

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

**PROPOSED CEASE AND DESIST ORDER FOR
GERMANO AND JACINTA SOARES
GERMANO SOARES DAIRY #1
STANISLAUS COUNTY**

**PROSECUTION TEAM'S TECHNICAL ANALYSIS
SUPPORTING THE PROPOSED CEASE AND DESIST ORDER**

Introduction

The Central Valley Water Board Prosecution Team recommends the Central Valley Water Quality Control Board (Central Valley Water Board) adopt a Cease and Desist Order (CDO) to compel Germano and Jacinta Soares (collectively referred to as Discharger), the owners and operators of the Germano Soares Dairy #1 (Dairy), to comply with the *Reissued Waste Discharge Requirements General Order for Existing Milk Cows Dairies*, Order R5-2013-0122 (the Reissued General Order). Specifically, the Prosecution Team contends that the Discharger has committed multiple violations of the Reissued General Order, including:

- Allowing dairy waste to be discharged to land not owned or controlled by the Discharger;
- Constructing new wastewater ponds without submitting a design report or a post-construction report, and placing waste in the new pond prior to receiving approval from the Executive Officer;
- Using manure to construct wastewater containment berms;
- Increasing the number of mature cows more than 15% above the number listed in the Report of Waste Discharge;
- Failing to collect all drainage from the feed storage areas and corrals;
- Failing to follow the Monitoring and Reporting Program;
- Failing to properly maintain wastewater pond berms to prevent failure;
- Failing to maintain adequate freeboard in the wastewater storage ponds;
- Failing to minimize standing water in corrals;
- Applying dairy wastewater to cropland for purposes other than nutrient recycling;
- Applying dairy wastewater to cropland when the soils are already saturated; and,
- Failing to apply dairy wastewater to cropland in a manner that allows the wastewater to completely infiltrate within 72 hours.

This technical analysis provides an overview of the violations as well as a discussion of the remedies sought by the proposed CDO.

Dairy

The Dairy has been in operation since at least to 1993¹. Based on the 2005 Report of Waste Discharge, the Dairy is authorized to house a maximum of 1,409 mature cows. Between 9 million and 24 million gallons of wastewater is generated yearly and is directed to four wastewater ponds². Wastewater is then used to irrigate 150 acres of cropland owned by entities controlled by the Discharger³ and up to 83 acres of leased land. Solid manure generated at the Dairy is either exported, used for bedding in the corrals, or applied to cropland.

Summary of Compliance Issues and Violations

Inspections. In 2001, Central Valley Water Board staff documented multiple off-property discharges of wastewater, a lack of capacity in the wastewater ponds, and over-application of wastewater to cropland. The Discharger submitted a plan to address these violations, which included removing “the current [western] uncertified settling ponds since they are poor in design, are overloaded, and inferior” and to constructing two new settling ponds. Although the two new ponds were constructed, the two western “inferior” ponds are still in use today.

On 27 September 2002, the Stanislaus County District Attorney filed a Complaint against the Discharger for off-property discharges of wastewater into Waters of the State. The matter was settled through a Stipulated Judgment and Permanent Injunction filed on 4 October 2002. The Discharger agreed to a \$60,000 civil penalty, of which \$30,000 was stayed and \$2,500 was to be used to make water quality improvements at the Dairy.

Central Valley Water Board staff conducted eight inspections of the Dairy between 2011 and 2019. The following violations were found during *each* inspection in 2011, 2012, 2013, 2015, 2017, and 2019: overapplication of wastewater to cropland; lack of capacity in the wastewater ponds; failure to grade corrals so that stormwater would drain; failure

¹ Turlock Irrigation District revocable license dated October 6, 1993.

² The Discharger's recent documents have described four wastewater ponds, while Central Valley Water Board inspection reports have described two wastewater ponds and two settling basins, or three ponds and one basin. For simplicity, this document describes all structures as “ponds”.

³ Fields #1 through #6 are owned by either Soares Ranches LP or the Soares Living Trust.

to collect stormwater from the corrals, manure storage area, and feed storage area and transport that stormwater to a wastewater pond; and application of wastewater to cropland in a manner that didn't follow the Discharger's Nutrient Management Plan (NMP). While additional violations were noted during some inspections, the above violations were consistently found. After each inspection, Central Valley Water Board staff sent a Notice of Violation, and in response, the Discharger stated that improvements would be made to prevent future violations. However, the improvements were never completed.

