

## INFORMATION SHEET

INFORMATION SHEET – ORDER NO. R5-2009-\_\_\_\_\_  
BUTTONWILLOW COUNTY WATER DISTRICT  
WASTEWATER TREATMENT FACILITY  
KERN COUNTY

### **Background**

Buttonwillow County Water District (hereafter Discharger) owns and operates a Wastewater Treatment Facility (WWTF) northeast of the unincorporated community of Buttonwillow. The WWTF is regulated by Waste Discharge Requirements (WDRs) Order No. 85-303 that authorizes a discharge of 0.2 million gallons per day (mgd) of undisinfected secondary treated wastewater to a storage pond and 50 acres of Use Area.

The current WWTF is about 50 years old and does not adequately treat wastewater to meet current Basin Plan requirements. The Discharger submitted a Report of Waste Discharge (RWD) dated September 2008 for a proposed WWTF upgrade.

The Discharger is proposing to upgrade the existing WWTF by adding two treatment trains running in parallel for a total designed daily average flow of 0.15 mgd. The proposed WWTF will include replacement of sewer trunkline, 1,000 feet of sewer main, a lift station, mechanical bar screen, two equalization tanks, two denitrification tanks, two Bio-tanks, two membrane tanks, two aerated sludge tanks, three concrete-lined sludge drying beds with a 4 inch thickness, and two 22.5-acre-ft unlined storage ponds and approximately 50 acres of Use Area.

WDRs Order No. 85-303 is being updated by this Order that includes WDRs for the WWTF and reclamation requirements for the 50 acres of Use Area.

### **Solids and Biosolids Disposal**

The existing deteriorated sludge drying beds are a potential source of groundwater degradation. The Discharger is proposing to construct three concrete-lined sludge drying beds and haul the dry sludge off site.

### **Groundwater Conditions**

WDRs Order No. 85-303 characterizes groundwater in the discharge area as follows. Unconfined groundwater occurs at a depth ranging from 50 to 70 feet below ground surface, flows in a northeast direction, and exhibits an electrical conductivity (EC) of about 1,500  $\mu\text{mhos/cm}$ , which corresponds to an approximate total dissolved solids (TDS) concentration of 980 mg/L ( $\text{TDS} = 0.65 \times \text{EC}$ ).

In the early 1970's, the Kern County Water Agency (KCWA) sampled shallow groundwater in the discharge area. Shallow groundwater was not found immediately around the WWTF; however, in Section 17, Township 29S, Range 23E (within about 3 miles west of the WWTF) the shallow water was found to have an EC of 2,700  $\mu\text{mhos/cm}$  (TDS of 1,738 mg/L). Generally to the north and west of Buttonwillow, the depth to water is less and of poorer quality (*Brackish Water Investigation Shallow Water Table Survey, Phase II, Kern County, California, 1974*).

According to water quality maps in a 1999 Water Supply Report developed by the KCWA and published in May 2003, the EC and TDS in the unconfined aquifer are approximately 1,500  $\mu\text{mhos/cm}$  ( $\text{EC} = \text{TDS}/0.65$ ) and 1,000 mg/L, respectively.

Below the area of the WWTF, the Corcoran Clay layer is found approximately 450 feet below ground surface. According to KCWA, the EC and TDS in the confined aquifer are about 770  $\mu\text{mhos/cm}$  and 500 mg/L, respectively.

Buttonwillow Sanitary Landfill (landfill) is located west of the existing WWTF. The landfill has a groundwater monitoring system that consists of various shallow and deeper monitoring wells. The groundwater gradient is uncertain due to influences from the East Side Canal located southwest of both the landfill and WWTF.

### **Compliance History**

On 4 December 2002, a Notice of Violation (NOV) was issued to the Discharger for threatening to violate Discharge Prohibition A.1 and Discharge Specification B.5 by threatening to discharge sludge and storm water runoff that could potentially impact surface waters, and stockpiling sludge in an inadequate storage area, respectively.

The most recent NOV was issued to the Discharger on 27 April 2006 for submitting incomplete self-monitoring reports (Provision C.1 of WDRs Order No. 85-303); particularly the lack of water supply monitoring data and biosolids monitoring data.

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

The Basin Plan indicates 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, and has established an effluent EC limitation of 500  $\mu\text{mhos/cm}$  over source water EC or a 1,000  $\mu\text{mhos/cm}$ , as the measure of the maximum permissible addition of salt constituents through use.

The Basin Plan states that discharges to areas that may recharge to good quality groundwater shall not exceed an EC of 1,000  $\mu\text{mhos/cm}$ , or boron content of 1.0 mg/L. The groundwater is not of good quality.

### **Antidegradation**

State Water Board Resolution No. 68-16 (the Antidegradation Policy) requires that the Regional Water Board, in regulating the discharge of waste, must maintain the high quality of water of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Region Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution No. 68-16 also requires that waste discharged to high quality water be required to meet WDRs that will result in the best practicable treatment or control of the discharge. Resolution No. 68-16 prohibits degradation of groundwater quality as it existed in 1968, or at any time thereafter that groundwater quality was better than in 1968, other than degradation that was previously authorized. An antidegradation analysis is required for an increased volume or concentration of waste.

The permitted discharge will not increase mass emissions of pollutants. The upgrade will decrease mass emissions of nitrates, because of better treatment. Therefore, the discharge is in compliance with the Antidegradation Policy.

### **Treatment Technology and Control**

The upgrade project will provide treatment and control of the discharge that incorporates:

- a. Secondary treatment of the wastewater;
- b. Nitrogen reduction of the wastewater; and
- c. Recycling of wastewater for crop irrigation.

### **Title 27**

The discharge meets the criteria for an exemption from the requirements of *Consolidated Regulation for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (Title 27).

### **CEQA**

Buttonwillow County Water District adopted Mitigated Negative Declaration (SCH # 2006111131) for the WWTF upgrade project in accordance with the California Environmental Quality Act (CEQA) and filed a Notice of Determination on 11 May 2007.

Central Valley Water Board staff reviewed the Mitigated Negative Declaration and concurred with the conclusion that the project would be an improvement over the existing discharge and that the discharge would not have a significant impact on water quality, particularly because the effluent quality will improve but the volume will not increase.

## **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 would set a monthly average daily flow limit of 0.15 mgd. The Discharger commented on the Tentative Waste Discharge Requirements that the flow limit should remain 0.20 mgd as in the Existing Waste Discharge Requirements. The design report submitted indicates that the new facility will be designed for just 0.15 mgd, which it should comply with. The Discharger may submit a design report that shows the new facility will be able to treat 0.20 mgd.

The Order includes effluent limits for BOD<sub>5</sub> and TSS each of 40 mg/L monthly average and 80 mg/L daily maximum. These limitations are based on Title 22, water recycling requirements.

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 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 greater.

### **Monitoring Requirements**

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, and evaluate groundwater quality and the extent of the degradation caused by the discharge.

### **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.

DMS/DKP: 10/7/2009