

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0092

NPDES NO. CA0081485

WASTE DISCHARGE REQUIREMENTS  
FOR  
CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY  
WASTEWATER TREATMENT FACILITY  
TULARE COUNTY

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

1. The Cutler-Orosi Joint Powers Wastewater Authority (hereafter Discharger) submitted a Report of Waste Discharge (RWD), dated 20 January 2003, and applied for permit renewal to discharge pollutants under the National Pollutant Discharge Elimination System (NPDES) from its wastewater treatment and disposal facility (WWTF). The RWD requests an increase in flow from 1.8 mgd to 2.0 mgd.
2. The Discharger's WWTF serves the communities of Cutler, Orosi, East Orosi, Yettem, Seville, and Sultana. The WWTF is in Cutler at 40401 Road 120 in Tulare County, in Section 24, T16S, R25E, MDB&M, and as shown on Attachment A, a part of this Order. The WWTF and its discharges lie in the Alta Hydrologic Area (No. 551.60) of the South Valley Floor Hydrologic Unit (HU) as shown in the interagency hydrologic maps prepared by the California Department of Water Resources (DWR) in August 1986.
3. Waste Discharge Requirements Order No. 97-106, an NPDES permit adopted on 20 June 1997, regulates the discharge of 2.0 mgd of effluent from the WWTF to land via Discharge 001 and into Sand Creek via Discharge 002. Order No. 97-106 prohibits discharge or overflow of untreated or partially treated waste and imposes effluent limits for Discharge 001 and Discharge 002.
4. The WWTF includes headworks, , pump screws, two primary clarifier-digesters, two trickling filters, an oxidation ditch, a secondary clarifier, ultraviolet light (UV) disinfection, two unlined sludge lagoons, and 16 unlined sludge drying beds. Treated wastewater is stored in one of two unlined holding ponds prior to discharge or discharged directly without storage. The unlined holding ponds have a total pond bottom of 16 acres. Effluent evaporates and percolates from the holding ponds. A flow schematic is shown in Attachment B.
5. Discharge 001 is recycling of wastewater on 106 acres of Discharger owned land (Use Area), which is in Section 24, T16S, R24E, MDB&M. The Discharger has an additional 20 acres available for irrigation, pending the installation of irrigation piping. The Discharger grows fodder, fiber, and seed crops on the land, primarily sudan grass in the summer and winter wheat or occasionally natural clover in the winter. Both sudan grass and winter wheat are moderately salt tolerant.

6. Discharge 002 is to Sand Creek, a water of the United States, which runs parallel to the WWTF on its south and east sides. Discharge 002 occurs from the WWTF at Longitude 119°18'12" West; Latitude 36°31'23" North. Order No. 97-106 permits discharge to Sand Creek from November 1 through April 30 of each year.
7. Sludge is dewatered in the unlined sludge drying beds. The sludge disposal method and location are evaluated separately for each disposal event based upon sludge characteristics and the suitability of the proposed disposal area. On 23 October 2003, Regional Board staff inspected the WWTF and observed three years of accumulated sludge stored on-site pending selection of an appropriate disposal site. The Discharger's Sludge Management Plan, written in 1982, does not reflect current practices, and needs to be updated.
8. The RWD identifies an average daily effluent flow of 1.35 million gallons per day (mgd) and a maximum daily effluent flow of 1.63 mgd. The effluent design flow for the WWTF is 2.0 mgd. Self monitoring reports from 2000 to 2002 indicated an average daily effluent flow of 1.50 mgd and maximum daily effluent flow of 2.12 mgd.
9. Based on self-monitoring reports submitted from January 2000 through February 2005, the WWTF influent and effluent quality has been as follows:

<u>Parameter</u>	<u>Average Concentration (mg/L)</u>		
	<u>Influent</u>	<u>Discharge 001</u>	<u>Discharge 002</u>
BOD <sup>1</sup>	200	2.1	2.4
Total Suspended Solids	183	3.0	3.8
Settleable Solids	3.1	0.1	0.1

<sup>1</sup> 5-day, 20°C biochemical oxygen demand

10. Based on self-monitoring reports from January 2002 through December 2003, conductivity at 25° C (EC) of source water as a weighted average of all sources was 459 µmho/cm.
11. Since 1997 the Discharger has been issued notices of violation (NOV) for:
  - a. Incomplete, late, or missing monitoring reports;
  - b. Lack of and poor maintenance of flow meters;
  - c. Inadequate sampling, analyses, calibration and records retention;
  - d. Inadequate maintenance of treatment units;
  - e. Improper sludge storage and disposal; and
  - f. Failure to consistently retain the appropriate grade WWTF operator.

In May of 2003, a NOV was issued for these deficiencies.

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12. Based on the information obtained from the *Lines of Equal Elevation of Water Wells in Unconfined Aquifer*, published by Department of Water Resources in spring 1995, the depth of groundwater in the region was about 45 feet below ground surface. During wet years, the groundwater rises to less than five feet below ground surface.

**APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANS**

13. The federal Clean Water Act (CWA) Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 306 and 307 (Toxic and Pretreatment Effluent Standards) as amended and their implementing regulations in Title 40, Code of Federal Regulations (40 CFR), Parts 122, 125, 131, 133, 136, 403, and 503 that are applicable to this discharge establish the bases for the effluent limitations, pretreatment requirements, and certain sludge disposal requirements in this Order.
14. California Water Code (CWC), Division 7, and its implementing regulations in Title 23, California Code of Regulations (CCR) (Title 23), establish the water quality protection, permitting and enforcement requirements in this Order.
15. Section 13263.6(a) of the CWC requires that “the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a publicly owned treatment works (POTW) for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Resources Control Board (SWRCB or State Board) or the Regional Board has established numeric water quality objectives and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective.” Reports generated through the United States Environmental Protection Agency’s (USEPA) Toxic Release Inventory Explorer (TRI) on 14 April 2005 indicate that there is no data for TRI on-site and off-site reported, disposed of or otherwise released chemicals from Cutler or Orosi, East Orosi, Yettam, and Sultana.
16. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, adopted in 1995, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation programs and policies to achieve WQOs for all waters of the Basin. These requirements implement the Basin Plan.
17. The USEPA adopted the *National Toxics Rule* (NTR) on 22 December 1992, which was amended on 4 May 1995 and 9 November 1999, and the *California Toxics Rule* (CTR) on 18 May 2000, which was amended on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP) on 2 March 2000, which contains policies

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and procedures for implementation of the NTR and the CTR. The SIP was updated on 9 February 2005.

18. Federal regulations at 40 CFR Part 131.12 (40 CFR 131.12) establish a federal antidegradation policy that applies to the surface water discharge that is the subject of this Order. State Board Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation" Policy) requires that discharge of waste maintain all high quality waters of the State until it is demonstrated that any change in quality is 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 water quality policies (i.e., the change results in exceedances of WQOs).
19. California Business and Professions Code (CBPC) Division 3, Chapters 7 and 12.5, and their implementing regulations in Title 16, CCR, provide the bases for qualification requirements applicable to technical work and technical report preparation as specifically stated in this Order.

**Department of Health Services Recommendations/Regulations**

20. 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, CCR, Section 60301, et seq., (hereafter Title 22) for recycled water.
21. The 1988 Memorandum of Agreement (MOA) between DHS and the State Board establishes basic principles for application of recycled water. 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.
22. Title 22, Section 60304, requires that recycled water used for the surface irrigation of fodder crops (e.g., alfalfa) be at least undisinfected secondary recycled water. Title 22, Section 60301.900, defines secondary recycled water as "oxidized water," which, according to Title 22, Section 60301.650, is "...wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen." Order No. 97-106 did not require the Discharger to submit a Title 22 engineering report. Provision I.24 requires the Discharger to submit a Title 22 engineering report. This Order may be reopened and modified to incorporate DSH recommendations.

23. DHS drafted *Uniform Guidelines for Wastewater Disinfection*, retyped in November 2000, (Guidelines) that recommend treatment and disinfection levels for discharges to waters of the State. The Guidelines recommend effluent have a median coliform bacteria most probable number (MPN) not exceeding 23/100 mL when:
- a. Discharges are to ephemeral streams that have little or no natural flow during all or part of the year,
  - b. There is no nearby habitation,
  - c. Recreation is not identified as a beneficial use, and
  - d. Contact with the effluent is not encouraged.

The DHS recommended effluent limit for coliform is appropriate because Sand Creek is ephemeral and has little or no natural flow during all or part of the year, habitation is sparse, recreation has not been identified as a beneficial use of Sand Creek, and discharges occur during the winter thereby discouraging contact with the effluent.

## **GROUNDWATER**

### **Beneficial Uses**

24. The underlying groundwater is in the Detailed Analysis Unit (DAU) 239 of the King's Basin Hydrologic Unit (HU). The designated beneficial uses of the groundwater are:
- a. Municipal supply (MUN),
  - b. Agricultural supply (AGR),
  - c. Industrial service supply (IND), and
  - d. Industrial process supply (PRO).

### **Water Quality Objectives**

25. Basin Plan water quality objectives to protect the above beneficial uses include a numerical objective for coliform and narrative objectives for chemical constituents in and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The Basin Plan establishes numerical water quality objectives that quantify maximum permissible concentrations for groundwaters designated as municipal supply. These include maximum

contaminant levels (MCLs) in Title 22, CCR (i.e., §64431 (Inorganic Chemicals); §64431

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(Fluoride); §64443 (Radioactivity); §64444 (Organic Chemicals); and §64449 (Secondary MCLs - Consumer Acceptance Limits)).

26. As knowledge about concentrations harmful to public health is always expanding, the Basin Plan's incorporation of MCLs by reference is prospective to incorporate changes to MCLs as changes in Title 22 take effect. However, in the event of such a change, its implementation would be effected through reopening of this Order and reconsideration of discharge requirements. The Basin Plan requires the application of objectives more stringent than MCLs as necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, or pesticides in concentrations that adversely affect domestic drinking water supply, agricultural supply, or some other beneficial use.
27. Quantifying a narrative water quality objective requires a site-specific evaluation of each waste constituent for consistency with the narrative objective using the translation procedures set forth in the Basin Plan. These procedures require the consideration of, among other things, site-specific hydrogeologic and land use factors and relevant numerical criteria and guidelines developed or published by other agencies and organizations.
28. The major constituents of concern in assessing the quality of water for agriculture are salinity (expressed as EC or TDS), boron, chloride, and sodium. In general, animal uses are less sensitive than crops for these constituents. Salinity reduces crop growth by reducing the ability of plant roots to absorb water. The salt tolerance of crops also depends on the frequency and type of irrigation (e.g., drip, furrow, or sprinkler irrigation). Boron is an essential element but can become toxic to some plants when concentrations in water even slightly exceed the amount required for optimal growth. Like salt tolerance, boron tolerance varies with the climate, the soil, and the crop. While boron sensitivity appears to affect a wide variety of crops, sodium and chloride toxicities are mostly limited to tree crops and woody perennials (e.g., citrus, stone-fruit, and vineyard). A predominance of sodium relative to other ions in water may disperse soil aggregates, which in turn, affects virtually all crops by decreasing the permeability of the soil by water and air.
29. *Water Quality for Agriculture* provides general salt tolerance guidelines for many common field, vegetable, forage, and tree crops.
30. In determining the concentrations of salinity, boron, chloride, and sodium in groundwater associated with no adverse affects on agricultural beneficial use in a given area, it is likely that multiple criteria apply. While the most stringent concentration becomes the constraining criterion, it is not necessarily the concentration required to protect all crops typically grown in the area.
31. With respect to specific-ion toxicity, *Water Quality for Agriculture* and other similar references indicate that significant reductions in crop yields can be expected if boron content exceeds 0.7 mg/L for boron sensitive crops (e.g., stone fruit). Similarly, reductions in yields of sodium and chloride sensitive crops are not evident when sprinkler irrigated with water containing sodium and chloride concentrations of up to 3 milliequivalents per liter (meq/L)

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(i.e., 69 mg/L sodium and 106 mg/L chloride). If such crops are not sprinkler irrigated, the maximum concentrations of sodium and chloride associated with no apparent yield reduction may increase, however the extent of the increase is typically crop specific.

32. In the process of crop irrigation, evaporation and crop transpiration remove water from and result in accumulation of residual salts in the soil root zone. These salts would retard or inhibit plant growth except for a fraction of irrigation water applied to leach the harmful salt from the root zone. The leached salts eventually enter groundwater.
33. The Basin Plan sets maximum effluent salinity limits for discharges of treated municipal and domestic wastewater to land. It specifically states the maximum EC shall not exceed the EC of the source water plus 500  $\mu\text{mhos/cm}$ . It also states that discharges to areas that may recharge to good quality groundwater shall not exceed an EC at 1000  $\mu\text{mhos/cm}$ , a chloride concentration of 175 mg/L, or a boron concentration at 1.0 mg/L.
34. The use of municipal wastewater for irrigation at agronomic rates will have a comparable impact on groundwater as fresh water of comparable quality. Beneficial reuse of wastewater conserves freshwater resources and is encouraged within water short areas by the Basin Plan as well as the legislature (CWC 13500 et. Seq.)
35. The list of crops in Finding 5 is not intended as a definitive inventory of crops that are or could be grown in the area potentially affected by the discharge. Based on climate, soil type, and natural background water quality, other crops sensitive to salt and boron might be capable of being grown in the area, and changing market conditions could drive a change in cropping patterns. Additional information is necessary to determine existing and potential local cropping patterns for areas potentially affected by the discharge.

**Groundwater Degradation/Limitations**

36. In response to Cease and Desist Order No. 96-060, the Discharger submitted an Irrigation Management Plan on 16 April 1996. The plan includes water balance and nitrogen balance calculations. The nitrogen balance calculations for a 2.0 mgd design flow show that the nitrogen loading is below the loading rates recommended by USEPA for all months except October. For the month of October the Discharger proposed to store the wastewater in a lined pond and discharge after mixing with other months' wastewater amounts. No lined ponds exist at the WWTF.
37. Domestic wastewater contains constituents such as oxygen demanding substances (i.e., BOD<sub>5</sub>), salinity constituents, pathogens, nutrients (e.g., nitrate), organics, and metals. Discharge to land in a manner that allows waste infiltration and percolation may result in an increase in the concentration of one or more of these constituents in groundwater. To be permissible, any increase in the concentration of these constituents in groundwater must be consistent with the antidegradation provisions of Resolution 68-16.

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38. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, CCR, §20005 et seq. (hereafter Title 27). The exemption, pursuant to §20090(a) of Title 27, is based on the following:
- a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and
  - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment facility.
39. Excessive residual organic carbon in percolating effluent can cause elevated concentrations of dissolved manganese and iron in groundwater.
40. Degradation of groundwater by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria), and by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order is inconsistent with Resolution 68-16. Degradation of groundwater by waste constituents in the discharge after subjecting them to effective source control, treatment, and control may be determined consistent with Resolution 68-16, after consideration of reasonableness under the circumstances of the discharge. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that the degradation is:
- a. Limited in extent;
  - b. Restricted to waste constituents characteristic of municipal wastewater and not totally removable by best practicable treatment and control (BPTC) measures;
  - c. Minimized by fully implementing, regularly maintaining, and optimally operating BPTC measures;
  - d. Demonstrated to be consistent with WQOS prescribed in the basin plan; and
  - e. Justified to be consistent with the maximum benefit to the people of California.
41. Soil survey maps developed by the United States Department of Agriculture indicates soils in the area of the WWTF include Exeter Loams, Handford Sandy Loams, and to a lesser extent, San Joaquin Loams. An April 1983 report entitled *Selection of Monitoring Wells for Cutler-Orosi Wastewater Facility*, submitted by John Carollo Engineers, indicates that soil pits dug in the reclamation area are underlain by 3-feet of sandy loam, one-foot of hardpan, another 3.5 foot thick layer of sandy loams and another 1.5 foot thick layer of hardpan.
42. As further described in the Information Sheet, the Discharger installed and maintains a groundwater monitoring well network to monitor groundwater affected by discharges to the Use Area (See Attachment C). The network is comprised of five wells around the periphery of the WWTF property. Well A is in the northwest corner of the property and Well B is approximately 1,000 feet west southwest of Well A. Well C is on the western boundary of the property, at the midpoint between Avenue 404 and the property corner directly to the north. Well D is 1,200 feet south of Well C at the southwest corner of the property. Well E is at the property corner at Avenue 404 and Road 118, some 880 feet east and 400 feet north of Well D.

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Groundwater contours based on data from these wells indicate that flow under the Use Area is generally in a west southwest direction, such that Well A may be representative of background conditions. Depth of groundwater fluctuations was generally less than five feet from January 1997 to August 2001 and has generally been greater than five feet since September 2001. Well C, and possibly Well B, are likely to experience groundwater impacts from recycling activities. Wells D and E may be subject to impacts from recycling activities, and impacts from storage pond percolation. The Discharger has reported it is amending its "Groundwater Monitoring Plan," to include two new monitoring wells drilled in 2004.

43. Monitoring data from the existing network indicates that groundwater passing under the WWTF and Use Areas contains elevated concentrations of salt constituents, boron, magnesium, nitrate (as N), and total nitrogen compared to background water quality and in some cases to applicable water quality limitations. For example, nitrate occasionally exceeds the State Maximum Contaminant Level (MCL) of 10 mg/L. As stated in Finding 42, the Discharger added two new monitoring wells to the network. The new wells are reportedly positioned to adequately characterize whether there has been unreasonable impact from sludge drying and storage and effluent holding ponds on underlying groundwater. It is also unlikely that these new wells are positioned to determine the extent of or to conclusively identify the cause of groundwater nitrate concentrations exceeding the MCL. Additional groundwater investigation with an expanded monitoring well system will likely be necessary.
44. Certain aspects of the WWTF described in Finding 4 do not reflect BPTC. Deficiencies in waste treatment and control include, but are not necessarily limited to:
  - a. Use of unlined sludge beds and sludge storage lagoons;
  - b. Failure to periodically remove accumulated sludge from unlined ponds, lagoons, and beds;
  - c. Failure to adequately maintain WWTF equipment (e.g., flow monitoring devices, sampling devices, clarifier/digesters, trickling filters, etc.) to ensure compliance with WDRs Order No. 97-106;

The Discharger has reported that it has secured approximately \$4.5 million in funding to address rehabilitation and BPTC issues related to the WWTF. The Discharger is currently in the process of negotiating a design contract for the rehabilitation and upgrade efforts.

