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Comments on Tentative Waste Discharge Requirements Order for Treehouse California Almonds, LCC Earlimart Almond Processing Facility, Tulare County

The subject tentative order, issued 9 October, proposes to update and rescind Waste Discharge Requirements (WDR) Order 2018-0066 for Treehouse California Almonds, LLC (Discharger) Earlimart Almond Processing (Facility). Below are my comments and recommendations. For brevity, the word, “Finding” is abbreviated to “F.”

The discharge features the treatment and storage of almond processing wastewater in double-lined surface impoundments equipped with leachate collection and removal systems. A treatment process featuring anaerobic treatment, aerobic treatment, and clarification is expected to remove over 95% of influent five-day biochemical oxygen demand (BOD) and reduce effluent BOD to 40 to 60 mg/L (F33). An effluent BOD of 60 mg/L is comparable to “undisinfected secondary recycled water” (Title 22 §60301.900) and “oxidized wastewater” (Title 22 §60301.650) (organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen). The projected cycle-average BOD loading rate at maximum discharge flow is less than 10 pounds per acre per day (lbs/ac/day) (F33), which is 90% less than the tentative order’s proposed cycle-average BOD loading rate of 100 lbs/ac/day (F70).

Comment: By any measure, the Discharger proposes to implement best practicable treatment and control for BOD. Kudos to the Discharger. It can be done. The BOD loading via crop irrigation using effluent is comparable to undisinfected secondary recycled water. Water recycling requirements rarely prescribe BOD loading rates and require monitoring of BOD loadings.

Consider revising the tentative order to establish requirements that reflect proper operation and maintenance of the proposed wastewater treatment system: a maximum daily effluent BOD of 100 mg/L and/or cycle-average BOD Loading Limit of 25 lbs/ac/day. The monitoring required to track cycle-average BOD loadings to discretely-managed agricultural fields is demanding. Alternatively, as an incentive for the Discharger to properly operate and maintain the proposed wastewater treatment system, consider requiring BOD loading monitoring only when effluent BOD exceeds 100 mg/L.

The discharge’s land application area (LAA) consists of a 38-acre north field and a 28-acre south field, both new and replace an existing 37-acre LAA immediately north of the Facility. The tentative monitoring and reporting program (MRP) refers to discrete LAA fields managed separately with respect to cropping and loadings. The tentative order refers to tailwater returned “to the head of the field as needed” (F26) suggesting effluent is applied via flood irrigation. However, this is not clear.

Comment: Please revise the tentative order to identify the crop irrigation system(s) used by the Discharger in LAA fields. Also clarify whether each new LAA field is subdivided into smaller LAA fields. Clarify the MRP’s Table 1 – Monitoring Locations to indicate multiple LAA fields, (e.g., LAA-001, 002, etc.) and describe as “Individually managed fields within the 66-acre land application area”

The Facility Site Plan Map (Attachment B) is based on a Google Earth image that shows several unlabeled surface impoundments on or next to the Discharger's property. One is a 0.7-acre rectangular impoundment immediately south of the New Proposed Stormwater Pond, and two are immediately east of the Facility (areas of 6,000 and 14,000 square feet). There is 10,000-square-foot surface impoundment immediately north of the south LAA's northeastern corner.

Comment: Please describe the function(s) of the surface impoundments identified above and indicate whether all or some are on Discharger-owned property.

The most-recent available Google Earth image of the Facility (3/16/2024) shows earthwork associated with the construction of the Discharger's proposed wastewater treatment system.

Comment: Please revise the tentative order to disclose when the wastewater treatment system will be fully operational.

The tentative order presents the projected annual hydraulic load to the LAA (F27), but presents loads as volumes (MG), not in terms of mass per area per unit of time. In this case, daily loading should be presented in units of inches/day.

Comment: Revise Table 5 (F27) to include a column for combined total annual effluent and freshwater hydraulic load with units of inches. Also consider revising F28 to refer to crop water demand also in terms of inches per year.

The tentative order explains the proposed discharge's nitrogen loading is within reasonable agronomic rates (F29). However, its statement on ammonia volatilization requires clarification.

*Comment: Confirm the nitrogen balance assumes a ten percent loss of ammonia-N via volatilization then revise F29, 2nd sentence to read: "...a ten percent loss of applied **ammonia** ~~nitrogen~~ via ~~ammonia~~ volatilization." And, confirm whether the nitrogen balance includes nitrogen loadings from screened solids applied to the LAA "at agronomic rates" as indicated in F20.*

The tentative order indicates that the two anaerobic digester ponds will not be equipped with covers unless deemed necessary to control nuisance odors. And, it refers to the possible use of agitator pumps to remove solids from the digester ponds. Use of agitator pumps in anaerobic digester ponds as proposed threatens to create nuisance odors in violation of Discharge Prohibition B.4.b.

Comment: Please reconsider the nuisance-odor potential of the use of uncovered anaerobic digester ponds and agitator pumps for periodic solids removal. Consider revising F19 to indicate the Order's nuisance prohibition, pond dissolved oxygen (DO) content requirement, and pond DO monitoring may reveal the need for covering digester ponds and using methods for pond solids removal that do not create odor nuisance.

The Requirements preface does not rescind the current WDR Order R5-2016-0066.

Provision J.7 concerns the submittal of an updated Operations and Maintenance Plan. Section f states, "Management practices that will ensure that wastewater, irrigation water, and fertilizers/compost are applied at agronomic rates to the LAA including but not limited to adjusting wastewater application and

spreading based on consideration of soil available nutrients and/or plant tissue sampling results.” The identified sources do not include “screened solids removed from the wastewater at the influent screens upstream of the treatment ponds” (F20).

