

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2009-0123
FOR
BUTTONWILLOW COUNTY WATER DISTRICT
WASTEWATER TREATMENT FACILITY
KERN COUNTY

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

1. Waste Discharge Requirements (WDRs) Order No. 85-303, adopted by the Central Valley Water Board on 25 October 1985, for Buttonwillow County Water District (Discharger), regulates its wastewater treatment facility (WWTF) located in the northeast quarter of Section 13, Township 29S, Range 23E, Mount Diablo Base & Meridian (MDB&M), and approximately a quarter of a mile northeast of the unincorporated community of Buttonwillow in Kern County. Buttonwillow had a population of 1,266 and a land area of about 7 square miles for Census 2000.
2. WDRs Order No. 85-303 authorizes a discharge of 0.2 million gallons per day (mgd) of treated wastewater to a storage pond and to 50 acres of Use Area owned by the Discharger. Revised MRP No. 85-303 requires the Discharger to conduct effluent monitoring for electrical conductivity, chloride, sodium, biochemical oxygen demand, total suspended solids, total nitrogen, and general minerals. Section 60304 of Title 22 allows the use of undisinfected secondary treated effluent for the application of seed crops not eaten by humans, food crops that must undergo a commercial pathogen destroying process prior to being consumed by humans, and pasture for animals that do not produce milk for human consumption.
3. In September 2008, the Discharger submitted a Report of Waste Discharge (RWD) for a proposed WWTF upgrade. WDRs Order No. 85-303 needs to be updated to ensure that the discharge is consistent with Central Valley Water Board Plans and policies, prescribe requirements that reflect changes the Discharger will make to its WWTF, and facilitate funding for the WWTF upgrade.

Wastewater Treatment Facility

4. The existing WWTF consists of an Imhoff tank, a storage pond, a sludge drying bed, and 50-acre Use Area.
5. The proposed WWTF will include two treatment trains, each with a capacity of 0.075 mgd, for a total designed daily average flow of 0.15 mgd. The upgrade will include: replacement of sewer trunk line, 1,000 feet of sewer main, a lift station, mechanical bar screen, two equalization tanks, two denitrification tanks, two Bio-tanks, two membrane tanks, two aerated sludge tanks, three concrete-lined sludge drying beds, two 22.5-acre-ft unlined storage ponds, and approximately 50 acres of Use Area.

A site map of the WWTF is shown on [Attachment A](#) and a process flow schematic is shown on [Attachment B](#), both of which are attached hereto and made part of this Order by reference.

6. The existing deteriorated sludge drying beds are a potential source of groundwater degradation. The proposed concrete-lined drying beds should minimize any impact to groundwater. The Discharger is proposing to haul the dried sludge off site.
7. Data from January 2007 through December 2008 contained in the Discharger's Self-Monitoring Reports (SMRs) characterize the discharge as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	2008	
		<u>Influent</u>	<u>Effluent</u>
pH	pH units	7.61	7.23
Electrical Conductivity (EC) ¹	µmhos/cm	2,000	1,900
Biochemical Oxygen Demand (BOD)	mg/L	160	130
Total Suspended Solids (TSS)	mg/L	100	70
Settleable Solids	mL/L	---	0.22
Chloride	mg/L	---	300
Sodium	mg/L	---	200
Nitrate (as N)	mg/L	---	0.12
Total Kjeldahl Nitrogen (TKN)	mg/L	---	40
Total Nitrogen (TN)	mg/L	---	40

¹ The monitoring indicates EC was greater than effluent EC, but the data set was small and the difference minor relative to the accuracy of the meters.

8. The existing Imhoff tank is about 50 years old and does not adequately treat wastewater.
9. According to the RWD, the proposed WWTF will produce an effluent that will meet average BOD and TSS concentrations of 40 mg/L, and an average Total Nitrogen concentration of less than 10 mg/L.

Sanitary Sewer Overflows

10. 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.
11. On 2 May 2006, the State Water Resources Control Board (hereafter State Water Board) adopted General Sanitary Sewer Systems Order (State Water Board Water Quality Order No. 2006-0003-DWQ, "Statewide General Waste Discharge Requirements

for Sanitary Sewer Systems”). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with this order. The Discharger’s collection system is greater than one mile in length; therefore, the Discharger applied for, and is covered by, the General Order.

Water Recycling

12. The Use Area consists of approximately 50 acres of Use Area owned by the Discharger leased to Hay Brothers to grow alfalfa hay. The District will generate about three acre-feet per acre of wastewater per year. Alfalfa crops in the area require more than three acre-feet per acre of irrigation water per year, and supplemental irrigation water will be needed to meet crop demand.
13. Nitrogen uptake rates for alfalfa are 480 lb/acre/year, based on the *Western Fertilizer Handbook, 9th Edition*.
14. Nitrogen in the wastewater will be further reduced by the crops during irrigation. At the permitted flow of 0.15 mgd and an average nitrogen concentration of 10 mg/L, the total nitrogen loading to the 50-acres of Use Area is about 90 lbs/acre/year, which will not exceed the nutrient loading at agronomic rates, based on the current cropping pattern.

Site-Specific Conditions

15. The WWTF and Use Area are in an arid climate characterized by dry summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during spring and fall months, but summer months are dry. Average annual evaporation in the discharge area is about 65 inches, according to information published by the California Department of Water Resources (DWR). The 30-year normal precipitation in the discharge area is about 6.44 inches, according to the National Weather Service Forecast Office. According to the DWR, the annual precipitation with a 100-year return period is approximately 11.69 inches.
16. Soils in the vicinity of the WWTF are predominately Milham Sandy Loam, followed by Lokern Clay, according to the Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation. Milham Sandy Loam and Lokern Clay have been assigned a land capacity classification of 1 and 3S, respectively. These soils have slight to severe limitations that restrict the choice of plants or that require special conservation practices, or both. These soils have limitations within the root zone, such as shallowness of the root zone, a high content of stones, a low available water capacity, low fertility, or excessive salinity.
17. Types of crops that can be grown in the vicinity of the WWTF include: grain and hay crops, pasture, and field crops, according to the Kern County 1998 Land Use Map

published by the DWR. This is not a definitive inventory of crops that are or could be grown in the area.

