

## INFORMATION SHEET

R5-2007-\_\_\_\_\_  
MOZZARELLA FRESCA, INC.  
TIPTON CHEESE PROCESSING PLANT  
TULARE COUNTY

### Background

Prior to January 2003, the Tipton Cheese Processing Plant (Facility) was operated by the Sequoia Specialty Cheese Company. This Facility was not previously regulated under Waste Discharge Requirements. Mozzarella Fresca (Discharger) purchased and upgraded the Facility and commenced operation in September 2003 for specialty cheese manufacturing. The wastewater quantity and strength exceeded the Tipton Community Services District wastewater treatment facility's ability to treat the wastewater.

Mozzarella Fresca then made an agreement with FM Dairy No. 2 to discharge into existing dairy ponds. Cleanup and Abatement Order (CAO) No. R5-2005-0702 was issued to Mozzarella Fresca and FM Dairy No. 2 and required they cease discharging wastewater to the Dairy, which they did by 14 April 2005. Mozzarella Fresca now discharges to farmland owned by Mr. Mike Silva (Mike Silva Ranches).

The Facility is a cheese manufacturing plant that processes milk into mozzarella and ricotta cheese. The present volume of wastewater generated at the Facility is approximately 0.11 million gallons per day. The Discharger estimates that it will increase to approximately 0.25 mgd within the next five years. In 2006 approximately 90 acre-feet of wastewater was applied to the fields in the Reuse Area. At the estimated flow rate of 0.25 mgd the yearly hydraulic wastewater load to the fields would be approximately 240 acre-feet.

The Reuse Area is divided into four fields for a total of 288 net acres used to grow feed and fodder crops such as alfalfa, cotton, wheat and corn silage. Land use in the vicinity is primarily agricultural. Soils in the area consist primarily of Biggriz Loam (Class II through VI soils) and Colpien Loam (Class I soils). Other soils in the immediate area include Akers-Akers saline-sodic (Class II through VI soils) and Tagus Loam (Class I soils). Crops grown in the area include alfalfa, corn, vineyards, cotton, sugar beets and hay and grain crops along with orchard crops such as almonds, walnuts, and plums. Some of the crops (specifically almonds, grapes, and plums) are listed as sensitive to moderately sensitive to salt depending on the stage of growth. Though crops with low salt tolerances such as strawberries, onions, beans could potentially be grown in Class I soils, which make up approximately 40% to 50% of the soils in the area, none of these crops were observed or reported as being currently grown in the area based on DWR land use maps.

According to the RWD the wastewater is blended with a combination of groundwater, and surface water supplied by the Lower Tule River Irrigation District, which contributes water from the Lower Tule River and the Friant-Kern Canal to meet the irrigation demands (the RWD estimates the contribution from groundwater and surface water at 40% and 60%, respectively). The blended irrigation water is applied via flood irrigation at plant uptake rates for both nutrient and hydraulic loading during the growing season. During the non-growing season, Mr. Silva practices pre-irrigation to promote beneficial soil bacteria and to leach salts from the soil. The well water to wastewater ratio is typically three to one and often higher during the summer months to meet crop demands.

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The average BOD<sub>5</sub> and Total Nitrogen of the wastewater is approximately 700 mg/L and 22 mg/L, respectively, which leads to loading rates of less than 10 lbs/acre/day for BOD and less than 5 lbs/acre/month for Nitrogen.

### **Solids Disposal**

Solids removed from the wastewater by the CAF unit are dewatered prior to being hauled off-site to the local landfill for disposal. Decant water from the CAF unit is returned to the main sump.

### **Groundwater Conditions**

Regional groundwater flows west-southwest and the depth of water occurs between 80 and 100 feet below ground surface (bgs), according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by the California Department of Water Resources (DWR) in Spring 2004. During the initial sampling of three groundwater monitoring wells in the Reuse Area in January 2007 the actual depth to shallow groundwater was between 55 and 67 feet bsg and groundwater flow was to the south-southwest at a gradient of 5 feet/1000 feet. Based on the limited data from the groundwater sampling in January and February 2007 first-encountered groundwater beneath the Reclamation Area is of good quality with nitrate as nitrogen concentrations below the Maximum Contaminant Level (MCLs) for nitrogen of 10 mg/L in both up-gradient and down-gradient monitoring wells and an average EC concentration of approximately 400 µmhos/cm.

### **Compliance History**

On 19 April 2004 the Regional Water Board adopted Monitoring and Reporting Program (MRP) No. R5-2004-0816 in accordance with the provisions of CWC section 13267. The MRP allowed the Discharger to characterize the waste discharge while operating in accordance with the provisions of CWC section 13264. The discharger submits monthly Self Monitoring reports as required by the MRP.

### **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 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 µmhos/cm or a 1,000 µmhos/cm, as the 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 µmhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

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Title 22 in Table 64449 B establishes recommended, upper, and short term ranges for EC, TDS, chloride, and sulfate. The recommended and upper ranges are 900 and 1,600  $\mu\text{mhos/cm}$  for EC, 500 and 1,000 mg/L for TDS, and 250 and 500 mg/L for chloride and sulfate, respectively.

### **Anitdegradation**

The antidegradation directives of State Water Board Resolution No. 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.

