

## INFORMATION SHEET

R5-2007-\_\_\_\_\_  
FRESNO COUNTY JUVENILE JUSTICE CAMPUS WWTF  
FRESNO COUNTY

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### **Background**

Fresno County (hereafter the Discharger or County) owns and operates a wastewater collection, treatment, and disposal facility (WWTF) for the Juvenile Justice Campus (Facility) at 3333 American Avenue. The Facility is to be developed in four phases to accommodate the County's needs over the next 40 years. The first phase (Phase 1) was completed in 2006.

The WWTF was designed and constructed to process wastewater generated from the restroom and laundryroom facilities. No outside sewer mains or industrial discharges are connected to the Facility's sewer system. The WWTF has an average daily flow design of 0.12 million gallons per day (mgd). The WWTF provides disinfected tertiary treatment of the waste streams. Treatment includes influent screening flow equalization, trickling filtration, clarification, chemical addition, flocculation, digestion, tertiary filtration, and disinfection. The treated effluent is stored in two lined effluent storage ponds and used to supplement irrigation of landscaped areas in and around the Facility including recreational areas utilized by juvenile inmates. According to the Report of Waste Discharge (RWD) the treatment process will meet Title 22 standards for unrestricted irrigation.

Flow data from Phase 1 will be used to modify the wastewater generation factors used to determine the required capacity for future phases. The County anticipates that they will need to expand the capacity of the WWTF in six to 15 years.

### **Solids and Biosolids Disposal**

**Sludge Handling:** Settled sludge in the clarifier tanks is pumped to the aerated sludge storage tank for digestion and storage where it will thicken. Decant water from the sludge storage tank is returned to the flow equalization tank for processing through the WWTF. The sludge is then transferred to a second sludge tank and mixed with the screenings prior to disposal.

Initially, the liquid sludge will be trucked offsite for disposal at an authorized facility. Sludge disposal volume for Phase 1 is approximately 5,000 gallons per week. The use of a sludge-dewatering device, such as a sludge bagging unit, screw press, or centrifuge will be evaluated when the volume of sludge increases sufficiently to justify the capital cost and additional labor.

### **Groundwater Conditions**

Groundwater in the project area is encountered at about 55 feet below ground surface (bgs) and flows west-southwest, according to information in Lines of Equal Elevation of Water in Wells in Unconfined Aquifer, published by Department of Water Resources in Spring 2004.

In 2006 the Discharger installed five groundwater monitoring wells to monitor shallow groundwater in the vicinity of the WWTF and effluent storage ponds. Based on existing groundwater data, shallow groundwater beneath the WWTF is generally of good quality except for nitrate. The average EC of groundwater is 760 umhos/cm and TDS is 540 mg/L. Nitrate concentrations in groundwater are in excess of the primary MCL of 45 mg/L. Based on

the data available, groundwater in the vicinity of the project area has no further assimilative capacity for nitrogen.

**Compliance History**

The Discharger has submitted monthly SMRs in compliance with the Tentative Monitoring and Reporting Program issued by the Executive Officer in February 2006. The EC and TDS concentrations in the effluent are much higher than those projected in the RWD (Estimated 300 µmhos/cm over source; Actual 700 µmhos/cm over source).

An Inspection by staff identified several boilers and a water softener that were not identified in the RWD. An e-mail from the County indicated that the boilers are in a closed system, except for one boiler. That boiler and the water softener are connected to the laundry facilities. An investigation by the County determined that the water softener is backwashed one time per month and that only one bag (100 lbs) of salt has been used since the facility began operations, so it is likely not the source of the high EC. The Discharger contends that the high EC is because of water conservation measures at the Facility. However, staff suspects that a contributing source for the high EC may also be the detergents used in the laundry.

**Basin Plan, Beneficial Uses, and Regulatory Considerations**

The Basin Plan indicates the greatest long-term problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man’s activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. The Regional Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental EC limitation of 500 µmhos/cm or a 1,000 µmhos/cm, as the measure of the maximum permissible addition of salt constituents through use.

Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 µmhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

**Antidegradation**

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

Constitutes of concern that have the potential to degrade groundwater include, in part, nutrients and salts. However, the discharge will likely not degrade the beneficial uses of groundwater because:

- a. For salinity, the Basin Plan contains effluent limits (EC of SW + 500  $\mu$ mhos/cm, 1,000  $\mu$ mhos/cm max.). This Order sets an interim effluent limit for EC at the Basin Plan maximum limit of 1,000  $\mu$ mhos/cm, which considered antidegradation when it was adopted. In addition this Order requires the Discharger conduct a salinity evaluation and implement BPTC measures to reduce the salinity of the discharge in accordance with the antidegradation policy.
- b. For nitrogen, the Discharger stores the effluent in a manner that protects underlying groundwater from percolation from ponds until it can be beneficially used on crops.

### **Treatment Technology and Control**

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

- a. alarm and automatic flow diversion systems to prevent system bypass or overflow;
- b. tertiary treatment
- c. lined effluent storage ponds;
- d. disinfection of treated effluent;
- e. appropriate biosolids storage and disposal practices;
- f. an operation and maintenance (O&M) manual; and
- g. certified operators to insure proper operation and maintenance.

### **Title 27**

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

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

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without

requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan.

**CEQA**

The Discharger certified an Environmental Impact Report (EIR) in February 2003 for the County of Fresno Juvenile Justice Campus in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended). The Regional Water Board, as a responsible agency under CEQA, reviewed the EIR for the project relative to water quality. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

**Proposed Order Terms and Conditions**

**Discharge Prohibitions, Specifications and Provisions**

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

The proposed Order would set a monthly average daily flow limit of 0.12 mgd and a peak daily flow limit of 0.135 mgd. With effluent limits for BOD<sub>5</sub> and TSS of 10 mg/L monthly average and 20 mg/L daily maximum based, which are consistent with the effluent quality necessary to meet tertiary standards for filtration and disinfection.

The Order recognizes that the effluent will be stored in lined ponds and requires the effluent to be applied at reasonable agronomic rates for nutrient and hydraulic loading.

The proposed Order would establish an interim effluent limitation for EC of 1,000 µmhos/cm that reflects the maximum EC limit set by Regional Water Board policy for managing the salts within the Tulare Lake Basin, and proscribes a Provision to conduct a salinity evaluation and minimization plan to identify and implement measures to reduce the salinity in discharge in an effort to meet the Basin Plan's salinity performance goal of 500 µmhos/cm over source water.

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

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

**Monitoring Requirements**

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

The proposed Order includes effluent monitoring requirements, Use Area monitoring, and groundwater and water supply monitoring. In order to adequately characterize wastewater, the Discharger is required to monitor for BOD5, pH, EC, TDS, nitrogen, and other constituents.

The Discharger must monitor groundwater for waste constituents expected to be present in the discharge, and capable of reaching groundwater, and violating groundwater limitations if its treatment, control, and environmental attenuation, proves inadequate. For each constituent listed in [Section F, Groundwater Limitations](#), of the WDR, the Discharger must, as part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentration or to prescribed numerical limitations to determine compliance.

**Reopener**

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