INFORMATION SHEET

INFORMATION SHEET – ORDER NO. R5-2011-____
TEJON-CASTAC WATER DISTRICT
TEJON INDUSTRIAL COMPLEX NEW EAST
WASTEWATER TREATEMENT FACILITY
KERN COUNTY

Background

Currently the Tejon-Castac Water District (hereafter Discharger) owns and operates the Tejon Industrial Complex West wastewater treatment facility (West WWTF) located on the west side of Interstate Five (I-5) at Laval Road. Waste Discharge Requirements (WDRs) Order R5-2008-0004 regulates the West WWTF and allows a monthly average discharge flow of 0.1 million gallons per day (mgd) of wastewater to two ponds (total storage capacity of 2.39 acres) and to 14-acre of Use Area on the west side of I-5. The West WWTF provides sewerage service for a hotel, gas stations, restaurants, shower and restroom areas, convenience stores, and industrial warehouses.

On July 2009, the Discharger submitted a Report of Waste Discharge for a proposed new WWTF (New East WWTF) on the East side of I-5 that will have an initial design flow of 0.1 mgd. The New East WWTF will serve the same types of businesses as that of the West WWTF. Therefore, the influent wastewater quality for the New East WWTF will be similar to that of the West WWTF. According to the RWD, the New East WWTF will produce an effluent with average biochemical oxygen demand (BOD) and total suspended solids (TSS) concentrations of 10 mg/L, and an average total nitrogen concentration of less than 10 mg/L.

The New East WWTF consists of: two 1 mm fine screens, a screw compactor, a mixed anoxic basin, a pre-aeration basin, two membrane bioreactor (MBR) basins, aerated sludge tanks, one ultraviolet disinfection unit, one 0.9 million gallon (MG) lined storage pond, one 2 MG unlined storage pond, and approximately 13 acres of Use Area on the east side of I-5.

The Discharger proposes to expand the New East WWTF in phases to a build out design capacity of 0.8 mgd in increments of 0.1 mgd. Discharge Specification D.1 outlines the conditions that the Discharger needs to comply with before increasing the flow.

Groundwater Conditions

Tecuya and Salt Creeks in the southwestern portion of the White Wolf Subarea exhibit total dissolved solids (TDS) concentrations of 2,000 and 10,000 mg/L, respectively. It appears that runoff from these creeks have affected groundwater in their fan areas, according to Resolution No. 70-178, *Water Quality Control Plan for Groundwater in the White Wolf Subarea*.

Resolution No. 70-178, further discusses that groundwater in the western and southwestern portion of the White Wolf Subarea adjacent to Tecuya Creek is of a sodium sulfate character where TDS concentrations range from 600 to 2,000 mg/L.

Oil fields are major dischargers in the White Wolf Subarea. Five oil fields are located within or partially within the subarea. The North Tejon oil field is located in section 19 of Township 11 North, Range 19 West of SBB&M, and extends underneath the New East WWTF. Produced water from the North Tejon oil field has been characterize as having TDS concentrations over 37,000 mg/L, chloride over 22,000 mg/L, and boron of 50 mg/L.

Depth to groundwater is approximately 500 feet below ground surface (bgs). The TDS and Electrical Conductivity (EC) range from 1,000 mg/L to 1,500 mg/L and 1,500 µmhos/cm to 2,300 µmhos/cm (calculated EC=TDS/0.65), respectively, in the unconfined aquifer, according to water quality maps in the Water Supply Report developed by the Kern County Water Agency and published in 2007.

Source Water

Source water for the WWTF is provided by the State Water Project, and by two on-site wells in emergencies. The 2010 Consumer Confidence Report indicates that the source water is relatively good, with an average EC of about 510 µmhos/cm, and NO_3 (as NO_3) of 4.8 mg/L. Quality of water from the two wells is of poor quality. Average EC for the TA Well and Rose Replacement Well are about 1,360 µmhos/cm and 1,170 µmhos/cm, respectively.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan identifies the greatest long-term water quality problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man's activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. The Central Valley Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use. Thus the Basin Plan establishes an incremental effluent EC limit of 500 µmhos/cm over source water EC as the measure of the maximum permissible addition of salt constituents through use. In addition, the Basin Plan states that discharges to areas that may recharge to good quality groundwater 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.

Maximum salinity limits for most wastewater discharges for most areas are those mentioned. One exception is the White Wolf Subarea, where the subject discharge takes place. Relaxation of some effluent salinity limits in the White Wolf Subarea is based on the class of irrigation water underlying the discharge.

The Basin Plan specifies that irrigation waters (underlying groundwater in this case), with an EC between 1,000–3,000 µmhos/cm, chlorides between 175–350 mg/L, sodium between 60–75 mg/L (percent base constituents), and boron between 0.5–2 mg/L, be considered Class II irrigation waters. Based on the quality from the Discharger's backup source water well, underlying groundwater is Class II for EC. It is likely that the source water well is of better quality than first-encountered groundwater. Information in the Kern County Water Agencies 2007 Water Supply Report suggests unconfined groundwater underlying the facility has an EC between 1,500 µmhos/cm and 2,300 µmhos/cm. The Basin Plan specifies that

discharges to land in areas overlying Class II or poorer groundwater shall not exceed an EC of 2,000 µmhos/cm. The quality of the effluent with respect to EC is generally better than groundwater. This order prescribes groundwater EC limitations pursuant to Title 22, California Code of Regulations (CCR), where EC has secondary Maximum Contaminant Levels (MCLs) of 1,600 µmhos/cm (upper limit) and 2,200 µmhos/cm (short term limit). These groundwater limitation proscribes the discharge from causing groundwater EC to exceed background groundwater quality is appropriate.

