

INFORMATION SHEET

ORDER NO. R5-2008-_____
J.G. BOSWELL TOMATO COMPANY
BUTTONWILLOW TOMATO PROCESSING FACILITY
KERN COUNTY

Background

J. G. Boswell Tomato Company, LLC (Discharger) operates a tomato processing facility at the southwest corner of Interstate 5 and State Route 58 in Kern County, approximately three miles east of the town of Buttonwillow, formerly Rio Bravo Tomato Company. Seasonally, the facility processes approximately 6,600 tons of tomatoes per day to produce about 1,050 tons of tomato paste product. Primary sources of wastewater generated at the facility include wastewater from conveying tomatoes, tomato rinsing processes, and general cleaning and rinsing of equipment. The processing season falls between June and October, averaging about 90 days per season, during which the Facility operates 24 hours per day and seven days per week.

The Executive Officer conditionally waived waste discharge requirements for the discharge under the General Low-Threat Waiver, Resolution No. 82-036 (the Waiver), and also issued Monitoring and Reporting Program No. 5-00-827 (MRP). The facility was constructed and began processing tomatoes in 2000. On 1 January 2003, the Waiver expired. The Discharger submitted a revised Report of Waste Discharge (RWD) in 2005. The facility complied with the conditions of the expired waiver and the issued MRP until the 2006 processing season. The facility currently operates according to the latest RWD, and adheres to MRP No. 5-00-827.

Before the 2006 processing season, wastewater was discharged to a 458-acre Use Area adjacent to the Facility. Since 2006, the Facility has discharged to a 618-acre Use Area, as proposed in the 2005 RWD. Wastewater is screened before discharge. The Discharger has reported an estimated average daily flow of about 5.7 million gallons per day (mgd) during the processing season (July through October). This flow estimate is conservative, as the same volume of water may be counted twice using the current method of estimation. Estimating the discharge by summing the supply water usage and the water extracted from the tomatoes (also conservative) yields an estimate closer to 5.2 mgd. Discharge flow from the facility in the off-season has not been reported but should be minimal.

The current sampling setup at the site does not ensure representative samples of wastewater. Though water use records provided by the Discharger show that the affect may be insignificant, past samples may underestimate constituent concentrations because they are collected from a standpipe where fresh well water is sometimes added. The discharge is not of particularly poor quality because roughly two-thirds of the wastewater comes from conveying and rinsing the tomatoes. Biochemical oxygen demand (BOD), total nitrogen, and electrical conductivity are in the range of 350 milligrams per liter (mg/L), 20 (mg/L), and 700 micromhos per centimeter (umhos/cm), respectively.

All wastewater generated at the Facility passes through the main pond. The main pond construction details, including material used and compaction achieved, are unknown. The

Discharger has suggested that the pond may have been constructed with a compacted clay liner. Soils underlying the area of the pond are classified as Panoche series clay-loam by the National Resource Conservation Service. Panoche series loams are typically described as well-drained, deep soils, but a clay-loam may contain from about 25 to 40 percent clay. A well-compacted liner of sufficient thickness constructed from such soils would have relatively low permeability.

The underlying principle of land application is to beneficially reuse wastewater and the plant nutrients that it contains. However, in order to ensure that this beneficial reuse complies with State Water Board Resolution No. 68-16, land application may not cause unreasonable degradation of groundwater quality. Under ideal circumstances, soils within the land application area provide a matrix for biodegradation of the organic components of the wastewater (measured as BOD), create conditions conducive for transformation of organic nitrogen to plant available nitrate, create conditions conducive for denitrifying excess nitrate so that it does not percolate to the water table, provide pH buffering, and attenuate inorganic waste components (salts and metals).

Waste applications must be balanced to provide adequate plant nutrients and water while minimizing nuisance potential and percolation of waste constituents to the water table. The chemical and biological reactions that take place are interrelated and require that constituent loadings and wetting and drying cycles be optimized.

A contract farmer irrigates the Use Area with wastewater and, as needed, facility supply water. The irrigation cycle is generally a 14-day period of irrigating approximately 40 acres per day with about four inches of water, consistent with agronomic rates. Crops include sudan grass, wheat, and cotton.

Solids Disposal

Tomatoes unsuitable for processing are removed and diverted as cattle feed. Seeds and peels are also separated and diverted to the cattle feed line. The Discharger estimates about 152 tons of these solids are generated per day, for a total of 18,000 tons over a 120-day season. Solids in the waste stream settle out when they reach the holding pond. On an annual basis, approximately 28,000 cubic feet of sediment is removed from the pond and land applied as fertilizer to rotating 20-acre portions of the Use Area.

Groundwater Conditions

Regional groundwater is contained generally in two aquifers, the Lower Confined Aquifer and the Upper Unconfined Aquifer. According to the 1981 map *Depth to the Top of Corcoran Clay* from the Department of Water Resources, the two aquifers are separated by a confining layer (Corcoran Clay or E Clay) present beneath the Use Area at about 350 to 400 feet below ground surface (bgs). Driller's logs for onsite wells note a 25-foot thick clay layer at an

approximate depth of 290 feet bgs. It is unclear whether this is the Corcoran or E Clay, or if there is a second confining layer. First encountered groundwater is approximately 125 feet bgs (165 feet elevation above mean sea level).

