

STAFF REPORT
CITY OF ANGELS
CITY OF ANGELS WASTEWATER TREATMENT PLANT
CALAVERAS COUNTY

A new NPDES Permit for the City of Angels Wastewater Treatment Plant is being considered for adoption.

BACKGROUND

The City of Angels (Discharger) owns and operates a wastewater collection, treatment and disposal system that provides sewerage services to the City of Angels community, serving a population of approximately 3,400. The Discharger operates a tertiary wastewater treatment plant with an average dry weather flow design capacity of 0.6 million gallons per day (MGD). After treatment, the chlorine disinfected tertiary treated effluent is pumped to a storage reservoir for subsequent spray irrigation of pasture land and on neighboring Greenhorn Creek golf course during the summer months. The discharge is regulated by Waste Discharge Requirements Orders No. 98-098 and 98-110.

The existing effluent storage and land disposal facilities are inadequate to prevent treated wastewater from overflowing the storage reservoir during intense rainfall events or very wet precipitation years. Due to the unique foothill location, additional land is not available for expansion of the land disposal area. In addition, the Discharger's Feasibility Study Report concludes that it is not cost effective for the City to expand its effluent storage reservoir. As a result, the Discharger is proposing a surface water discharge of tertiary treated effluent from the plant to nearby Angels Creek during wet winter periods and only when the Creek flow to effluent ratio is at least 20:1. This tertiary treatment facility will have a peak design capacity of 1.9 MGD and will utilize a UV disinfection process when discharging to surface waters.

The Discharger has applied for a NPDES permit for the seasonal discharge of tertiary treated effluent to Angels Creek. This Order permits effluent discharge to occur only when necessary, during wet winter periods, and only when the effluent can receive at least 20:1 dilution from Angels Creek. Furthermore, the Order prohibits discharge to Angels Creek when the storage reservoir has more than 20 million gallon capacity. The proposed permit includes technology and water quality-based effluent limitations at the point of discharge from the tertiary treatment facility to the Angels Creek (end of pipe compliance). Water quality-based effluent limitations for ammonia, bis(2-chloroethyl)ether, copper, dichlorobromomethane, electrical conductivity (EC), lead and zinc are included in the proposed permit.

TREATMENT AND DISPOSAL FACILITY DESCRIPTION

The current Facility design daily average flow capacity is 0.4 mgd and after the proposed plant expansion, the average dry weather flow capacity will be 0.6 mgd with a peak flow of 1.9 mgd. The peak influent wet weather flow expected is 3.1 mgd. The treatment system at the Facility consists of an ultrasonic influent flow meter, an automatic mechanical screen, two sequencing batch reactors, an intermediate storage basin, four sand filters, a chlorine contact chamber, a 3.0 million gallon influent equalization basin, a 66 million gallon storage pond (Holman Reservoir). Under the proposed treatment plant expansion, UV disinfection facilities will be added to the treatment process prior to any discharge to surface waters.

Currently, the disposal of secondary effluent is accomplished solely by irrigation of 61 acres (suitable for pasture irrigation) out of 235 acres available onsite. The disposal of chlorine disinfected tertiary effluent is accomplished, as and when needed, via spray irrigation of 110 acres on the Greenhorn Creek Golf Course. During wet years, wastewater flows exceeding the land disposal and storage capacity of the Facility are proposed to be treated to a tertiary level and discharged seasonally to Angels Creek via an outfall and diffuser. Sodium hypochlorite disinfection is used when effluent is discharged solely to golf course and the UV system will be used when the effluent is discharged to Angels Creek.

REQUIREMENTS OF THE PROPOSED ORDER

- Effluent limitations contained in the Order are protective of the receiving water for all existing, probable, and future beneficial uses.
- The Order requires the Discharger to conduct additional monitoring for constituents; *chloroform*, *electrical conductivity*, *mercury*, with a re-opener provision to include new effluent limits or requirements should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of water quality criteria in the receiving water.
- The Order allows the effluent discharge from the tertiary treatment facility only when necessary during wet winters to prevent unauthorized overflows and only when Angels Creek flows provide a flow ratio greater than or equal to 20:1 (Angels Creek:effluent).
- The Order prohibits discharge to Angels Creek when the storage reservoir has more than 20 million gallons of unused effluent storage capacity.
- The Order permits tertiary treated wastewater discharge to Angels Creek only from November 15 through May 15.

- The Order requires the Discharger to obtain necessary permits and construct an outfall and diffuser to Angels Creek prior to initiation of discharge.
- The Order requires the Discharger to complete the construction and put into operation an ultraviolet light (UV) disinfection prior to initiation of discharge.

COMMENTS:

The Tentative Order was distributed for public review on 6 March 2007. Comments were received from the Central Sierra Environmental Resource Center, California Sport Fishing Protection Alliance, Environmental Law Foundation, Central Valley Clean Water Association, Calaveras County Water District, and the Discharger. All comment letters are included in the agenda package. In addition, the responses to the comments from the above agencies have been addressed in the report titled "Responses to Comments", which is a part of the agenda package.