18. According to the Federal Emergency Management Agency maps (community-panel number 060075 0975 B), the WWTF is located within Zone C, an area of minimal flooding.
19. 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.

Groundwater Considerations

20. WDRs Order No. 85-303 characterizes groundwater in the discharge area as follows: unconfined groundwater occurs at a depth ranging from 50 to 70 feet below ground surface, flows in a northeast direction, and exhibits an EC of about 1,500 $\mu\text{mhos/cm}$, which corresponds to an approximate total dissolved solids (TDS) concentration of 980 mg/L (TDS = 0.65 x EC).
21. The EC and TDS are approximately 1,500 $\mu\text{mhos/cm}$ and 1,000 mg/L, respectively, in the unconfined aquifer and about 770 $\mu\text{mhos/cm}$ and 500 mg/L, respectively in the confined aquifer, based on water quality maps in a 1999 Water Supply Report developed by the Kern County Water Agency (KCWA) and published in May 2003. This represents background water quality of the unconfined aquifer and likely represents natural conditions.
22. The Discharger gets its source water from three water supply wells (Wells 2, 3 and 4). The Discharger does not report flow-weighted averages for source water EC due to inaccurate pump flow meter readings. The straight (i.e., not flow-weighted) average source water EC based on data contained in the Discharger's SMRs from January through December 2008 is approximately 1,100 $\mu\text{mhos/cm}$.

Basin Plan, Beneficial Uses, and Water Quality Objectives

23. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004* (hereafter Basin Plan) designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. Pursuant to Section 13263(a) of the California Water Code (CWC), these requirements implement the Basin Plan.
24. Water in the Tulare Lake Basin is in short supply, requiring importation of surface water from other parts of the State. 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.

25. The WWTF is in Detailed Analysis Unit (DAU) No. 255 within the Kern County Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater in this DAU as municipal and domestic supply, agricultural supply, industrial service supply, and wildlife habitat supply.
26. The nearest surface water is the East Side Canal. The WWTF is in the Semitropic Hydraulic Area (No. 558.70), as depicted on interagency hydrologic maps prepared by the DWR in August 1986. The Basin Plan identifies the beneficial uses for valley floor waters as agricultural supply, industrial service and process supply, water contact recreation, non-contact water recreation, warm freshwater habitat, wildlife habitat, rare, threatened, or endangered species, and groundwater recharge.
27. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, require waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in Title 22 of the California Code of Regulations (CCR). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
28. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
29. 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 of the effluent discharged to land 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 groundwater shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, or boron content of 1.0 mg/L.
30. The underlying groundwater is not good quality and the supply water exceeds an EC of 1,000 $\mu\text{mhos/cm}$, so one cannot expect that the Discharger could comply with an effluent limit of 1,000 $\mu\text{mhos/cm}$. Because the Discharger has no accurate record of pumping from water supply wells, one cannot determine if the Discharger complies with the Basin Plan EC limit of no greater than 500 $\mu\text{mhos/cm}$ over source water. The Discharger needs to implement better monitoring of its source water and review and implement salinity reduction measures.
31. The Basin Plan requires municipal WWTFs that discharge to land to comply with treatment performance standards for BOD and TSS. WWTFs that preclude public access and are greater than 1 mgd must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, for both BOD and TSS.

Antidegradation Analysis

32. State Water Board Resolution No. 68-18 (the Antidegradation Policy) requires that the Regional Water Board, in regulating the discharge of waste, must maintain the high quality of waters of the state 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 No. 68-16 also requires that waste discharged to high quality water be required to meet WDRs that will result in the best practicable treatment or control of the discharge. Resolution No. 68-16 prohibits degradation of groundwater quality as it existed in 1968, or at any time thereafter that groundwater quality was better than in 1968, other than degradation that was previously authorized. An antidegradation analysis is required for an increased volume or concentration of waste.
33. The permitted discharge will not increase mass emissions of pollutants. The wastewater facilities serve primarily domestic flow with no significant industrial flow. The constituents of concern are nitrates and total dissolved solids (TDS). The upgrade will decrease mass emission of nitrates, because of better treatment. Therefore, the discharge is in compliance with the Antidegradation Policy.

Treatment and Control Practices

34. The WWTF described in Finding Nos. 5 through 9, will provide treatment and control of the discharge that incorporates:
 - a. Secondary treatment;

- b. Nitrogen reduction of wastewater; and
- c. Recycling of wastewater for crop irrigation.

Water Recycling Criteria

- 35. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. The California Department of Public Health (DPH), which has primary statewide responsibility for protecting public health, has established statewide criteria in Title 22, CCR, Section 60301 et seq., (hereafter Title 22) for the use of recycled water and has developed guidelines for specific uses.
- 36. A 1988 Memorandum of Agreement (MOA) between DPH and the State Water Board on the use of recycled water establishes basic principles relative to the agencies and the regional water boards. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California.
- 37. 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 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.
- 38. 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. The Basin Plan also requires project reports for new or expanded wastewater facilities shall include plans for wastewater recycling or the reason why it is not possible.
- 39. 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 has submitted a Title 22 Engineering Report to the Department of Public Health, but it has not been approved. A provision requiring the Discharger to submit an updated report reflecting the comments made by DPH pursuant to Title 22 of the CCR is included in this Order.

Other Regulatory Considerations

- 40. 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.

