

ATTACHMENT 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD CENTRAL VALLEY REGION

AMENDED ORDER NO. R5-2016-0007-01

CEASE AND DESIST ORDER FOR MORNING STAR PACKING COMPANY, L.P. AND FRED GOBEL THE MORNING STAR TOMATO PACKING PLANT COLUSA COUNTY

TO CEASE AND DESIST FROM DISCHARGING CONTRARY TO REQUIREMENTS

The Regional Water Quality Control Board, Central Valley Region, (hereafter referred to as Central Valley Water Board or Board) finds that:

1. On 5 December 2013, the Central Valley Water Board adopted Waste Discharge Requirements (WDRs) Order R5-2013-0144 (the "2013 WDRs") for Morning Star Packing Company, L.P. and Fred Gobel (hereafter referred to jointly as "Discharger" or individually as "Morning Star" or "Gobel"). The WDRs prescribe requirements for the discharge of industrial wastewater to land, and replace the previous WDRs, Order 95-160.
2. Morning Star Packing Company, L.P. owns and operates a tomato processing facility (Facility). According to the 2013 WDRs, the Facility includes approximately 609 acres of associated land application areas (LAAs or cropland). An additional 95 acres of LAA (known as "Field MS1") is owned by Fred Gobel and leased to Morning Star Packing Company, L.P. Both Morning Star and Fred Gobel are responsible for compliance with the WDRs¹.
3. The Facility, which consists of a tomato processing facility and associated LAAs, is located south of the City of Williams, east of Interstate 5, in Colusa County (Sections 19, 20, 29 and 30, T15N, R2W, MDB&M).
4. According to the 2013 WDRs, the Facility operates only during the tomato harvest season, from about June to mid-October each year, and is designed to make tomato paste and diced tomatoes. There are five wastewater streams: tomato waste generated in the flume system, water softener reject, condensate from the evaporation process, boiler blowdown, and plant cleaning water. The tomato

¹ Although Fred Gobel has not participated in the CDO proceeding, he remains a discharger under the terms of the 2013 WDRs.

waste enters the Settling Pond. The water softener reject, condensate, and boiler blowdown wastes are directed to the Cooling Pond. Wastewater generated from sanitation or cleaning activities flows directly to the cropland. The 2013 WDRs state that the volume of the Settling Pond is 5 acre-feet, the volume of the Cooling Pond is 210 acre-feet, and that 695 acres of cropland are available for wastewater application at agronomic rates.

PREVIOUS ENFORCEMENT

5. On 27 January 2005, the Central Valley Water Board issued Cease and Desist Order (CDO) R5-2005-0003 to Morning Star Packing Company, L.P. and Fred Gobel. The CDO was issued for the following violations of WDRs 95-160:
 - a. Discharges of wastewater to surface water.
 - b. Failure to comply with the dissolved oxygen limit in the Settling Pond.
 - c. Evidence of groundwater degradation with calcium, chloride, nitrate, sulfate, and total dissolved solids.
 - d. Application of excessive levels of nitrogen and salts to the LAAs. Monitoring reports for the year 2004 reported that nitrogen loading rates ranged from 296 to 811 pounds per acre (lb/ac); however, few crops can consume more than 400 lb/ac of nitrogen per year. The total dissolved solids loading rates ranged from 5,600 to 14,800 lb/ac.
6. The Discharger submitted the reports required by the 2005 CDO and implemented facility and operational improvements. The CDO also established a loading rate for biochemical oxygen demand (BOD) of 100 pounds per acre per day or 300 pounds per acre per irrigation cycle. However, as discussed in the 2013 WDRs, compliance with the BOD and nitrogen loading rate limits has been inconsistent. The CDO was rescinded on 7 February 2014, after adoption of the 2013 WDRs.