45. Provision I.8 establishes a time schedules for the Discharger to evaluate BPTC for items a through c in Finding 44.
46. As described in Finding 43, the current groundwater monitoring network is generally insufficient to determine the area affected, or the area that could potentially be affected, by the WWTF discharge. Down gradient wells do show nitrate impacts above the MCL for nitrate. As described in Finding 35, Finding 5 does not represent a definitive inventory of crops that are or could be grown in the area potentially affected by the discharge.

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47. It is reasonable and appropriate to require the Discharger to assemble the technical information necessary for this Regional Board to determine the area potentially affected by the discharge, the controlling beneficial uses of groundwater, and derive appropriate numerical groundwater quality objectives for the WWTF that are consistent with the Basin Plan. Provision No. I.7 requires the Discharger to conduct a Hydrogeologic Investigation to address groundwater monitoring network deficiencies and to determine the area that could be affected by the discharge. Provision I.9 requires the Discharger to conduct studies to:
- a. Determine the quality and spatial extent of groundwater affected by the discharge and the spatial extent of groundwater that could be affected by the discharge.
  - b. Determine the types of crops that are, and could potentially be, grown, and any other potential beneficial uses of groundwater, that could be affected by the discharge.
  - c. Determine salinity source control measures that can be implemented to reduce the salinity of the WWTF discharge and the salinity of water percolating to groundwater.
  - d. Evaluate and propose, with supporting documentation, appropriate numeric groundwater quality objectives for groundwater that could be affected by the WWTF discharge.
  - e. Reevaluate the irrigation management plan to ensure wastewater application will comply with resulting numerical groundwater quality objectives.
48. Following the completion of the studies required by Provision I.9, this Order will be reopened to consider final numerical groundwater limitations.
49. Until the work required by Provision I.9 is completed by the Discharger and reviewed by this Regional Board, it is reasonable to employ, where numerical water quality objectives do not exist, narrative groundwater quality limitations that proscribe the discharge from adversely affecting the beneficial uses of groundwater within the area potentially impacted by the discharge. These groundwater limitations are protective of present and anticipated beneficial uses and maintain groundwater quality consistent with water quality objectives set forth in the Basin Plan.

**EFFLUENT LIMITATIONS DISCHARGE 001**

50. The bases for effluent limitations for **Discharge 001** follow:
- a. ***BOD<sub>5</sub> and TSS:*** The Basin Plan requires discharges of municipal and domestic wastewater to land in excess of 1 million gallons per day to remove 80 percent or reduce to 40 mg/L, whichever is more restrictive, both 5-day BOD<sub>5</sub> and suspended solids. However, the Federal Clean Water Act requires POTWs to meet secondary treatment standards. These standards are promulgated in 40 CFR 133.102, which specifies that secondary treatment requires that the monthly and weekly average effluent BOD and TSS concentrations do not exceed 30 mg/L and 45 mg/L, respectively. It also specifies that the WWTF must remove 85 percent of these constituents. It is appropriate to apply the most stringent limits for conventional pollutants to both Discharge 001 and Discharge 002 to achieve consistent operation and performance of the WWTF.

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- b. **Settleable Solids:** Limitations for settleable solids for Discharge 001 of 0.2 ml/L as an average and 0.5 ml/L as a daily maximum are carried over from the previous permit as a means of discerning clarifier performance and compliance with best practicable treatment and control (BPTC) requirements.
- c. **Total Coliform Organisms:** Order No. 97-106 established coliform effluent limits of 23 MPN/100 mL as a 7-day median and 500 MPN/100 mL as a daily maximum to minimize the potential for groundwater degradation with pathogens when groundwater is less than five feet below the ground surface (i.e., when there is not adequate separation between pond inverts and groundwater remove pathogens as the wastewater percolates). This Order carries the 23 MPN/100 mL as a 7-day median over from Order No. 97-106 and implements it as a 7-sample median for discharges of 7-days or more or a median of all samples collected during the period of discharge if the discharge is less than 7-days. This Order also reduces the 500 MPN/100 mL limit to 240 MPN/100 mL to be consistent with the daily maximum coliform limit appropriate for discharges to Sandy Creek.
- d. **EC:** The effluent limits are based on limits from the Basin Plan. The maximum EC of the discharge shall not exceed the source water EC plus 500  $\mu$ mhos/cm, or a maximum of 1000  $\mu$ mhos/cm, whichever is less.
- e. **Chloride and Boron:** Chloride and boron limits are based on requirements in the Basin Plan for municipal and domestic wastewater discharges to land, and are set at 175 mg/L for chloride and 1.0 mg/L for boron.

## SURFACE WATER

### Beneficial Uses

51. Sand Creek is an intermittent stream that carries local storm water runoff southerly to Cottonwood Creek. Cottonwood Creek flows into Cross Creek, which flows to the Tule River. Sand Creek usually is dry during the summer. Maximum flow capacity is approximately 500 cubic feet per second (cfs), though flows generally do not exceed 5-10 cfs.
52. Sand Creek is a Valley Floor Water and such waters have been designated to have beneficial uses of:
  - a. Agricultural supply (AGR),
  - b. Industrial service supply (IND),
  - c. Industrial process supply (PRO),
  - d. Water contact recreation (REC-1),
  - e. Non-contact water recreation (REC-2),
  - f. Warm freshwater habitat (WARM),
  - g. Wildlife habitat (WILD),
  - h. Rare, threatened, or endangered species (RARE), and

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## i. Groundwater recharge (GWR).

53. State Board adopted Order No. WQ2002-0015 on 3 October 2002 concerning the WDRs for Vacaville's Easterly Wastewater Treatment Plant. This precedential decision provides guidance on implementing the Basin Plan, particularly the protection of beneficial uses as designated in an effluent dominated water body where preliminary evidence indicates the uses do not and are unlikely to occur and thus warrant re-evaluation before new costly mitigations are required solely to protect the uses in question. The Discharger has not presented such preliminary evidence and no provision for gathering evidence and waving designated beneficial uses is unchanged in this order.

**Water Quality Objectives/Receiving Water Limits / Basin Plan Limits**

54. The Basin Plan includes numeric surface water quality objectives (WQOs) for ammonia, fecal coliform organisms, dissolved oxygen (DO), pH, EC, radioactivity, temperature, and turbidity and narrative surface water quality objectives for biostimulatory substances, color, floating matter, oil and grease, pesticides, sediment, settleable matter, suspended material, tastes and odors, and toxicity. Accordingly this Order specifies receiving water limitations that implement all these numeric (e.g., temperature, turbidity) and narrative (e.g., color, taste, and odor) WQOs in the Basin Plan.
55. To protect the designated WARM beneficial use, the DO concentration in the receiving water must be maintained at the Basin Plan WQO of 5 mg/L.
56. To protect the designated WARM and WILD beneficial uses, the receiving water must be free of toxic substances in toxic concentrations. As chlorine and ammonia are known to cause toxicity to aquatic organisms in surface waters, the discharge cannot contain chlorine and ammonia in toxic concentrations. Untreated domestic wastewater contains ammonia. Wastewater treatment plants commonly use nitrification, a biological process that converts ammonia to nitrate, to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. The Discharger uses UV and not chlorine for disinfection so residual chlorine is absent in effluent and effluent limitations are not appropriate.
57. The Basin Plan sets maximum salinity effluent limits for discharges of treated municipal and domestic wastewater to surface waters. It specifically states the maximum effluent EC shall not exceed that of the source water plus 500  $\mu\text{mhos/cm}$  or 1000  $\mu\text{mhos/cm}$ , which ever is more stringent. It also states that the chloride concentration shall not exceed 175  $\mu\text{mhos/cm}$  and the boron concentration shall not exceed 1.0 mg/L.

**California Toxics Rule Requirements Discharge 002**

58. Section 1.3 of the SIP requires imposition of a water quality-based effluent limitation for a priority pollutant if: (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR criteria or applicable site-specific Basin Plan objective; (2) the ambient

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background concentration is greater than the CTR criterion or applicable site-specific Basin Plan objective; or (3) other information is available to determine that a water quality-based effluent limitation is necessary to protect beneficial uses.

59. The Discharger was issued a CWC Section 13267 Order on 27 February 2001 requiring it to submit effluent and receiving water monitoring data meeting the requirements of the SIP to assist this Board in conducting the reasonable potential analyses (RPAs) pursuant to the SIP and 40 CFR 122.44(d). On 9 September 2002, the Discharger submitted a single set of effluent data for the required priority pollutants. The data were from 26 April 2002 and only from effluent. No flow in Sand Creek prevented collection of receiving water data at the time. The Discharger did not submit any data for January 2002.
60. The RPA for CTR and NTR pollutants was based on the submitted effluent monitoring data, as no background receiving water data are available. Without the upstream or background water quality data, the RPA is substantially incomplete. To complete the RPA, it is appropriate to require the Discharger to resample the effluent and receiving water for both upstream and downstream water quality data. Such a requirement is included in the attached Monitoring and Reporting Program. It is also appropriate to include a reopener to allow inclusion of effluent limitations deemed necessary following review of the required data.
61. Based on the RPA methodology described in the SIP, no priority pollutants have been found to have reasonable potential to cause or contribute to an excursion above water quality objectives or water quality criteria in the receiving water. Many of the constituents were not detected in the effluent and many do not have numeric water quality objectives or criteria to be compared against the maximum effluent concentration. Based on the RPA, no effluent limits currently are required for priority pollutants, though additional monitoring for priority pollutants is required based on the 27 February 2001 letter, subsequent letters from the Regional Board, Provisions contained herein, and as described in the attached Monitoring and Reporting Program. The RPA results are presented in further detail in the attached Information Sheet.

#### EFFLUENT LIMITATIONS DISCHARGE 002

62. The bases for effluent limitations for **Discharge 002** follow:
  - a. **Dilution:** Effluent limitations in this Order do not give the Discharger the benefit of dilution by the surface receiving water as no dilution is available in the receiving water at times. Water quality-based effluent limitations must reflect WQOs and water quality criteria at the point of discharge.
  - b. **BOD<sub>5</sub> and TSS:** BOD<sub>5</sub> limits are based on secondary treatment standards at 40 CFR 133.102, which require that BOD<sub>5</sub> not exceed a 30-day average of 30 mg/L and a 7-day average of 45 mg/L and that the average percent removal of BOD<sub>5</sub> be no less than 85%. The 30-day average and 7-day average limits are implemented as monthly and weekly average limits. The maximum daily limit is calculated based on the 30-day average limit using the standard statistical procedures in the SIP and USEPA's TSD for describing effluent concentrations using a lognormal distribution.

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- c. **pH:** The Basin Plan requires that the pH of receiving waters not be depressed below 6.5 or raised above 8.3 standard units. As the discharge is at times the only flow in Sand Creek, these limits apply directly to the discharge.
- d. **Settleable Solids:** The Basin Plan states that “[w]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” Effluent limits for settleable solids are based on limitations from the previous permit and were developed to attain this Basin Plan narrative water quality objective for settleable matter.
- e. **Total Coliform Organisms:** Habitation downstream of the discharge is sparse and there is limited opportunity for contact with the waters of Sand Creek in the vicinity of the discharge. The WWTF is prohibited from discharging to Sand Creek during the summer months when upstream flow in the creek is most likely to be low or nonexistent. Discharges are only permitted from 1 November through April 30 when flow is more likely and cooler temperatures discourage REC-1 and REC-2 uses. These conditions are consistent with those described by DHS, as requiring effluent coliform bacteria median limit not to exceed 23 MPN/100 mL. In Order No. 97-106, the 23 MPN/100 mL requirement was interpreted as a 7-day median limit. This Order specifies a 7-sample median limit where discharge is for seven or more days or a median of all samples collected during the period of discharge if discharge is for less than seven days. The daily maximum requirement for total coliform of 240 MPN/100 mL is being carried over from Order No. 97-106. This Order requires daily sampling for total coliform during discharges to Sand Creek.
- f. **EC:** The effluent limits are based on limits from the Basin Plan. The maximum EC of the discharge shall not exceed the source water EC plus 500  $\mu\text{mhos/cm}$ , or a maximum of 1000  $\mu\text{mhos/cm}$ , whichever is less.
- g. **Chloride and Boron:** Chloride and boron limits are based on requirements in the Basin Plan for municipal and domestic wastewater discharges to land, and are set at 175 mg/L for chloride and 1.0 mg/L for boron.
- h. **Ammonia:** The Basin Plan states that “Waters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses. In no case shall the discharge of wastes cause concentrations of unionized ammonia ( $\text{NH}_3$ ) to exceed 0.025 mg/L (as N) in receiving waters.” Ammonia effluent limits reflect no dilution.
- i. **Acute Whole Effluent Toxicity:** Acute whole effluent toxicity limits are included in this Order based on the narrative water quality objective for toxicity in the Basin Plan and requirements in Section 4 of the SIP.

**ANTIDEGRADATION FINDINGS**

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63. Regarding discharges to land, as described above in Findings 43 through 49, imposed tasks will assure the highest water quality consistent with the maximum benefit to the people of the State will be achieved. Accordingly, the discharge as authorized herein is consistent with the antidegradation provisions of Resolution 68-16.
64. Regarding discharges to surface water, the conditional discharge as permitted herein is consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution 68-16. Compliance with these requirements will result in the best practicable treatment and control of the discharge, prevent pollution and nuisance, and maintain the highest water quality.

**GENERAL FINDINGS**

65. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code sections 21000 et seq.), in accordance with CWC section 13389.
66. The State Board adopted the General Industrial Activities Storm Water Permit (General Permit) on 19 November 1991, and amended it on 17 September 1992 and 17 April 1997. The General Permit prescribes waste discharge requirements for discharges of storm water associated with industrial activities, excluding construction activities, and requires submittal of a Notice of Intent by industries to be covered under the permit. The Discharger's engineer reported that storm water that falls upon the industrial portions of the WWTF is retained onsite. Therefore, coverage under the General Permit is not required.
67. CWC section 13267(b)(1) states in part:
- (a) A regional board, in establishing ...waste discharge requirements...may investigate the quality of any waters of the state within its region ... (b)(1) In conducting an investigation specified in [Section 13267] 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.
68. CWC Section 13383 states:
- (a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and record keeping requirements, as authorized by Section 13377 or by subdivisions (b) and (c) of this section, for any person who discharges pollutants ... any person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes of sewage sludge.

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- (b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.
  - (c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in subdivision (c) of Section 13267.
69. The attached Monitoring and Reporting Program No. R5-2006-0092 required by this Order is necessary to determine whether the Discharge complies with these waste discharge requirements.
  70. The State Water Board adopted the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order No. 2006-0003-DWQ) on 2 May 2006. The General Order prescribes waste discharge requirements for discharges from sanitary sewer systems greater than one mile in length that convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California. The Discharger is required to obtain coverage under General Order No. 2006-0003-DWQ.
  71. Pursuant to CWC Section 13263(b), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
  72. A 1993 Memorandum of Understanding (MOU) between this Regional Board, the California Department of Fish and Game and the Mosquito Abatement and Vector Control Districts of the South San Joaquin Valley specifies vegetation management requirements for wastewater ponds/lagoons, etc. The MOU specifies that vegetation operators at WWTFs in areas that attract nesting birds should be suspended during the 1 April to 30 June bird nesting season.
  73. The USEPA and this Board have classified this discharge as a major discharge.
  74. The information in the attached Information Sheet and all attachments in developing findings, terms, and conditions of this Order, and the Information Sheet and all attachments has been considered are part of this Order.
  75. Interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge and have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
  76. In a public meeting, all comments pertaining to the discharge were heard and considered.
  77. This Order shall serve as waste discharge requirements pursuant to section 13263 of the CWC relative to any discharge of waste to land and serve as an NPDES permit relative to any discharge of pollutants to surface water pursuant to CWC Section 13377 and CWA Section 402 [Title 33, U.S.C. 1342(a)], and amendments thereto. Authorization for discharge shall take effect upon the date of adoption for both types of discharge unless USEPA registers objections regarding surface water discharge. If the USEPA objects to the NPDES aspects of this order, it

means any discharge to Sand Creek must cease until the objections are resolved. In the interim, the objection shall not void other aspects of this Order.

**IT IS HEREBY ORDERED** that Order No. 97-106 is rescinded and, pursuant to CWC sections 13263, 13267, 13377, and 13383, the Cutler-Orosi Joint Powers Authority, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, shall comply with the following:

**A. Discharge Prohibitions:**

1. Discharge of pollutants to Sand Creek from other than Discharge 002 are prohibited, and is prohibited from **1 May through 31 October** of each year.
2. The by-pass or overflow of wastes is prohibited, except as allowed by **Standard Provision A.13**.
3. Discharge of waste classified as “hazardous” or “designated” as defined in Title 23 CCR, sections 2521(a) and 2522(a) is prohibited.

**B. Discharge Specifications – Discharge 001**

1. The monthly average daily discharge effluent flow (total flow from Discharge 001 and Discharge 002) shall not exceed 2.0 mgd.
2. Effluent from Discharge 001 shall not exceed the following limits:

Constituent	Units	Average Monthly Limitation	7-Sample Median Limit	Maximum Daily Limitation
BOD <sub>5</sub> <sup>1</sup>	mg/L	30	--	60
Total Suspended Solids (TSS)	mg/L	30	--	60
Total Coliform Organisms <sup>2</sup>	MPN <sup>3</sup> /100 mL	--	23 <sup>4</sup>	240
Chloride	mg/L	--	--	175
Settleable Solids	ml/L	0.2	--	0.5
Boron	mg/L	--	--	1.0

<sup>1</sup> Five-day, 20°C biochemical oxygen demand (BOD)

<sup>2</sup> Limits apply only when groundwater is less than five (5) feet below ground surface based on groundwater monitoring well data.

<sup>3</sup> MPN = Most Probable Number

<sup>4</sup> Median of all daily samples for discharges less than seven days in duration.

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3. The arithmetic mean of 20°C BOD (5-day) and total suspended solids (TSS) in effluent samples collected from Discharge 001 over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).
4. The maximum EC (at 25°C) of Discharge 001 shall not exceed the source water EC (at 25°C) plus 500 µmhos/cm, as calculated based on the most recent quarterly source water sampling, or a maximum of 1000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.