41. The Discharger will treat the wastewater to secondary treatment standards and reduce the nitrates to less than primary drinking water standards. The effluent will be stored for reuse by irrigation of crops, which will provide further reduction in pollutants (primarily nitrates). The effluent EC quality (about 1,900 $\mu\text{mhos/cm}$) is similar in quality to background (about 1,500 $\mu\text{mhos/cm}$). The discharge flow is low. The ponds will be constructed of native soils that are only moderately drained. The background water quality for EC of the unconfined aquifer exceeds the recommended consumer acceptance contaminant level of 900 $\mu\text{mhos/cm}$, but not the upper level of 1,600 $\mu\text{mhos/cm}$. The minimal seepage from the storage pond or percolation from recycling is not expected to be great enough to cause groundwater to exceed the upper EC level. For these reasons the discharge is exempt from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (Title 27).

CEQA

42. Buttonwillow County Water District adopted a Mitigated Negative Declaration (SCH # 2006111131) for the WWTF upgrade project in accordance with the California Environmental Quality Act (CEQA) and filed a Notice of Determination on 11 May 2007.
43. Central Valley Water Board staff reviewed the Mitigated Negative Declaration and concurred with the conclusion that the project would be an improvement over the existing discharge and that the discharge would not have a significant impact on water quality particularly because the effluent quality will improve but the volume will not increase. This Order includes effluent limits for EC, BOD, TSS and nitrogen. Compliance with these will mitigate any significant impacts to water quality.

General Findings

44. Based on the threat and complexity of the discharge, the facility is determined to be classified 2-B as defined below:
 - a. Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial use of the receiving water, cause short term violation of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

- b. Category B complexity, defined as, "Any discharger not included above that has physical, chemical, or biological treatment systems (except or septic systems with subsurface disposal) or any Class 2 or 3 waste management units."
45. 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.
46. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.
47. CWC Section 13267(b) states that: "In conducting an investigation specified in subdivision (a), the Central Valley Water 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 Central Valley Water 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 Central Valley Water 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."
48. The technical reports required by this Order and monitoring reports required by the attached Monitoring and Reporting Program (MRP) No. R5-2009-0123 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the WWTF that discharges the waste subject to this Order.
49. DWR 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 CWC Section 13801, apply to all monitoring wells.

Public Notice

50. 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.
51. 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.

52. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. 85-303 is rescinded and that, pursuant to Sections 13263 and 13267 of the California Water Code, Buttonwillow County Water 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 waste to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated wastes, except as allowed by Standard Provision E.2 in *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991, is prohibited.
3. Discharge of waste classified as 'hazardous', as defined in Section 2521(a) of Title 23, CCR, Section 2510 et seq., is prohibited. Discharge of waste classified as 'designated', as defined in CWC Section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

B. Effluent Limitations

1. Effluent shall not exceed the following limitations:

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

¹ Five day biochemical oxygen demand (BOD₅)

² Total suspended solids (TSS)

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

2. The 12-month rolling average EC of the discharge shall not exceed the 12-month rolling average EC of the source water plus 500 µmhos/cm. Compliance with this effluent limitation shall be determined monthly.

3. After Provision G.19 is satisfied, the Total Nitrogen in effluent discharged to the effluent pond or Use Area shall not exceed the monthly average of 10 mg/L.

C. Discharge Specifications

1. The monthly average discharge flow shall not exceed 0.15 mgd. If the Discharger can show that the treatment facility is capable of treating additional flow (see Provision G. 20) the Executive Officer may approve a flow increase up to 0.20 mgd.
2. 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.
3. Public contact with effluent (treatment works, Ponds, Use Area) shall be precluded through such means as fences, signs (in accordance with Title 22, CCR Section 60310(g)), or acceptable alternatives.
4. Objectionable odors shall not be perceivable beyond the limits of the WWTF property at an intensity that creates or threatens to create nuisance conditions.
5. 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.
6. On or about **1 October** of each year, available effluent pond storage capacity shall at least equal the volume necessary to comply with Discharge Specification C.5.
7. 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.

8. 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 caused violation of groundwater limitations.

D. Recycling Specifications

The following specifications apply to the Use Area under the ownership or control of the Discharger.

1. Use of undisinfected secondary treated recycled water shall be limited to flood irrigation of fodder, fiber, and seed crops not eaten by humans or for grazing of non-milking cattle and shall comply with the provisions of Title 22.
2. 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

3. 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.
4. The perimeter of the Use Area 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.
5. 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.
6. Recycling of WWTF effluent shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management plan. The annual nutrient loading of the

Use Area, including the nutritive value of organic and chemical fertilizers and recycled water, shall not exceed crop demand.

7. Public contact with recycled water shall be controlled using signs and/or other appropriate means. Signs of a size no less than four inches high by eight inches wide with proper wording (shown below) 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](#), as part of this Order, and present the following wording:

“RECYCLED WATER – DO NOT DRINK”

“AGUA DE DESPERDICIO RECLAMADA – POR FAVOR NO TOME”

E. Sludge Specifications

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

5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water board or the State Water Board or a local (e.g., county) program authorized by a regional 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 Recycling Activities"). For a biosolids use project to be authorized by the General Biosolids Order, the Discharger must file a complete 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 discharge shall not cause or contribute to groundwater:
 - a. Containing constituent concentrations in excess of the concentrations specified below or natural background quality whichever is greater:
 - (i) Nitrate as nitrogen of 10 mg/L.
 - (ii) Total Coliform Organisms of 2.2 MPN/100 mL.
 - (iii) For constituents identified in Title 22, the MCLs quantified therein.
 - (iv) For Electrical Conductance, 1,600 μ mhos/cm.
 - b. Containing taste or odor-producing constituents, 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 Provision(s).
2. The Discharger shall comply with MRP No. R5-2009-0123, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer. The submittal date of Discharger self-monitoring reports shall be no later than submittal dates specified in the MRP.

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 WWTF collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.
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 this Order.
6. All technical reports and work plans 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. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professionals(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 Central Valley 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 Central Valley Water Board by letter when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
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 Central Valley Water Board.

