

**Regional Water Quality Control Board
Central Valley Region
Board Meeting – 5-6 December 2013**

**Response to Written Comments for the Morning Star Packing Company
Tentative Waste Discharge Requirements**

At a public hearing scheduled for 5 and 6 December April 2013, the Regional Water Quality Control Board, Central Valley Region (“Central Valley Water Board”) will consider adoption of Waste Discharge Requirements (“WDRs”) for discharges from The Morning Star Packing Company’s Williams tomato packing facility. This document contains responses to written comments received from interested parties regarding the tentative WDRs and CDO. Written comments from interested parties were required by public notice to be received by the Central Valley Water Board by 30 October 2013 to receive full consideration. Comments were received from The Morning Star Packing Company.

Written comments from the above interested parties are summarized below, followed by the responses of Central Valley Water Board staff. Based on the comments, Central Valley Water Board staff made some changes to the tentative WDRs. Central Valley Water Board staff also made some changes to correct typographical errors and to improve clarity.

THE MORNING STAR PACKING COMPANY’S COMMENTS

The Morning Star Packing Company (Morning Star) and the Central Valley Water Board staff met prior to the close of the public comment period. On 30 October 2013, Moring Star submitted written comments regarding the tentative WDRs. The comments identified several issues and requested certain specific changes to the tentative WDRs. Some of the changes were made as requested and some were not.

Morning Star Comment No. 1: Morning Star strongly disagrees with any finding that its discharge has caused any degradation of groundwater quality.

RESPONSE: Shallow groundwater conditions at the site are complicated by numerous sources of groundwater recharge (some of it high quality and some if it not). The available site-specific hydrogeologic information and Morning Star’s groundwater monitoring data were carefully reviewed and analyzed, and staff’s evaluation is discussed at length in Findings 40 through 45 of the proposed Order.

As noted in those findings, discharges to the unlined wastewater settling pond have caused the chloride concentration to increase in one shallow monitoring well downgradient of the pond (MW2) in the last two years. Because the chloride concentrations in the two wells that best represent background groundwater quality for the Settling Pond (MW1 and MW4) did not increase during that period, it is reasonable to conclude that the chloride increase in MW2 is due to percolation of waste constituents from the Settling Pond. The degradation is recent and coincides with increases in wastewater salinity over the last several years. However, it has not caused exceedance of the lowest potentially-applicable water quality objective, which is the agricultural water quality goal (106 mg/L). This level of degradation is relatively minor, and the Order does not propose that the Discharger implement additional treatment or control measures to limit chloride degradation from the Settling Pond. However, State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Anti-Degradation Policy*) requires that the Board consider all degradation caused by regulated facilities, and does not set a *de minimis* level

that would exempt Board staff from providing their professional opinion as to whether degradation has occurred and whether that level of degradation is consistent with the *State Anti-Degradation Policy*.

With regard to the land application areas (LAAs), we determined that four of the LAA monitoring wells (MW6, MW7, MW8, and MW9) show degradation for some constituents as summarized in the following table.

Monitoring Well	Current Degradation Status			
	TDS	Chloride	Manganese	Nitrate
MW6	Slight Degradation	Slight Degradation	Inadequate Data	No Degradation
MW7	Degradation	Slight Degradation	Pollution	No Degradation
MW8	Degradation	Degradation	Pollution	No Degradation
MW9	Degradation	Degradation	Inadequate Data	Pollution

Board staff believes that the degradation and pollution can be attributed to localized overloading of water, BOD and nitrogen due to the current irrigation system.

The LAAs are surface irrigated using the border check method. Each field contains several checks that are separated by berms. Each check is typically 20 feet wide, and the check lengths are typically 1,000 to 2,600 feet with minimal slope. For a particular field, the checks are irrigated sequentially until the entire field has been irrigated. The field is then allowed to rest until the next irrigation cycle begins. Because of the long check lengths, it typically takes one to two days of continuous irrigation to ensure that the lower end of the each check receives sufficient water to sustain the crop. Surface irrigation of fields with long check lengths such as these results in poor irrigation uniformity, with higher water and waste constituent loading rates and longer infiltration times at the top end of the field in comparison to the bottom end of the field. Both MW7 and MW9 are at the upper end of two different fields, and MW8 is located at mid-check length in another field. In contrast, MW6, which shows evidence of only minor degradation with TDS and chloride, is near the bottom end of a field.

The WDRs were not revised to change the findings of degradation and pollution, but some clarification was added to those findings and the technical information above was added to the findings to clarify that the current irrigation system may need to be modified to ensure compliance with the groundwater limitations. The proposed WDRs allow the Discharger to continue using the current irrigation system and to calculate waste constituent loading rates as field wide averages as long as the monthly monitoring reports clearly demonstrate best efforts to achieve uniform application field-wide and compliance with the WDRs. If the pollution does not resolve over time with improved operational practices, physical improvements to the irrigation system or other treatment/control may be needed. Such improvements might include creation of smaller fields with shorter check lengths, switching to sprinkler irrigation, wastewater pretreatment to reduce BOD, removing cattle from the LAAs, and/or additional land application areas.