**C. Effluent Limitations – Discharge 002 (1 November through 30 April)**

Effluent from Discharge 002 shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Average Monthly Limitation</u>	<u>Average Weekly Limitation</u>	<u>7-Sample Median Limitation</u>	<u>Maximum Daily Limitation</u>
BOD <sub>5</sub> <sup>1</sup>	mg/L	30	45	--	60
	lb/day <sup>2</sup>	500	750	--	1000
Total Suspended Solids (TSS)	mg/L	30	45	--	60
	lb/day <sup>2</sup>	500	750	--	1000
Settleable Solids	ml/L	0.1	--	--	0.5
Total Coliform Organisms	MPN <sup>3</sup> /100mL		--	23 <sup>4</sup>	240
Chloride	mg/L	--	--	--	175
	lb/day <sup>2</sup>	--	--	--	2920
Boron	mg/L	--	--	--	1
	lb/day <sup>2</sup>	--	--	--	16.7
Un-ionized Ammonia (NH <sub>3</sub> as N)	mg/L	--	--	--	0.025
	lb/day <sup>2</sup>	--	--	--	0.42

<sup>1</sup> Five-day, 20°C biochemical oxygen demand (BOD)

<sup>2</sup> Based on a design flow of 2.0 mgd; lb/day = flow (mgd) x concentration (mg/L) x 8.34

<sup>3</sup> MPN = Most Probable Number

<sup>4</sup> Median of all daily samples for discharges less than seven days in duration

1. The arithmetic mean of 20°C BOD (5-day) and total suspended solids (TSS) in effluent samples collected from Discharge 002 over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).
2. Discharge 002 shall not have a pH less than 6.5 nor greater than 8.3 standard units at any time.

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- 3. Survival of aquatic organisms in 96-hour bioassays of undiluted waste from Discharge 002 shall be no less than:

Minimum for any one bioassay .....70%  
 Median for any three or more consecutive bioassays .....90%

- 4. The maximum EC of Discharge 002 shall not exceed the source water EC (at 25°C) plus 500 µmhos/cm, as calculated based on the most recent quarterly source water sampling, or a maximum of 1000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.

**D. Recycled Water Specifications**

The following specifications apply to the Use Areas under the ownership and control of the Discharger.

- 1. Use of recycled water as permitted by this Order shall comply with all the terms and conditions of the most current Title 22 regulations.
- 2. All uses of recycled water shall provide for appropriate backflow protection for potable water supplies as specified in Title 17, CCR, §7604, or as specified by DHS.
- 3. Recycled water shall remain within the permitted Use Area (as defined in Finding 5).
- 4. Use of recycled water shall be limited to flood irrigation of fodder, fiber, seed crops, and of crops that undergo extensive commercial, physical, or chemical processing before human consumption.
- 5. Application of wastewater and commercial fertilizer to Use Areas shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management system in accordance with the Use Area management plan required under Provision I. 7 of this Order, subject to Executive Officer approval. The annual nutrient loading of Use Areas, including the nutritive value of organic and chemical fertilizers and of the recycled water shall not exceed the crop demand.
- 6. The Discharger shall maintain the following setback distances from areas irrigated with undisinfected secondary recycled water in the Use Area: *See Table below*

<u>Setback Distance (feet)</u>	To
25	Property Line
30	Public Roads
<u>Setback Distance (feet)</u>	To

50	Drainage courses
100	Irrigation and Domestic
150	Domestic wells

7. The perimeter of Use Areas shall be graded to prevent ponding along public roads or other public areas.
8. Areas irrigated with recycled water shall be managed to prevent breeding of mosquitoes. More specifically:
  - a. Applied irrigation water must infiltrate completely within 48 hours after application.
  - b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.
  - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.
9. Recycled water shall be managed to minimize runoff onto adjacent properties not owned or controlled by the Discharger.
10. Recycled water used for irrigation shall be managed to minimize erosion.
11. Recycled water shall be managed to minimize contact with workers.
12. If recycled water is used for construction purposes, it shall comply with the most current edition of *Guidelines for Use of Recycled Water for Construction Purposes*. Other uses of recycled water not specifically authorized herein shall be subject to the approval of the Executive Officer and shall comply with Title 22.
13. Public contact with recycled water shall be precluded through such means as fences and signs, or acceptable alternatives. 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 present the international symbol similar to that shown in Attachment D and present the following wording:

**RECYCLED WATER - DO NOT DRINK**

**AGUA DE DESPERDICIO RECLAMADA - NO TOME**

14. Recycled water controllers, valves, and similar appurtenances shall be affixed with warning signs and shall be equipped with removable handles or locking mechanisms.

Quick couplers shall be secured in a manner that permits operation only by authorized personnel.

**E. Pond/Lagoon Specifications**

1. Objectionable odors from the WWTF holding ponds and sludge lagoons shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
2. As one means of discerning compliance with storage pond/lagoon Specification E.1., the dissolved oxygen content in the upper zone (1-foot) of wastewater in ponds/lagoons shall not be less than 1.0 mg/L.
3. Ponds/lagoons shall be managed to prevent mosquito breeding. In particular,
  - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
  - c. Dead algae, vegetation, and 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 **April 1 to June 30** bird nesting season.
4. Public contact with wastewater shall be precluded through such means as fences and signs or other acceptable alternatives.
5. 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.

**F. Sludge Disposal 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 been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land recycling activities.

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

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2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations.
3. Any storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary 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.
4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27 CCR. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, WWTF, 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. This may mean use of dischargers that have obtained coverage under the General Biosolids Order (State Board Water Quality Order No. 2000-10-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) or equivalent individual waste discharge requirements.
6. Use and disposal of biosolids should comply with the self-implementing federal regulations of 40 CFR 503, which are subject to enforcement by the USEPA, not the Regional Board. If during the life of this Order the State accepts primacy for implementation of 40 CFR 503, the Regional Board may also initiate enforcement where appropriate.
7. Sludge stored onsite shall be disposed of in a timely manner. Unless otherwise infeasible, stored sludge shall be disposed of in two years or less.
8. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

**G. Receiving Water Limitations:**

Receiving Water Limitations (for Sand Creek) are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this Order. Discharges from Discharge 002, in combination with other sources, shall not cause the following in Sandy Creek:

1. Un-ionized ammonia to be present in amounts that adversely affect beneficial uses or that exceed 0.025 mg/L (as N).

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2. The fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of the total number of samples taken during any 30-day period to exceed 400 MPN/100 ml.
3. Chemical constituents in excess of the maximum contaminant levels (MCLs) specified in Title 22, CCR.
4. Biostimulatory substances to be present in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
5. Discoloration that causes nuisance or adversely affects beneficial uses.
6. Concentrations of dissolved oxygen to fall below 5.0 mg/L. The monthly median dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95<sup>th</sup> percentile concentration shall not fall below 75 percent of saturation.
7. Floating material, including but not limited to solids, liquids, foams, and scum, in concentrations that create a nuisance or adversely affect beneficial uses.
8. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
9. The ambient pH to fall below 6.5, exceed 8.3, or change by more than 0.3 standard units from normal ambient pH.
10. Pesticides to be present in concentrations that adversely affect beneficial uses or cause an increase in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.
11. Radionuclides to be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor which result in accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
12. Suspended sediment load and suspended sediment discharge rate to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
13. Substances in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.
14. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

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15. Taste or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to domestic or municipal water supplies.
16. The ambient temperature to increase more than 5°F.
17. Toxic substances to be present in concentrations that produce detrimental physiologic responses in human, plant, animal, or aquatic life.
18. The turbidity to increase as follows:
  - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs;
  - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs;
  - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs; and
  - d. More than 10 percent where natural turbidity is greater than 100 NTU.
19. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the SWRCB pursuant to the CWA and regulations adopted thereunder.

**H. Interim Groundwater Limitations:**

Interim groundwater limitations implement the narrative water quality objectives contained in the Basin Plan and as such are a required part of this Order while the Discharger, pursuant to schedules established herein, develops information pertinent to the setting by the Regional Water Board of numeric groundwater limitations specific to this discharge in a subsequent order. Groundwater degradation from waste constituents in the interim shall be minimized to the extent feasible.

Release of waste constituents from any storage, treatment, recycling, or disposal component associated with the WWTF shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTF and discharge area(s) to contain waste constituents in concentrations equal to or greater than that listed below:

1. Total coliform organisms of 2.2 Most Probable Number per 100 mL.
2. Chemical Constituents in concentrations that adversely affect beneficial uses, such as nitrate-nitrogen above 10 mg/L.
3. Toxic constituents in concentrations that produce detrimental physiological responses in human, plant, or animal life.

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4. Radionuclides in concentrations that are deleterious to human, plant, animal or aquatic life or which result in accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.

Compliance with the above interim groundwater limitations and unreasonable degradation shall be determined by Regional Water Board itself in accordance with the "Policy for Application of Water Quality Objectives" in Chapter IV of the Basin Basin.

**I. Provisions:**

1. The Discharger shall comply with Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES), dated February 2004, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as Standard Provision(s).
2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2006-0092, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
3. The Discharger shall keep a copy of this Order, including its attachments and Standard Provisions, at the WWTF for reference by operating personnel. Key operating personnel shall be familiar with its contents.
4. 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, §§ 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, §§ 415 and 3065, 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.
5. The Discharger shall use best practicable treatment and control, including proper operation and maintenance, to comply with terms of this Order.
6. **By 21 December 2007**, the Discharger shall submit a technical report that contains a characterization of the discharge for constituents identified in Title 22 (as described in Finding 25). The report shall describe the sampling program utilized to characterize the discharge, shall be prepared in accordance with Provision I.4, and is subject to Executive Officer approval.
7. **Hydrogeologic Investigation and Groundwater Monitoring Tasks.** The Discharger shall propose a work plan and schedule for conducting a hydrogeologic investigation within the area affected and potentially affected by the WWTF and its discharges to land, including any impacts from holding ponds, sludge lagoons and drying beds, and effluent recycling areas.

The Discharger shall submit a Preliminary Report that describes the area's hydrogeology, existing wells (active and otherwise), local well construction practices and standards, and any well restrictions. It must also propose the number, location, and characteristics of additional monitoring wells needed to fully assess the impacts to groundwater of the Discharger's activities and include a Monitoring Well Installation Work Plan that satisfies Attachment E, *Standard Monitoring Well Provisions for Waste Discharge Requirements*. The resulting network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells to evaluate the WWTF's impacts and potential impacts on underlying groundwater. These shall include monitoring wells immediately downgradient of representative treatment, storage, and disposal units that do or may release waste constituents to groundwater including the wastewater Use Areas. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC §13801. The existing groundwater monitoring well network shall be evaluated as part of this effort, and the proposed network shall include existing monitoring wells where they will serve to measure compliance or provide other relevant information (e.g., depth to groundwater) and recommend their destruction if they will no longer serve a useful purpose.

Once the new monitoring wells have been added to the groundwater monitoring network, the Discharger shall submit an Interim Report including the information specified in Monitoring Well Installation Report of Results that satisfies Attachment E, *Standard Monitoring Well Provisions for Waste Discharge Requirements*.

The Discharger shall continue to monitor groundwater in existing monitoring wells in accordance with the MRP unless and until individual existing wells are removed from the approved network. After the first sampling event, the Discharger shall report on its sampling protocol as specified in this Order's MRP. After one year of monitoring, the Discharger shall characterize in a technical report, background groundwater quality and the spatial extent and magnitude of any impacts caused by discharges of waste from the WWTF. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

<u>Task</u>	<u>Compliance Date</u>
a. Submit work plan and schedule to conduct hydrogeologic investigation.	<b>By 21 December 2006.</b>
b. Submit Preliminary Report including Monitoring Well Installation Work Plan.	<b>Within 60 days of Executive Officer approval of the work plan and schedule.</b>

<u>Task</u>	<u>Compliance Date</u>
c. Implement Monitoring Well Installation Work Plan.	<b>Within 30 days of Executive Officer approval of the Task b work plan.</b>
d. Submit Interim Report including Monitoring Well Installation Report of Results.	<b>30 days</b> following completion of Task c.
e. Submit final technical report.	<b>385 days</b> following completion of Task d.

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision I. 4 and are subject to Executive Officer approval.

8. **BPTC Evaluation Tasks:** The Discharger shall propose a work plan and schedule to evaluate with respect to BPTC its use of unlined sludge beds and sludge storage lagoons, its sludge removal and disposal practices, and its operations and maintenance programs. Following completion of the evaluation, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on water quality. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable but in no case shall completion of the necessary modifications exceed four years past the Executive Officer's determination of the adequacy of the evaluation, unless the schedule is reviewed and specifically approved by the Regional Board. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

<u>Task</u>	<u>Compliance Date</u>
a. Submit technical report: work plan and schedule for evaluation	<b>By 21 December 2006.</b>
b. Commence evaluation	<b>30 days</b> following Executive Officer approval of Task a
c. Complete evaluation	As established by Task a or 2 years following Task b, whichever is sooner

<u>Task</u>	<u>Compliance Date</u>
d. Submit technical report: evaluation results	<b>60 days</b> following completion of Task c, or <b>by 21 September 2009</b> following Order adoption, whichever is sooner
e. Include in its annual report (described in the MRP) a description of the overall status of BPTC implementation and compliance with interim groundwater limitations over the past reporting year	Annually on <b>1 February</b> following completion of Task d

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision I. 4 and are subject to Executive Officer approval.

9. **Groundwater Limitations Study.** The Discharger shall submit a technical report in the form of a work plan and proposed schedule to complete studies to compile sufficient technical data to determine applicable numerical groundwater quality objectives and to derive appropriate groundwater limitations for the area affected, and potentially affected, by the WWTF discharge. Studies must be designed to:
- a. Determine the spatial extent of groundwater affected by, and that could be affected by, the discharge.
  - b. Determine the types of crops that are, and could potentially be, grown, and any other potential beneficial uses of groundwater, that could be affected by the discharge.
  - c. Determine salinity source control measures that can be implemented to reduce the salinity of the WWTF discharge and the salinity of water percolating to groundwater.
  - d. Evaluate and propose, with supporting documentation, appropriate numeric groundwater quality objectives for groundwater that could be affected by the WWTF discharge.
  - e. Reevaluate the irrigation management plan to ensure wastewater application will comply with resulting numerical groundwater quality objectives.

Study results must be compiled into a final technical report. The final technical report shall propose specific numeric groundwater limitations for each waste constituent that comply with the most stringent applicable water quality objectives for that waste constituent. The most stringent applicable water quality objective shall be interpreted based on the Regional Board policy entitled "Application of Water Quality Objectives" on pages IV-21 through IV-23 of the Basin Plan. If the Discharger wishes the Regional Board to consider a proposed water quality limitation that is less stringent than the most stringent water quality objective necessary to protect the most sensitive beneficial use, it must provide documentation necessary to support the proposed limitation. For example, where the stringency of a proposed water quality objective can vary according to land use and other factors, the Discharger must provide documentation that a less stringent but attainable water quality

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objective is protective of all existing and probable beneficial uses. This documentation must be from public agencies and organizations with appropriate expertise and authority relative to the uses potentially affected by the less stringent objective, or the water quality necessary to sustain the uses. The Discharger should submit results of a validated groundwater model or other hydrogeologic information to support its proposal. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

<u>Task</u>	<u>Compliance Date</u>
a. Submit technical report: work plan and schedule	<b>By 21 December 2007 of adoption of this Order</b>
b. Commence studies	<b>30 days</b> following Executive Officer approval of Task a
c. Complete studies	As established by Task a or 2 years following Task b, whichever is sooner
d. Submit technical report summarizing results of studies and proposing appropriate numeric groundwater limitations.	<b>60 days</b> following completion of Task c, or <b>by 21 September 2010</b> following Order adoption, whichever is sooner
e. Include in its annual report (described in the MRP) a description of the overall status of the studies.	Annually on <b>1 February</b> following completion of Task d

Where appropriate, the technical report may incorporate relevant information resulting from the Hydrogeologic Investigation and Groundwater Monitoring Tasks and BPTC Evaluation Tasks described in Provisions I.7 and I.8, respectively.

Technical reports submitted pursuant to this Provision shall be prepared in accordance with Provision I. 4 and are subject to Executive Officer approval as to adequacy.

10. Upon completion of tasks set forth in Provisions I.7, Hydrogeologic Investigation and Groundwater Monitoring Tasks, I.8, BPTC Evaluation Tasks, and I.9, Groundwater Limitations Study, the Regional Board shall reopen and revise this Order to contain conditions designed to assure full implementation of BPTC and compliance with the maximum permissible groundwater limitations consistent with Resolution 68-16.
11. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

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12. The Discharger shall conduct the chronic toxicity testing as specified in MRP No. R5-2006-0093. If the testing indicates that the discharge causes, contributes to, or has the reasonable potential to cause or contribute to an in-stream excursion above a water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and upon Executive Officer approval conduct the TRE. If necessary, this Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be opened to include an effluent limitation based on that objective.
13. **Priority Pollutant Evaluation.** The Discharger shall submit effluent and receiving water priority pollutant monitoring in the first year of this Order's term, and annually thereafter when there is discharge to Sand Creek or when there are upstream flows in Sand Creek. If there is no discharge to Sand Creek during the remainder of the Order's term, the Discharger must sample for effluent priority pollutants in the fourth year of this Order's term. The Discharger shall submit **by 18 May 2008** a technical report that proposes effluent limits for all CTR constituents showing a reasonable potential to cause or contribute to an exceedance of a water quality objective in Sand Creek. The reasonable potential analysis shall be consistent with the State Implementation Policy for all detected constituents. The technical report shall document the reasonable potential analysis and all supporting calculations. Provision 4 requirements apply to the technical report.
14. **Within 10 days** following any change in WWTF personnel that results the WWTF not being supervised by at least a Grade II operator, the Discharger shall provide written notification to the Regional Board that describes measures, and an implementation schedule, to ensure compliance with Title 23, CCR, §3680(a).
15. By **21 September 2007**, the Discharger shall submit written certification that its Operations and Maintenance Manual is up-to-date or amendments necessary to bring it up-to-date, and shall maintain an updated Manual and a current maintenance log on site.
16. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the state emergency response commission within 15 days of reporting the data to the Commission pursuant to Section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
17. The WWTF and disposal areas shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
18. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, National Pretreatment Standards: Prohibited Discharges, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

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- a. Wastes, which potentially may create a fire or explosion, hazard in the treatment works;
  - b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
  - c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
  - d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;
  - e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;
  - f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
  - g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems;
  - h. Any trucked or hauled pollutants, except at points predesignated by the Discharger:
19. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, National Pretreatment Standards: Prohibited Discharges, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage that, either alone or in conjunction with a discharge or discharges from other sources.
- a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or
  - b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.
20. 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 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

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shall be stated, plus an estimate of the date when the Discharger will be in compliance. In the event of noncompliance, the Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule. Violations may result in enforcement actions, including Regional Board or court orders requiring corrective actions or imposing civil monetary liability, or in revision or rescission of this Order.