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 Central Valley Water Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
10. As a means of discerning compliance with Discharge Specifications C.4, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive days. Should the DO be below 1.0 mg/L during a weekly sampling event, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in the affected ponds until the problem has been resolved. If unpleasant odors originating from affected ponds are noticed in developed areas, or if the Discharger received one or more odor complaints, the Discharger shall report the findings in writing within 5 days of the date and shall include a specific plan to resolve the low DO results to the Central Valley Water Board within 10 days of that date.
11. The pH of the discharge to the effluent ponds shall not be less than 6.5 or greater than 8.3 pH units for more than three consecutive sampling events. In the event that the pH of the discharge is outside of this range for more than three consecutive sampling events, the Discharger shall submit a technical evaluation in its monthly SMRs documenting the pH of the discharge to the ponds, and if necessary demonstrate that the effect of the discharge on soil pH will not exceed the buffering capacity of the soil profile.
12. 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 condition 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.

13. The Discharger shall submit the technical reports and work plans required by this Order for Central Valley Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate. The Discharger shall proceed with all work required by the following provisions by the due dates specified.
14. The Discharger shall obtain coverage under, and comply with, Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ.
15. **By 15 June 2010**, the Discharge shall install pump flow meters at each source water well in use and submit a report certifying that it has implemented measures to ensure the proper function, maintenance, and periodic calibration of these meters. The Discharger may submit an alternative for determining flow from each well to the Executive Officer for approval.
16. **By 15 June 2010**, the Discharger shall submit an adequate Title 22 Engineering Report pursuant to Title 22, California Code of Regulations, Section 60323. This provision shall be considered satisfied upon receipt by the Central Valley Water Board of written approval of this report by the California Department of Public Health.
17. **By 15 October 2010**, the Discharger shall conduct a salinity evaluation and submit a salinity minimization plan to identify and implement measures to reduce the salinity in the discharge to the extent feasible and comply with Effluent Limitation B.2. The salinity minimization plan shall include a time schedule to implement the identified measures.
18. **By 15 June 2010**, the Discharger shall submit a work plan describing its efforts to promote water conservation practices.
19. Upon completion of the WWTF upgrade as described in Finding No. 5, the Discharger shall submit engineering certification that the upgrade project has been completed as designed and that the WWTF has sufficient treatment, storage, and disposal capacity to comply with the other terms and conditions of this Order. This provision will be considered satisfied following written acknowledgement from the Executive Officer that the criteria has been met.
20. The Discharger may submit a design report certifying the WWTF has sufficient treatment, storage, and disposal capacity to comply with a monthly average discharge flow limit of 0.2 mgd. The report must be prepared by a California Registered Civil Engineer.
21. **By 15 December 2011**, the Discharger shall comply with the effluent nitrogen limitation (Effluent Limitation B.3). Alternatively, the Discharger may submit a new Report of Waste Discharge that includes a technical report that demonstrates the

performance of the effluent storage ponds. If this alternative is pursued, the performance demonstration shall establish that the pond design, along with a Nutrient Management Plan, will be protective of groundwater quality and that seepage from the ponds will not contribute to nitrogen in groundwater exceeding groundwater limitations. Any alternative shall include groundwater quality information in the storage pond and reuse area for the unconfined aquifer. 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 10 December 2009.

Original signed by:

PAMELA C. CREEDON, Executive Officer

Order Attachments:

- A Site Location Map
 - B Flow Schematic
 - C Recycled Water Signage
- Monitoring and Reporting Program No. R5-2009-0123
Information Sheet
Standard Provisions (1 March 2009)

DMS/DKP: 12/10/2009

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-0123
FOR
BUTTONWILLOW COUNTY WATER DISTRICT
WASTEWATER TREATMENT FACILITY
KERN 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 Central Valley Water Board adopts or the Executive Officer issues a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

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

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

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

A glossary of terms used within this MRP is included on page 8 and a list of the constituents required for the monitoring of Priority Pollutants is included in Table 1, which is on page 9.

INFLUENT MONITORING

Influent samples shall be collected at the inlet of the headworks of the WWTF. Time of collection of the sample shall be recorded. Influent monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Weekly	pH	pH Units	Grab
Weekly	EC	µmhos/cm	Grab
Monthly ¹	BOD ₅	mg/L	24-hour composite
Monthly ¹	TSS	mg/L	24-hour composite
Monthly	Monthly Average Discharge Flow	mgd	Computed

¹ Upon completion of the WWTF upgrade, weekly monitoring shall take place for at least three months. If monitoring results shows that there are no significant variations in magnitude of a constituent concentration or parameter, and after approval by the Executive Officer, the monitoring frequency can be reduced back to monthly.

EFFLUENT MONITORING

Effluent samples shall be collected at a point in the system following treatment and before discharge to the effluent storage ponds or Use Area. Time of collection of the sample shall be recorded. Effluent monitoring shall include the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	pH	pH Units	Grab
Weekly	EC	µmhos/cm	Grab
Monthly ¹	BOD ₅	mg/L	24-hour composite
Monthly ¹	TSS	mg/L	24-hour composite
Monthly ¹	Total Nitrogen	mg/L	Computed
Quarterly	General Minerals	mg/L	24-hour composite
Once every 5 Years ²	Priority Pollutants (see Table 1)	Varies ³	Varies

¹ Upon completion of the WWTF upgrade, weekly monitoring shall take place for at least three months. If monitoring results shows that there are no significant variations in magnitude of a constituent concentration or parameter, and after approval by the Executive Officer, the monitoring frequency can be reduced back to monthly.

² Beginning in January 2010.

³ mg/L or µg/L, as appropriate.

POND MONITORING

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

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

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

² To nearest tenth of a foot

The Discharger shall inspect the condition of the ponds weekly and record visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether grease, dead algae, vegetation, scum, or debris are accumulating on the 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 shall be included in the subsequent monitoring report.