SALINITY

Electrical conductivity (EC) concentrations in the effluent samples collected from 7 December through 18 December 2006, averaged 378 $\mu\text{mhos/cm}$, with a minimum effluent level of 336 $\mu\text{mhos/cm}$, and a maximum effluent level of 407 $\mu\text{mhos/cm}$, based on the results of twelve samples. The background receiving water EC averaged 65 $\mu\text{mhos/cm}$ from 2 sampling events collected by the Discharger from May 2003 through December 2003. Based on this data, the discharge does not have a reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for EC. However, since the receiving water is tributary to the Sacramento-San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Therefore, this Order includes a performance-based effluent limitation of 510 $\mu\text{mhos/cm}$ for EC as a monthly average to limit the discharge to current levels and requires the Discharger to develop a salinity evaluation and minimization plan to address sources of salinity from the domestic wastewater treatment system.

SIGNIFICANT ISSUES

Written comments on the proposed Orders were required to be received by the Regional Water Board by 6 April 2007 in order to receive full consideration. Comments were received by the deadline from the Central Sierra Environmental Resource Center, California Sport Fishing Protection Alliance, Environmental Law Foundation, Calaveras County Water District, and the Discharger.

The major issues discussed in the public comments are summarized below. A complete response to comments will be provided at a later date.

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS

Antidegradation Policy: CSPA contends that the proposed Order does not comply with the Regional Water Board's Antidegradation Policy.

Staff are considering CSPA's comment and will address the issue in the Response to Comments document, which will be provided at a later date.

Acute and Chronic Toxicity: CSPA states that the proposed Permit contains an effluent limitation for acute toxicity that allows mortality, exceeding the Basin Plan water quality objective. CSPA also states that the Permit does not contain numeric effluent limitations for chronic toxicity in violation of federal regulations.

The proposed Order protects aquatic life beneficial uses by implementing numerous measures to control individual toxic pollutants and whole effluent toxicity (WET), including; (1) receiving water limits for toxicity, (2) end-of-pipe chemical specific-effluent limits for toxic pollutants, (3) acute toxicity effluent limitations that are consistent with U.S. EPA Region 9 guidance, and (4) chronic WET testing with a provision that requires the Discharger, if applicable, to investigate causes of, and identify corrective actions to eliminate effluent toxicity.

The proposed Order does not include numeric chronic toxicity effluent limitations, because the toxicity control provisions in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) are currently under revision, making it infeasible to develop the limits. Therefore, the proposed Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 C.F.R. 122.44(k).

Reasonable Potential Analysis: CSPA contends that the proposed permit contains an inadequate reasonable potential analysis (RPA) by using incorrect statistical multipliers in violation of federal regulations.

Staff conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control of both CTR and non-CTR constituents.

Mass Limitations: The proposed Permit fails to include mass based effluent limitations for total residual chlorine, bis(2-chloroethyl)ether, dichlorobromomethane, copper, lead, and zinc in violation of Federal Regulations.

The proposed Order includes effluent limitations expressed in terms of both mass and concentration for some constituents. Pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), mass limitations are not required when applicable

standards are expressed in terms of other units of measurement. All pollutants with numerical effluent limitations in this tentative permit are based on water quality standards and objectives. Hence, expressing the effluent limitations in terms of concentration, for some constituents and not others, is expressly allowed and is in no way contrary to Federal Regulations.

Effluent Limitations for Nitrates/Nitrites: CSPA contends that the proposed permit does not contain effluent limitations for nitrates and nitrites in violation of Federal regulations 40CFR 122.44 and CWC Section 13377.

Staff agrees with CSPA's comment and the proposed Order has been modified to include effluent limitations for nitrate and nitrite to implement the Basin Plan's narrative chemical constituents objective.

CITY OF ANGELS COMMENTS

Dilution Credits: The Discharger contends that dilution credits should be allowed, because the discharge may only occur during times of high stream flow. The Discharger should only need to provide evidence that the discharge is completely mixed.

Dilution credits have not been allowed in the proposed Order for two reasons. First, the SIP requires a mixing zone study to allow dilution credits. Secondly, the CEQA document prepared by the Discharger finds that the new surface water discharge will result in no significant impacts to water quality, based on the Facility discharging Title 22 treated effluent only during times of high stream flow. Therefore, additional environmental analysis may be required in order for the Regional Water Board to allow a mixing zone and dilution.

Monitoring Frequency: Daily monitoring of influent effluent BOD and TSS and continuous monitoring of Temperature, pH, DO, and turbidity for a minor discharge is excessive.

The proposed Order has been modified to reflect this change from daily to weekly monitoring for BOD and TSS. Continuous effluent monitoring requirements as specified in the proposed Order for Temperature, pH, and DO are consistent with numerous NPDES permits issued for minor discharges by the Central Valley Regional Water Board and are considered necessary to protect the beneficial uses of the receiving water.

CHANGES TO TENTATIVE ORDER

The tentative NPDES permit has been modified in a few areas based on comments received to provide clarification and/or correct minor factual errors. In addition, the

STAFF REPORT
CITY OF ANGELS
CITY OF ANGELS WASTEWATER TREATMENT PLANT
CALAVERAS COUNTY

proposed permit has been modified to include new effluent limitations and monitoring for nitrate and nitrite.