21. Prior to making any change to Discharge 002 or to the place of use or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the SWRCB (Division of Water Rights).
22. In the event of any change in control or ownership of land or waste discharge 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 Regional Board. 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, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D. 6 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 CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.
23. Ammonia Effluent Limitation Evaluation: **By 21 March 2008**, the Discharger shall submit a work plan for a study and schedule for determining appropriate ammonia effluent limitations protective of the beneficial use of Sand Creek as warm freshwater habitat considering the ammonia toxicity to the various aquatic habitat species currently supported by or potentially supported by Sand Creek flows. A professional biologist familiar with aquatic habitat and ammonia toxicity shall conduct the evaluation. Results of the evaluation should propose technically justified monthly average and daily maximum ammonia effluent limitations that are protective of Sand Creek aquatic habitat and that do not exceed the Basin Plan objective of 0.025 mg/l. Following completion of this evaluation, this permit may be reopened to include modified effluent limits for ammonia.
24. Title 22 Engineering Report: The Discharge shall submit to this Regional Board and to DHS a Title 22 engineering report **by 21 December 2007**. This Order may be reopened and modified to incorporate DHS recommendations.
25. The Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:
  - a. If present or future investigations demonstrate that the discharge(s) governed by this Order will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

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- b. New or revised water quality objectives (WQOs) come into effect for the receiving water. In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications;
- 26. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.
- 27. The NPDES requirements of this Order expire on **21 September 2011**, and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date to apply for renewal if it wishes to continue the surface water discharge (i.e., Discharge 002).

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 21 September 2006.

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PAMELA C. CREEDON, Executive Officer

MMG/fmc

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0092

NPDES NO. CA0081485

MONITORING AND REPORTING PROGRAM  
FOR  
CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY  
WASTEWATER TREATMENT FACILITY  
TULARE COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code sections 13383 and 13267. The Discharger shall not deviate from this MRP unless and until the Regional Board or Executive Officer issues a revised MRP. Sampling locations are depicted on Attachment B. Any proposed change to a sampling location must have the prior written concurrence of the Regional Board staff. After concurrence, a description of the change and the Regional Board staff's written concurrence must be attached to the Discharger's copy of this Order. Quarterly monitoring requires sampling in January, April, July, and October (quarterly monitoring for Discharge 002 requires sampling in January and April).

Sample collection, storage, and analyses shall be performed according to 40 CFR Part 136 or other methods approved and specified by the Executive Officer. All samples shall be grab samples unless otherwise indicated and 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 the Standard Provisions, Provisions for Monitoring.

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DHS) or a laboratory waived by the Executive Officer from obtaining a certification for these analyses by the DHS. The director of the laboratory whose name appears on the certification or his or her laboratory supervisor who is directly responsible for analytical work performed shall supervise all analytical work, including appropriate quality assurance/quality control procedures in his or her laboratory, and shall sign all reports of such work submitted to the Regional Board.

For California Toxics Rule (CTR) priority pollutants, the Discharger shall report sampling results as required by the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementations Plan or SIP) Section 2.4. The laboratory used by the Discharger must meet minimum levels in the SIP Appendix 4.

### INFLUENT MONITORING

The Discharger shall collect influent samples at the inlet of the headworks of the treatment facility prior to any treatment of waste. The influent samples shall be collected at approximately the same time as effluent samples and shall be representative of the influent for the period sampled. Influent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency of Sampling or Measurement</u>
Flow	mgd	Metered	Continuous
Monthly Average Daily Flow	mgd	Computed	1/Month
Annual Monthly Average Daily Flow <sup>1</sup>	mgd	Computed	1/Month
Settleable Solids	mL/L	Grab	1/Day <sup>2, 8</sup>
pH	pH units	Grab	1/Day <sup>2</sup>
BOD <sub>5</sub> <sup>3</sup>	mg/L	24-hr Composite <sup>4, 7</sup>	2/Week <sup>5, 9</sup>
Monthly Average BOD <sub>5</sub>	mg/L	Calculated	1/Month
TSS <sup>6</sup>	mg/L	24-hr Composite <sup>4, 7</sup>	2/Week <sup>5, 9</sup>
Monthly Average TSS	mg/L	Calculated	1/Month

<sup>1</sup> Based on the previous twelve months.

<sup>2</sup> Daily monitoring for this constituent may exclude weekends or holidays.

<sup>3</sup> Five-day, 20°C biochemical oxygen demand.

<sup>4</sup> Composite sampling, as referred to in this program, shall be flow-proportioned.

<sup>5</sup> On nonconsecutive days.

<sup>6</sup> Total Suspended Solids

<sup>7</sup> 8-hr Composite sampling allowed until 30 August 2007, 24-hr Composite sampling thereafter.

<sup>8</sup> Daily sampling not required until 30 August 2007. Samples shall be taken weekly prior to that date.

<sup>9</sup> Twice weekly sampling not required until 30 August 2007. Samples shall be taken monthly prior to that date.

### EFFLUENT MONITORING

#### Discharge 001

Effluent samples shall be collected at the last point after wastes can be admitted to the discharge line, but before discharging to land/irrigation. Effluent samples shall be representative of the volume and nature of the discharge. Time of collection of the grab samples shall be recorded. Effluent monitoring shall include at least the following:

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<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency<sup>1</sup> of Sampling or Measurement</u>
Flow	mgd	Metered	Continuous
Settleable Solids	mL/L	Grab	1/Day <sup>2</sup>
pH	pH Units	Grab	1/Day <sup>2</sup>
Temperature	°F	Grab	1/Day <sup>2, 20</sup>
Chlorine Residual <sup>3</sup>	mg/L	Continuous <sup>25</sup>	1/Day
Turbidity <sup>3</sup>	NTU <sup>4</sup>	Continuous <sup>25</sup>	1/Day <sup>20</sup>
TCO <sup>5</sup>	MPN <sup>6</sup> /100 ml	Grab	1/Day <sup>7, 23</sup>
BOD <sub>5</sub>			
Concentration	mg/L	24-hr Composite <sup>21</sup>	2/Week <sup>8, 22</sup>
Monthly Average	mg/L	Calculated	1/Month
Percent Removal	%	Calculated	1/Month
TSS			
Concentration	mg/L	24-hr Composite <sup>21</sup>	2/Week <sup>8, 22</sup>
Monthly Average	mg/L	Calculated	1/Month
Percent Removal	%	Calculated	1/Month
Salinity Compounds/Parameters			
EC <sup>9</sup>	µmhos/cm	24-hr Composite <sup>21</sup>	1/Day <sup>2, 24</sup>
TDS <sup>10</sup>	mg/L	24-hr Composite	2/Month <sup>11, 20</sup>
Chloride	mg/L	24-hr Composite <sup>21</sup>	2/Month <sup>11</sup>
Sodium	mg/L	24-hr Composite	2/Month <sup>11, 20</sup>
Boron	mg/L, lbs/day	24-hr Composite <sup>21</sup>	2/Month <sup>11</sup>
SAR <sup>12</sup>		Calculated	2/Year <sup>13, 20</sup>
Nitrogen Compounds			
Ammonia (as NH <sub>3</sub> -N)	mg/L	Grab	1/Week <sup>14, 20</sup>
Un-ionized Ammonia <sup>8</sup> (as NH <sub>3</sub> -N)	mg/L, lbs/day	Grab	1/Week <sup>14, 20</sup>
Nitrate (as NO <sub>3</sub> -N)	mg/L	24-hr Composite	1/Week <sup>14, 20</sup>
Total Kjeldahl Nitrogen (TKN)	mg/L	24-hr Composite	1/Week <sup>14</sup>
Total Organic Nitrogen (as N)	mg/L	Calculated	1/Week <sup>14, 20</sup>
Total Nitrogen	mg/L	Calculated	1/Week <sup>14, 20</sup>
Total Organic Carbon	mg/L	24-hr Composite	1/Quarter <sup>20</sup>
General Minerals <sup>15</sup>	mg/L	24-hr Composite	2/Year <sup>16, 20</sup>

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency<sup>1</sup> of Sampling or Measurement</u>
Metals <sup>17</sup>	µg/L	24-hr Composite	2/Year <sup>16, 20</sup>
Title 22 Constituents <sup>18</sup>	varies	24-hr Composite	2/Year <sup>16, 20</sup>
Priority Pollutants <sup>19</sup>	varies	Grab	2/Year <sup>16, 20</sup>
Oil and Grease	mg/L	Grab	2/Year <sup>16, 20</sup>
MBAS	µg/L	Grab	2/Year <sup>16, 20</sup>

<sup>1</sup> If results of monitoring a pollutant appear to violate discharge specifications, but monitoring frequency is not sufficient to validate violation (e.g., the monthly mean for BOD<sub>5</sub>), or indicate a violation and potential upset of the treatment process, the frequency of sampling shall be increased to confirm the magnitude and duration of violation, if any, and aid in identification and resolution of the problem.

<sup>2</sup> Daily monitoring for this constituent may exclude weekends and holidays.

<sup>3</sup> The Discharger shall report the daily minimum, maximum and average chlorine residual and turbidity.  
<sup>4</sup> Nephelometric turbidity units.

<sup>5</sup> Total coliform organisms.

<sup>6</sup> Most probable number.

<sup>7</sup> Sample daily only when groundwater is less than five feet below ground surface, based on groundwater monitoring well data. Sample weekly when groundwater is more than five feet below ground surface. After consulting with DHS and obtaining its concurrence, the Discharger may submit a written request, subject to Executive Officer written approval, to reduce the frequency of TCO monitoring.

<sup>8</sup> On nonconsecutive days.

<sup>9</sup> Conductivity at 25°C.

<sup>10</sup> Total dissolved solids (TDS) referenced hereafter in this program shall be determined using USEPA Method No. 160.1 for combined organic and inorganic TDS and USEPA Method No. 160.4 for inorganic TDS or equivalent analytical procedures specified in 40 Code of Federal Regulations (CFR) Part 136.

<sup>11</sup> Coincident with EC monitoring

<sup>12</sup> Sodium adsorption ratio (SAR) referenced hereafter in this program shall be determined as follows:

$$SAR = \frac{Na}{\sqrt{\frac{Ca + Mg}{2}}}, \text{ where Na, Ca, and Mg are in meq/L}$$

<sup>13</sup> Coincident with effluent General Minerals monitoring

<sup>14</sup> Monitoring frequency following satisfaction of Provision I. 6. Prior to this, nitrogen compounds in effluent shall be monitored at least 1/Month coincident with BOD<sub>5</sub> monitoring.

<sup>15</sup> General Minerals as referred to in this program shall include the constituents in the General Minerals Analyte List presented below.

<sup>16</sup> April and October

<sup>17</sup> Metals as referred to in this program shall include arsenic, barium, copper, cadmium, chromium, lead, mercury, molybdenum, selenium, silver, zinc, and nickel.

<sup>18</sup> Title 22 constituents referenced in this program shall, at a minimum, refer to constituents identified in the technical report submitted pursuant to Provision I. 6.

<sup>19</sup> Reporting for priority pollutants as referred to in this program shall conform to SIP Section 2.4 et seq.

<sup>20</sup> Sampling for these constituents is not required until after 30 August 2007.

- <sup>21</sup> 8-hr Composite sampling allowed until 30 August 2007, 24-hr Composite is required thereafter.  
<sup>22</sup> Sampling twice per week not required until after 30 August 2007. Samples shall be taken three times per week prior to that date.  
<sup>23</sup> Daily sampling not required until after 30 August 2007. Samples shall be taken three times a month prior to that date.  
<sup>24</sup> Daily Sampling not required until after 30 August 2007. Samples shall be taken twice a month prior to that date.  
<sup>25</sup> Grab sampling allowed until 30 December 2007, continuous testing is required thereafter.

### General Minerals Analyte List

Alkalinity (as CaCO <sub>3</sub> )	Carbonate (as CaCO <sub>3</sub> )	Manganese
Aluminum	Chloride	Phosphate
Bicarbonate (as CaCO <sub>3</sub> )	Hardness (as CaCO <sub>3</sub> )	Potassium
Boron	Iron	Sodium
Calcium	Magnesium	Sulfate

General Minerals Sample Collection and Preservation: With the exception of wastewater samples, samples placed in an acid-preserved bottle must first be filtered through a 0.45 µm nominal pore size filter. 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.

### Discharge 002

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall during discharges to Sand Creek, with the exceptions noted below. Effluent samples should be representative of the volume and nature of the discharge. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency<sup>1</sup> of Sampling or Measurement</u>
Flow	mgd	Metered	Continuous
Settleable Solids	mL/L	Grab	1/Day <sup>2</sup>
pH	pH Units	Grab	1/Day <sup>2</sup>
Temperature	°F	Grab	1/Day <sup>2, 20</sup>
Turbidity <sup>3</sup>	NTU <sup>4</sup>	Continuous	1/Day <sup>20</sup>
TCO <sup>5</sup>	MPN <sup>6</sup> /100 ml	Grab	1/Day <sup>23</sup>
Acute Toxicity <sup>7</sup>	% Survival	Grab	Bimonthly
BOD <sub>5</sub>			
Concentration	mg/L	24-hr Composite <sup>21</sup>	2/Week <sup>8, 22</sup>
Monthly Average	mg/L	Calculated	1/Month
Percent Removal	%	Calculated	1/Month

TSS

Concentration	mg/L	24-hr Composite <sup>21</sup>	2/Week <sup>8, 22</sup>
Monthly Average	mg/L	Calculated	1/Month
Percent Removal	%	Calculated	1/Month

Salinity compounds/parameters:

EC <sup>9</sup>	µmhos/cm	24-hr Composite <sup>21</sup>	1/Day <sup>2, 24</sup>
TDS <sup>10</sup>	mg/L	24-hr Composite	2/Month <sup>11, 20</sup>
Chloride	mg/L	24-hr Composite <sup>21</sup>	2/Month <sup>11</sup>
Sodium	mg/L	24-hr Composite	2/Month <sup>11, 20</sup>
Boron	mg/L, lbs/day	24-hr Composite <sup>21</sup>	2/Month <sup>11</sup>
SAR <sup>12</sup>		Calculated	2/Year <sup>13, 20</sup>

Nitrogen Compounds

Ammonia (as NH <sub>3</sub> -N)	mg/L	24-hr Composite	1/Week <sup>14, 20</sup>
Un-ionized Ammonia <sup>8</sup> (as NH <sub>3</sub> -N)	mg/L, lbs/day	Grab	1/Week <sup>14, 20</sup>
Nitrate (as NO <sub>3</sub> -N)	mg/L	24-hr Composite	1/Week <sup>14, 20</sup>
Total Kjeldahl Nitrogen (TKN)	mg/L	24-hr Composite	1/Week <sup>14, 20</sup>
Total Organic Nitrogen (as N)	mg/L	Calculated	1/Week <sup>14, 20</sup>
Total Nitrogen	mg/L	Calculated	1/Week <sup>14, 20</sup>
Total Organic Carbon	mg/L	24-hr Composite	1/Quarter <sup>20</sup>
General Minerals <sup>15</sup>	mg/L	24-hr Composite	2/Year <sup>16, 20</sup>
Metals <sup>17</sup>	µg/L	24-hr Composite	2/Year <sup>16, 20</sup>
Title 22 Constituents <sup>18</sup>	varies	24-hr Composite	2/Year <sup>16, 20</sup>
Priority Pollutants <sup>19</sup>	varies	Grab	2/Year <sup>16, 20</sup>
Oil and Grease	mg/L	Grab	2/Year <sup>16, 20</sup>
MBAS	µg/L	Grab	2/Year <sup>16, 20</sup>

<sup>1</sup> If results of monitoring a pollutant appear to violate discharge specifications, but monitoring frequency is not sufficient to validate violation (e.g., the monthly mean for BOD<sub>5</sub>), or indicate a violation and potential upset of the treatment process, the frequency of sampling shall be increased to confirm the magnitude and duration of violation, if any, and aid in identification and resolution of the problem.

<sup>2</sup> Daily monitoring for this constituent may exclude weekends and holidays.

<sup>3</sup> The Discharger shall report the daily minimum, maximum and average turbidity.

<sup>4</sup> Nephelometric turbidity units.

<sup>5</sup> Total coliform organisms.

<sup>6</sup> Most probable number.

<sup>7</sup> Sampling shall occur between 1 November and 30 April. All acute toxicity bioassays shall be performed according to *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters of Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012* (or latest edition) using *Pimephales promelas* with no pH adjustment, unless exceptions are granted to the Discharger by the Executive Officer.

- 8 On nonconsecutive days.  
9 Conductivity at 25°C.  
10 Total dissolved solids (TDS) referenced hereafter in this program shall be determined using USEPA Method  
No. 160.1 for combined organic and inorganic TDS and USEPA Method No. 160.4 for inorganic TDS or  
equivalent analytical procedures specified in 40 Code of Federal Regulations (CFR) Part 136.  
11 Coincident with EC monitoring.  
12 Sodium adsorption ratio (SAR) referenced hereafter in this program shall be determined as follows:

$$SAR = \frac{Na}{\sqrt{\frac{Ca + Mg}{2}}}, \text{ where Na, Ca, and Mg are in meq/L}$$

- 13 Coincident with effluent General Minerals monitoring.  
14 Monitoring frequency following satisfaction of Provision I.6. Prior to this, nitrogen compounds in effluent shall  
be monitored at least 1/Month coincident with BOD<sub>5</sub> monitoring.  
15 General Minerals as referred to in this program shall include the constituents in the General Minerals Analyte  
List presented above.  
16 January and April.  
17 Metals as referred to in this program shall include arsenic, barium, copper, cadmium, chromium, lead, mercury,  
molybdenum, selenium, silver, zinc, and nickel.  
18 Title 22 constituents referenced in this program shall, at a minimum, refer to constituents identified in the  
technical report submitted pursuant to Provision I.6.  
19 Reporting for priority pollutants as referred to in this program shall conform to SIP Section 2.4 et seq.  
20 Sampling for these constituents not required until after 30 August 2007.  
21 8-hr Composite sampling allowed until 30 August 2007, 24-hr Composite is required thereafter.  
22 Sampling twice per week not required until after 30 August 2007. Samples shall be taken once per week prior to  
that date.  
23 Daily sampling not required until after 30 August 2007. Samples shall be taken three times per week prior to  
that date.  
24 Daily sampling not required until after 30 August 2007. Samples shall be taken twice a month prior to that date.  
25 Grab sampling allowed until 30 December 2007, continuous testing is required thereafter.

### THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA/821/R-02/013, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, October 2002. Chronic toxicity samples shall be collected at Discharge 002 immediately prior to discharge to Sand Creek. Samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Dilution and control waters shall be obtained from the receiving waters, immediately upstream of the discharge, from an area unaffected by the discharge to the receiving waters. If the receiving water source exhibits toxicity, standard dilution water can be used if its use is approved by the Executive Officer. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic toxicity monitoring manual. If the test acceptability criteria are not achieved,

then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum*

Frequency: *December and February*

Dilution Series:

		Dilutions (%)					Controls	
							<i>Creek Water</i>	<i>Lab Water</i>
% WWTP Effluent	100	75	50	25	12.5	0	0	
% Dilution Water <sup>1</sup>	0	25	50	75	87.5	100	0	
% Lab Water	0	0	0	0	0	0	100	

<sup>1</sup> Dilution water shall be receiving water from Sand Creek, taken from upstream of the discharge point. The dilution water and dilution series may be altered upon approval of Regional Board staff. If there is no flow in Sand Creek, a lab prepared solution shall be used for dilution water.

#### RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Samples shall be collected during weeks when there is flow in Sand Creek or when Discharge 002 is active. Receiving water monitoring shall include at least the following:

<u>Station</u>	<u>Description</u>
R-1	500 feet upstream from the point of discharge
R-2	500 feet downstream from the point of discharge

<u>Constituent</u>	<u>Units</u>	<u>Station</u>	<u>Sampling Frequency</u>
Flow	mgd	R-1	Daily
Dissolved Oxygen	mg/L	R-1, R-2	Weekly
pH	standard units	R-1, R-2	Weekly
Temperature	°F	R-1, R-2	Weekly <sup>6</sup>
Turbidity	NTU	R-1, R-2	Weekly <sup>6</sup>
EC @ 25°C	µmhos/cm	R-1, R-2	Weekly
Fecal Coliform Organisms	MPN <sup>1</sup> / 100 mL	R-1, R-2	Weekly <sup>7</sup>
Hardness (as CaCO <sub>3</sub> )	mg/L	R-1, R-2	Monthly <sup>6</sup>
Un-ionized Ammonia (NH <sub>3</sub> ) as N	mg/L	R-1, R-2	Monthly <sup>2, 6</sup>
Ammonia as N	mg/L	R-1, R-2	Monthly <sup>2, 6</sup>
Priority Pollutants	mg/L	R-1, R-2	Twice <sup>3, 4, 5, 6</sup>

<sup>1</sup> Most Probable Number

<sup>2</sup> Concurrent with temperature and pH monitoring.

<sup>3</sup> Concurrent with pH and hardness monitoring.

<sup>4</sup> Reporting for priority pollutants as referred to in this program shall conform to SIP Section 2.4 et seq.

<sup>5</sup> In accordance with Provision I.13.

<sup>6</sup> Sampling for these constituents not required until after 30 August 2007.

<sup>7</sup> Weekly sampling not required until after 30 August 2007. Samples shall be taken three times per week prior to that date.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1 and R-2. Attention shall be given to the presence or absence of:

- Floating or suspended matter
- Visible films, sheens, or coatings
- Discoloration
- Bottom deposits
- Fungi, slimes, or objectionable growths
- Aquatic life
- Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monthly monitoring reports. The Discharger shall include in each monthly monitoring report the times when discharge to Sand Creek (Discharge 002) occurred and a narrative description of upstream flow conditions at the time(s) of discharge (i.e., approximate depth of flow).

SLUDGE MONITORING

Sludge samples shall be collected in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document, August 1989*, and tested for the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency of Sampling or Measurement</u>
Sludge Produced	dry tons/day	Composite	Annually
Percent Solids in Sludge	percent	Composite	Annually
Cadmium	mg/kg dry sludge	Composite	Annually
Chromium	mg/kg dry sludge	Composite	Annually
Copper	mg/kg dry sludge	Composite	Annually
Lead	mg/kg dry sludge	Composite	Annually
Nickel	mg/kg dry sludge	Composite	Annually
Zinc	mg/kg dry sludge	Composite	Annually

**All sampling records shall be retained for a minimum of five years.** A log shall be kept of sludge quantities generated and handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual reports. Annual Reports shall be submitted by 1 February of each year, starting in the first year of the Order No. R5-2006-0092.

- A schematic diagram showing sludge handling facilities and a solids flow diagram.
- Depth of application and drying time for sludge drying beds.
- A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual sludge production disposed by each method.
  - *For landfill disposal*, include 1) the Board's Order number that regulates the landfill(s) used, 2) the present classification of the landfill(s) used, and 3) the names and locations of the facilities receiving sludge.

- *For land application*, include 1) the location of the site(s), 2) the Board’s Order number that regulates the site(s), 3) the application rate in lbs/acre/year (specify wet or dry), and 4) subsequent uses of the land.
- *For incineration*, include 1) the name and location of the site(s) where sludge incineration occurs, 2) the Board’s Order number that regulates the site(s), 3) the disposal method of ash, and 4) the names and locations of facilities receiving ash (if applicable).
- *For composting*, include 1) the location of the site(s), and 2) the Board’s Order number that regulated the site(s).

### WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of water supply can be obtained. Water supply monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
EC @ 25°C	µmhos/cm	Grab	Quarterly
General Minerals	mg/L	Grab	Annually <sup>1</sup>

<sup>1</sup> Sampling not required until after 30 August 2007.

EC shall be reported as a weighted average of EC from all source water sources. Copies of supporting calculations shall be included.

### POND MONITORING

Pond monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency of Sampling or Measurement</u>
Flow	mgd	Estimate	Daily
Freeboard	feet	Visual	Daily
Visual observation of weeds, scum, or solids buildup on ponds	--	Visual	Weekly <sup>1</sup>
Dissolved Oxygen in upper 1-foot of pond	mg/L	Grab <sup>2</sup>	Weekly <sup>1</sup>

- <sup>1</sup> Frequency shall be daily when in noncompliance with Pond Specifications and shall continue until at least one week after return to compliance.
- <sup>2</sup> Samples shall be collected from each pond near the outlet and analyzed for dissolved oxygen. Samples shall be collected between 0800 and 0900 hours.

Permanent markers shall be maintained in the ponds with calibration indicating the water level at design capacity and available operational freeboard.

### GROUNDWATER MONITORING

The Discharger shall conduct regular groundwater sampling of the groundwater monitoring network.

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.

At least quarterly and 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 hundredths above mean sea level). The horizontal geodetic location for each monitoring well shall be provided where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum. The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells shall be used to determine the gradient and direction of groundwater flow. This information shall be displayed on a water flow net diagram for the site. Water samples shall be collected from wells in the approved monitoring network and analyzed as follows:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample or Measurement</u>	<u>Frequency of Sampling or Measurement</u>
Depth	feet	Visual	Monthly
pH	standard units	Grab	Quarterly
EC @ 25°C	µmhos/cm	Grab	Quarterly
General Minerals <sup>1</sup>	mg/L	Grab	Quarterly <sup>3</sup>
Total Coliform Organisms	MPN <sup>2</sup> /100 mL	Grab	Quarterly <sup>3</sup>
Total Nitrogen	mg/L	Grab	Quarterly
Nitrate (as N)	mg/L	Grab	Quarterly

- <sup>1</sup> Alkalinity (as CaCO<sub>3</sub>), Carbonate (as CaCO<sub>3</sub>), Manganese, Aluminum, Chloride, Phosphate, Bicarbonate (as CaCO<sub>3</sub>), Hardness (as CaCO<sub>3</sub>), Potassium, Boron, Iron, Sodium, Calcium, Magnesium, Sulfate, and shall include verification that the analysis is complete (i.e., cation/anion balance).
- <sup>2</sup> Most probable number.
- <sup>3</sup> Quarterly sampling not required until after 30 August 2007. Samples shall be taken twice per year prior to that date.

The Discharger shall include a detailed description of the procedures and techniques for: (a) sample collection, including purging techniques, sampling equipment, and decontamination of sampling equipment; (b) sample preservation and shipment; (c) analytical procedures; and (d) chain of custody control. As it continues to monitor groundwater pursuant to this program, the Discharger shall report when it deviates from these procedures and techniques.

#### IRRIGATION MONITORING

Irrigation operations shall be monitored by submitting monthly estimates of irrigated land (in acres). In addition, the Discharger shall submit a summary report on the land management operation at the end of each year. The report shall discuss total water application in the year; the total volume of wastewater applied; the total nutrient loading from wastewater, sludges, and chemical fertilizers; and amount of nutrient removed through harvest of the crop. The report shall include a mass balance relative to pollutants of concern and hydraulic loading. The report is due by **1 February** of the following year.

#### REPORTING

The Discharger shall report monitoring data and information as required in this MRP and as required in the Standard Provisions and Reporting Requirements. All reports submitted in response to this MRP shall comply with the signatory requirements in Standard Provisions, General Reporting Requirements D.6. All monitoring data where the required monitoring frequency is monthly or more frequent than once per month shall be reported in monthly monitoring reports. Monthly monitoring reports shall be submitted to the Regional Board by the **1<sup>st</sup> day of the second month following sampling**. Quarterly monitoring reports shall be submitted by **1<sup>st</sup> day of the second month after the calendar quarter**. Semi-annual monitoring reports shall be submitted by the **1<sup>st</sup> day of the second month after the calendar half-year**. Annual monitoring reports shall be submitted by **1 February of the following year**. Priority pollutant monitoring reports shall be submitted no later than **180 days prior to the expiration of Order No. R5-2006-0093**. Failure to submit reports in a timely manner will result in the assessment of Mandatory Minimum Penalties pursuant to CWC Section 13395.

Monitoring data and/or discussions submitted concerning WWTF performance must be signed and certified by the chief plant operator. Reports containing laboratory analyses must also be signed and certified by: (1) when laboratory analyses are performed by the Discharger, the chief of the laboratory and (2) when performed by a contract laboratory, the chief of laboratory or authorized signatory.

Each laboratory report shall clearly identify the following:

- analytical method
- measured value
- units
- what constituent a value is reported as
- method detection limit (MDL)
- reporting limit (RL) (i.e., a practical quantitation limit or PQL)
- documentation of cation/anion balance for general minerals analyses of supply water and effluent samples

All laboratory results shall be reported down to the MDL, as defined 40 CFR 136. Nondetected 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.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the data, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that indicates clearly whether the discharge 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 calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall be indicated on the Discharge Monitoring Report Form.

By **1 February of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:

1. The names, certificate grades, and general responsibilities of all persons employed at the WWTF (Standard Provision A.5).
2. The names and telephone numbers of persons to contact regarding the facility for emergency and routine situations.
3. A statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).
4. A statement certifying 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 revised and last reviewed for adequacy.
5. A summary of groundwater monitoring in a format (both printed and electronic) selected in concurrence with Regional Board staff, including:

- a. Hydrographs showing the groundwater elevation in approved wells from the initial monitoring to the end of the reporting period, for at least the previous five years or to the extent that such data are available, whichever is fewer. The hydrographs should show groundwater elevation with respect to the elevations of the top and bottom of the screened interval and be presented at a scale of values appropriate to show trends or variations in groundwater elevation. The scale for the background plots shall be the same as that used to plot downgradient elevation data;
  - b. Graphs of the laboratory analytical data for samples taken from approved wells from the initial sampling to the end of the reporting period , within at least the previous five calendar years (as data become available). Each such graph shall plot the concentration of one or more waste constituents specified above selected in concurrence with Regional Board staff. The graphs shall plot each datum, rather than plotting mean values, over time for a given monitoring well, at a scale appropriate to show trends or variations in water quality. For any given constituent, the scale for the background plots shall be the same as that used to plot downgradient data.
  - c. All monitoring analytical data obtained during the previous four quarterly reporting periods, presented in tabular form, as well as on 3.5" computer diskette.
6. 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.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Executive Officer may require the Discharger to submit self monitoring reports electronically. Such a request will be made in writing.

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

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
21 September 2006  
(Date)

## INFORMATION SHEET

ORDER NO. R5-2006-0092

NPDES NO. CA0081485

CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY WWTF

TULARE COUNTY

### I. INTRODUCTION

The Cutler-Orosi Joint Powers Wastewater Authority (hereinafter Discharger) owns and operates a wastewater treatment facility (WWTF) serving the communities of Cutler, Orosi, East Orosi, Yettem, Seville, and Sultana. The Discharger submitted a report of waste discharge (RWD) dated 20 January 2003 and applied for renewal of its permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from its WWTF to Discharger-owned land for irrigation and to Sand Creek, a water of the United States. Waste Discharge Requirements (WDRs) Order No. 97-106 currently regulates the discharge. The U.S. Environmental Protection Agency (USEPA) and the Regional Board have classified the Discharger's WWTF as a major discharger.

According to the RWD, the WWTF has an average effluent flow of 1.35 million gallons per day (mgd) and a design flow of 2.0 mgd. The WWTF includes headworks, pump screws, two primary clarifier-digesters, two trickling filters, an oxidation ditch, a secondary clarifier, ultraviolet light (UV) disinfection (The Discharger does not use chlorine at the WWTF), two unlined sludge lagoons, and 16 unlined sludge drying beds. Treated wastewater may be stored in one of two unlined holding ponds prior to discharge or discharged directly without storage. The holding ponds have a total pond bottom of 16 acres. Effluent is lost through evaporation and percolation from the holding ponds. The WWTF has two wastewater discharge locations, namely, Discharge 001 and Discharge 002.

Discharge 001 is recycling of wastewater on 106 acres of Discharger owned land, which is in Section 24, T16S, R24E, MDB&M. The Discharger has an additional 20 acres available for irrigation, pending the installation of irrigation piping. The Discharger grows fodder, fiber, and seed crops on the land. Wastewater discharged through Discharge 001 is not disinfected, unless there is less than a five-foot separation between the land surface and the groundwater or when there is less than a five-foot separation between storage pond bottoms and groundwater.

The Discharger also is authorized to discharge via Discharge 002 to Sand Creek between 1 November and 30 April. Sand Creek runs parallel to the WWTF on its south and east sides. The Discharger last discharged to Sand Creek in March 2001. Sand Creek is an intermittent stream that carries local storm water runoff southerly to Cottonwood Creek. Sand Creek is usually dry during the summer. Maximum flow capacity is approximately 500 cubic feet per second (cfs), although flows generally do not exceed 5-10 cfs. Sand Creek falls within a group of streams termed Valley Floor Waters, which include streams in Hydrologic Units (HUs) 551, 557, and 558 and not included elsewhere in Table II-1 of the *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (Basin Plan), adopted in 1985. The beneficial uses designated for Valley Floor Waters (including Sand Creek) are:

- a. Agricultural supply (AGR),
- b. Industrial service supply (IND),
- c. Industrial process supply (PRO),
- d. Water contact recreation (REC-1),

- e. Non-contact water recreation (REC-2),
- f. Warm freshwater habitat (WARM),
- g. Wildlife habitat (WILD),
- h. Rare, threatened, or endangered species (RARE), and
- i. Groundwater recharge (GWR).

The underlying groundwater is in the Detailed Analysis Unit (DAU) 239 of the King's Basin Hydrologic Unit (HU). The designated beneficial uses of the groundwater are:

- a. Agricultural supply (AGR),
- b. Municipal supply (MUN),
- c. Industrial service supply (IND), and
- d. Industrial process supply (PRO).

Precedential State Board Order No. WQ2002-0015 (Vacaville Order) provides guidance on implementing the Basin Plan, particularly new requirements to protect a beneficial use that is designated but which evidence suggest does not exist in an effluent dominated water body. Some of the issues addressed by the State Board Order may be relevant to the Cutler-Orosi Joint Powers Wastewater Authority discharge. Specifically, the beneficial uses designated for Valley Floor waters that drive the most stringent effluent limitations of this Order are AGR, WARM, and limited REC-1, and Sand Creek may prove to be an exception to the group if these uses were specific to the water body. Other designated beneficial uses, whether they exist or do not, are unlikely to change the effluent limitations of this Order.

## II. DESCRIPTION OF EFFLUENT

The discharges are described below based on information from the most recent Report of Waste Discharge and from recent self-monitoring reports.

- a. **Discharge 001:** The quality of the Discharge 001, based on 2000-2005 self-monitoring data, may be described as follows:

### Summary of Effluent Data for Discharge 001

<u>Constituent</u>	<u>Average Daily Concentration</u>
BOD <sub>5</sub> <sup>1</sup>	2.1 mg/L
Total Suspended Solids (TSS)	3.0 mg/L
Settleable Solids	<0.1 mg/L

<sup>1</sup> 5-day, 20°C biochemical oxygen demand

- b. Discharge 002:** Discharge 002 occurs at a point in Section 19, T16S, R25E, MDB&M (Longitude 119°18'12" West; Latitude 36°31'23" North). The quality of this discharge, based on self-monitoring data from 2000 and 2001 (May 2001 was the last reported discharge from Discharge 002) may be described as follows:

Summary of Effluent Data for Discharge 002

<u>Constituent</u>	<u>Average Daily Concentration</u>
BOD <sub>5</sub> <sup>1</sup>	2.4 mg/L
Total Suspended Solids (TSS)	3.8 mg/L
Settleable Solids	<0.1 mg/L

<sup>1</sup> 5-day, 20°C biochemical oxygen demand

### III. SUMMARY OF CHANGES TO CURRENT ORDER

The NPDES elements of WDR Order No. 97-106, (hereafter the existing Order), expired on 19 June 2002. This Order includes changes to both the NPDES and non-NPDES elements of Order No. 97-106 and to the Monitoring and Reporting Program. A summary of the key changes is as follows:

**a. Discharge 001**

- Addition of total suspended solids (TSS) limits based on Basin Plan requirements.
- Addition of 85 percent removal requirement for BOD<sub>5</sub> and TSS based on Basin Plan requirements.
- Revision of total coliform organism maximum daily limit (more stringent) based on Basin Plan requirements.
- Addition of boron and chloride limitations based on Basin Plan requirements.

**b. Discharge 002**

- Addition of mass-based limits for BOD<sub>5</sub> and TSS calculated from national secondary treatment standards and WWTF design flow.
- Addition of un-ionized ammonia limit based on the Basin Plan water quality objective for ammonia.
- Revision of pH limits (more stringent) based on Basin Plan water quality objective for pH.
- Addition of acute whole effluent toxicity limitations based on the Basin Plan water quality objective for toxicity.

**c. Recycled Water Specifications**

- Addition of requirement to install backflow preventers, to protect potable water supplies.
- Addition of restriction for commercial fertilizer application.
- Minor revisions and additions to setback distance requirements.

**d. Receiving Water Limitations**

- Minor revisions and additions (e.g., temperature) to receiving water limits to reflect Basin Plan water quality objectives.

**e. Groundwater Limitations**

- Minor revisions to receiving water limits to reflect Basin Plan water quality objectives.

