

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-2013-XXXX
CALAVERAS COUNTY WATER DISTRICT
DOUGLAS FLAT/VALLECITO WASTEWATER TREATMENT FACILITY
CALAVERAS COUNTY

Background

The Douglas Flat/Vallecito Wastewater Treatment Facility (WWTF) is located on Holiday Mine Road off State Route 4 in Calaveras County, approximately 0.5 miles south of Douglas Flat and 1.5 miles northeast of Vallecito, as shown on Attachment A.

The WWTF occupies approximately 96 acres and serves the Douglas and Vallecito communities, which had a combined estimated population of 610 in 2010. The total number of sewer connections at build-out is estimated to be 315, including 250 connections for existing residential, five connections for existing commercial, and 60 connections for infill. Based on one percent annual population growth, the projected population in the service area for the year 2030 is 720, which will require approximately 45 infill sewer connections.

WDRs Order 92-018, adopted by the Central Valley Water Board on 24 January 1992, prescribes requirements for the WWTF and allows a monthly average flow of 65,000 gallons per day (gpd). The Discharger is making significant improvements to the WWTF and has requested that the Board increase the flow limit to an average dry weather flow (ADWF) of 75,000 gpd.

The existing WWTF has two parallel activated sludge treatment units (the Douglas Flat and Vallecito units), a chlorine disinfection system, an effluent storage pond, sludge drying beds, and approximately 60 acres of LAAs with a net area of 26 acres for irrigation. The Douglas Flat unit was built in 1970 and the Vallecito unit was added in 1987. Each treatment unit has an aeration basin, a secondary clarifier, and an anaerobic digester.

The combined effluent flows from the Douglas Flat and Vallecito treatment units are disinfected in a chlorine contact chamber. The disinfected wastewater is discharged into the effluent storage pond and then applied to the spray field LAAs via sprinkler systems. Solids and sludge are currently dried in the sludge drying beds on-site during summer months in order to meet the pathogen and vector attraction reduction requirements for Class B biosolids, but a new sludge handling system is under construction. All biosolids are currently applied as a soil amendment to offsite lands regulated under separate WDRs.

Facility Improvements and Discharge

In October 2011, the Discharger received \$4.42 million in funding from the State Water Resources Control Board (State Water Board) for WWTF improvements, including the installation of membrane biological reactors (MBRs), an ultraviolet (UV) light disinfection system, and a belt press for sludge dewatering. The updated facility will be able to produce tertiary treated wastewater for potential beneficial reuse. The Discharger expects to complete construction of these improvements by December 2012.

The updated WWTF will consist of a grit removal unit, a flow equalization tank, two fine screens, two MBR units, a sludge holding tank, a sludge belt press, a dry sludge storage area, a UV disinfection system, the existing storage pond, and the existing spray field LAAs. A standby generator was installed to provide backup power.

Discharge Prohibitions, Specifications and Provisions

The water balances included in the RWD addendum show that the WWTF has a sufficient capacity for an ADWF of 75,000 gpd (based on the months of July through September) and an annual total inflow rate of 32.9 million gallons.

In July and August 2012, the Discharger installed three groundwater monitoring wells MW-1, MW-2 and MW-3. MW-1 is upgradient of the WWTF, and MW-2 and MW-3 are downgradient of the effluent storage pond and the LAAs, respectively. The Discharger has performed groundwater monitoring three times since the wells were installed: in August and September 2012. During that period, the groundwater gradients ranged from 0.004 to 0.02 feet/foot; groundwater flowed from north to south.

The current effluent TDS average of 357 mg/L and groundwater TDS averages (from 322 to 425 mg/L) are less than the recommended Secondary MCL of 500 mg/L. The RWD did not project the effluent TDS concentration of the updated WWTF; however, it is expected to be less than the current level due to the elimination of chlorine disinfection. Therefore, the discharge is not likely to degrade groundwater quality due to increased salinity.

The projected effluent total nitrogen of the updated WWTF is 6.9 mg/L and the nitrate nitrogen concentration of background groundwater averages 4.5 mg/L. Effluent and groundwater monitoring data to date for the wastewater treatment plant site do not indicate degradation due to nitrate, and the plants grown at the LAAs should remove most of the nitrogen in the applied wastewater. However, groundwater is shallow, so there is some threat that the discharge could cause degradation for nitrate. The primary MCL for nitrate is 10 mg/L as nitrogen. This Order therefore includes an effluent limit of 10 mg/L total nitrogen and a groundwater limit of 10 mg/L nitrate as nitrogen.

Because the WWTF provides a high level of containment and disinfection prior to discharge, coliform organisms do not pose a threat to groundwater quality.

The Provisions require that the proposed improvements be completed, as well as the submittal of Improvements Completion Report, a Tailwater and LAA Setback Operational Procedure Plan and a Storage Pond Expansion Completion Report.

The Monitoring and Reporting Program is designed to verify compliance with flow limits, effluent limitations, and operational requirements of the WDRs.