Comment: Revise Provision J.7 (and LAA Specification G.2) to include screened solids in the list of nutritive sources. Also revise Attachment D – Process Flow Diagram to indicate the flow path(s) of solids removal from Screens. Also, please disclose the disposal method(s) of removed pond solids.

The tentative MRP’s soil monitoring requirements include ammonium-nitrogen ($\text{NH}_4\text{-N}$) and TKN ($\text{NH}_4\text{-N}$ plus organic N), but not nitrate-nitrogen ($\text{NO}_3\text{-N}$). Plant available nitrogen (PAN) consists of $\text{NH}_4\text{-N}$ and $\text{NO}_3\text{-N}$.

Comment: The tentative MRP soil monitoring requirement and the tentative order’s requirement to consider PAN in LAA soil in determining future crop nitrogen application loadings are best practicable control measures that should be required in all LAA discharges of winery and food-processing wastewaters. As ammonia and nitrate comprise PAN, revise the tentative MRP, Table 8 – Soil Monitoring, to include Nitrate-nitrogen ($\text{NO}_3\text{-N}$).

The tentative order establishes a hydraulic conductivity standard (D.3) that includes an equivalent engineered alternative. It refers to the Discharger’s proposed surface impoundments as Tier 1 Ponds. This pond design is presumably that defined in the Central Valley Regional Water Quality Control Board’s Reissued WDR General Order for Existing Milk Cow Dairies (Order R5-2013-0122). The tentative order does not disclose whether the proposed Tier 1 Ponds will meet the hydraulic conductivity standard.

Comment: Consider revising the tentative order (in F3 or elsewhere) to identify “Tier 1 Pond” as a design defined in the Region’s General Order for Existing Milk Cow Dairies, and to disclose the proposed Tier 1 Ponds satisfy the tentative order’s hydraulic conductivity standard as an equivalent engineered alternative.

The tentative MRP does not require influent monitoring for BOD_5 . The absence of influent BOD_5 data means that no data will be provided over the years to confirm the wastewater treatment system provides the projected 95% rate of BOD_5 removal.

Comment: To provide ongoing confirmation that the proposed wastewater treatment system is operating as proposed and capable of providing over 95% BOD_5 removal, revise Table 2 – Influent Monitoring, to include monthly grab sampling for BOD_5 .

The tentative MRP requires effluent monitoring for potassium, suggesting that it is a waste constituent of concern as in winery and pistachio processing wastewaters. The tentative order’s Table 4 – Wastewater Quality does not include potassium.

Comment: The current order (F13) indicates discharge potassium concentrations are around 200 mg/L, which is relatively high compared to other food processing wastewaters. Please revise Table 4 to include potassium if data are available. If not available, revise F22 to indicate the current order characterized the discharge as containing elevated concentrations of potassium. And, disclose whether the proposed discharge’s projected potassium loading is reasonable for LAA crops.

The tentative MRP's BOD₅ loading equation (III.A.3.c) defines C as "Concentration of BOD₅ in mg/L based on the average concentration for the Week." Its Table 3 – Effluent Monitoring, requires monthly grab sampling of effluent for BOD₅. As such, effluent BOD₅ monitoring frequency is insufficient to generate average values for a week, let alone a month.

Comment: Revise the definition of BOD₅ concentration to refer to the month's single value for effluent BOD₅ or increase effluent BOD₅ monitoring frequency to produce a representative value for the reporting month (i.e., at least three samples per month).

The tentative MRP's Table 7 – Land Application Area Monitoring specifies the monitoring requirements for discrete fields managed consistently with respect to irrigation and constituent load monitoring. Because it frequently identifies monitoring "for each field" it includes many unnecessary words.

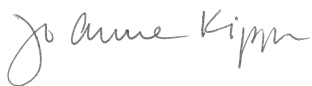
*Comment: Consider revising the header of Section F. Land Application Area Monitoring (LAA-001) to refer to multiple LAA fields (i.e., (LAA-001, -002, etc.). And revise last sentence in preamble to read: "Monitoring data shall be collected and presented in graphical (map) and/or tabular format **for each discrete LAA field** and shall include" Then, revise Table 7 to revise Constituent/Parameter to include a new row for "LAA field irrigated" with Units of "designation" (i.e., 001, 002, etc.), and revise "Fields Irrigated (Field Numbers)" to "Area Irrigated." Then, remove references to "for each field" in Table 7. Also include screenings in Nitrogen Loading (and FDS loading if appropriate).*

The tentative MRP's section G. Soil Monitoring requires the Discharger to establish representative sampling locations in each discrete field and at least one background location. It does not specify the minimum number of LAA soil samples. It also does not specify whether composite sampling is allowed.

Comment: Consider specifying the minimum number of soil samples to be collected from each discrete LAA field (e.g., three) and disclose whether composite sampling may be used (e.g., three samples to create one composite sample for each field at each depth interval). Alternatively, revise the tentative MRP to include in the submittal required at least 60 days prior to the first soil sampling event a soil monitoring sampling protocol for LAA fields that identifies the minimum number of soil samples required at specified depth intervals to yield data representative of LAA fields and background.

Also consider revising III.B.4 to require reporting of plant available nitrogen (PAN) (lbs/acre) in each discrete LAA field and background at each depth interval and total PAN (lbs/acre) in the upper six feet of each LAA field and background.

Thank you for your time and consideration.



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