

ITEM: 11

SUBJECT: Sun-Maid Growers of California, Kingsburg Facility, Fresno County

BOARD ACTION: *Consideration of Waste Discharge Requirements*

BACKGROUND: Sun-Maid Growers of California (Sun-Maid) discharges up to a monthly average of 0.40 mgd of raisin processing wastewater to approximately 45 acres where it grows crops such as sorghum, Sudan grass, and winter wheat. The discharge is regulated by Waste Discharge Requirements (WDRs) Order 84-035. Sun-Maid has also historically discharged wastewater to a cogeneration plant and to the Selma-Kingsburg-Fowler County Sanitation District Wastewater Treatment Facility. Sun-Maid no longer discharges to the cogeneration facility and, in October 2010, submitted a report of waste discharge to add an adjacent 40 acre parcel of farm land (total of approximately 81 farmable acres) to its land application area (LAA). Additional information was submitted in December 2011, July 2012, and March 2013.

The Facility operates 24 hours per day, 5 days a week, for 50 weeks a year and primarily processes raisins, which includes washing, rinsing, removing inorganics (dirt, pebbles, etc.) and stems, and packaging the raisins. Wastewater is generated from the washing of raisins and equipment sanitation. Wastewater is screened then applied by sprinkler irrigation to the LAA. Applied wastewater has a biochemical oxygen demand (BOD), total nitrogen, and electrical conductivity (EC) of approximately 3000 to 6000 mg/L, 40 to 50 mg/L, and 540 umhos/cm, respectively.

Irrigation with high BOD wastewater can result in high BOD loading. If the rate of oxygen transfer in the soil is not adequate, anaerobic or reducing conditions can result and lead to nuisance conditions. It can also cause dissolution and leaching of some metals and increases in groundwater alkalinity, total dissolved solids, and EC. The over application of organic materials can also result in an organic film that reduces soil permeability requiring increased soil management. Gypsum is often applied to increase soil permeability. The over application of gypsum can cause or exacerbate increases in groundwater EC and alkalinity and cause increases in groundwater sodium and sulfate concentrations. The maximum BOD loading rate that can be applied to land without creating the conditions described above can vary significantly depending on soil conditions and operation of the LAA.

Historical discharges and/or land management practices have degraded groundwater down-gradient of the site. Down-gradient wells show significant increases in EC, sodium, sulfate, and alkalinity. As described in more detail in Staff's response to comments, these are thought to be legacy issues that will be addressed by separate enforcement order, if necessary.

The proposed WDRs limit the BOD loading of the land application area to 150 lbs/acre/day. It limits the salinity of the discharge to the Basin Plan limit of 500 umhos/cm plus the EC of the source water or 1000 umhos/cm, whichever is less. It also limits the hydraulic and nitrogen loading rates to reasonable agronomic rates and requires Sun-Maid to complete detailed solids, salinity, and nutrient management plans that will be subject to Executive Officer approval.

ISSUES:

Staff received comments from Sun-Maid and Ms. Jo Anne Kipps. The Response to Comments in the agenda package expands on the following.

Sun-Maid requested the minimum cycle average be modified to reflect its irrigation system and practices. Sun-Maid indicates that worst case sprinkler applications are limited to two hours followed by a four hour rest period and are optimized to ensure adequate irrigation of the crop without soil saturation through the use of soil moisture probes. Sun-Maid also indicates it changed several of its wastewater management practices to reduce loading of constituents that may be contributing to groundwater degradation. For example, hydrogen peroxide or potassium hydroxide is now used for cleaning operations instead of sodium hydroxide, potassium hypochlorite is now used instead of sodium hypochlorite to disinfect source water, calcium hydroxide is now used in place of sodium hydroxide for wastewater pH adjustment, gypsum applications to the land application area have been discontinued, and Sun-Maid is requiring physical removal of raisins instead of rinsing them down the drain.

In response, the WDRs cycle average specification was changed to reflect actual operations, and the Findings and Information Sheet to were changed to document Sun-Maid's management practice modifications.

Ms. Kipps indicates that the WDRs do not adequately support a finding that the Sun-Maid discharge represents Best Practicable Treatment or Control or that a BOD loading rate of 150 lbs/acre/day will prevent organic overloading to the land application area. Ms. Kipps states that since groundwater up-gradient and down gradient in the area already exceeds the water quality objective for nitrate, that the WDRs should limit the maximum nitrogen application rate to 75% of the crop agronomic demand.

BPTC is a site-specific evaluation. In Sun-Maid's case, it screens its discharge and sprinkler irrigates, which provides for better wastewater distribution than other irrigation methods. Sun-Maid has also implemented many management practices that are expected to have a beneficial effect on groundwater. The subject WDRs limit the BOD loading rate to much less than has historically been applied (WDRs Order 84-035 contains no BOD or nitrogen loading limits). Staff believes that the BOD limit of 150 lbs/acre/day, combined with other restrictions in the WDRs and the management practices described above, will result in a discharge that meets water quality objectives and represents BPTC for the subject discharge.

RECOMMENDATION Adopt the proposed WDRs.

Mgmt. Review \_\_\_\_\_  
Legal Review \_\_\_PEP\_\_\_

July 25/26, 2013

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