

**Regional Water Quality Control Board
Central Valley Region
Board Meeting –5/6 June 2014**

**RESPONSE TO WRITTEN COMMENTS ON
TENTATIVE WASTE DISCHARGE REQUIREMENTS FOR
HARRIS WOOLF CALIFORNIA ALMONDS,
BALLICO FACILITY
FRESNO COUNTY**

At a public hearing scheduled for 5/6 June 2014, the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) will consider adoption of Waste Discharge Requirements (WDRs), which were circulated as tentative on 8 March 2014 for discharges from the Harris Woolf California Almonds Ballico facility (Facility) to 14-acres of farm lands used as a land application area. This document contains responses to written comments received from interested parties regarding the proposed WDRs. Written comments from interested parties were required to be received by the Regional Water Board by 5:00 p.m. on 8 April 2014 in order to receive full consideration. Comments were received from:

- a. Harris Woolf California Almonds (Harris Woolf or Discharger); and
- b. Ms. JoAnne Kipps, a public commenter.

Staff has made some minor changes to the proposed WDRs based on the comments. Staff has also made changes to the WDRs to increase clarity and fix typographical errors. Where specific changes are presented below, additions are in bold text and deletions are in strike-out.

HARRIS WOOLF CALIFORNIA ALMONDS

Harris Woolf's comments were mostly questions relating to how to comply with and/or interpret various portions of the proposed WDRs. Below is Harris-Woolf's salient comments followed by staff's responses.

HARRIS WOOLF – COMMENT 1: Harris Woolf states it is concerned with the estimated nitrogen loading to the 14 acres of LAAs and the current estimated rate of removal by the almond tress present in the LAAs. Harris Woolf requests the inclusion of a sentence in the proposed WDRS indicating it is actively researching additional technologies that can reduce the nitrogen load of its discharge, including additional treatment of the wastewater prior to discharge to the ponds and LAAs, and/or changing or adding different crops in the LAAs to better utilize the nitrogen in its wastewater. Harris Woolf has indicated it will describe the alternatives it is considering to reduce the nitrogen load of its discharge in the Nutrient Management Plan required by Provision F.12.

RESPONSE 1: The following paragraph has been added to Finding 14:

Harris Woolf is researching possible treatment alternatives to reduce its nitrogen load in its wastewater including installation of a nitrogen reduction treatment system and/or additional cropping with different plants/crops for greater nitrogen removal in the LAAs. Harris Woolf will describe those alternatives in the Nutrient Management Plan required by Provision F.12.

HARRIS WOOLF – COMMENT 2: Harris Woolf notes the naming of Harris Woolf in Finding 1 is incorrect.

RESPONSE 2: The second sentence of Finding 1 of the proposed WDRs has been modified as follows:

The Gold Hills Nut Company was purchased by Harris Woolf California Almonds, (Harris Woolf or Discharger), a ~~division of~~ **general partnership** of Woolf Farming of California, Inc., ~~a California Corporation~~ **and Harris Farms, Inc., both California Corporations**, in August 2010.

JOANNE KIPPS

KIPPS - COMMENT - 1: Ms. Kipps requests clarification of the name of the Discharger listed in Finding 1 of the proposed WDRs.

RESPONSE 1: See response to Harris Woolf Comment 2.

KIPPS - COMMENT - 2: Ms. Kipps discusses several issues then states that staff should, “Revise the tentative Order to include a provision requiring the Discharger to equip the wastewater retention pond with a liner of suitable design and construction to preclude or substantially retard the release of waste constituents to soil within one year of order adoption, and revise the tentative Monitoring and Reporting Program to require the Discharger perform a liner leak detection test at least once every five years.”

The individual issues are presented as follows:

KIPPS - COMMENT - 2a: Ms. Kipps states a hard pan layer is present on the Harris Woolf property, and without the dimensions and capacity of the wastewater retention pond, it is impossible to know whether it extends below the hard pan layer.

RESPONSE 2a: Finding 21 of the proposed WDRs indicates the hard pan ranges in depth from three feet along the eastern side of the property to seven feet along the western side of the property. The RWD contains information for the size and capacity of the wastewater retention pond, indicating the total depth is about nine feet below grade. The depth indicates the wastewater retention pond extends below the hard pan layer. Finding 8 of the proposed WDRs has been modified as follows:

Wastewater is collected by channel drains in the Plant and passed through a parabolic filter, prior to being discharged into the unlined wastewater retention pond. **The RWD indicates the wastewater retention pond has a capacity of about 2.6 acre feet, or 850,000 gallons. It is approximately 230 feet long, 80 feet wide, and about nine feet in depth.** Wastewater from the pond either percolates/evaporates, or is discharged to the 10-acre LAA, which is currently planted with almonds.