VIOLATIONS OF THE 2013 WASTE DISCHARGE REQUIREMENTS

7. In August 2015, Board staff began receiving complaints of odors associated with Morning Star's operation. Staff inspected the facility on 20 August 2015, and subsequently issued a Notice of Violation (NOV) on 11 September 2015. The violations included: (a) expansion of the Cooling Pond from 60 acres to 100 acres, (b) removal of 90.5 acres of land application area, (c) discharge of organic matter (tomato juice) directly into the Cooling Pond (d) discharge of tomato solids into the ditches used to convey wastewater to the cropland, (e) off-site odors, and (f) dissolved oxygen violations. These violations, as well as others discovered during a review of monitoring reports, are discussed below.

The NOV required a response, which Morning Star submitted on 1 October 2015. The response was inadequate to ensure that Morning Star would return to compliance with the 2013 WDRs in a timely manner and therefore this Cease and Desist Order has been prepared. The following is a list compiled by the Prosecution Team of alleged violations or threatened violations of the 2013 WDRs:

- Unpermitted expansion of the Cooling Pond and removal of 90.5 acres of land application area
- Unauthorized discharge of organic waste to the Cooling Pond²
- Odor violations
- Dissolved oxygen violations
- Unpermitted expansion of the Settling Pond
- Nitrogen effluent and mass loading limit violations
- Groundwater pollution
- Solid waste management violations
- Stormwater violations

Unpermitted Expansion of the Cooling Pond and Removal of Land Application Area (Cropland)

8. Discharge Prohibition A.3 of the WDRs states: *“Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.”*
9. Discharge Specification D.3 of the WDRs states that *“Wastewater treatment, storage, and disposal shall not cause pollution or nuisance as defined by Water Code section 13050.”*
10. Standard Provision A.4 of the 2013 WDRs states: *“Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board.”*
11. The WDRs state that the Cooling Pond is 210 acre-feet in volume and 60 acres in size³. The Cooling Pond is not lined and the base of the pond is approximately 1.7 to 3.2 feet above groundwater⁴. The Cooling Pond receives water softener reject, condensate from the evaporation process, and boiler blowdown. Water

² The Prosecution Team and the Discharger disagree as to whether the discharge of organics to the Cooling Pond is permitted by the 2013 WDRs.

³ Finding 12 and Attachment B

⁴ Calculated using toe-of-berm elevation data provided in the engineering drawings included as Attachment A to the 1 October 2015 NOV response, and groundwater elevation data provided in Morning Star's First Quarter 2015 Groundwater Monitoring Report. The data includes: (a) a toe-of-berm elevation of 87.87 feet from a location along the southeastern portion of the pond near monitoring well MW 3, (b) a toe-of-berm elevation of 86.44 feet from a location along the northwest corner of the pond near MW 5, and (c), groundwater elevations of 86.22 feet for MW 3 and 83.27 feet for MW 5.

softener reject and boiler blowdown are high strength wastes; Finding 18 of the 2013 WDRs shows that the electrical conductivity of the water softener reject ranges from 850 to 8,600 mg/L. Finding 17 of the WDRs states that the boiler blowdown has an average electrical conductivity of 1,200 to 1,400 umhos/cm.

12. It is appropriate for the Board to regulate the waste entering the Cooling Pond because it has the potential to impact groundwater and surface waters.
13. According to the Facility Site Plan (Attachment B of the 2013 WDRs), the Cooling Pond is directly north of the plant and south of Fields MS20 and MS21, and shows that the pond is 60 acres in size. The 2013 WDRs state that 695 acres of cropland are available for wastewater application⁵.
14. The Anti-degradation Analysis discussion in the WDRs is based on the preceding Findings, which include a description of a 60 acre Cooling Pond and 695 acres of cropland available for land application.. The analysis identifies five specific constituents of concern that have the potential to degrade groundwater quality: total dissolved solids (TDS), chloride, nitrate, iron, and manganese. With respect to manganese, excessive BOD loading rates can deplete oxygen resulting in anoxic conditions that can solubilize naturally occurring metals in soil, like manganese. It is likely that Morning Star's historic BOD overloading to the cropland has caused reducing conditions that favor dissolution of manganese from native soil. The analysis attributes these conditions to extended periods of soil saturation with high BOD wastewater which has caused and/or contributed to manganese pollution in groundwater. Additionally, with respect to nitrates, the historic over-application of wastewater to the cropland has resulted in uneven nutrient loading with some fields receiving more nitrogen than is reasonably expected to be consumed by the crop.
15. During the 20 August 2015 inspection, Board staff observed that the Cooling Pond had been expanded and that LAAs MS20A, MS20B, and MS21, a total of 90.5 acres, had been removed because of the Cooling Pond expansion. The Morning Star representative verbally indicated that the pond had been expanded from 60 acres to approximately 100 acres⁶. The increased size of the Cooling Pond allows for increased production and increased discharge of wastewater to this pond. In addition, there is the potential for groundwater impacts because (a) there is an increase in the volume of wastewater which can percolate directly into the groundwater from the Cooling Pond and (b) there is a decrease in cropland on which to spread the waste at agronomic rates.