Morning Star Comment No. 2: Morning Star requested revision of Finding 30 (now Finding 31) to clarify its current storm water runoff management practices for the wastewater land application areas, stating:

“Storm water from the land application area (LAA) is pumped from the collection ditches and applied to the LAA for the first 2” of rainfall. During the next rain event, the collected storm water is tested and compared to the water quality in the [Glenn-Colusa Irrigation District] drain. If the storm water is of similar quality to the drain water or better, the water is then released offsite.”

RESPONSE: The findings were revised to describe the Discharger’s current storm water management practices as requested. However, the 1995 WDRs prohibit the discharge of wastes to surface water drainage courses and the 2005 CDO reinforces this prohibition by prohibiting the discharge of tailwater or storm water containing waste to surface drainage courses. Additional information was added to the findings to explain why the current storm water management practices are a concern and may be in violation of the CDO. Specifically, although the Discharger submitted analytical data for storm water runoff from the LAAs and water collected in a nearby GCID drain to support a change in practices in 2009, the samples were only analyzed for pH and electrical conductivity. The analysis did not account for BOD or nitrogen, which are both characteristic of food processing wastewater and cattle grazing operations.

Additionally, the change in practices proposed in 2009 was not approved by staff and approval would likely have required revision to, or rescission of, the CDO. The Discharger has not demonstrated that the current storm water management practices comply with the requirements of the WDRs or CDO. The tentative WDRs were revised to allow the Discharger to continue its current storm water practices. However, the Discharger is required to submit a *Storm Water Runoff Evaluation and Management Plan* that clearly demonstrates through monitoring this winter that the runoff being released does not pose a significant threat to surface water quality. If the Executive Officer does not approve the plan, the Order would require that the Discharger not release storm water runoff from the LAAs in the subsequent years unless and until a revised plan is approved.

Morning Star Comment No. 3: Morning Star requested revision of Finding 31 (now Finding 32) to clarify its current Settling Ponds solids management practices and request that land application of residuals solids be allowed. Specifically, the comment stated:

“Solids from the settling pond are either applied to the LAA as a soil amendment or used to build up farm roads. Solids from processing activities (pomace, cull tomatoes and vines) have historically been hauled off-site, but we would like to reserve the right to apply residual solids to the LAA at agronomic rates.”

RESPONSE: Finding 13 (previously Finding 12) was revised to reflect the current Settling Pond solids disposal practices. The 1995 WDRs allow for land application of solids as a soil amendment; however they do not allow solids use on farm roads at the site as currently practiced by the Discharger. Settling Pond solids include soil washed off the tomatoes and tomato waste, and therefore likely contain BOD and nitrogen. The Discharger has not characterized the waste, provided a description of management practices to prevent

discharge of storm water runoff containing waste constituents to surface water drainage courses, or specified site roads that have received these solids. The proposed Order prohibits the application of Settling Pond solids on areas other than the LAAs as a soil amendment until a *Settling Pond Solids Management Plan* is approved by the Executive Officer.

Finding 32 (previously Finding 31) was revised to reflect the current residual solids practices and note the Discharger's request to apply these solids to the LAAs. The Discharger has not characterized this waste, which may represent a significant new source of BOD and nitrogen loading to the LAAs (which are already occasionally overloaded). This new source of BOD and nitrogen loading may potentially cause nutrient overloading, nuisance conditions (such as odors or fly breeding), or reducing conditions that mobilize iron and manganese in soil. The WDRs were revised to allow land application of residual solids after a *Residual Solids Management Plan* is approved by the Executive Officer.

Morning Star Comment No. 4: Morning Star requested revision of Effluent and Mass Loading Limitation C.2, stating:

"[Biochemical Oxygen Demand] loading rates should be based on the cycle average BOD loading. The mass loading calculation needs to be modified to include the number of days the irrigation cycle occurred over. Furthermore, the cycle average BOD loading rate should be increased to 139 lb/acre/day, which was demonstrated appropriately in a report submitted on August 29, 2013."

RESPONSE: We agree that the loading rate should be based on the irrigation cycle average loading, and changes were made to the WDRs and MRP to clarify this. However, the requested change to the loading rate limit was not made. The Discharger's current irrigation practices involve surface irrigation with extremely long irrigation check lengths. Long check lengths result in poor irrigation uniformity, with higher wastewater application rates and longer infiltration rates at the top end of the field in comparison to the bottom end of the field. Although the Discharger's calculations indicate that the loading rate could be increased to 139 lb/ac/day based on atmospheric oxygen transfer, the calculations inherently assume uniform loading. Additionally, the California League of Food Processors' *Manual of Good Practice for Land Application of Food Processing/Rinse Water* recommends that additional safety factors be used for sites with heavy and/or compacted soils. The Manual of Good Practice also states that the use of surface irrigation (border check method) makes uniform application difficult, especially for coarse textured soils. The site specific soil conditions and the uneven BOD application rates inherent to the current irrigation system pose a threat of reducing conditions, which we believe are demonstrated by the manganese pollution in two of the LAA monitoring wells. Therefore, the request change was not been made. The proposed Order prescribes a limit of 100 lb/ac/day as an irrigation cycle average. We believe that the Discharger can comply with this limit.