In February 2019, Central Valley Water Board staff inspected the Dairy and found numerous violations of the Reissued General Order. The two western ponds had zero feet of freeboard. Manure from these ponds had been placed into a new, unpermitted pond which had been constructed in the cropland adjacent to the western ponds. The berm of the unpermitted pond was not continuous; wastewater overflowed from the pond to cropland. Although the eastern pond had two feet of freeboard, the eastern settling basin had less than two feet of freeboard. A second new, unpermitted pond had been constructed next to the eastern settling basin and appeared to contain manure removed from the settling basin. There was significant ponding in the corrals that was not being conveyed to a pond. Staff found that there was a notch in the berm around the eastern cropland and another notch in the berm around the western cropland; therefore, it was possible for wastewater to flow off-site. Central Valley Water Board staff addressed the violations through a Notice of Violation, a California Water Code (Water Code) section 13267 Order for technical reports, and a Compressed Administrative Civil Liability (see below).

Waste Management Plan. The proposed CDO describes Central Valley Water Board staff's review of the Discharger's Waste Management Plan (WMP). The Reissued General Order requires that each Discharger prepare a WMP. The WMP is intended to ensure that dairy wastes are managed to prevent adverse impacts to surface water and groundwater. Although the Discharger's 2019 WMP states that the Dairy's wastewater ponds have more than adequate capacity to hold the Reissued General Order's required volume of wastewater through the winter, in order to have that capacity, each pond must be empty or nearly empty of wastewater and solids by 1 November each year. To Central Valley Water Board's staff's knowledge, this has never happened.

Assuming that the WMP is accurate and the Discharger empties the ponds each fall, then the Discharger should be able to comply with the Reissued General Order's requirement to maintain two feet of freeboard in each pond. However, the Discharger violated the freeboard requirement in 2001 and consistently violated it from 2011 through 2019. Possible reasons for these ongoing violations include: failure to remove

solid manure from the ponds, failure to draw down the ponds to the minimum operating level before the rainy season, lack of sufficient cropland for the volume of wastewater produced, inaccurate size of the ponds, inaccurate calculations as to the volume of wastewater produced yearly, inability to irrigate all fields from the ponds, and/or there is a direct connection between the bottom of the wastewater ponds and shallow groundwater. The proposed CDO addresses these concerns and the need for the Discharger to prepare an accurate WMP and to follow the associated Operations and Maintenance (O&M) Plan to comply with the Reissued General Order. The proposed CDO also requires that the Discharger prepare a Contingency Plan, which will be implemented if the Discharger is unable to meet the annual 1 November freeboard levels.

Nutrient Management Plan. The Reissued General Order's Information Sheet states that "With respect to salts and nutrients, the key to limiting degradation and ensuring compliance with water quality objectives at the dairies' land application areas is an effective Nutrient Management Plan, which specifies the volume and composition of the wastewater that can be applied to land application areas without causing adverse groundwater impacts." Among other requirements, the NMP must propose nitrogen loading rates that meet the criteria in the Reissued General Order. The amount of nitrogen applied to cropland versus the amount of nitrogen removed by the crop (the "applied-to-removed ratio") is not to exceed the Reissued General Order's limit of 1.4 unless certain conditions are met (i.e., plant tissue testing shows that additional nitrogen is needed and that the amount applied is consistent with written recommendations by a professional). The Reissued General Order states that in no case shall the applied-to-removed ratio exceed 1.65.

The Discharger's NMP was updated in 2018. The NMP states that approximately 15,149 tons of solid manure, representing 235,937 pounds of nitrogen, will be exported from the Dairy each year. No process wastewater will be exported. The nitrogen balance assumes double-cropping of corn and oats on 235 acres of cropland, with a nitrogen applied-to-removed ratio for each field and each crop of 1.39.