⁵ Findings 19, 28, and 60; Information Sheet

⁶ The new size of 100 acres was verbally confirmed during a meeting with Morning Star on 2 November 2015.

16. The Discharger did not submit a new Report of Waste Discharge or provide any notice to the Water Board prior to expanding the Cooling Pond and removing 90.5 acres of LAA cropland. Based on information provided by Morning Star in response to the Notice of Violation, the Cooling Pond expansion began in the spring of 2015 and was completed by 24 July 2015. The Prosecution Team contends that the expansion of the Cooling Pond and associated loss of 90.5 acres of LAA is a violation of Prohibition A.3 and Standard Provision A.4 of the 2013 WDRs.
17. The Discharger includes a facility map as Attachment D in its monthly monitoring reports. A review of the reports submitted for April through September 2015 finds that for the months of April, May, and June, the map shows the Cooling Pond and fields as described in the WDRs. However, beginning with the July 2015 report, the map shows the expanded Cooling Pond and the removal of fields MS20A, MS20B, and MS21.
18. The 2015 monthly monitoring reports also show that the Discharger did not apply wastewater to the Gobel property⁷, the 95 acre field known as MS-1. Morning Star did not submit a Report of Waste Discharge or otherwise notify Board staff that it planned to modify the acreage to which it is applying wastewater. According to Morning Star's NOV response, for the 2015 tomato processing season, wastewater was only applied to 485 acres of cropland. The Prosecution Team contends that the removal of 90.5 acres of cropland has caused or contributed to violations of Discharge Specification D.3 (related to manganese groundwater pollution) ~~and Effluent Limit C.2 (related to BOD loading)~~ of the 2013 WDRs.
19. Morning Star's 1 October 2015 NOV response also states that the average effluent BOD concentration increased from 600 mg/L in 2014 to approximately 1,769 mg/L in 2015. This resulted in a "net increase of BOD produced by the facility which was applied on a smaller LAA (600 acres to 485 acres)." Application of wastewater with increased BOD concentrations threatens to cause a condition of pollution in groundwater as BOD can trigger anoxic conditions that solubilize metals like iron and manganese in soil. The Prosecution Team contends that the permanent reduction of the LAA to a size less than that described in the 2013 WDRs is a material change⁸, and therefore Morning Star was required to submit a Report of Waste Discharge prior to the making the reduction. The failure to do so is a violation of Discharge Prohibition A.3 and Standard Provision A.4 of the 2013 WDRs. As discussed above, the Prosecution Team contends that the reduced LAA likely contributed to the violation of

⁷ Wastewater was not applied to the Gobel property in 2014 or in 2015. During a 2 November 2015 meeting, staff was told that the reason this field was not used was that Morning Star could not obtain a lease for it.

⁸ The daily flow limit and annual flow limit are based on the availability of 695 acres of LAA. Because the LAA has been reduced by 31%, these flow limits must be re-evaluated.

Discharge Specification D.3 (related to manganese groundwater pollution) ~~and Effluent Limit C.2 (related to BOD loading)~~ of the 2013 WDRs.

