.

Monitoring Requirements

Section 13267 of the CWC authorizes the Regional Water 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 an 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 of civil administrative liability where appropriate.

The proposed Order includes influent and effluent monitoring requirements, pond monitoring, groundwater monitoring, sludge monitoring, and water supply monitoring. The monitoring is necessary to evaluate groundwater quality and the extent of the degradation from the discharge.

The Discharger must monitor groundwater for constituents present in the discharge that are capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate. For constituents listed in [Section F, Groundwater Limitations](#), of the WDR, the Discharger must, as a part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentrations 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. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

Proposed Enforcement Order

The Discharger cannot comply with the flow and effluent limitations in the existing Order and the proposed Order due to lack of treatment and disposal capacity. The compliance deadlines in the existing CDO have expired. The Discharger has completed all tasks except for construction of an expanded WWTF. Once the expanded WWTF is complete, the Discharger should be able to comply with the terms and conditions of the proposed Order.

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TULARE COUNTY

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Regional Water Board Staff is recommending that the Regional Water Board consider an accompanying draft Cease and Desist Order that would require the Discharger to perform a series of tasks according to a revised time schedule to complete the expansion.

kc/DKP/kes: 6/19/07