**f. Provisions**

- Addition of requirement to conduct a study on California Toxics Rule (CTR) priority pollutants
- Addition of chronic toxicity testing requirements based on the Basin Plan water quality objective for toxicity and Section 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan or SIP).
- Addition of requirement to conduct hydrogeologic investigation to determine areas affected and potentially affected by the WWTF discharge.
- Requirement to evaluate WWTF sludge and operation and maintenance practices with respect to BPTC.
- Addition of requirement to conduct a study to gather information to set numeric groundwater limitations.
- Addition of requirement to conduct an Ammonia Effluent Limitations Evaluation.
- Addition of requirement to submit a Title 22 engineering report.

**g. Monitoring and Reporting Program**

- Increase in frequency of BOD<sub>5</sub> and TSS monitoring of influent to weekly to match effluent monitoring frequency.
- Revision of BOD<sub>5</sub> and TSS sampling type to 24-hour flow-proportional composite (from 8-hour composite) to reflect potential fluctuations in influent and effluent quality over a 24-hour period.
- Increase in total coliform organism monitoring frequency of Discharges 001 and 002 to be consistent with Title 22 of the Code of California Regulations (22 CCR) Article 6, §60321 for disinfected secondary-23 recycled water.
- Addition of boron and chloride monitoring of Discharge 001 to measure compliance with new effluent limits.

- Addition of nitrate monitoring, and total nitrogen monitoring frequency to weekly for Discharge 001 based on elevated nitrate levels in groundwater underlying the irrigation area above the MCL for nitrate + nitrite. (Total nitrogen and flow monitoring requirements for Discharge 001 were listed in the existing Monitoring and Reporting Program under “Recycled Water Monitoring”).
- Addition of acute and chronic whole effluent toxicity testing of Discharge 002 to measure compliance with effluent limits and other requirements.
- Addition of un-ionized ammonia monitoring for Discharge 002 and the receiving water to measure compliance with the ammonia limitation and the Basin Plan water quality objective for ammonia.
- Addition of priority pollutant monitoring requirements for effluent and receiving water sampling to complete requirements for letters sent by the Regional Board to the Discharger dated 27 February 2001, 8 May 2001, and 27 February 2002.
- Addition of temperature monitoring in Discharge 002 and the receiving water (Sand Creek) based on Receiving Water Limitations for temperature.
- Addition of hardness monitoring in the receiving water to provide needed data for future reasonable potential analyses.
- Increase in sludge reporting to quarterly based on finding that, at the time of the most recent inspection, sludge from more than two years of WWTF operations was being stored on-site.

#### **IV. SPECIFIC RATIONALE**

Several specific factors affecting the development of limitations and requirements in this Order are discussed as follows:

##### **1. Recent WWTF Performance**

Effluent monitoring data collected from 2000 to 2005 are considered representative of recent WWTF performance.

##### **2. Basis for Prohibitions**

- A.1 The restriction on when effluent can be discharged to Discharge 002 is carried over from Order No. 97-106 and is designed to encourage reclamation.
- A.2 Prohibition of by-pass or overflow of waste streams is based on 40 CFR 122.4(m) and Standard Provision A.13.
- A.3 Discharge of hazardous and designated wastes are prohibited based on the requirements of Title 23, California Code of Regulations (CCR), Section 2510, et seq. and Title 27 CCR, Section 20005 et seq..

##### **3. Basis for Effluent Limitations**

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Federal regulations at Title 40, Code of Federal Regulations, Part 133.102 (40 CFR 133.102) establish the minimum level of effluent quality attainable by secondary treatment for the parameters BOD<sub>5</sub>, TSS and pH. Basin Plans include beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. The following effluent limitations have been derived from either 40 CFR 133.102 or the Basin Plan. Some of these limitations are carried over from the existing Order. The WWTF's ability to comply with these effluent limitations is demonstrated by existing performance data.

**3.1 Flow**

Flow is limited based on the WWTF's certified design capacity of 2.0 mgd.

**3.2 Effluent Limitations for Discharge 001**

This Order includes the following limits for Discharge 001:

Constituent	Units	Average Monthly Limitation	7-Sample Median	Maximum Daily Limitation
BOD <sub>5</sub> <sup>1</sup>	mg/L	30	--	60
Total Suspended Solids (TSS)	mg/L	30	--	60
Settleable Solids	ml/L	0.2	--	0.5
Total Coliform Organisms <sup>2</sup>	MPN <sup>3</sup> /100 mL	--	23	240
Chloride	mg/L	--	--	175
Boron	mg/L	--	--	1.0

<sup>1</sup> Five-day, 20°C biochemical oxygen demand (BOD)

<sup>2</sup> Limits apply only when groundwater is less than five (5) feet below ground surface based on groundwater monitoring well data.

<sup>3</sup> MPN = Most Probable Number

- The arithmetic mean of 20°C BOD (5-day) and total suspended solids (TSS) in effluent samples collected from Discharge 001 over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).
- The maximum EC of the discharge shall not exceed the source water EC (at 25°C) plus 500 µmhos/cm, as calculated based on the most recent quarterly source water sampling, or a maximum of 1000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.

The specific rationale for these limits is as follows:

***BOD<sub>5</sub> and TSS:*** The Basin Plan requires WWTFs that are designed to discharge in excess of 1 million gallons per day to provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, of both 5-day BOD<sub>5</sub> and suspended solids (Basin Plan, p. V-10). However, as described below, federal regulations require publicly owned treatment works such as the WWTF to remove 85 percent and reduce to 30 mg/L both 5-day BOD and suspended solids. To ensure operation constancy, this order modifies the Discharger's Discharge specifications so they meet the federal secondary treatment requirements. The maximum daily limit is calculated based on the 30-day average limit using the standard statistical procedures in the SIP and USEPA's March 1991 *Technical Support Document For Water Quality-based Toxics Control* (TSD) for describing effluent concentrations using a lognormal distribution.

***Total Coliform Organisms:***

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, CCR, Section 60301 et seq., (hereafter Title 22) for the use of recycled water.

The 1988 Memorandum of Agreement (MOA) between DHS and the State Board on the use of recycled water establishes basic principles relative to the agencies and the Regional 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.

Title 22 criteria do not apply to recycled water uses at WWTFs. Nonetheless, recycled water discharges at the WWTF would be consistent with Title 22, CCR, Section 60304(d), which requires recycled wastewater used for the surface irrigation fiber, fodder, and seed crops not for human consumption to be at least undisinfected secondary recycled water.

Order No. 97-106 required wastewater discharged to storage meet a 7-day median of 23 MPN/100 mL and a daily maximum of 500 MPN/100 mL when groundwater was less than five feet below the ground surface. This requirement was to ensure that wastewater percolating to groundwater below holding pond inverts was adequately filtered. This Order carries over the 23 MPN/100 mL limit, but implements it as a 7-sample median for discharges of seven days or more and a median of samples collected if the discharge occurs for less than seven days. This Order also reduces the daily maximum limit to 240 MPN/100 mL to make it consistent with the limit for surface water discharge.

***Chloride and Boron:*** Chloride and boron limits for Discharge 001 are based on requirements in the Basin Plan for municipal and domestic wastewater discharges to land, which states that "Discharges to areas that may recharge to good quality groundwaters shall not exceed... a chloride content of 175 mg/L, or a boron content of 1.0 mg/L" (Basin Plan, p. IV-11).

***EC:*** Effluent limitations for EC for Discharge 001 are based on the maximums allowed by the Basin Plan and require that the maximum EC of the discharge shall not exceed the source water EC plus 500

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µmhos/cm, or a maximum of 1000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.

State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16) requires the Regional Board in regulating discharge of waste to maintain high quality 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 Board’s policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the discharge be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.

Domestic wastewater contains constituents such as total dissolved solids (TDS), EC, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). The discharge to land, with disposal by percolation, may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

- a. The degradation is limited in extent;
- b. The degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
- c. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- d. The degradation does not result in water quality less than that prescribed in the Basin Plan.

**3.3 Effluent Limitations for Discharge 002**

This Order includes the following limits for Discharge 002:

Constituent	Units	Average Monthly Limitation	Average Weekly Limitation	7-Sample Median	Maximum Daily Limitation
BOD <sub>5</sub> <sup>1</sup>	mg/L	30	45	--	60
	lb/day <sup>2</sup>	500	750	--	1000
Total Suspended Solids (TSS)	mg/L	40	45	--	60
	lb/day <sup>2</sup>	670	750	--	1000
Settleable Solids	mL/L	0.1		--	0.5
Total Coliform Organisms	MPN <sup>3</sup> /100 mL	--	--	23	240

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Constituent	Units	Average Monthly Limitation	Average Weekly Limitation	7-Sample Median	Maximum Daily Limitation
Total Residual Chlorine	mg/L				0.01
Chloride	mg/L	--	--	--	175
	lb/day <sup>2</sup>	--	--	--	2920
Boron	mg/L	--	--	--	1.0
	lb/day <sup>2</sup>	--	--	--	16.7
Un-ionized Ammonia	mg/L	--	--	--	0.025
(NH <sub>3</sub> as N)	lb/day <sup>2</sup>	--	--	--	0.42

<sup>1</sup> Five-day, 20°C biochemical oxygen demand (BOD)

<sup>2</sup> Based on a design flow of 2.0 mgd; lb/day = flow (mgd) x concentration (mg/L) x 8.34 lb/(mg/L x mgal)

<sup>3</sup> MPN = Most Probable Number

- The arithmetic mean of 20°C BOD (5-day) and total suspended solids (TSS) in effluent samples collected from Discharge 002 over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).
- Discharge 002 shall not have a pH less than 6.5 nor greater than 8.3 standard units at any time.
- The maximum EC of the Discharge 002 shall not exceed the source water EC (at 25°C) plus 500 µmhos/cm, as calculated based on the most recent quarterly source water sampling, or a maximum of 1,000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.
- Survival of aquatic organisms in 96-hour bioassays of undiluted waste, as specified in the attached Monitoring and Reporting Program, shall be no less than:

Minimum for any one bioassay.....70%  
 Median for any three or more consecutive bioassays.....90%

**The specific rationales for these limitations are as follows:**

**Dilution:** Water quality-based effluent limitations in this Order apply at the point of discharge, as at times the discharge is the only flow in Sand Creek and there is no dilution.

**Mass-based limits:** Mass-based limits are calculated using the applicable concentration limit and the design flow of the WWTF. (See examples below for BOD<sub>5</sub> and TSS.)

**BOD<sub>5</sub> and TSS:** Final effluent limitations for BOD<sub>5</sub> and TSS are based on secondary treatment standards at 40 CFR 133.102, which require that BOD<sub>5</sub> and TSS not exceed a 30-day average of 30

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mg/L and a 7-day average of 45 mg/L and that the average percent removal of BOD<sub>5</sub> and TSS be no less than 85%. The maximum daily limit is calculated based on the 30-day average limit using the standard

statistical procedures in the SIP and USEPA's TSD for describing effluent concentrations using a lognormal distribution. Using these procedures, the ratio of the maximum daily limit to the average monthly limit is 2.01.

**Mass-based limit calculation for BOD<sub>5</sub> and TSS:**

*Given:* Conversion factor = 8.34 (lb)(l)/(mg)(Mgal)  
Design flow = 2.0 mgd

**Monthly Average** = 30 mg/L X 8.34 X 2.0 mgd = **500 lbs/day**

**Weekly Average** = 45 mg/L X 8.34 X 2.0 mgd = **750 lbs/day**

**Daily Max** = 60 mg/L X 8.34 X 2.0 mgd = **1000 lbs/day**

**pH:** The Basin Plan requires that the pH of receiving waters shall not be depressed below 6.5 or raised above 8.3 standard units. As the discharge is at times the only flow in Sand Creek, these limits are applied directly to the discharge. These requirements are more stringent than the pH requirements based on secondary treatment standards at 40 CFR 133.102.

**Settleable Solids:** Effluent limits for settleable solids are based on limitations from Order No. 97-106 and were developed to attain the Basin Plan narrative water quality objective for settleable matter.

***Total Coliform Organisms:***

Title 22 criteria do not apply directly to discharges to waters of the State (e.g., creeks, streams, etc.). DHS drafted *Uniform Guidelines for Wastewater Disinfection* (retyped in November 2000) (Guidelines) that recommends treatment and disinfection levels for discharges to waters of the State. The Guidelines recommend effluent have a median coliform bacteria most probable number (MPN) not exceeding 23/100 mL when:

- a. Discharges are to ephemeral streams that have little or no natural flow during all or part of the year,
- b. There is no nearby habitation,
- c. Recreation is not identified as a beneficial use, and
- d. Contact with the effluent is not encouraged.

Habitation downstream of the discharge is sparse and there is limited opportunity for contact with the Sand Creek in the vicinity of the discharge. The WWTF is prohibited from discharging to Sand Creek during the summer months when upstream flow in the creek is most likely to be low or nonexistent.

Discharges are only permitted from November 1 through April 30 when dilution flows are more likely and cooler temperatures will discourage REC-1 and REC-2 uses. As the conditions of discharge are similar to a. -d. above, it is appropriate to apply an effluent limit restricting median coliform concentrations from exceeding 23 MPN/100 mL for discharges to Sandy Creek. In Order No. 97-106, the 23 MPN/100 mL requirement was implemented as a 7-day median limit. This Order specifies a 7-day median limit except when the discharge occurs for less than 7-days, at which time it specifies a median of all samples collected during the period of discharge. The daily maximum requirement for total coliform of 240 MPN/100 mL is carried over from Order No. 97-106. This Order requires daily sampling for total coliform during discharges to Sand Creek.

**Chloride and Boron:** These limits are based on requirements of the Basin Plan for municipal and domestic wastewater discharges to surface waters, which states that “Discharges shall not exceed...a chloride content of 175 mg/L, or a boron content of 1.0 mg/L” (Basin Plan, p. IV-10).

**EC:** These limitations are based on the requirements in the Basin Plan for discharges of municipal or domestic wastewater to surface waters (p. IV-10) which require that the maximum EC shall not exceed the quality of the source water plus 500  $\mu$ mhos/cm or 1,000  $\mu$ mhos/cm, whichever is more stringent.

**Ammonia:** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment facilities commonly use nitrification process to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream.

In water, un-ionized ammonia ( $\text{NH}_3$ ) exists in equilibrium with the ammonium ion ( $\text{NH}_4^+$ ). The toxicity of aqueous ammonia solutions to aquatic organisms is primarily attributable to the un-ionized ammonia form, with the ammonium ion being relatively less toxic. Total ammonia refers to the sum of these two forms in aqueous solutions. Analytical methods are used directly to determine the total ammonia concentration, which is then used to calculate the un-ionized ammonia (toxic) concentration in water. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. The Basin Plan states, “Waters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses. In no case shall the discharge of wastes cause concentrations of unionized ammonia

( $\text{NH}_3$ ) to exceed 0.025 mg/L (as N) in receiving waters.” Ammonia limits are based on application of this water quality objective with no dilution allowance. Following completion of the Ammonia Effluent Limitation Evaluation, as described in Provision I.23, this permit may be reopened to include modified effluent limits for ammonia.

**Acute Whole Effluent Toxicity:** The Basin Plan includes a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental physiological responses in human, plant, animal, or aquatic life. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or

indicator species, and/or significant alternations in population, community ecology, or receiving water biota. Acute whole effluent toxicity limits are based on interpretation of the narrative water quality objective for toxicity in the Basin Plan and requirements in Section 4 of the SIP.

### 3.4 Reasonable Potential Analysis (RPA)

As specified in 40 CFR 122.44(d)(1)(i), permits are required to include water quality-based effluent limitations (WQBELs) for all pollutants which “are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard.” Thus, the fundamental step in determining whether or not a WQBEL is required is to assess the reasonable potential for concentrations of pollutants in an effluent to cause or contribute to an excursion of the applicable water quality objective (WQO) or water quality criterion (WQC). The following section describes the “reasonable potential analysis” or RPA methodology and the results of such an analysis for priority pollutants, as identified in the National Toxics Rule (NTR) and California Toxics Rule (CTR).

- a. *WQOs and WQC*: The RPA involves the comparison of effluent data and receiving water data with appropriate WQC in the CTR or NTR and, as applicable, WQOs in the Basin Plan or other numeric criteria.
- b. *Methodology*: The Regional Board conducted the RPA using the method and procedures prescribed in Section 1.3 of the SIP. Effluent and background data and the nature of WWTF operations are analyzed to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable WQOs or WQC.
- c. *Effluent and background data*: Letters sent by the Regional Board to the Discharger dated 27 February 2001, 8 May 2001 and 27 February 2002 required the Discharger to submit at least two days of effluent and receiving water data on priority pollutants. The Discharger submitted no priority pollutant data for the receiving water and only one day of sampling data for the effluent. The RPA in this Order is based on effluent data collected by the Discharger on 26 April 2002. These are the same data reported in the most recent Report of Waste Discharge. Consequently, the RPA is only for priority pollutants for which effluent data were provided, and should be considered preliminary.
- d. *RPA determination*: The preliminary RPA results are summarized in the table below. Available data do not demonstrate reasonable potential for any of the priority pollutants. The hardness used in the RPA analysis was the effluent hardness of 200 mg/L.

