

## INFORMATION SHEET

R5-2009-XXXX  
FOSTER POULTRY FARMS  
LIVINGSTON CHICKEN PROCESSING COMPLEX  
WASTEWATER TREATMENT PLANT  
MERCED COUNTY

### **Background**

Foster Poultry Farms a California based corporation (hereafter Foster Farms or Discharger) operates a chicken processing complex (Complex) at 843 Davis Street in the City of Livingston, Merced County. Wastewater from the Complex is currently discharged to the City of Livingston's Industrial Wastewater Treatment Facility (Facility), which provides wastewater collection and treatment exclusively for Foster Farms.

The existing Facility consists of 12 unlined ponds with limited aeration, encompassing approximately 83 acres adjacent to the Merced River and is currently regulated by Waste Discharge Requirements (WDRs) Order No. 79-209. The WDRs limit wastewater discharge to 3.5 million gallons per day (mgd). Wastewater Reclamation Requirements (WRRs) Order No. 93-091 regulates the discharge of up to 2.4 mgd of effluent to 223 acres of adjacent lands (Reclamation Area) owned by Foster Farms.

On 26 October 2006, the Central Valley Water Board adopted Cease and Desist Order (CDO) No. R5-2006-0112 for violations of WDRs Order No. 79-209, including groundwater pollution, flow limit exceedances, and freeboard encroachment. The CDO, issued to the City of Livingston, includes tasks and a compliance schedule for construction of an upgraded Facility to be complete by 15 January 2009. However, disagreements between the City of Livingston and Foster Farms over financing and treatment technology delayed the construction. A Settlement Agreement, dated 16 November 2007, ended the litigation and established that Foster Farms would assume responsibility for construction of a new wastewater treatment plant (WWTP) on its own land. Under the agreement, the City of Livingston will continue to operate its existing Facility until the Foster Farms WWTP is complete. Upon completion and initiation of operations at the new WWTP, Foster Farms has agreed to remediate the existing site as directed by the Central Valley Water Board, including removal of accumulated sludge from the existing ponds.

Foster Farms submitted a Report of Waste Discharge (RWD) dated 31 January 2008, for its new WWTP. The new WWTP will consist of a series of aerobic and anaerobic tanks as part of a biological nitrogen removal (BNR) treatment system to reduce high nutrient concentrations in the wastewater. The WWTP, expected to be operational by the end of 2010, will be a significant improvement over the existing Livingston Facility. Treated wastewater will be disposed of via percolation on approximately 223 acres of Foster Farms' existing Reclamation Area (hereafter referred to as Disposal Area). During wet weather, effluent will be stored in a 35 million-gallon unlined storage reservoir adjacent to the WWTP.

Foster Farms plans to continue to grow a summer crop on Disposal Area fields as long as the hydraulic capacity of the fields allows sufficient drying time to plant and harvest a crop. It expects that growing crops will cease once closure and cleanup of the ponds at the existing

Livingston Facility is complete. However, water conservation and other measures may allow some cropping to continue. According to Foster Farms, no fertilizer will be applied to the fields unless a viable crop plan is implemented. This Order includes a provision requiring the Discharger to conduct a Crop Feasibility Study to evaluate continued cropping within the Disposal Area. In addition, this Order requires the Discharger to continue efforts to promote new or expanded wastewater recycling and reclamation opportunities.

### **Solids Disposal**

Wasted sludge from the treatment process will be stored in a 6-million gallon double-lined lagoon with a Leachate Collection System. Clarified liquid will be decanted and returned to the inlet of the treatment system. After drying and pressing to approximately 25% solids, the sludge will be hauled off for land application as a soil amendment or for composting at Foster Farms' Manure Storage Facility about five miles south of Livingston under the terms and conditions of WDRs or a waiver.

### **Groundwater Conditions**

Regional groundwater underlying the area is first encountered at about 50 feet below ground surface (bgs) and flows south-westward according to information in Lines of Equal Elevation of Water in Wells in Unconfined Aquifer, published by Department of Water Resources (DWR) in Spring 2004. According to groundwater data from existing monitoring wells in the Disposal Area there is a groundwater mound approximately four feet high centered near monitoring well MW-4R with the groundwater gradient directed radially outward from this point.

Proximity to the Merced River makes groundwater unaffected by the discharge in the general vicinity of the Disposal Area of high quality. Previous WDRs and groundwater data from DWR wells in proximity to the site from 1959 to 2001 indicates ambient water quality of first-encountered groundwater is good to excellent with an EC less than 500  $\mu\text{mhos/cm}$ .

Data from monitoring wells in the vicinity of the Disposal Area and the Livingston Facility indicates that first-encountered groundwater has been significantly affected by the existing discharge. The monitoring well network shows a clear trend of increasing TDS, nitrate, chloride, and other waste constituents in some groundwater monitoring wells.