Central Valley Water Board staff's review of the Discharger's 2016 through 2019 Annual Reports, as compared to the Discharger's NMP, identifies the following three concerns: (a) it is not clear why the volume of process wastewater more than doubled between 2016 and 2018, even though the number of mature cows remained the same; (b) there are no solids removal manifests for 2017 and 2018; and (c) the consistent reporting of nitrogen applied-to-removed ratios of less than 1.0 is unusual and reflects different conditions than the 2018 NMP. These ratios may indicate that the cropland had been consistently overloaded with nitrogen in past years; that nutrient applications may not

have been recorded; that plant tissue samples were allowed to dry out before analysis; and/or that inaccurate data was used to calculate the ratios. A 27 February 2018 letter from Central Valley Water Board staff to the Discharger raises some of these concerns and states that the nitrogen removal value for some of the crops is unrealistic. The Discharger's 2018 Annual Report contains the statement "negative N balance could be due to faulty irrigation records." The proposed CDO requires that the Discharger install a flow meter, collect soil samples and analyze for nitrogen content, prepare dairy-specific plant tissue testing protocols, and provide additional records so that Central Valley Water Board staff have confidence in the data provided in future Annual Reports.

Compressed Administrative Civil Liability

On 8 November 2019, the Assistant Executive Officer issued an "Offer to Settle Administrative Civil Liability R5-2019-0540" (Compressed ACL) to the Discharger. The Compressed ACL was issued due to the severity of the violations observed during the February 2019 inspection. To allow for early settlement, the Prosecution Team elected to base the penalty only on the construction and use of two unauthorized wastewater ponds for at least 154 days. A penalty of \$102,487 was proposed. However, after a full review of the Discharger's history of violations, the Prosecution Team has elected to prioritize issuance of this CDO, which contains timelines by which the Discharger must make improvements to the Dairy, rather than pursue settlement of the monetary penalty. If the Discharger does not comply with the CDO's terms, then the Discharger could be subject to additional enforcement including the outstanding Compressed ACL, a broader ACL, or injunctive relief requiring the Dairy to shut down.

Requirements of the Proposed CDO

In general, the Discharger's long-standing water quality violations are the result of poor maintenance, lack of storage capacity, and/or lack of cropland. The proposed CDO is designed to address these long-term and ongoing issues by requiring the Dairy to make the necessary changes and upgrades that would allow it to operate in compliance with the Reissued General Order. The following paragraphs summarize the requirements of the proposed CDO, and how those requirements relate to the Reissued General Order. There are eight categories of improvements, as described below.

1. Corrals. The Discharger must comply with its O&M Plan and remove excess solid manure from the corrals and grade the corrals to promote drainage by 1 November of each year. In addition, by 1 November 2020, the Discharger must install a pump and piping so that all stormwater and leachate from the corrals is collected and transferred to a wastewater pond. It is noted that the Discharger first promised to complete this work in 2013 but has never done so. To address a recurring violation, the proposed CDO also expressly prohibits the drainage of leachate from the corrals to cropland.

2. Feed Storage Area. By 1 November 2020, the Discharger must install a pump and piping so that all stormwater and leachate from the feed storage area is collected and transferred to a wastewater pond. It is noted that the Discharger first promised to complete this work in 2011 but has never done so. To address a recurring violation, the proposed CDO also expressly prohibits the drainage of leachate from the feed storage areas to cropland.

3. Wastewater Ponds. The Discharger must comply with its O&M Plan; in particular, by 1 November of each year, the Discharger must (a) remove liquid manure from each of the ponds to the minimum operating level of 1.0 feet and (b) agitate the sludge and pump it out whenever it accumulates to a thickness of 2.0 feet. If the Discharger is unable to lower the ponds then it must prepare and submit a Contingency Plan describing how the wastewater will be managed in conformance with the Reissued General Order during the upcoming winter. The Contingency Plan shall include a temporary reduction in herd size and hauling of wastewater off-site as options. Manure removed from the wastewater ponds shall be handled as allowed by the Reissued General Order (i.e., leachate shall be collected and returned to a wastewater pond, and manure may only be stored on a low permeability pad). Any solid manure currently stored on cropland or any area other than a low permeability pad must be moved to an appropriate location by 1 November 2020.

4. Flow Meter. A component of the 2002 Stipulated Judgment was that the Discharger would install a flow meter, acceptable to the Central Valley Water Board, to measure the volume of wastewater released to cropland. The meter has never been installed. The proposed CDO requires that the Discharger submit a flow meter installation workplan by 1 March 2021, and a flow meter installation report by 1 September 2021.