SOURCE WATER MONITORING

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

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Flow-Weighted EC	µmhos/cm	Computed average
Annually	General Minerals	mg/L	Computed average

SLUDGE MONITORING

Sludge shall be sampled for the following constituents:

Arsenic	Copper	Nickel
Cadmium	Lead	Selenium
Molybdenum	Mercury	Zinc

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

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

The Discharger shall demonstrate that treated sludge (i.e., biosolids) meets Class A or Class B pathogens reduction levels by one of the methods listed in 40 CFR, Part 503.32.

The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction requirements in 40 CFR, Part 503.33(b).

USE AREA MONITORING

The Discharger shall perform the routine monitoring and loading calculations for each discrete irrigation area within the Use Area. Data shall be collected and presented in tabular format in accordance with Table 2.

In addition, the Discharger shall inspect the Use Area on a weekly basis. Evidence of erosion, field saturation, runoff, of the presence of nuisance conditions (i.e., flies, ponding, etc.) shall be noted in field logs and included as part of the quarterly monitoring reports.

REPORTING

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

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

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

The following information is to be included on all monitoring and annual reports, as well as report transmittal letters, submitted to the Central Valley Water Board:

Discharger Name
Facility Name
MRP Number
Contact Information (telephone number and email)

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.

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

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

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

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

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

A. All Quarterly Monitoring Reports shall include the following:

Wastewater reporting

1. The results of influent, effluent, and pond monitoring specified on page 2 and 3.
2. For each month of the quarter, calculation of the maximum daily flow and the monthly average flow.
3. For each month of the quarter, calculation of the 12-month rolling average EC of the discharge using the EC value for that month averaged with the EC values for the previous 11 months.
4. For each month of the quarter, calculation of the monthly average effluent BOD and TSS concentrations, and calculation of the percent removal of BOD and TSS compared to the influent.
5. A summary of the notations made in the pond monitoring log during each quarter. Copies of log pages covering the quarterly reporting period shall not be submitted unless requested by Central Valley Water Board staff.

Source water reporting

1. For each month of the quarter, calculation of the flow-weighted 12-month rolling average EC of the source water using monthly flow data and the source water EC values for the most recent four quarters.

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

Wastewater treatment facility information

1. The names, certificate grades, and general responsibilities of all persons in charge of wastewater treatment and disposal.
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations.
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
4. A statement whether the current operation and maintenance manual, sampling plan, and contingency plan, reflect the WWTF as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
5. The results of an annual evaluation conducted pursuant to Standard Provision E.4 and a figure depicting monthly average discharge flow for the previous five calendar years.

Solids/Sludge monitoring

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

Use Area reporting

1. The type of crop(s) grown in the Use Area, and the quantified hydraulic and nitrogen loading rates in accordance with Table 2.
2. A summary of the notations made in the Use Area monitoring log during each quarter. The entire contents of the log do not need to be submitted.

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

Ordered by: Original signed by:
PAMELA C. CREEDON, Executive Officer

10 December 2009

(Date)

DMS/DKP: 12/10/2009

GLOSSARY

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

Table 1. Priority Pollutant Scan

<u>Inorganics¹</u>	<u>Organics</u>		
Antimony	Acrolein	3-Methyl-4-Chlorophenol	Hexachlorobenzene
Arsenic	Acrylonitrile	Pentachlorophenol	Hexachlorobutadiene
Beryllium	Benzene	Phenol	Hexachlorocyclopentadiene
Cadmium	Bromoform	2,4,6-Trichlorophenol	Hexachloroethane
Chromium (III)	Carbon tetrachloride	Acenaphthene	Indeno(1,2,3-c,d)pyrene
Chromium (VI)	Chlorobenzene	Acenaphthylene	Isophorone
Copper	Chlorodibromomethane	Anthracene	Naphthalene
Lead	Chloroethane	Benidine	Nitrobenzene
Mercury	2-Chloroethylvinyl Ether	Benzo(a)Anthracene	N-Nitrosodimethylamine
Nickel	Chloroform	Benzo(a)pyrene	N-Nitrosodi-n-Propylamine
Selenium	Dichlorobromomethane	Benzo(b)fluoranthene	N-Nitrosodiphenylamine
Silver	1,1-Dichloroethane	Benzo(g,h,i)perylene	Phenanthrene
Thallium	1,2-Dichloroethane	Benzo(k)fluoranthene	Pyrene
Zinc	1,1-Dichloroethylene	Bis(2-chloroethoxy) methane	1,2,4-Trichlorobenzene
Cyanide	1,2-Dichloropropane	Bis(2-chloroethyl) ether	
Asbestos	1,3-Dichloropropylene	Bis(2-chloroisopropyl) ether	<u>Pesticides</u>
	Ethylbenzene	Bis(2-Ethylhexyl)phthalate	Aldrin
<u>Dioxin Congeners</u>	Methyl Bromide	4-Bromophenyl phenyl ether	alpha-BHC
2,3,7,8-TCDD	Methyl Chloride	Butylbenzyl Phthalate	beta-BHC
1,2,3,7,8-PentaCDD	Methylene Chloride	2-Chloronaphthalene	gamma-BHC (Lindane)
1,2,3,4,7,8-HexaCDD	1,1,2,2-Tetrachloroethane	4-Chlorophenyl Phenyl Ether	delta-BHC
1,2,3,6,7,8-HexaCDD	Tetrachloroethylene (PCE)	Chrysene	Chlordane
1,2,3,7,8,9-HexaCDD	Toluene	Dibenzo(a,h)Anthracene	4,4'-DDT
1,2,3,4,6,7,8-HeptaCDD	1,2-Trans-Dichloroethylene	1,2-Dichlorobenzene	4,4'-DDE
OctaCDD	1,1,1-Trichloroethane	1,3-Dichlorobenzene	4,4'-DDD
2,3,7,8-TetraCDF	1,1,2-Trichloroethane	1,4-Dichlorobenzene	Dieldrin
1,2,3,7,8-PentaCDF	Trichloroethylene (TCE)	3,3'-Dichlorobenzidine	alpha-Endosulfan
2,3,4,7,8-PentaCDF	Vinyl chloride	Diethyl phthalate	beta-Endosulfan
1,2,3,4,7,8-HexaCDF	2-Chlorophenol	Dimethyl phthalate	Endosulfan Sulfate
1,2,3,6,7,8-HexaCDF	2,4-Dichlorophenol	Di-n-Butyl Phthalate	Endrin
1,2,3,7,8,9-HexaCDF	2,4-Dimethylphenol	2,4-Dinitrotoluene	Endrin Aldehyde
2,3,4,6,7,8-HexaCDF	2-Methyl-4,6-Dinitrophenol	2,6-Dinitrotoluene	Heptachlor
1,2,3,4,6,7,8-HeptaCDF	2,4-Dinitrophenol	Di-n-Octyl Phthalate	Heptachlor epoxide
1,2,3,4,7,8,9-HeptaCDF	2-Nitrophenol	1,2-Diphenylhydrazine	Polychlorinated biphenyls
OctaCDF	4-Nitrophenol	Fluoranthene	Toxaphene
		Fluorene	