Antidegradation

State Water Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of State") (hereafter Resolution No. 68-16) prohibits degradation of groundwater unless it has been shown that:

a. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;

b. The degradation will not unreasonably affect present and anticipated future beneficial uses;

c. The Discharger employs Best Practicable Treatment or Control (BPTC) to minimize degradation; and

d. The degradation is consistent with the maximum benefit to the people of the State.

Constituents of concern in the discharge that have the potential to degrade groundwater include salts and nutrients. This Order establishes term and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater.

The Order includes two monthly average EC effluent limits, an incremental limit of source water plus 500 µmhos/cm and an overall cap limit of 2,000 µmhos/cm. The incremental EC effluent limit of source water plus 500 µmhos/cm is general provision that applies to all discharges to land involving advance wastewater treatment. The monthly average EC effluent limit of 2,000 µmhos/cm is included to ensure salinity loading rates to field crops will not adversely affect the crops that will be grown with the recycled water (turf grass). The Order also contains groundwater limitations that will ensure that discharges will not cause exceedances of water quality objectives established in the Basin Plant to protect beneficial uses. With respect to EC, the quality of the discharge is generally of better quality than underlying groundwater.

The WWTF provides nitrogen removal and the Order includes limits that require the effluent total nitrogen to be 10 mg/L or less. Nitrate (as N) represents only a portion of the total nitrogen in effluent. Other nitrogen species can include organic nitrogen, ammonia, and nitrite. Additional nitrogen losses will occur during the migration of effluent through the soil profile to groundwater. The total nitrogen limit of 10 mg/L will ensure that the nitrate (as N)

concentration of the percolate will be less than the MCL of 10 mg/L. Groundwater Limitations in the Order also proscribe the discharge from causing the groundwater nitrate (as N) concentration from exceeding the MCL. Therefore, any degradation that may result from the discharge will not exceed water quality objectives or impair beneficial uses.

Degradation of groundwater by EC (unlikely) and Nitrate (minimal should it occur) released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of the State. The project supports the local economy by purchasing construction materials from local merchants and by hiring local contractors. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and groundwater degradation provided terms of the Basin Plan are met.

Treatment Technology and Control
The expansion project will provide treatment and control of the discharge that incorporates:

a. Tertiary treatment of wastewater to Title 22 2.2 MPN/100mL for Total Coliform Organisms;
b. UV Disinfection;
c. Nitrogen reduction of wastewater to less than the Nitrate MCL for drinking water;
d. Application of wastewater at rates that will not exceed reasonable agronomic demand in the areas where effluent will be recycled;
e. Sludge hauled off-site;
f. Certified operators to ensure proper operation and maintenance;
g. Source water and discharge monitoring; and
h. Salinity minimization

Implementation of the above treatment, operation, maintenance, and monitoring measures, as required by this Order, represent the implementations of BPTC of the discharge.

CEQA
The Kern County Planning Department, as the lead agency for purposes of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000, et, seq.) and the CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended), adopted a Final Environmental Impact Report (FEIR) and filed a Notice of Determination on 10 November 2005, State Clearinghouse Number 2001101133 for the New East WWTF.

Central Valley Water Board staff reviewed the FEIR and concurred with the conclusion that the discharge would not have a significant impact on water quality. This Order includes effluent limits for BOD, TSS, EC, and nitrogen. Compliance with these will mitigate any significant impacts to water quality.

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 sitting and construction standards for full containment to 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 under Section 20090(a). None of the wastes regulated by the proposed Order are hazardous waste or required to be treated as hazardous wastes. As described under the Antidegradation Analysis section above, the authorized discharge of treated wastewater to land will not cause exceedances of Basin Plan requirements and is thus exempt from Title 27 pursuant to Section 20090(a).

The Discharger hauls sludge/biosolids off-site to a facility authorized to handle sludge/biosolids.

Proposed Order Terms and Conditions

Discharge Prohibitions, Specifications and Provisions

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

The proposed Order includes a schedule for the increase of monthly average daily flow limit by increments of 0.1 mgd up to a final design flow of 0.8 mgd, and effluent limits for BOD_5 and TSS each of 10 mg/L monthly average and 20 mg/L daily maximum. These limitations are based on Basin Plan minimum performance standards for municipal facilities.

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

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

The proposed Order includes provisions that would require the Discharger to submit engineering certification that the WWTF has sufficient treatment, storage capacity for each expansion phase, a written copy of the Title 22 Engineering Report approval letter from DPH. As the discharge will not immediately comply with the incremental EC limit of source water

plus 500 µmhos/cm, the Order also includes a time schedule for the Discharger to implement salinity minimization measures to ensure compliance with the limit within two years.

Monitoring Requirements

Section 13267 of the CWC authorizes the Central Valley 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 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, source water monitoring, sludge monitoring, and Use Area monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance with effluent limitations prescribed by the Order.

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 new technical information or if applicable laws and regulations change.

DMS/WDH: 4/26/2011