Constitutes of concern that have the potential to degrade groundwater include, in part, nutrients and salts. However, the discharge will likely not degrade the beneficial uses of groundwater because:

- a. For nitrogen, the loading to the Reuse Area is less than 5 lbs/acre/month or 60 lbs/year, which is significantly below the nitrogen uptake rates of 400 to 480 lbs/year for alfalfa and a double crop of corn and winter wheat.
- b. For BOD, the loading rate to the Reuse Area is less than 10 lbs/acre/day, which is significantly below the USEPA recommended rate of 100 lbs/acre/day according to publication No. 625/3-77-007, *Pollution Abatement in the Fruit and Vegetable Industry*.
- c. For salinity, the average EC of the wastewater (1,400  $\mu\text{mhos/cm}$ ) exceeds the Basin Plan Limit of 1,000  $\mu\text{mhos/cm}$ . However, the Basin Plan does allow blending to promote beneficial reuse. The wastewater is used to supplement irrigation of existing commercial crops and is blended at a minimum of three to one to meet irrigation needs. With blending, the EC of the discharge will be about 700  $\mu\text{mhos/cm}$ , which meets the definition of a Class I Irrigation Water as defined by the U.S. Department of Agriculture. Although not quantified, a portion of the EC in the discharge can be attributed to organic compounds that will break down in the soil profile. In addition, the Discharger has implemented management measures proposed in various plans and reports reducing the EC of the discharge from approximately 2,200  $\mu\text{mhos/cm}$  to approximately 1,400  $\mu\text{mhos/cm}$ . Therefore, any degradation would be consistent with the antidegradation policy.

### **Treatment Technology and Control**

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

- a. Screening to remove solids and haul them offsite for disposal.
- b. Pre-treatment using a CAF system to remove fat and suspended solids from the wastewater.
- c. Use of drip pans, piping, and flow controls to reduce product leaks and spills.
- d. Application of wastewater at plant uptake rates for nitrogen and organic loading.
- e. Operation of a tail water recovery system in the Reuse Area to collect and recirculate water to improve irrigation efficiency and prevent standing water.

### **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 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 is acceptable under Title 27 regulations.

To comply with the requirements of Title 27 the Discharger constructed a 600,000-gallon storage tank to hold cheese processing wastewater prior to blending with irrigation water and discharge to the Reuse Area. The tank is a fully enclosed aboveground storage tank constructed of reinforced concrete and as such is exempt from Title 27, pursuant to section 20090(i).

### **CEQA**

The Regional Water Board, as a responsible agency under CEQA, has reviewed the Project Review Consultation Notice Case No. PSP 04 028, by the Resource Management Agency, Tulare County for the project relative to impacts to groundwater quality. The Regional Water Board concurred with the consultation notice about mitigation of the project's potential groundwater impacts, but requested that the County require that all ponds or other surface impoundments that receive cheese process wastewater be constructed and operated in accordance with the standards of Title 27 of the California Code of Regulations unless the Regional Water Board finds the discharge exempt from Title 27 and approves an alternative design. To meet this requirement the Discharger constructed a 600,000-gallon storage tank to hold the wastewater prior to blending with irrigation water and discharge to the irrigation fields. The tank is a fully enclosed aboveground storage tank constructed of reinforced concrete and as such is exempt from Title 27, pursuant to section 20090(i).

A Proposed Negative Declaration for Project PSP- 04-028 was approved by the Tulare County Resource Management Agency on 28 September 2004 with Preliminary Conditions of Approval including groundwater monitoring, General Construction Activity Storm Water Permit, and the Title 27 impoundment requirements recommended by the Regional Water

Board. On 3 November 2004, the Planning Commission for the County of Tulare approved a Special Use Permit, Resolution No. 8078, for Application No. PSP 04-028, to allow discharge of pre-treated wastewater from Mozzarella Fresca's Tipton Cheese Processing Plant to approximately 310 acres (gross) at Mike Silva Ranches.

### **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 flow limit of 0.25 mgd and effluent limits for EC, boron, and chloride of 1,600  $\mu$ mhos/cm, 1 mg/L, and 175 mg/L, respectively.

The proposed WDRs would prescribe that the application of waste constituents to the Reuse Area shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the Reuse Area, including the nutritive value of organic and chemical fertilizers and of the wastewater shall not exceed the annual crop demand.

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 exceedances of these objectives or natural background water quality, whichever is greatest.

The proposed WDRs would proscribe that the pH of the discharge shall not be less than 4.5 or greater than 10 pH units for more than three consecutive 24-hour composite sampling events. This range was established as half-way between the pH range of natural waters and hazardous concentrations, and that with blending the pH of the discharge would be within the acceptable range for agricultural purposes. In the event that the pH of the discharge is outside of this range for more than three sampling events, the Discharger shall submit a technical evaluation in its monthly SMRs documenting the pH of the blended discharge to the Reuse Area, and if necessary demonstrate that the effect of the discharge on soil pH will not exceed the buffering capacity of the soil profile.

The proposed WDRs would require the Discharger submit a Final Salinity Control Plan detailing all measures taken to reduce the salinity of the discharge, and documenting that all feasible salinity reduction measures have been implemented.

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### Monitoring Requirements

Section 13267 of the CWC authorizes the Regional 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 civil administrative liability where appropriate.

The proposed Order includes effluent monitoring requirements, Use Area monitoring, and groundwater and water supply monitoring. In order to adequately characterize wastewater, the Discharger is required to monitor for BOD<sub>5</sub>, pH, EC, TDS, nitrogen, and other constituents.

The Discharger must monitor groundwater for waste constituents expected to be present in the discharge, and capable of reaching groundwater, and violating groundwater limitations if its treatment, control, and environmental attenuation, proves inadequate. For each constituent listed in [Section F, Groundwater Limitations](#), of the WDR, the Discharger must, as part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentration or to prescribed numerical limitations to determine compliance.

### 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.

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