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

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

Table 2. Use Area Monitoring

Recycled Water Monitoring Data For Year: _____								
Parcel No. _____ of _____ acres								
		Water application				Nitrogen application		
		Water required	Effluent used	Other water used	Total irrigation water	As fertilizer	As effluent*	Total nitrogen applied
Month	Crop	(AF)	(AF)	(AF)	(AF)	(lbs/acre)	(lbs/acre)	(lbs/acre)
October								
November								
December								
Subtotal:								
January								
February								
March								
Subtotal:								
April								
May								
June								
Subtotal:								
July								
August								
September								
Subtotal:								
Annual Total:								
* calculated as (AF effluent/acre) x (2.72) x (X mg/l total nitrogen) = lbs nitrogen/acre								

INFORMATION SHEET

INFORMATION SHEET – ORDER NO. R5-2009-0123
BUTTONWILLOW COUNTY WATER DISTRICT
WASTEWATER TREATMENT FACILITY
KERN COUNTY

Background

Buttonwillow County Water District (hereafter Discharger) owns and operates a Wastewater Treatment Facility (WWTF) northeast of the unincorporated community of Buttonwillow. The WWTF is regulated by Waste Discharge Requirements (WDRs) Order No. 85-303 that authorizes a discharge of 0.2 million gallons per day (mgd) of undisinfected secondary treated wastewater to a storage pond and 50 acres of Use Area.

The current WWTF is about 50 years old and does not adequately treat wastewater to meet current Basin Plan requirements. The Discharger submitted a Report of Waste Discharge (RWD) dated September 2008 for a proposed WWTF upgrade.

The Discharger is proposing to upgrade the existing WWTF by adding two treatment trains running in parallel for a total designed daily average flow of 0.15 mgd. The proposed WWTF will include replacement of sewer trunkline, 1,000 feet of sewer main, a lift station, mechanical bar screen, two equalization tanks, two denitrification tanks, two Bio-tanks, two membrane tanks, two aerated sludge tanks, three concrete-lined sludge drying beds with a 4 inch thickness, and two 22.5-acre-ft unlined storage ponds and approximately 50 acres of Use Area.

WDRs Order No. 85-303 is being updated by this Order that includes WDRs for the WWTF and reclamation requirements for the 50 acres of Use Area.

Solids and Biosolids Disposal

The existing deteriorated sludge drying beds are a potential source of groundwater degradation. The Discharger is proposing to construct three concrete-lined sludge drying beds and haul the dry sludge off site.

Groundwater Conditions

WDRs Order No. 85-303 characterizes groundwater in the discharge area as follows. Unconfined groundwater occurs at a depth ranging from 50 to 70 feet below ground surface, flows in a northeast direction, and exhibits an electrical conductivity (EC) of about 1,500 $\mu\text{mhos/cm}$, which corresponds to an approximate total dissolved solids (TDS) concentration of 980 mg/L (TDS = 0.65 x EC).

In the early 1970's, the Kern County Water Agency (KCWA) sampled shallow groundwater in the discharge area. Shallow groundwater was not found immediately around the WWTF; however, in Section 17, Township 29S, Range 23E (within about 3 miles west of the WWTF) the shallow water was found to have an EC of 2,700 $\mu\text{mhos/cm}$ (TDS of 1,738 mg/L). Generally to the north and west of Buttonwillow, the depth to water is less and of poorer quality (*Brackish Water Investigation Shallow Water Table Survey, Phase II, Kern County, California, 1974*).

According to water quality maps in a 1999 Water Supply Report developed by the KCWA and published in May 2003, the EC and TDS in the unconfined aquifer are approximately 1,500 $\mu\text{mhos/cm}$ ($\text{EC} = \text{TDS}/0.65$) and 1,000 mg/L, respectively.

Below the area of the WWTF, the Corcoran Clay layer is found approximately 450 feet below ground surface. According to KCWA, the EC and TDS in the confined aquifer are about 770 $\mu\text{mhos/cm}$ and 500 mg/L, respectively.

Buttonwillow Sanitary Landfill (landfill) is located west of the existing WWTF. The landfill has a groundwater monitoring system that consists of various shallow and deeper monitoring wells. The groundwater gradient is uncertain due to influences from the East Side Canal located southwest of both the landfill and WWTF.

Compliance History

On 4 December 2002, a Notice of Violation (NOV) was issued to the Discharger for threatening to violate Discharge Prohibition A.1 and Discharge Specification B.5 by threatening to discharge sludge and storm water runoff that could potentially impact surface waters, and stockpiling sludge in an inadequate storage area, respectively.

