

## INFORMATION SHEET

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

### **Background**

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

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

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

### **Solids and Biosolids Disposal**

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

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

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

### **Groundwater Conditions**

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

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

### **Compliance History**

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

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

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

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

### **Antidegradation**

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

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

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

### **Treatment Technology and Control**

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

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

### **Title 27**

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

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

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

### **CEQA**

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

### **Proposed Order Terms and Conditions**

#### **Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**

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

The proposed Order would carry over the current Order's monthly average daily discharge flow limitation until the Discharger completes the Expansion Project. The proposed Order would carry over the previous Order's effluent limits for BOD<sub>5</sub> and TSS of 40 mg/L (monthly average), and 80 mg/L (daily maximum).

Once the Expansion Project is complete, the proposed Order would prescribe effluent limitations for BOD<sub>5</sub> and TSS of 40 mg/L or 80 percent removal of both, whichever is more restrictive. These limitations are based on Basin Plan minimum performance standards for municipal facilities. The advanced secondary treatment technology being implemented, as part of the Expansion Project should result in an effluent of much higher quality than that reflected in the effluent limitations set forth in the WDRs. Effluent limits attached to the proposed Expansion Project include a nitrogen effluent limit of 10 mg/L unless the Discharger provides a design report and performance demonstration that establishes that the effluent storage ponds will be protective of groundwater quality and that the effluent will be applied to the Reclamation Area at agronomic rates.

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

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

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

### **Monitoring Requirements**

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

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

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

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.

### **Proposed Enforcement Order**

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

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

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