#### Summary of Preliminary Reasonable Potential Analysis Results

# in CTR	PRIORITY POLLUTANTS	MEC or Method Detection Limit <sup>1</sup> (µg/L)	Governing WQO/WQC (µg/L)	RPA Results <sup>2</sup>

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# in CTR	PRIORITY POLLUTANTS	MEC or Method Detection Limit <sup>1</sup> (µg/L)	Governing WQO/WQC (µg/L)	RPA Results <sup>2</sup>
1	Antimony	2	4,300	No
2	Arsenic	3	150	No
3	Beryllium	1	No Criteria	Uo
4	Cadmium	1	0.45	No
5a	Chromium (III)	1	365.16	No
5b	Chromium (VI)	1	11.43	No
6	Copper	5	16.87	No
7	Lead	5	7.69	No
8	Mercury	0.0262	0.051	No
9	Nickel	10	93.76	No
10	Selenium	2	5.00	No
11	Silver	10	13.37	No
12	Thallium	1	6.30	No
13	Zinc	50	215.57	No
14	Cyanide	0.00001	5.20	No
15	Asbestos	0.2 (mil. per liter)	7 mil. per liter	Uo
16	2,3,7,8 TCDD	0.00000844	0.000000014	No
17	Acrolein	NA	780	Ud
18	Acrylonitrile	NA	0.66	Ud
19	Benzene	5	71	No
20	Bromoform	5	360	No
21	Carbon Tetrachloride	5	4.4	No
22	Chlorobenzene	5	21,000	No
23	Chlorodibromomethane	5	34	No
24	Chloroethane	5	No Criteria	Uo
25	2-Chloroethylvinyl ether	NA	No Criteria	Uo
26	Chloroform	5	No Criteria	Uo
27	Dichlorobromomethane	5	46	No
28	1,1-Dichloroethane	5	No Criteria	Uo
29	1,2-Dichloroethane	5	99	No
30	1,1-Dichloroethylene	5	3.2	No
31	1,2-Dichloropropane	5	39	No
32	1,3-Dichloropropylene	NA	1,700	Ud
33	Ethylbenzene	5	29,000	No
34	Methyl Bromide	5	4,000	No
35	Methyl Chloride	5	No Criteria	Uo
36	Methylene Chloride	25	1,600	No
37	1,1,2,2-Tetrachloroethane	5	11	No
38	Tetrachloroethylene	5	8.85	No
39	Toluene	5	200,000	No
40	1,2-Trans-Dichloroethylene	5	140,000	No

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# in CTR	PRIORITY POLLUTANTS	MEC or Method Detection Limit <sup>1</sup> (µg/L)	Governing WQO/WQC (µg/L)	RPA Results <sup>2</sup>
41	1,1,1-Trichloroethane	5	No Criteria	Uo
42	1,1,2-Trichloroethane	5	42	No
43	Trichloroethylene	5	81	No
44	Vinyl Chloride	5	525	No
45	2-Chlorophenol	5	400	No
46	2,4-Dichlorophenol	5	790	No
47	2,4-Dimethylphenol	5	2,300	No
48	2-Methyl- 4,6-Dinitrophenol	25	765	No
49	2,4-Dinitrophenol	50	14,000	No
50	2-Nitrophenol	5	No Criteria	Uo
51	4-Nitrophenol	25	No Criteria	Uo
52	3-Methyl 4-Chlorophenol	10	No Criteria	Uo
53	Pentachlorophenol	25	8.20	No
54	Phenol	10	4,600,000	No
55	2,4,6-Trichlorophenol	5	6.50	No
56	Acenaphthene	5	2,700	No
57	Acenaphthylene	5	No Criteria	Uo
58	Anthracene	5	110,000	No
59	Benzidine	NA	0.00054	Ud
60	Benzo(a)Anthracene	5	0.049	No
61	Benzo(a)Pyrene	5	0.049	No
62	Benzo(b)Fluoranthene	5	0.049	No
63	Benzo(ghi)Perylene	5	No Criteria	Uo
64	Benzo(k)Fluoranthene	5	0.049	No
65	Bis(2-Chloroethoxy)Methane	5	No Criteria	Uo
66	Bis(2-Chloroethyl)Ether	25	1.40	No
67	Bis(2-Chloroisopropyl)Ether	50	170,000	No
68	Bis(2-Ethylhexyl)Phthalate	5	5.90	No
69	4-Bromophenyl Phenyl Ether	5	No Criteria	Uo
70	Butylbenzyl Phthalate	5	5,200	No
71	2-Chloronaphthalene	5	4,300	No
72	4-Chlorophenyl Phenyl Ether	5	No Criteria	Uo
73	Chrysene	5	0.049	No
74	Dibenzo(a,h)Anthracene	5	0.049	No
75	1,2-Dichlorobenzene	5	17,000	No
76	1,3-Dichlorobenzene	5	2,600	No
77	1,4-Dichlorobenzene	5	2,600	No
78	3,3 Dichlorobenzidine	10	0.077	No
79	Diethyl Phthalate	5	120,000	No
80	Dimethyl Phthalate	5	2,900,000	No
81	Di-n-Butyl Phthalate	5	12,000	No

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# in CTR	PRIORITY POLLUTANTS	MEC or Method Detection Limit <sup>1</sup> (µg/L)	Governing WQO/WQC (µg/L)	RPA Results <sup>2</sup>
82	2,4-Dinitrotoluene	20	9.10	No
83	2,6-Dinitrotoluene	20	No Criteria	Uo
84	Di-n-Octyl Phthalate	5	No Criteria	Uo
85	1,2-Diphenylhydrazine	NA	0.54	Ud
86	Fluoranthene	5	370	No
87	Fluorene	5	14,000	No
88	Hexachlorobenzene	5	0.00077	No
89	Hexachlorobutadiene	5	50	No
90	Hexachlorocyclopentadiene	NA	17,000	Ud
91	Hexachloroethane	5	8.90	No
92	Indeno(1,2,3-cd)Pyrene	5	0.049	No
93	Isophorone	5	600	No
94	Naphthalene	5	No Criteria	Uo
95	Nitrobenzene	25	1,900	No
96	N-Nitrosodimethylamine	NA	8.10	Ud
97	N-Nitrosodi-n-Propylamine	25	1.40	No
98	N-Nitrosodiphenylamine	5	16	No
99	Phenanthrene	10	No Criteria	Uo
100	Pyrene	5	11,000	No
101	1,2,4-Trichlorobenzene	5	No Criteria	Uo
102	Aldrin	5	0.00014	No
103	alpha-BHC	0.1	0.013	No
104	beta-BHC	0.1	0.046	No
105	gamma-BHC	0.1	0.063	No
106	delta-BHC	0.1	No Criteria	Uo
107	Chlordane (303d listed)	2	0.00059	No
108	4,4'-DDT (303d listed)	0.1	0.00059	No
109	4,4'-DDE (linked to DDT)	0.1	0.00059	No
110	4,4'-DDD	0.1	0.00084	No
111	Dieldrin (303d listed)	0.1	0.00014	No
112	alpha-Endosulfan	0.1	0.0560	No
113	beta-Endosulfan	0.1	0.0560	No
114	Endosulfan Sulfate	0.1	240	No
115	Endrin	0.1	0.0360	No
116	Endrin Aldehyde	0.1	0.81	No
117	Heptachlor	0.1	0.00021	No
118	Heptachlor Epoxide	0.1	0.00011	No
119-125	PCBs sum	1.4	0.00017	No
126	Toxaphene	2	0.00020	No

<sup>1</sup> Maximum Effluent Concentration (MEC) in **bold** is the actual detected MEC, otherwise the MEC shown is the Method Detection Limit. NA = Not Available (there are no monitoring data for this constituent).

<sup>2</sup> RP = Yes, if either MEC or Background > WQO/WQC.

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# in CTR	PRIORITY POLLUTANTS	MEC or Method Detection Limit <sup>1</sup> (µg/L)	Governing WQO/WQC (µg/L)	RPA Results <sup>2</sup>
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RP = No, if (1) both MEC and background < WQO/WQC or (2) no background and all effluent data non-detect, or no background and MEC < WQO/WQC (per WQ 2001-16 Napa Sanitation Remand)  
 RP = Ud (undetermined due to lack of data)  
 RP = Uo (undetermined if no objective or criterion promulgated).

- e. *Constituents with limited data:* Reasonable potential could not be determined for some of the priority pollutants due to (i) WQOs/WQC that are lower than current analytical techniques can measure, (ii) the absence of applicable WQOs or WQC, or (iii) the absence of background data. Reasonable potential will be reevaluated in the future to determine whether there is a need to add numeric effluent limits to the permit or to continue monitoring. In addition, this Order requires the Discharger to monitor priority pollutants one time during the final year of the permit to provide additional data for future RPAs.
- f. *Pollutants with no reasonable potential:* WQBELs are not included in this Order for constituents that do not have reasonable potential to cause or contribute to exceedance of applicable WQOs or WQC. After the collection of more data, if concentrations or mass loads of these constituents are found to have increased significantly, the Discharger may be required to investigate the source(s) of the increase(s) or undertake remedial measures if the increases pose a threat to water quality in the receiving water.
- g. *Permit Reopener:* The permit includes a reopener provision to allow numeric effluent limits to be added for any constituent that in the future exhibits reasonable potential to cause or contribute to exceedance of a WQO or WQC. The Regional Board will make this determination based on monitoring results.

**4. Basis for Recycled Water Specifications**

Recycled Water Specifications are included in this Order to protect public health and to ensure that beneficial uses for surface water and groundwater specified in the Basin Plan are protected from the effects of potential discharges and to comply with requirements for recycled water. Most of these requirements are carried over from Order 97-106.

**5. Basis for Pond/Lagoon Specifications**

Pond specifications consisting primarily of management practices are included in this Order to ensure that beneficial uses for surface water and groundwater specified in the Basin Plan are protected. The discharge must be treated to prevent health hazards, contamination, and nuisance problems and must be managed to reduce salt contributions. Effective water quality management must respond to many factors such as water use, land use, social and economic needs, and various other activities within the Basin.

## 6. Basis for Sludge Disposal Specifications

Sludge disposal provisions are based on the requirements of Title 27 CCR for the prevention of unauthorized discharge of sludge or solid wastes into waters of the State. The requirement to submit a Sludge Management Plan is based on a finding that, at the time of the most recent WWTF inspection, sludge from more than two years of WWTF operations was being stored on-site.

## 7. Basis for Receiving Water Limitations

Receiving water limitations are based on water quality objectives from the Basin. They are included to ensure protection of beneficial uses of receiving waters. The Regional Board may require an investigation to determine cause and culpability prior to asserting that a violation has occurred.

***Dissolved oxygen:*** For water bodies designated as having warm freshwater aquatic habitat as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 5.0 mg/L of dissolved oxygen. The Basin Plan also requires that “the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” These objectives are included as receiving water limitations in this Order

***Total coliform organisms:*** For water bodies designated as having contact recreation as a beneficial use, the Basin plan includes a water quality objective stating that “the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 mL nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 mL.” This objective is included as a receiving water limitation in this Order.

***Turbidity:*** The Basin Plan states that “Waters shall be free of changes in turbidity that cause nuisance or adversely effect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
- Where natural turbidity is between 5 and 10 NTUs, increases shall not exceed 20 percent.
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU.
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

This Order includes receiving water limitations for turbidity based on the water quality objective described in the Basin Plan.

***pH:*** For all surface water bodies in the Tulare Lake Basin, the Basin Plan includes a water quality objective for pH in surface waters, which states, “The pH shall not be depressed below 6.5 nor raised

above 8.3 or changed at any time more than 0.3 units from normal ambient pH.” This Order includes receiving water limitations for pH based on this water quality objective.

**Temperature:** The Basin Plan includes the following objective: “Elevated temperature wastes shall not cause the temperature of waters designated COLD or WARM to increase by more than 5°F above natural receiving water temperature.” This Order includes a receiving water limitation for temperature based on this water quality objective.

## **8. Basis for Groundwater Limitations**

The Basin Plan states that “[g]round waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” The beneficial uses of the groundwater in the Detailed Analysis Unit (DAU) 239 of the King’s Basin Hydrologic Unit (HU) are municipal supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO). Groundwater limitations included in this Order implement Basin Plan water quality objectives for groundwater and protect the beneficial uses of groundwater in the Basin from potential effects of pollutants in Discharge 001 and percolation from the holding ponds.

### **Water Quality Objectives**

Basin Plan water quality objectives to protect the above beneficial uses include a numerical objective for coliform and narrative objectives for chemical constituents in and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The Basin Plan references maximum contaminant levels (MCLs) in Title 22, CCR (i.e., §64431 (Inorganic Chemicals); §64431 (Fluoride); §64443 (Radioactivity); §64444 (Organic Chemicals); and §64449 (Secondary MCLs - Consumer Acceptance Limits)).

Quantifying a narrative water quality objective requires a site-specific evaluation of each waste constituent for consistency with the narrative objective using the translation procedures set forth in the Basin Plan. These procedures require the consideration of, among other things, site-specific hydrogeologic and land use factors and relevant numerical criteria and guidelines developed or published by other agencies and organizations.

The major constituents of concern in assessing the quality of water for agriculture are salinity (expressed as EC or TDS), boron, chloride, and sodium. The salt tolerance of crops also depends on the frequency and type of irrigation (e.g., drip, furrow, or sprinkler irrigation). Boron is an essential element but can become toxic to some plants when concentrations in water even slightly exceed the amount required for optimal growth. Like salt tolerance, boron tolerance varies with the climate, the soil, and the crop.

In determining the concentrations of salinity, boron, chloride, and sodium in groundwater associated with no adverse affects on agricultural beneficial use in a given area, it is likely that multiple criteria apply.

In the process of crop irrigation, evaporation and crop transpiration remove water from and result in accumulation of residual salts in the soil root zone. These salts would retard or inhibit plant growth except for a fraction of irrigation water applied to leach the harmful salt from the root zone. The leached salts eventually enter groundwater.

The Basin Plan sets maximum effluent salinity limits for discharges of treated municipal and domestic wastewater to land. It specifically states the maximum EC shall not exceed the EC of the source water plus 500  $\mu\text{mhos/cm}$ . It also states that discharges to areas that may recharge to good quality groundwater shall not exceed an EC at 1000  $\mu\text{mhos/cm}$ , a chloride concentration of 175 mg/L, or a boron concentration at 1.0 mg/L.

The Discharger grows fodder, fiber, and seed crops on its 106 acre reuse area. The crops consist sudan grass in the summer and winter wheat or occasionally natural clover in the winter. Both sudan grass and winter wheat are moderately salt tolerant. The Discharger has not provided a list of the types of crops grown, or that could be grown, within the influence of its discharge. Additional information is necessary to determine existing and potential local cropping patterns for areas potentially affected by the discharge.

### **Groundwater Degradation/Limitations**

Domestic wastewater contains constituents such as oxygen demanding substances (i.e., BOD<sub>5</sub>), salinity constituents, pathogens, nutrients (e.g., nitrate), organics, and metals. Excessive residual organic carbon in percolating effluent can cause elevated concentrations of dissolved manganese and iron in groundwater is symptomatic of inadequate containment or treatment. Discharge to land in a manner that allows waste infiltration and percolation may result in an increase in the concentration of one or more of these constituents in groundwater. To be permissible, any increase in the concentration of these constituents in groundwater must be consistent with the antidegradation provisions of Resolution 68-16. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that the degradation is:

- j. Limited in extent;
- k. Restricted to waste constituents characteristic of municipal wastewater and not totally removable by best practicable treatment and control (BPTC) measures;
- l. Minimized by fully implementing, regularly maintaining, and optimally operating BPTC measures;
- m. Demonstrated to be consistent with WQOS prescribed in the basin plan; and
- n. Justified to be consistent with the maximum benefit to the people of California.

Data from May 1996 through September 2004 indicate elevated levels of nitrate as nitrogen in Well B (10.9 mg/L) and Well D (10.1 mg/L) as compared to the average in Well A (5.7 mg/L), which is up-gradient. Averages in Wells C (4.2 mg/L) and E (5.5 mg/l) are near or below the average level in Well A (5.7 mg/L). The levels of nitrate-nitrogen in Wells B (10.9 mg/L) and D (10.1 mg/L) are above the MCL of 10 mg/L nitrate + nitrite (sum as nitrogen) in Title 22. Well A (background) nitrate levels were 5.5 mg/L in 1996, dropping to 4.3 mg/L in 2000 before rising to 8.5 mg/L in 2004. During the same

CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY WWTF  
TULARE COUNTY

period, Well B nitrate levels dropped from a high of 14 mg/L in 1996, through 11 mg/L in 2000 to a low of 8.2 mg/L in September 2004. Well D follows a similar trend over the same time period, dropping from a high of 14 mg/L in 1996 through 10 mg/L in 2000 to a low of 8.8 mg/L in September 2004. Well C's nitrate trend is rather different, starting at 4.4 mg/L in 1996, dropping to 3 mg/L in 1998 before increasing to a high of 6.5 mg/L in 2002, and finally dropping again to 5.8 mg/L in 2004. The nitrate level in Well E in 1996 was a low of 5 mg/L, rising to 6.4 mg/L in 2000, peaking at 6.5 mg/L in March 2002, before dropping to 5.2 mg/L in 2004.

EC in Well A is typically in the 400 to 500  $\mu\text{mhos/cm}$  range while Wells B, C, D and E show conductivities in the 750 to 1150  $\mu\text{mhos/cm}$  range. Sodium, chloride, calcium, magnesium, carbonate and sulfate levels in the monitoring wells are generally two to four times higher in Wells B, C, D and E than in Well A. All wells, except Well A, show degradation from salts.

It is unclear if the apparent degradation has been caused by WWTF discharges. Further, the network is not adequate to determine impacts from sludge storage or drying practices or the holding ponds as the wells do not appear to be adequately positioned to assess groundwater quality upgradient of and in the vicinity of these units. In 2005, the Discharger added two new wells and is amending its "Groundwater Monitoring Plan." The Discharger has stated that the new wells are positioned down slope of the existing storage ponds and sludge drying bed area.

Certain aspects of the WWTF do not reflect BPTC. The WWTF uses unlined sludge beds and unlined sludge storage lagoons and groundwater is shallow. Inspections have shown that the Discharger has failed to periodically remove accumulated sludge from unlined ponds, lagoons, and beds. The Discharger has also not adequately maintained WWTF equipment (e.g., flow monitoring devices, sampling devices, clarifier/digesters, trickling filters, etc.) to ensure compliance with WDRs Order No. 97-106. This Order requires the Discharger to evaluate its sludge treatment, storage, and disposal practices and its operation and maintenance practices with respect to BPTC. The Discharger has reportedly secured approximately \$4.5 million in funding, and is in the process of negotiating a design contract for a rehabilitation project and upgrades that will likely address many of the issues described above.

As described above, the current groundwater monitoring network is generally insufficient to determine the area affected, or the area that could potentially be affected, by the WWTF discharge. Wells are impacted by salts and nitrate; however, there is not currently enough information regarding the crops grown in the area affected or potentially affected by the discharge to set salinity related numerical groundwater quality limits.

This Order requires the Discharger to assemble the technical information necessary for this Regional Board to determine the area potentially affected by the discharge, the controlling beneficial uses of groundwater, and to derive appropriate numerical groundwater quality objectives for the WWTF that are consistent with the Basin Plan. Following the completion of the studies to obtain the required technical information, this Order will be reopened to consider final numerical groundwater limitations. Until this

time, it is reasonable to employ, where appropriate, interim narrative groundwater quality limitations that proscribe an adverse affect on the beneficial uses of groundwater within the area potentially impacted by the discharge. These groundwater limitations will not result in groundwater quality that exceeds objectives set forth in the Basin Plan.