The most recent NOV was issued to the Discharger on 27 April 2006 for submitting incomplete self-monitoring reports (Provision C.1 of WDRs Order No. 85-303); particularly the lack of water supply monitoring data and biosolids monitoring data.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan indicates the greatest long-term water quality 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 Central Valley Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an effluent EC limitation of 500 $\mu\text{mhos/cm}$ over source water EC or a 1,000 $\mu\text{mhos/cm}$, as the measure of the maximum permissible addition of salt constituents through use.

The Basin Plan states that discharges to areas that may recharge to good quality groundwater shall not exceed an EC of 1,000 $\mu\text{mhos/cm}$, or boron content of 1.0 mg/L. The groundwater is not of good quality.

Antidegradation

State Water Board Resolution No. 68-16 (the Antidegradation Policy) requires that the Regional Water Board, in regulating the discharge of waste, must maintain the high quality of water of the state 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 Region Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution No. 68-16 also requires that waste discharged to high quality water be required to meet WDRs that will result in the best practicable treatment or control of the discharge. Resolution No. 68-16 prohibits degradation of groundwater quality as it existed in 1968, or at any time thereafter that groundwater quality was better than in 1968, other than degradation that was previously authorized. An antidegradation analysis is required for an increased volume or concentration of waste.

The permitted discharge will not increase mass emissions of pollutants. The upgrade will decrease mass emissions of nitrates, because of better treatment. Therefore, the discharge is in compliance with the Antidegradation Policy.

Treatment Technology and Control

The upgrade project will provide treatment and control of the discharge that incorporates:

- a. Secondary treatment of the wastewater;
- b. Nitrogen reduction of the wastewater; and
- c. Recycling of wastewater for crop irrigation.

Title 27

The discharge meets the criteria for an exemption from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (Title 27).

CEQA

Buttonwillow County Water District adopted Mitigated Negative Declaration (SCH # 2006111131) for the WWTF upgrade project in accordance with the California Environmental Quality Act (CEQA) and filed a Notice of Determination on 11 May 2007.

Central Valley Water Board staff reviewed the Mitigated Negative Declaration and concurred with the conclusion that the project would be an improvement over the existing discharge and that the discharge would not have a significant impact on water quality, particularly because the effluent quality will improve but the volume will not increase.

Proposed Order Terms and Conditions

Discharge Prohibitions, Specifications and Provisions

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

The proposed Order would set a monthly average daily flow limit of 0.15 mgd. The Discharger commented on the Tentative Waste Discharge Requirements that the flow limit should remain 0.20 mgd as in the Existing Waste Discharge Requirements. The design report submitted indicates that the new facility will be designed for just 0.15 mgd, which it should comply with. The Discharger may submit a design report that shows the new facility will be able to treat 0.20 mgd.

The Order includes effluent limits for BOD₅ and TSS each of 40 mg/L monthly average and 80 mg/L daily maximum. These limitations are based on Title 22, water recycling requirements.