20. The 11 September 2015 Notice of Violation required that Morning Star, among other items, provide a plan for how it would replace the 90.5 acres of cropland that had become part of the expanded Cooling Pond. Morning Star's 1 October 2015 response states that "the facility does not plan on replacing the fields replaced by the cooling pond at the current time. The existing flows can be applied to the 485 acres currently being utilized at agronomic rates." However, Morning Star has not submitted a Report of Waste Discharge to request that its WDRs be revised to allow the same volume of wastewater to be applied to 31% less land than is currently described in the WDRs. The Board's Anti-degradation Analysis, a necessary component of permitting a discharge of waste, is based on the preceding Findings, and incorporates flow limits and a BOD loading limit based on the availability of 695 acres of cropland as a treatment and control measure.
21. On 13 January 2016, Morning Star submitted the *Cooling and Settling Ponds Technical Evaluation and Recommendations* and the *Land Application Loading Rates*. Among other items, the document conclude that 485 acres of cropland can support the expected 2016 flows of 3.0 mgd without exceeding the BOD loading limit. Morning Star proposed that it not be required to irrigate on the 695 acres of cropland identified in the 2013 WDRs, and instead continue using the 485 acres it presently has available. In exchange, Morning Star proposed that 2013 WDRs daily flow limit of 4.3 million gallons per day (mgd) be reduced to 3.0 mgd, based on the corresponding 31% reduction in cropland.
22. This Order provides Morning Star with a choice to either: (a) restore the Cooling Pond to meet the size and location described in the 2013 WDRs or (b) operate the Cooling Pond consistent with the underlying intent of the 2013 WDRs, i.e., in a manner that protects water quality, while collecting data for a new Report of Waste Discharge and amended WDRs for the current operations. The Order also provides Morning Star with a choice of either restoring the land application areas to 695 acres or complying with its proposed reduced flow limit.

Unauthorized Discharge of Organic Waste to the Cooling Pond

23. Discharge Prohibition A.3 of the WDRs states: "*Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.*"
24. Discharge Specification D.3 of the WDRs states "*Wastewater treatment, storage, and disposal shall not cause pollution or nuisance as defined by Water Code section 13050.*"

25. Discharge Specification D.1 of the WDRs states “*No waste constituent shall be release or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order.*”
26. Standard Provision A.4 of the 2013 WDRs states: “*Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board.*”
27. Finding 12 of the WDRs states that “The Cooling Pond receives water softener reject, condensate from the evaporation process, and boiler blowdown.” The WDRs do not state that the Cooling Pond receives organic waste. Because the WDRs do not contemplate the addition of organic waste into the Cooling Pond, the monitoring program does not require that the Cooling Pond be monitored for organic constituents. The only monitoring required for the Cooling Pond is flow, dissolved oxygen, pH, freeboard, and odors, which are standard monitoring parameters for all wastewater ponds. In contrast, wastewater containing organic matter from tomato by-products is directed to the Settling Pond, and the discharge from this pond must also be monitored for BOD, fixed dissolved solids, and total nitrogen.
28. When questioned about the August 2015 odor complaints, the Discharger stated that water containing organic matter (tomato juice) had been pumped directly into the Cooling Pond. Prior to the 2015 tomato processing season, new evaporators were installed, which “discharged a condensate that had a higher than normal concentration of tomato material”⁹ which entered the Cooling Pond. Morning Star states that it has now re-routed¹⁰ the high BOD condensate from those particular evaporators to enter the “gutter system and Settling Pond”¹¹.
29. During a meeting with Morning Star on 2 November 2015, staff learned that organic matter is routinely discharged to the Cooling Pond through the steam¹² that is pulled off of the evaporators¹³. The system has been designed so that there’s not a “significant amount” of organic matter discharged. The purpose of the Cooling Pond is to both cool water and to provide enough surface area to add enough oxygen to mitigate the BOD which enters it. However, as stated above in Finding 27, the WDRs do not specifically authorize any organic matter to enter the Cooling Pond.

⁹ Response to The Morning Star Packing Company, LP NOV dated September 11, 2015. Document dated 1 October 2015.

¹⁰ The re-plumbing took place on 11 August 2015.

¹¹ Page 3 of Morning Star’s 1 October 2015 NOV response.