In 2007, groundwater beneath the Disposal Area contained EC and TDS concentrations ranging from about 800 to 1,400  $\mu\text{mhos/cm}$  and about 600 to 950 mg/L, respectively. The lowest concentrations were in monitoring wells MW-1R and MW-10R, south and east of the Disposal Area and furthest from the groundwater mound and the existing ponds at the Livingston Facility. However, due to the groundwater gradient and proximity of several irrigation canals there does not appear to be a true up-gradient monitoring well.

The new WWTP will be a significant improvement over the existing unlined pond system and is expected to improve groundwater quality over time. Investigation and cleanup of impacts from previous discharges will be addressed by a separate Cleanup and Abatement Order.

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

The *Water Quality Control Plan for the Sacramento and San Joaquin River Basins, Fourth Edition* (revised October 2007) (Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board.

One of the greatest long-term problems facing California's groundwater is increasing salinity. The Tulare Lake Basin Plan's salt management requirements have been successfully implemented for several decades. Widespread and long-term compliance with these requirements justify them as appropriate best practicable control measures for salinity applicable to discharges in the Sacramento and San Joaquin River Basins. The Central Valley Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental electrical conductivity (EC) limitation of 500  $\mu\text{mhos/cm}$  as the measure of the maximum permissible addition of salt constituents through use or a maximum of 1,000  $\mu\text{mhos/cm}$  for discharges to land overlying good quality groundwater. A more restrictive limitation on salt constituents added through use is appropriate where necessary to assure compliance with a groundwater limitation for any constituent established by the Central Valley Water Board.

The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective. With good to excellent quality groundwater and Class I and Class IIw-2 soils (e.g., Hanford fine sandy loam and Grangeville loam) the area is suitable for most crop types including sensitive or moderately salt sensitive crops such as strawberries, melons, or stone fruit.

While the area is suitable for most crop types including salt-sensitive crops, almonds and sweet potatoes, which appear to be the most prevalent salt-sensitive crops grown in the area, will tolerate irrigation water with an EC up to 1,000  $\mu\text{mhos/cm}$  with no reduction in yield and less than a 10% reduction in yield with irrigation water up to 1,400  $\mu\text{mhos/cm}$ . According to Ayers and Westcott's, *Water Quality for Agriculture*, it is possible to achieve full yield potential with irrigation water in excess of salt tolerances if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. The soils in the area are excessively well drained with low water holding capacity.

The Basin Plan says that at a minimum, groundwater designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of MCLs, including secondary MCLs, as specified in Title 22 of the CCR. Title 22 sets a secondary MCL or consumer acceptance limit for EC as a range between 900 and 1,600  $\mu\text{mhos/cm}$ . While an EC at or below 900  $\mu\text{mhos/cm}$  is desirable, a concentration up to 1,600  $\mu\text{mhos/cm}$  is acceptable if it is neither reasonable nor feasible to provide more suitable waters. The average EC of the effluent is projected to be around 900  $\mu\text{mhos/cm}$ , at or below the lowest secondary MCL; however, groundwater in the area is already above this secondary MCL at about 1,400  $\mu\text{mhos/cm}$  in some monitoring wells.

This Order sets a performance based groundwater limit for EC of 1,200  $\mu\text{mhos/cm}$ . This limit will prevent further degradation of groundwater, and due to the sandy soils, and predominant crop types and irrigation methods in the immediate area should preclude impairment of agricultural beneficial uses. In addition, this limit is within the range of the secondary MCL for EC consistent with beneficial uses for municipal and domestic supply. This limit can be re-visited in the future once the Discharger completes its salinity reduction measures, and actual performance of the new WWTP is known.

### **Antidegradation**

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.

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

- a. For BOD, the discharge will be treated to better than secondary standards and the instantaneous and cycle average loading rates to the Disposal Area are 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*. No further degradation due to organic loading is expected to occur.
- b. For nitrogen, the WWTP is expected to reduce effluent nitrogen concentrations to below 10 mg/L, which is below the primary MCL for nitrate. This should be considered BPTC for nitrogen and should preclude further degradation of groundwater for nitrates. Groundwater downgradient of the discharge should eventually be able to meet groundwater limits that are consistent with all beneficial uses.
- c. For salinity, while first encountered groundwater beneath the Disposal Area has been degraded by previous discharges from Foster Farms and other surrounding activities, the new Foster Farms WWTP will be a significant improvement over the existing unlined pond system. Degradation beyond what resulted from the previously permitted discharge is not expected to occur and the resulting reduction in waste concentrations in the discharge is expected to improve groundwater quality over time.