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

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

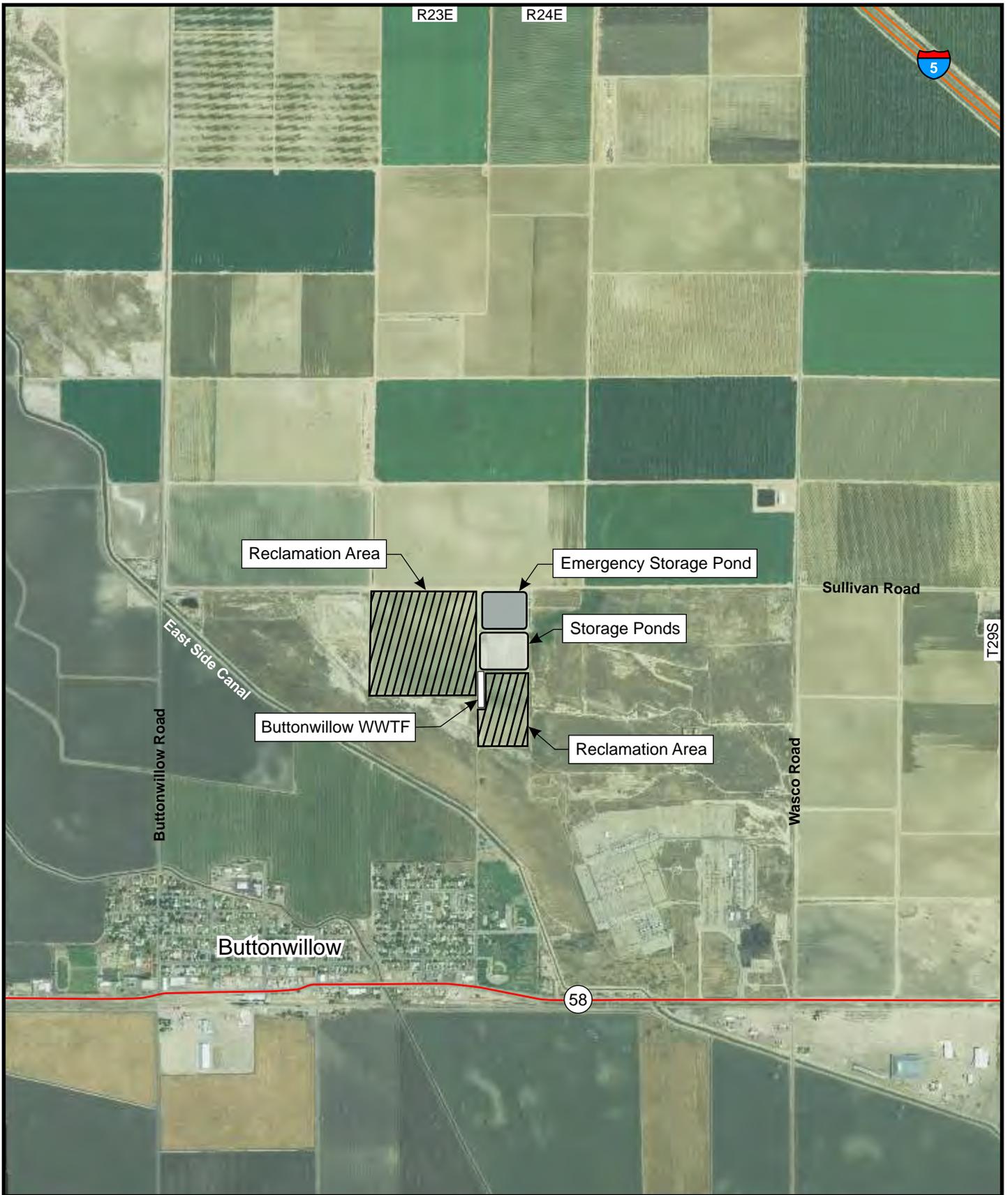
Monitoring Requirements

The proposed Order includes influent and effluent monitoring requirements, pond monitoring, source water monitoring, sludge monitoring, and Use Area monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance with effluent limitations prescribed by the Order, and evaluate groundwater quality and the extent of the degradation caused by the discharge.

Reopener

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

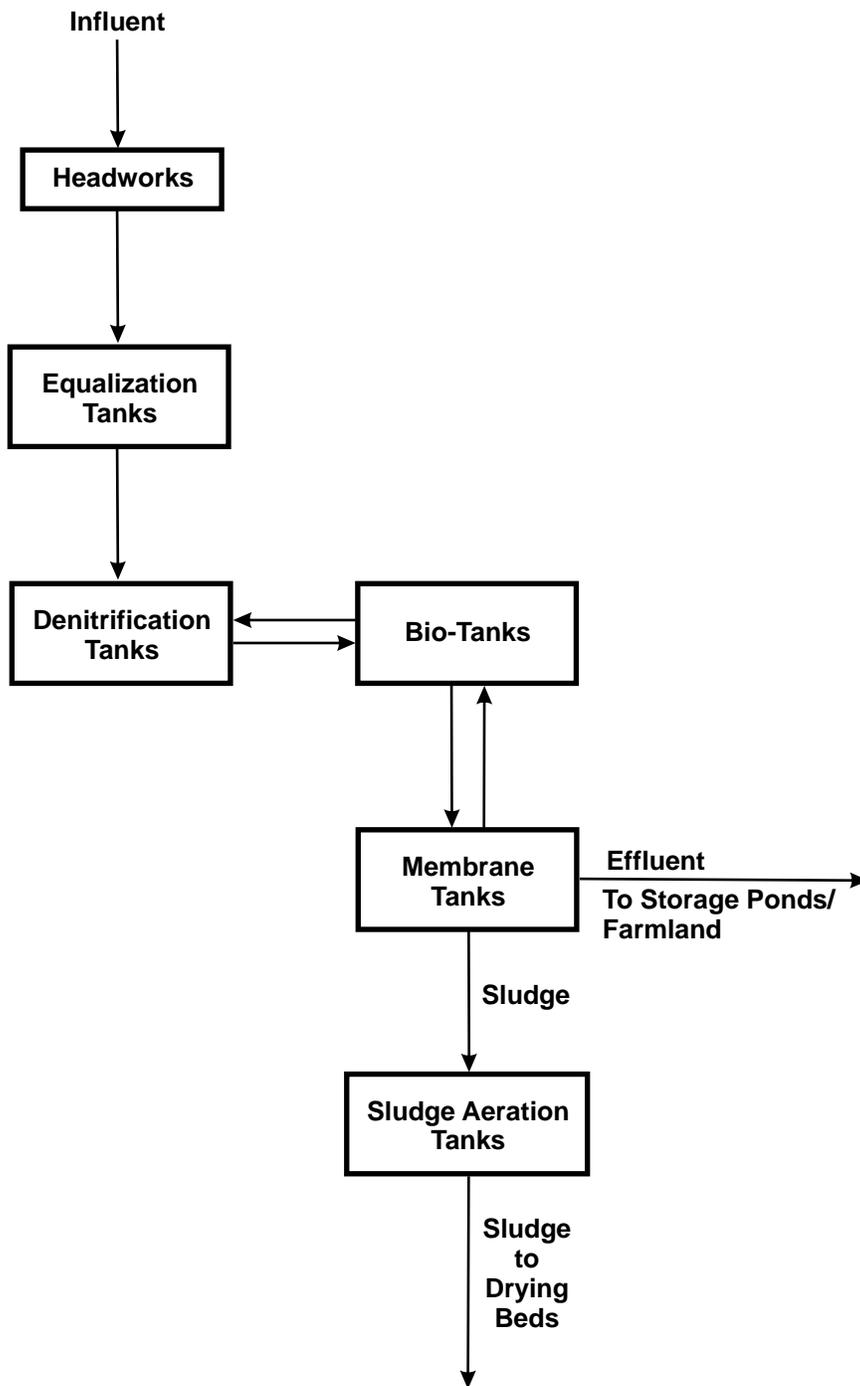
DMS/DKP: 12/10/2009



Map Source:
 NAIP Aerial Photograph (2005)
 Section 13, T29S, R23E, MDB&M



FACILITY MAP
 WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2009-0123
 FOR
 BUTTONWILLOW COUNTY WATER DISTRICT
 WASTEWATER TREATMENT FACILITY
 KERN COUNTY



PROCESS FLOW DIAGRAM

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2009-0123
 FOR
 BUTTONWILLOW COUNTY WATER DISTRICT
 WASTEWATER TREATMENT FACILITY
 KERN COUNTY

NOT TO SCALE



NONPOTABLE WATER INTERNATIONAL SYMBOL

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2009-0123

FOR

BUTTONWILLOW COUNTY WATER DISTRICT

WASTEWATER TREATMENT FACILITY

KERN COUNTY