¹² Ibid.

¹³ “Summary of Meeting” memo from Wendy Wyels to Morning Star case file dated 3 November 2015

30. During the 2015 season, it appears that a significant volume of tomato waste entered the Cooling Pond from the three new evaporators and from an unplanned shut-down and the subsequent spill of a tank¹⁴. The expanded Cooling Pond is 100 acres in size and ranges in depth from 3-4 feet at the southern end to 6-8 feet at the northern end¹⁵. The Discharger has not provided the maximum capacity of the pond, but it is estimated to be 550 acre-feet (as compared to the maximum capacity of 210 acre-feet described in the WDRs). If there were no organic matter in the Cooling Pond, then it would be expected that the dissolved oxygen concentration would be significantly greater than the WDR limit of 1.0 mg/L¹⁶. However, between 6 August 2015 and 14 October 2015¹⁷, there was less than 1.0 mg/L of dissolved oxygen 59% of the time, and Morning Star representatives noticed that the pond had an unusual color in early August. Because there is such a large volume of water in the expanded Cooling Pond and because the dissolved oxygen was significantly depressed for so long, and given the 24 August 2015 letter from Morning Star, Board staff concludes that Morning Star discharged a large volume of organic material into the pond, in violation of Prohibition A.3 and Standard Provision A.4 of the WDRs¹⁸. As discussed in the above Findings, the Prosecution Team contends that this is an unpermitted discharge of tomato waste that has the potential to impact groundwater and threaten a violation of Discharge Specification D.1.
31. Because the Monitoring and Reporting Program does not require constituent monitoring of the Cooling Pond, it is not possible to determine the concentration of the organic material has been discharged into it.
32. On 13 January 2016, the Discharger submitted the *Cooling Ponds and Settling Ponds Technical Evaluation and Recommendation*. The document contains 2015 analytical data from three samples collected while the new evaporators discharged to the Cooling Pond. During that time, BOD at the Cooling Pond inlet ranged from 24-41 mg/L, while BOD at the Cooling Pond outlet ranged from 27-34 mg/L. The document also states that “although no other BOD data is available...it is likely that normal BOD concentrations and pond loading rates are considerably less than what was measured during the startup of the new

¹⁴ 24 August 2015 letter from Chris Rufer to Wendy Wyels and 1 October 2015 NOV response.

¹⁵ *ibid*

¹⁶ United States Geological Survey Water Supply Paper 2254, Study and Interpretation of the Chemical Characteristics of Natural Water, third edition, (page 155, Oxygen) “At 5°C in freshwater the equilibrium DO value is 12.75 mg/L. At 30°C the concentration is 7.54 mg/L.” See: <http://pubs.usgs.gov/wsp/wsp2254/pdf/wsp2254a.pdf>.

¹⁷ The date of the last Daily Update Assessment Report.

¹⁸ See also Morning Star’s 24 August 2015 response to Board staff’s phone call regarding the odor complaints. The letter states that “we were discharging too much tomato organics into the cooling pond” as a result of a process change, and in addition “a major upset...necessitated a fast shutdown and the operating folks spilt a large tank into the cooling pond.”

evaporators...”

33. This Order provides Morning Star with a choice to either: (a) stop discharging organic waste into the Cooling Pond or (b) meet an interim BOD guideline that will minimize the amount of organics discharged to the Cooling Pond to that which was discharged prior to 2015 and protect underlying groundwater quality. Regardless of the choice the Discharger elects to make, this Order requires the Discharger to collect weekly wastewater samples from both the influent into the Cooling Pond and within the Cooling Pond, and analyze the samples for BOD, TDS, FDS, and total nitrogen.