5. Implementing and Updating the Waste Management Plan. The proposed CDO requires that the Discharger take several steps to ensure that the WMP accurately reflects conditions at the Dairy.

- a. A Pond Sizing and Freeboard Marker Report shall be submitted by 1 July 2021. This report consists of three items. First, due to uncertainty about the size of the wastewater ponds, a licensed surveyor must determine the length, width, and depth of each structure, as well as the depth below ground surface. Second, a freeboard marker must be installed in each pond so that the Discharger will be able to document that the freeboard levels match what is described in the WMP. Third, the report shall document the practical minimum freeboard for each pond (i.e., the lowest depth to which each pond can be emptied, given physical constraints).

- b. By 1 September 2021, the Discharger shall submit an Updated WMP, including an updated O&M Plan. The Updated WMP shall consider wastewater flows for the maximum allowed herd (1,409 mature cows), the volume of the four wastewater ponds as documented in the Pond Sizing and Freeboard Marker Report, the practical minimum freeboard for each pond, any constraints placed by the Nutrient Management Plan, and the Reissued General Order's requirements regarding the application of dairy waste to cropland for nutrient recycling. The WMP must describe and verify how the annual wastewater production value was calculated and explain why this value varied so significantly between the 2019 WMP and the 2016-2019 Annual Reports. The Updated O&M Plan must specify the minimum freeboard necessary for each storage pond on 1 November and include monthly target freeboard levels for each pond for each month, such that the minimum freeboard will be met by 1 November.
- c. If the Updated O&M Plan's 1 November target freeboard levels for the wastewater ponds are not achievable, then the Updated WMP must also include a Contingency Plan to reduce wastewater production until short-term and long-term physical improvements can be made to either reduce the Dairy's wastewater generation or increase its capacity to store wastewater so that it has adequate capacity.

6. Implementing the Nutrient Management Plan. The proposed CDO requires that the Discharger take several steps to implement its 2018 NMP to comply with the Reissued General Order and prevent overloading of nitrogen on the cropland.

- a. Consistent with the Reissued General Order, wastewater and solid manure may only be applied to cropland in conformance with the NMP.
- b. The proposed CDO incorporates Item V.C.2 of Attachment C of the Reissued General Order, and states that if the Discharger determines that nutrients need to be applied to the pasture or cropland when soils are saturated, then an Agronomic Need report must be prepared and submitted by a specialist. The report must contain soil and/or plant tissue testing, document the agronomic need for the application, and quantify the volume of wastewater and nitrogen applied.
- c. On an annual basis, the Discharger must export at least the number of pounds of nitrogen in manure solids described in the NMP. In addition, unless the NMP is revised, the Discharger shall follow the NMP by double cropping corn and oats on 235 acres.

- d. To address the Annual Reports' consistent reporting of nitrogen applied-to-removed ratios of less than 1.0 (which is unusual and reflects different conditions than the 2018 NMP) the proposed CDO requires two items:
 1. The Discharger shall conduct a soil sampling program by annually collecting soil samples from the fields which receive wastewater and analyzing them for total nitrogen. The results shall be recorded in the "existing soil nutrient content" portion of the crop nutrient budget in the Annual Report and shall be used to determine the appropriate amount of nitrogen to add to each crop.
 2. The Discharger shall prepare and implement Plant Tissue Testing Protocol, by customizing the guidance found on the Central Valley Water Board's website (the link is provided in the proposed CDO).
- e. To ensure that the Discharger is following the NMP, the proposed CDO requires the annual submittal of an Enhanced Annual Report. The report shall contain the information required by the Reissued General Order for an Annual Report, in addition to several other items. After 1 September 2021, the volume of wastewater discharged to each field shall be measured by flow meters. All solid manure tracking manifests shall be submitted (this is already required but the Discharger has not been submitting them). The Discharger shall explain how the annual volume of solid manure and wastewater produced at the Dairy was determined. Copies of all laboratory reports shall be submitted. If wastewater was applied to cropland for a purpose other than nutrient application, then information about that discharge shall be provided. If any field had a nitrogen applied-to-removed ratio greater than 1.4, then the Discharger must submit the justifications required by the Reissued General Order. If any field had a nitrogen applied-to-removed ratio greater than 1.65, then the Discharger shall submit a new NMP describing practices to prevent future exceedances, as required by the Reissued General Order. If any crop has a nitrogen-applied-to-removed ratio of less than 1.0, then the Discharger shall include an explanation of why this occurred, including whether inaccurate data was used to calculate the ratios.