Morning Star Comment No. 5: Morning Star requested revision of Discharge Specification D.14, stating:

“The pH of wastewater in the settling pond frequently falls below 6.0. No negative impacts to the LAA have been observed from this pH. A pH range of 4.0-9.0 is appropriate for this discharger.”

RESPONSE: Based on historical groundwater monitoring data for the Settling Pond, there is no evidence of unreasonable degradation of groundwater with respect to pH. Therefore, Discharge Specification D.14 was revised to set separate pH limits for water in the Settling Pond and Cooling Pond. Discharge Specification D.14 now states:

“Wastewater contained in the Cooling Pond shall not have a pH less than 6.0 or greater than 9.0. Wastewater contained in the Settling Pond shall not have a pH less than 4.0 or greater than 9.0.”

Morning Star Comment No. 6: Morning Star requested revision of Land Application Area Specification F.9 (now Land Application Area Specification F.11), stating:

“Discharge from the facility occurs seasonally from July through October. During the later part of the processing season, the area typically experiences a minimal rain event. The settling pond does not have the capacity to store wastewater from the facility. Because of the facility's operations, it cannot cease processing without causing an expensive and time consuming full clean up and restart. We suggest that the wording be modified to prohibit discharge of wastewater when fields are saturated due to rainfall.”

RESPONSE: The version of Land Application Area Specification F.11 that was included in the tentative WDRs was a requirement of the 2005 CDO.

WDRs typically prohibit waste discharges to land application or water recycling areas during rain or when the soil is saturated. This is a reasonable requirement to prevent excess percolation of water containing waste constituents, especially at this site where groundwater is very shallow. Land Application Area Specification F.11 was revised as follows:

“Discharge to the LAAs shall not be performed during rainfall or when the ground is saturated.”

It should be noted that the Settling Pond could be expanded to provide one to two days storage, which should accommodate all but the most extreme wet weather during the July-October processing season.

Morning Star Comment No. 7: Morning Star requested revision of the Monitoring and Reporting Program with respect to calculation of BOD and nitrogen loading rates to determine compliance with Effluent and Mass Loading Limitation C.2, stating:

“Further discussions with the Regional Board are necessary to determine an appropriate and reasonable method of calculated mass loading rates. The fields are broken into 20[-foot] wide checks that run the length of the field. Irrigators irrigate a varying number of checks each day depending on the soil moisture depletion and flow rates from the facility. Tracking the nitrogen and BOD cycle loading rates for each check throughout the season will cause a large amount of paperwork. Calculating the loading rates on a field basis provides a good estimate of these loadings.”

RESPONSE: Effluent and Mass Loading Limitation C.2.b and the Monitoring and Reporting Program were revised as requested to clarify loading rate calculations based on a cycle average and field basis, and allow determination of compliance based on field wide average loadings for each LAA. The proposed Order also requires the Discharger to ensure that the application of wastewater is distributed uniformly across each LAA field. In addition, the proposed Order prescribes protective BOD and total nitrogen loading limits and requires submittal of a plan to better control and monitor these rates from wastewater and other supplemental sources to ensure compliance with the proposed Order.

Morning Star Comment No. 8: In proposed text revisions to the tentative WDRs, Morning Star requested revision of Finding 10 to reflect plans for future expansion, stating

“The facility has plans to expand the processing operations by 65% in the future. The expansion is not anticipated to change wastewater characteristics or cause flow limits to be exceeded.”

RESPONSE: Finding 28 was added to address plans for future expansion and compliance with the proposed Order as requested. Although the Discharger anticipates no changes to the wastewater quality or an exceedance of the flow limits as a result of any future expansion, any significant increase in wastewater flows will increase BOD and nitrogen loading to the LAAs. The wastewater flow limits of the proposed Order are the same as those in WDRs Order 95-160 and allow the discharge of up to 422 MG of process wastewater combined with Cooling Pond water each year.

For 695 acres of land application areas, this is equivalent to approximately 22 inches of water over four months from July through October. Average reference evapotranspiration (ET_o) rates in the Williams area for that period are typically 24 inches. Although the crop evapotranspiration rates will typically be less than ET_o , the inherent inefficiency of border check irrigation requires some over application of water to ensure good crop yield. Although increases in wastewater flows up to the flow limits of the proposed Order would likely not lead to gross over irrigation of the LAA fields, those flow increases will be accompanied by increased BOD and total nitrogen mass loadings.

If wastewater flows increase to the flow limits of the proposed Order, it is possible that the Discharger will not be able to comply with the loading rate limits without eliminating the cattle grazing, eliminating land application of residual solids, and/or implementing wastewater treatment to reduce BOD and/or total nitrogen loading rates. The proposed Order requires that the Discharger ensure that such violations do not occur.