## **9. Basis for Key Provisions**

### **Specific rationale for key Provisions are as follows:**

- I.7 Provision I.7 requires the Discharger to conduct hydrogeologic investigations, groundwater monitoring and the submittal of technical reports, necessary to determine compliance with and aid in the development of this Order's groundwater limitations and BPTC implementation.
- I.8 Provision I.8 requires the Discharger to evaluate its WWTF with respect to BPTC to determine modifications necessary to comply with Resolution 68-16.
- I.9 Provision I.9 requires the Discharger to conduct various studies to gather data necessary to set numeric groundwater limitations.
- I.15 Chronic toxicity monitoring requirements are based on Section 4 of the SIP.
- I.17 The requirements to update the existing Operations and Maintenance Manual and to maintain the manual and a current maintenance log are based on results of the most recent WWTF inspection indicating a backlog of needed maintenance.
- I.25 The provision allowing the permit to be re-opened is based on 40 CFR 122.62

## **10. Basis for Self-Monitoring Requirements**

As noted above, monitoring requirements are given in the Monitoring and Reporting Program (MRP) of this Order are based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The monitoring and reporting program is issued pursuant to CWC Sections 13383 and 13267 and is required to assess compliance with the requirements in this Order. The MRP specifies sampling, analytical, and reporting requirements in accordance with NPDES regulations, the CWC, and Regional Board policies.

Receiving water monitoring requirements are based on the Basin Plan and authorized by CWC Section 13267.

The Discharger is required to conduct sludge monitoring, water supply monitoring, holding pond monitoring, groundwater monitoring, and recycled water monitoring in order to evaluate compliance with the Order. The monitoring reports are necessary to evaluate impacts to waters of the state to assure protection of beneficial uses and compliance with Regional Board plans and policies, including

Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

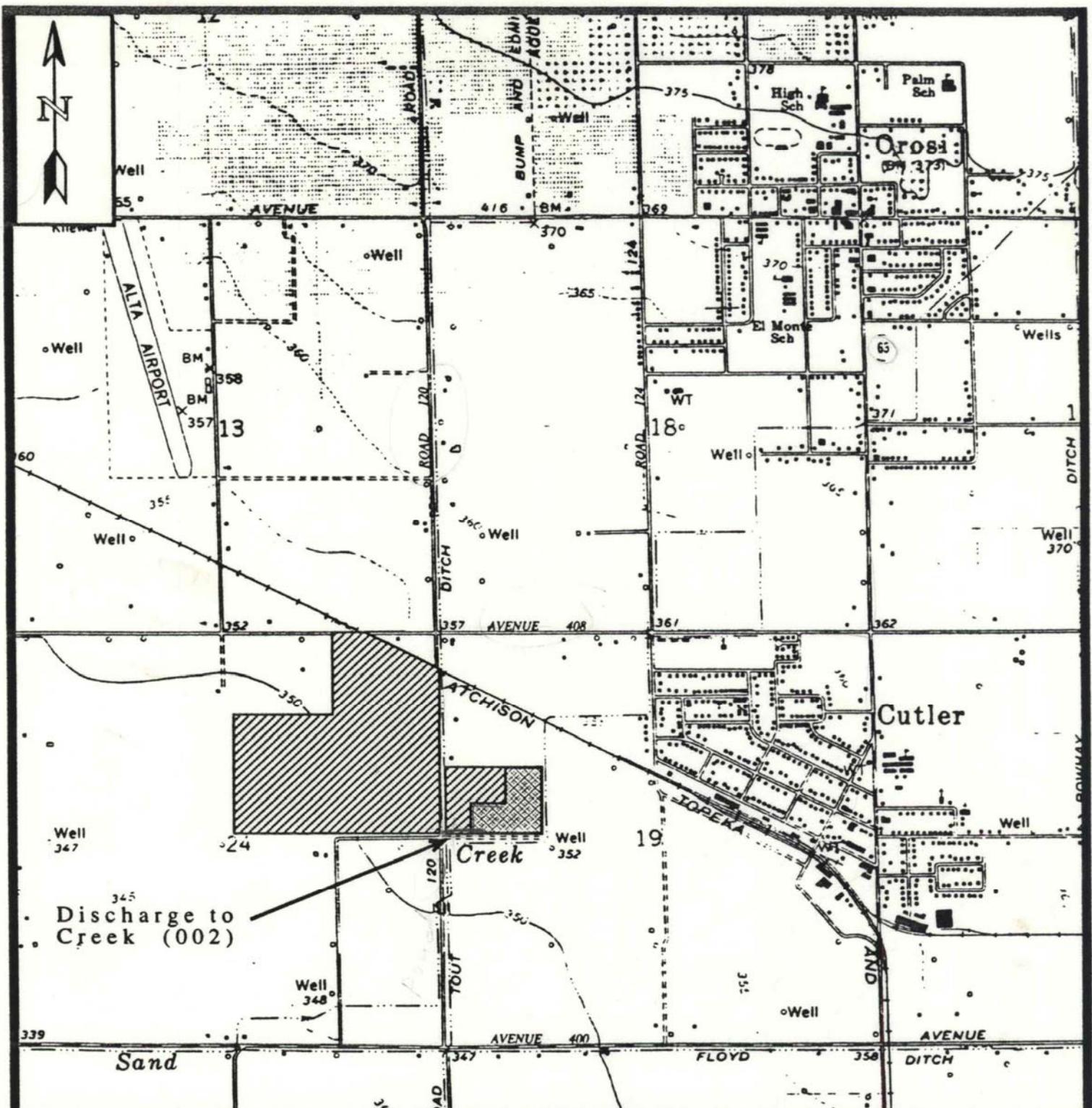
### **Reopener**

The conditions of discharge in this Order were developed based on currently available technical information, currently available discharge and surface water quality information, applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop all applicable final effluent limitations. Additional information must be developed and documented by the Discharger as required by schedules set forth in this Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen this Order if applicable laws and regulations change, or if new information necessitates the implementation of new or revised effluent limitations to adequately protect water quality.

### **California Environmental Quality Act (CEQA)**

The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the CEQA (Public Resources Code Section 21000 et seq.) in accordance with CWC Section 13389.

WDH/fmc: 9/21/06



**LEGEND**



Treatment Plant



Land Disposal Area (001)

**ATTACHMENT A**

Vicinity Map

ORDER NO. R5-2006-XXXX

CUTLER-OROSI JOINT POWERS

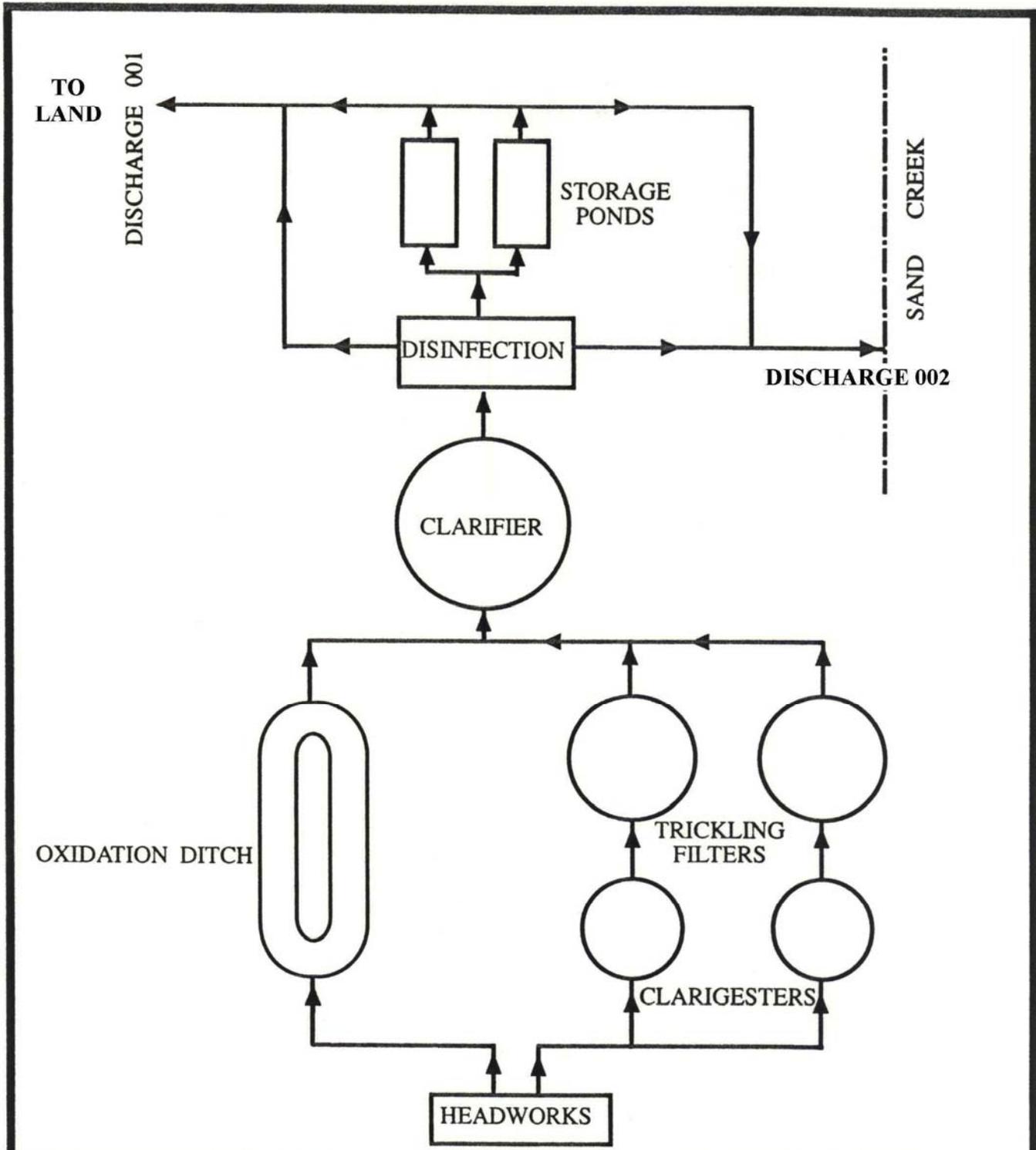
WASTEWATER AUTHORITY

WASTEWATER TREATMENT FACILITY

TULARE COUNTY

Sections 19 and 34, T16S, R25E, MDB&M  
Orange Cove South, 7 1/2' USGS Quad, 1966

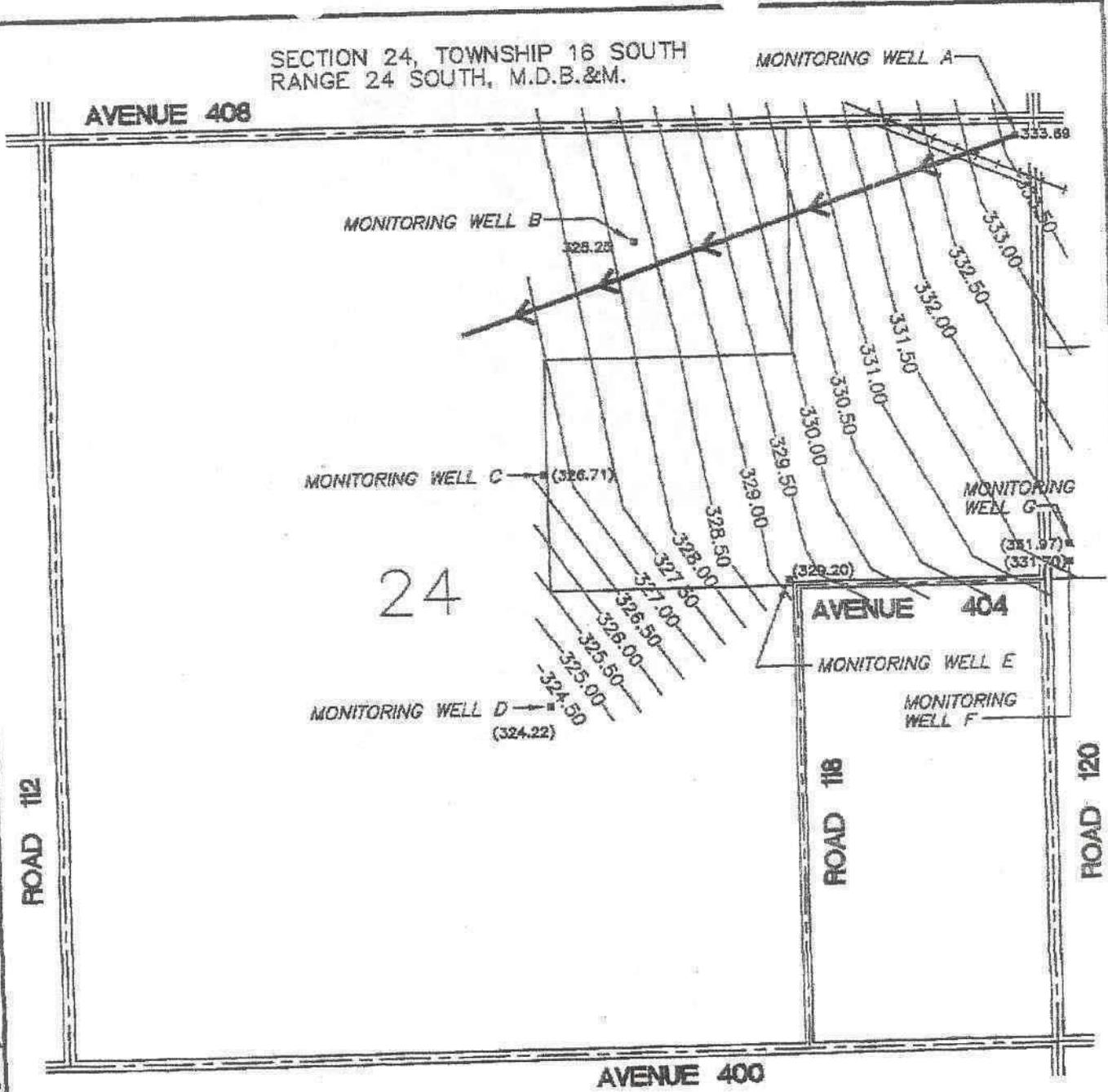
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**ATTACHMENT B**  
**Flow Diagram**

**ORDER NO. R5-2006-XXXX**  
**CUTLER-OROSI JOINT POWERS**  
**WASTEWATER AUTHORITY**  
**WASTEWATER TREATMENT FACILITY**  
**TULARE COUNTY**

SECTION 24, TOWNSHIP 16 SOUTH  
RANGE 24 SOUTH, M.D.B.&M.



**ATTACHMENT C  
AMENDED GROUNDWATER CONTOURS**

**ORDER NO. R5-2006-XXXX  
CUTLER-OROSI JOINT POWERS  
WASTEWATER AUTHORITY  
WASTEWATER TREATMENT FACILITY  
TULARE COUNTY**



Not to Scale



(.238 /100 ) DIRECTION OF GROUNDWATER FLOW  
GROUNDWATER GRADIENT  
(000.00) GROUNDWATER ELEVATION  
AS OF JANUARY 1, 2005



**ATTACHMENT D**

Symbol for Recycled Water Signs

ORDER NO. R5-2006-0092  
CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY  
WASTEWATER TREATMENT FACILITY  
TULARE COUNTY

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2006-0092  
FOR  
CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY  
WASTEWATER TREATMENT FACILITY  
TULARE COUNTY

ATTACHMENT E  
STANDARD MONITORING WELL PROVISIONS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a work plan containing at least the information specified in this document. Wells may be installed after the Executive Officer's approval of the work plan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. A registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California must sign all work plans and reports.

**Monitoring Well Installation Work Plan**

A. General Information:

- Monitoring well locations and rationale
- Survey details
- Equipment decontamination procedures
- Health and safety plan
- Topographic map showing any existing monitoring wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details: describe drilling and logging methods

C. Monitoring Well Design:

- |                              |   |
|------------------------------|---|
| Casing diameter              | Type of well cap  |
| Borehole diameter            | Size of perforations and rationale                        |
| Depth of surface seal        | Grain size of sand pack and rationale                     |
| Well construction materials  | Thickness and position of bentonite seal and sand pack    |
| Diagram of well construction | Depth of well, length and position of perforated interval |

D. Well Development:

- Method of development to be used
- Method of determining when development is complete
- Method of development water disposal

E. Surveying Details: discuss how each well will be surveyed to a common reference point

F. Soil Sampling (if applicable):

- |   |  |
|---|--|
| Cuttings disposal method                            | Number of soil samples and rationale   |
| Analyses to be run and methods                      | Location of soil samples and rationale |
| Sample collection and preservation method           | QA/QC procedures                       |
| Intervals at which soil samples are to be collected |  |

G. Well Sampling:

Minimum time after development before sampling (48 hours)  
Well purging method and amount of purge water  
Sample collection and preservation method  
QA/QC procedures

H. Water Level Measurement:

The reference point and ground surface elevations at each monitoring well shall be determined within 0.01 foot. Method and time of water level measurement shall be specified.

I. Proposed time schedule for work.

**Monitoring Well Installation Report of Results**

A. Well Construction:

Number and depth of wells drilled  
Date(s) wells drilled  
Description of drilling and construction  
Approximate locations relative to WWTF and discharge area(s)  
A well construction diagram for each well containing the following details:

Monitoring well number	Depth to top of bentonite seal <sup>1</sup>
Location	Thickness of bentonite seal
Date drilled	Thickness of concrete grout
Total depth drilled <sup>1</sup>	Boring diameter
Depth of open hole <sup>1,2</sup>	Casing diameter
Footage of hole collapsed	Casing material
Length of slotted casing installed	Size of perforations
Depth of bottom of casing <sup>1</sup>	Well elevation at top of casing
Depth to top of sand pack <sup>1</sup>	Date of water level measurement
Number of bags of sand	Depth to which water was first found <sup>1</sup>
Thickness of sand pack	Depth to which water was found after perforating <sup>1</sup>

<sup>1</sup> From ground surface

<sup>2</sup> Same as total depth if no caving appears

B. Well Development:

Date(s) of development of each well  
Method of development  
Volume of water purged from well

How well development completion was determined  
Method of effluent disposal  
Field notes from well development should be included in report

C. Well Surveying: provide for each well

Reference elevation (feet above mean sea level to within 0.01 foot)  
Ground surface elevation (feet above mean sea level to within 0.01 foot)  
Horizontal geodetic location, where the point of beginning shall be described by the California State  
Plane Coordinate System, 1983 datum  
Surveyor's notes

D. Water Sampling:

Date(s) of sampling	Sample identification
How well was purged	Analytical methods used
How many well volumes purged	Laboratory analytical data sheets
Levels of temperature, EC, and pH at stabilization	Water level elevation(s)
Sample collection, handling, and preservation methods	Groundwater contour map

E. Soil Sampling (if applicable):

Date(s) of sampling  
Sample collection, handling, and preservation method  
Sample identification  
Analytical methods used  
Laboratory analytical data sheets