The salinity of the discharge will be greater than 500  $\mu\text{mhos/cm}$  (considered ambient background water quality), and therefore the discharge could potentially degrade water quality. However, the degradation will be less than what has occurred in the past and groundwater downgradient of the discharge should eventually be able to meet groundwater limits that are consistent with all beneficial uses.

Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason exists to accommodate growth and groundwater degradation, provided that the terms of the Basin Plan are met. Degradation of groundwater quality by some of the typical waste constituents released with discharge from a food processing facility after effective source reduction, treatment and control, and considering the best efforts of the Discharger and magnitude of degradation, is of maximum benefit to the people of the State. Foster Farms aids in the economic prosperity of the region by direct employment of approximately 3,500 people. In addition, it provides incomes and support for valley poultry farms and associated trucking firms, and provides a tax base for local and county governments.

The reduction in the discharge of nitrogen resulting from the project, and the implementation of a Salinity Control Plan to control and reduce salts to the extent feasible (required as a Provision of the proposed Order) are consistent with BPTC and for the maximum benefit of the people of the State, in accordance with the Antidegradation Policy.

### **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 Central Valley 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 any resulting degradation of groundwater is in accordance with the Basin Plan. With treatment to remove organics and reduce total nitrogen to less than 10 mg/L, and fixed dissolved solids of less than 550 mg/L, the discharge authorized by this Order is in accordance with the Basin Plan and the Antidegradation Policy and is therefore exempt from Title 27.

### **CEQA**

On 3 March 2009, the City of Livingston adopted a Mitigated Negative Declaration for the construction and operation of a new wastewater treatment plant for the Foster Farms chicken-processing complex in Livingston.

The Mitigated Negative Declaration determined that the project would have a less than significant impact on water quality since the project, as proposed would reduce or maintain concentrations of constituents in the wastewater discharge. Specifically nitrogen concentrations in the discharge will be reduced to < 10 mg/L, which is a significant improvement from the existing discharge and is expected to improve groundwater quality beneath the Disposal Area.

Central Valley Water Board staff, reviewed and concurs with the conclusion in the Mitigated Negative Declaration that the project would be an improvement over the existing discharge, although the Mitigated Negative Declaration did not include any specific mitigation measures to protect water quality. The Central Valley Water Board as a responsible agency under CEQA includes the following specific conditions in this Order to mitigate or avoid any adverse impacts to water quality:

- a) Sets effluent limits for BOD<sub>5</sub>, TSS, total nitrogen, chloride, and FDS;
- b) Establishes groundwater limits;
- c) Establishes a monitoring and reporting program; and
- d) Requires the Discharger to prepare and implement a Salinity Control Plan, a groundwater study, and a Crop Feasibility Study.

### **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 an annual average flow limit at 3.77 mgd (to be calculated as a rolling average over the last 12 months), with a maximum daily flow limit of 5.0 mgd. Field capacity testing indicates that the predominantly fine grained sands and high permeability of the soils should prevent ponding or nuisance conditions. Treatment and conformance with the conditions in this Order (e.g., TN of < 10 mg/L, FDS of < 550 mg/L, and infiltration within 48 hours) should preclude nuisance conditions.

The proposed Order would set an annual average effluent limit for FDS of 550 mg/L. A recent salinity evaluation of the discharge from the DAF pre-treatment system shows that approximately 30% of the discharge TDS is contributed by organics. Organic TDS should be considered separate from mineralized TDS (i.e., sodium, chloride, etc.) since sources, treatment, and environmental impacts are very different, so an effluent limitation based on FDS would be more appropriate. Based on the salinity evaluation, it is anticipated that a discharge limit for FDS of 550 mg/L, would equate to an EC between 850 and 950  $\mu$ mhos/cm.

The proposed Order would prescribe groundwater limits based on numeric interpretations of the Basin Plan's water quality objectives for agriculture and sets specific limits for EC, nitrates, and total coliform organisms, which would be protective of beneficial uses based on site specific crops and soil type in the immediate vicinity of the site. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background

water quality, whichever is greatest. In addition, this Order includes a provision requiring the Discharger to submit a groundwater study, to characterize background groundwater quality in the immediate area.

The proposed Order also includes provisions requiring the Discharger to submit a comprehensive Salinity Control Plan, a Crop Feasibility Study and Management Plan, and to continue efforts to promote new or expanded wastewater recycling and reclamation opportunities.

### **Monitoring Requirements**

Section 13267 of the CWC authorizes the Central Valley 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 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 requirements for effluent monitoring, supply water monitoring, and recycling monitoring requirements including groundwater monitoring in the Disposal Area. In order to adequately characterize wastewater, the Discharger is required to monitor for pH, EC, biochemical oxygen demand, total dissolved solids, fixed dissolved solids, total 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..

### **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.

kc/DKP: 7/13/09