KIPPS - COMMENT - 2b: Ms. Kipps discusses groundwater quality in monitoring well MW-1, specifically the average sodium concentration from samples collected from MW-1. Ms. Kipps states, “The tentative Order characterizes this well as an upgradient well, even though it contains elevated concentrations of sodium (105 mg/L) compared to the Discharger’s other two wells (47 mg/L in MW-2 and 61 mg/L in MW-3) and compared to shallow groundwater monitoring wells two miles west of the Facility (68 mg/L in USGS Well 372742120443601 and 59 mg/L in USGS Well 371746120443601). The tentative Order does not provide sufficient information to conclude that groundwater passing

through MW-1 has not already been impacted by past discharges of almond processing wastewater to the unlined pond. The Information Sheet indicates nitrate concentrations in all three wells exceed the water quality objective.”

RESPONSE 2b: No changes were made to the proposed WDRs.

Well MW-1 is upgradient of the wastewater retention pond as it is located southwest of the wastewater retention pond, and the direction of groundwater flow is predominantly to the northeast as indicated in Finding 25.

Available data including the effluent and groundwater sodium data, indicate the discharge to the wastewater retention pond is not adversely affecting MW-1. The average effluent sodium concentration, as described in Finding 10 of the proposed WDRs, is 52 mg/L. This is about half of the average concentration reported in MW-1. Given the permeable nature of area soils below the hardpan, the discharge of wastewater with an average sodium concentration of 52 mg/L to the unlined wastewater retention pond would not cause groundwater to increase to nearly double the concentration of the effluent. Rather, if discharges to the pond were influencing the groundwater quality in MW-1, one would expect the sodium concentrations in MW-1 to be similar to that of the effluent.

Further, chloride is a much more soluble and mobile constituent than sodium. If the discharge to the wastewater retention pond was affecting water quality in MW-1, one would expect the chloride concentration in this well to be similar to the average chloride concentration in the effluent and higher than the wells in the area. The average effluent chloride concentration, as also presented in Finding 10 at 72 mg/L, is almost twice (~1.7 times) the average chloride concentration in MW-1 of 42 mg/L. Chloride concentrations in the USGS wells (39 to 55 mg/L), MW-1 (42), and MW-2 and MW-3 (23 to 35 mg/L) are all similar in concentration and lower than the effluent concentration.

If the discharge to the wastewater retention pond were affecting MW-1, then the sodium concentrations in MW-1 would be lower and closer to that of the effluent and chloride concentrations would be higher and closer to the concentrations of the effluent. That the effluent and monitoring wells show conflicting trends in this respect suggests that the higher sodium concentrations in MW-1 are likely due to an upgradient source. Sodium by itself being higher in MW-1 than in the other two onsite wells, does not support that lining the wastewater retention pond is necessary.

KIPPS - COMMENT - 2c: Ms. Kipps states excessive nitrogen and BOD loading to the wastewater retention pond may cause nitrogen to be released to groundwater in concentrations that will further degrade the underlying groundwater. High organic loading could cause increases in bicarbonate and hardness levels and if prolonged, may solubilize iron and manganese to concentrations exceeding groundwater quality objectives.

RESPONSE 2c: No changes were made to the proposed WDRs. Iron, manganese, and arsenic monitoring were added to the proposed Monitoring and Reporting Program (MRP). The data does not support the conclusion that the current discharge to the pond is unreasonably degrading groundwater with nitrogen nor does it support a conclusion that organic overloading is causing an increase in groundwater bicarbonate and/or hardness levels. Nitrate as nitrogen data for the onsite and offsite groundwater wells show similar nitrate as nitrogen concentrations. The offsite USGS wells have nitrate as nitrogen averages ranging (32 to 38 mg/L) and are two miles upgradient of the Facility. Nitrate as nitrogen concentrations in onsite monitoring wells

range from 17 to 40 mg/L. The downgradient wells MW-2 and MW-3 have nitrate as nitrogen concentrations of 17 and 38 mg/L respectively. Nitrate as nitrogen concentrations two miles upgradient of the Facility are similar to those observed in onsite wells. Nitrate as nitrogen in groundwater appears to be a regional problem. The discharge of almond processing wastewater to the wastewater retention pond does not appear to be exacerbating that problem.