The Facility supply water is produced from two onsite wells, called South Well and North Well. South Well is screened from a depth of approximately 320 feet to 635 bgs (below the reported confining layer). North Well is screened from a depth of approximately 215 feet to 245 feet bgs (above the reported confining layer). The conductivity (EC) of the source water ranges from about 280 to 580 umhos/cm, with an average of about 430 umhos/cm.

The Discharger installed three groundwater monitoring wells in 2000. There are no groundwater monitoring wells downgradient of the concrete wastewater sump or the main wastewater pond. The Discharger has performed quarterly monitoring since 2002, including analysis for typical food processing waste constituents and general minerals. The EC of first encountered groundwater from 2000 to 2007 has been recorded as low as 800 umhos/cm. Though the EC recorded in MW-1 and MW-2 have fluctuated widely, the overall annual average EC recorded in the groundwater monitoring wells has declined at a rate of approximately 60 umhos/cm per year. The EC in MW-3 (the highest quality of the monitoring wells) has consistently declined at a rate of approximately 30 umhos/cm per year.

On the west side of the site, groundwater chloride, EC, and TDS exceed Maximum Contaminant Limits (MCLs) for drinking water, and boron exceeds California Notification Levels. However, because groundwater on the east side of the site is of fairly good quality, discharge of food processing wastewater is a potential threat to groundwater.

Compliance History

From the period of 2000 to 2003, the facility operated under the Waiver and MRP No. 5-00-827. When the Waiver expired in 2003, the Discharger continued to monitor and submit reports as before. The Discharger submitted a revised RWD in 2005 and since then has submitted reports according to the MRP, including a statement certifying that the Facility has operated as described in the revised RWD.

At least since 2004, the Discharger has submitted detailed monthly monitoring reports and an annual report. In general, reports have been submitted complete and in a timely manner. Regional Water Board staff have not issued a Notice of Violation to the Discharger. The Discharger has taken initiative to develop and implement nutrient management.

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 umhos/cm as a measure of the maximum permissible addition of salt constituents through use.

Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 umhos/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 (Resolution 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.

The tomato processing facility and discharge area are in Detailed Analysis Unit (DAU) No. 254 within the Kern County Basin hydrologic unit. The Basin Plan designates the beneficial uses of groundwater in this DAU as municipal and domestic supply, agricultural supply, industrial and industrial process supply, water contact and non-contact recreation, and wildlife habitat supply. Beneficial use exclusions listed in the Basin Plan for this DAU do not apply to the Facility.

Treatment Technology and Control

The Facility provides treatment and control of the discharge that incorporates:

- a. Removal of solids at the plant before discharge to the Use Area. Solids are hauled offsite and used as cattle feed or land applied as fertilizer;
- b. Application of wastewater lower than plant uptake rates for nitrogen and low organic loading;
- c. Application of wastewater at rates that will not allow wastewater to stand for more than 48 hours; and
- d. Blending of wastewater with freshwater to meet the agronomic requirements for crop growth.

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.

Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27 containment standards provided the Regional Water Board has issued waste discharge requirements or waived such issuance; the discharge is in compliance with the Basin Plan; and the waste need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

Accordingly, the discharge of effluent and the operation of treatment or storage facilities associated with a food processing facility can be allowed without requiring compliance with Title 27, provided the resulting degradation of groundwater is in accordance with the Basin Plan.

CEQA

On 15 March 2000, the Kern County Planning Commission approved the Initial Study and adopted Negative Declaration EA LO 1-00 for Lot Line Adjustment No. 137-99 and Zone Variance No. 21, Map No. 99 for the construction of the J. G. Boswell Tomato Processing Facility and the discharge/recycling of wastewater to an approximately 458-acre disposal area. Regional Water Board Staff reviewed and commented on the Negative Declaration.

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 set a monthly average daily discharge flow limitation of 4.8 mgd. The proposed flow limitation is meant to prevent nuisance conditions and loading of the Use Area beyond agronomic requirements. The selected flow limitation comes from 4 inches of irrigation on 618 acres with an irrigation cycle of 14 days, which is in the range of evapotranspiration rates for crops grown, and should infiltrate within 48 hours after discharge to prevent nuisance conditions.

The proposed Order would set an Effluent Limitation on BOD loading of 100 lbs/acre/day, seasonally and over any particular discharge cycle. Based on the 14-day cycle time, the 4.8-mgd wastewater application rate, and a BOD concentration of 350 mg/L, the Discharger should be able to comply with these limits without further treatment.

Significant infiltration from the pond to groundwater may occur during the process season, which constitutes a discharge to the waters of the State of California. The proposed order would address potential impacts due to infiltration from the pond by requiring a pond liner performance demonstration. The performance demonstration is to include estimates of wastewater infiltration rates and demonstrate that the pond is protective of groundwater quality and that seepage from the ponds shall not contribute to constituents in groundwater exceeding groundwater limitations.

The proposed Order would require the Discharger to submit a Salinity Control Plan that will detail measures taken to reduce the salinity of the discharge and document that all feasible salinity reduction measures have been implemented.

The proposed WDRs 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 exceedance 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 pond monitoring, effluent monitoring requirements, Use Area monitoring, soils monitoring, water supply monitoring and groundwater monitoring. The sampling frequencies and constituents monitored were selected based on trends identified in previous monitoring data. The monitoring is necessary to evaluate groundwater quality and the extent of the degradation from 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. 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.

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