7. Depth to Groundwater Monitoring. The Groundwater Limitations provision of the Reissued General Order states that the "discharge of waste shall not cause the underlying groundwater to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance..." Where there is a direct connection between a dairy's wastewater pond and shallow groundwater, there will be groundwater pollution. Based on a review of the Department of Water Resources groundwater data and monitoring data from regulated facilities, Central Valley Water

Board staff has determined that there is the potential for wastewater ponds to intersect shallow groundwater at approximately 140 dairies in the Central Valley.

In order to address the potential adverse impacts to water quality posed by these dairies, on 29 March 2019, the Central Valley Water Board's Executive Officer issued Water Code section 13267 Orders to 71 dairymen in Merced County. The Orders required them to (a) conduct a study of the separation between their wastewater ponds and high groundwater, and (b) if the study indicated that a pond intercepts groundwater, to prepare a remedial workplan to eliminate threats to groundwater. Of the initial 71 dairies, 36 stated that their ponds were within shallow groundwater and are in various stages of submitting remedial workplans. The remaining 32 dischargers stated that their ponds were did not intersect groundwater. In response, Central Valley Water Board required additional information and directed those dairymen that did not have on-site monitoring wells to install piezometers to collect site-specific information.

Germano and Jacinta Soares did not receive the 29 March 2019 Order to conduct a groundwater separation study because their Dairy is not in Merced County. However, data indicate that groundwater beneath the Dairy is encountered at 10 to 20 feet below ground surface and the wastewater ponds are up to 18 feet deep. As such, Central Valley Water Board staff had planned to include the Discharger in the second mail-out of Water Code section 13267 Orders that will require a groundwater separation study. However, because the proposed CDO is designed to address all violations at the Dairy, the Prosecution Team feels that it is appropriate to address potential groundwater impacts at this time. In addition, if any of the ponds intersect groundwater, then the remedial action has the potential to impact the solutions for other violations at the Dairy.

The proposed CDO follows the steps required of the Merced County dairymen. As part of the WMP update, the Discharger is required to survey the dimensions of each wastewater pond, including the depth below ground surface. By 1 March 2021, the Discharger shall submit a piezometer installation and sampling workplan and by 1 September 2021, shall submit a piezometer installation report. The piezometers shall be monitored on a quarterly basis for depth to groundwater. If a quarterly monitoring report shows that the bottom of any of the wastewater ponds is within groundwater, then within 90 days of the determination, the Discharger shall submit a Groundwater Remediation Workplan.

8. Enhanced Monitoring and Reporting. The proposed CDO requires that the Discharger complete weekly or monthly inspections and submit monitoring reports in addition to the Annual Report required by the Reissued General Order. The majority of the inspections listed below are already required by the Reissued General Order;

however, the Prosecution Team believes it appropriate that the proposed CDO also include these requirements.

Weekly inspections shall take place during the rainy season, from 1 October to 30 April, while monthly inspections will take place the remainder of the year. During these inspections, the Discharger will measure the freeboard level in the wastewater ponds; inspect the pond berms for erosion, cracking, or rodent holes; inspect the corrals to determine whether manure needs to be removed and whether depressions need to be filled to prevent ponding; inspect the Turlock Irrigation District lines, private irrigation lines, and field berms to ensure there are no locations at which dairy wastewater could flow off-site; and inspect the manure storage and feed storage areas to ensure that leachate is not flowing off the concrete pads. Monitoring reports are to be submitted monthly from November through April and quarterly during the remainder of the year.

Summary

Although the Prosecution Team originally issued a Compressed ACL in response to the serious violations that occurred in February 2019, it now recommends that the Board adopted the proposed CDO so the Discharger is placed under an enforceable time schedule to bring the Dairy into compliance with the Reissued General Order. The proposed CDO has been structured to provide the Discharger with a reasonable timeline to resolve the issues which have been identified at the Dairy and contributed to violations of the Reissued General Order.

The Prosecution Team recommends that the Central Valley Water Board issue the proposed CDO, establishing an enforceable timeline for the Discharger to comply with the provisions of the Reissued General Order.