The data also does not support the conclusion that organic overloading is increasing groundwater bicarbonate alkalinity or calcium and magnesium hardness. MW-1 does have an average bicarbonate concentration that appears to be higher than that of MW-2 or MW-3; however, it is consistent with the more recent analysis for USGS Well 37174612044360 of 278 mg/L in 2012. Bicarbonate values in the onsite wells range from 212 to 279 mg/L, while bicarbonate results for the upgradient USGS wells ranged from 222 to 278 mg/L. Again, the upgradient results are nearly identical to the downgradient results and indicate the bicarbonate concentrations in the onsite wells represent regional concentrations, not groundwater quality unreasonably influenced by the discharge of almond processing wastewater to the wastewater retention pond. Bicarbonate data available for the USGS wells has been added to the Information Sheet.

Additionally, the average calcium concentration in MW-1 (96 mg/L) is lower than the average calcium concentration in MW-3 (127 mg/L) and USGS Well 372742120443601 (125 mg/L). Once again, groundwater quality results in onsite wells are similar to regional groundwater quality in wells two miles upgradient of the Facility. The discharge does not appear to have unreasonably degraded the underlying groundwater quality with bicarbonate alkalinity associated with organic overloading.

There are no data available regarding reducing conditions in groundwater, but iron, manganese, and arsenic monitoring has been added to the groundwater monitoring section of the MRP.

GENERAL RESPONSE TO COMMENT 2: The proposed WDRs have not been modified to require the wastewater retention pond be lined. Existing groundwater data does not indicate that discharges to the wastewater retention pond are unreasonably degrading groundwater and, based on the discussion above (Comments 2a through 2c), it is not appear that it is necessary to require the Discharger to line the existing wastewater retention pond. Bicarbonate data from the upgradient USGS wells has been added to the Information Sheet. Iron, manganese, and arsenic monitoring have been added to the groundwater monitoring section of the MRP.

KIPPS - COMMENT - 3: Ms. Kipps requests the proposed WDRS be revised to include pond monitoring requirements for dissolved oxygen (DO).

RESPONSE 3: Provision F.13 was added to the proposed WDRs that reads as follows:

As a means of discerning compliance with Discharge Specification B.8, the dissolved oxygen (DO) content in the upper one foot of the wastewater retention pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days."

MRP Order R5-2014-XXXX was modified to include weekly DO monitoring of the wastewater contained the retention pond.

KIPPS - COMMENT - 4: Ms. Kipps requests that the Threat to Water Quality be revised from a level 3 to a level 2 based on the potential for the almond processing wastewater contained in the wastewater retention ponds potential to create objectionable odors and threaten nuisance conditions or include a technical evaluation that demonstrates the stored wastewater without aeration will not cause objectionable odors.

RESPONSE 4: No changes were made to the proposed WDRs. The Facility has been in operation as an almond processor since 1994 and has been submitting self-monitoring reports since 2009. Two residences are adjacent the Facility, one about 600 feet to the southwest and one about 900 feet to the northeast, and the community of Ballico is ¼ of a mile south and southeast of the Facility. The Central Valley Water Board's record does not contain a single complaint regarding the Facility. No offensive odors were detected during the pre-waste discharge requirement inspection conducted in 2012.

KIPPS - COMMENT - 5: Ms. Kipps objects to the Order having an "annual" limit for electrical conductivity (EC) and requests it be replaced with a monthly average discharge limit of 900 umhos/cm.

RESPONSE 5: To be consistent with other Orders, Discharge Specification B.2 was modified to read as shown below:

The 12-month rolling average EC of the discharge shall not exceed 900 umhos/cm. Compliance with this effluent limitation shall be determined monthly.

KIPPS - COMMENT - 6: Ms. Kipps requests a soil monitoring program be added to the MRP.

RESPONSE 6: A soil monitoring section was added to the MRP.

CENTRAL VALLEY WATER BOARD STAFF CHANGES

Change No. 1: In reviewing the MRP requirements, Central Valley Water Board staff noticed the reporting frequency was listed as Semi-Annual (twice a year) for all of the monitoring requirements (effluent, pond, soil, groundwater, LAA, etc.) of the MRP. The semi-annual reporting requirement for all sections of the MRP is incorrect. Effluent, pond, and LAA monitoring results should be reported on a quarterly basis. Groundwater monitoring results should be collected on a semi-annual basis and reported annually, and soil and source water monitoring results should be reported annually.

RESPONSE 1: The Reporting section of the MRP was modified to reflect the monitoring frequencies proposed in the preceding paragraph.