Odor Violations

34. Discharge Specification D.3 of the WDRs states: *“Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code Section 13050.”*
35. Discharge Specification D.7 of the WDRs states: *“Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.”*
36. Between 6 August and 14 August 2015, the Colusa County Environmental Health Department received five odor complaints from residents of the City of Williams. According to the complainants, the odors were the result of tomato processing operations and discharges occurring at the Morning Star Packing Plant. These complaints were forwarded to Board staff on 7 August 2015 and 14 August 2015.
37. On 14 August 2015, in response to the complaints, Board staff contacted Morning Star via telephone to ask about the dissolved oxygen content in the Cooling Pond and Settling Pond and if anything unusual had occurred during the previous week. Morning Star stated in a follow-up phone conversation that the odors were from two sources: (a) water containing organic matter that was pumped into the Cooling Pond, and (b) a reduction in clean water used in the facility which resulted in higher strength wastewater in the Settling Pond. Staff informed Morning Star via telephone and e-mail that it must follow its permit requirements and submit a written report by 26 August 2015 describing in detail how the odor violations occurred, the steps to be taken to prevent odors in the future, and all analytical data (i.e. dissolved oxygen) collected during the odor events. In addition, Board staff requested that Morning Star submit Daily Update Assessment Reports describing odor conditions and the results of daily dissolved oxygen readings for the ponds.

38. Morning Star submitted Daily Update Assessment Reports between 18 August 2015 and 14 October 2015¹⁹. The reports contain the results of daily odor observations at four on-site locations and seven off-site locations, as well as daily dissolved oxygen, pH, and EC results for the Settling and Cooling Ponds. The reports show that odors were consistently reported at the following offsite locations: Abel and Husted Roads²⁰ to the northwest of the facility, near Husted and the Interstate 5 overpass to the southwest, and to the west along old Highway 99.
39. On the morning of the 20 August 2015 site inspection, Board staff noted slight odors at the corner of Husted and Abel roads, located northwest of the facility.
40. On 22 September 2015, Board staff was informed by the City of Williams of an odor complaint that was reported on 10 September 2015. The City indicated that "...on 10 September 2015 late afternoon, I had people come into my office complaining heavily about the odor coming from Morning Star. Their main complaint was with this year's ponds and asked [sic] if they were putting anything in the new ponds to neutralize the odors. The smell occurs mid-afternoon and carries into the evening when everyone would like to enjoy outdoor activities but not now due to the smells. [sic] Said it will stop for a few days but would return again and the winds make smells worse. These complaints were from families living on Crawford Road²¹. They understood there will be odors due to the nature of the plant and had high regards for Morning Star but this year seemed excessive."
41. On 22 September 2015, Colusa County Environmental Health Department reported two additional odor complaints that were received on 21 and 22 September 2015. The 21 September 2015 complaint was from the Valley Ranch area, and the 22 September 2015 complaint was from the Husted Road area. Both locations are northwest of the facility. The complainant from Husted Road indicated that there were a large number of flies in the area which did not allow the complainant to go outside. Each of the complaints indicated that the odors occurred during the evening hours.
42. On 28 September 2015, Board staff was informed by Colusa County Environmental Health of three separate odor complaints that occurred on 21, 25 and 27 September 2015. The odors were reported from a resident living on Butte View Drive, just northwest of the Morning Star Plant. The odors

¹⁹ As allowed by Board staff, the reporting ended because Morning Star had achieved seven consecutive days of dissolved oxygen readings above 1 mg/L in the Cooling Pond and the Settling Pond had been drained.

²⁰ Morning Star considered the "Abel/Husted" location to be on-site. The point is at the northwest corner of the Gobel field. However, because wastewater was not applied to the Gobel field in 2014 or 2015, "Abel/Husted" is not an on-site location and is instead an off-site location.

²¹ Crawford Road is northwest of the Morning Star facility.

occurred from mid to late afternoon through the evening hours, up to approximately 10:00 pm.

43. Attachment A to this Cease and Desist Order summarizes the odor complaints received during Morning Star's 2015 tomato packing season, as well as the off-site odors reported by Morning Star. As shown in the Attachment A, for the period of 6 August 2015 to 12 October 2015, the Prosecution Team alleges that off-site odors were reported for 47 days of the 67 days (70% of the time), in violation of Discharge Specifications D.3 and D.7. Morning Star contends that only odors reported by Morning Star with an intensity rated "slight" or greater are applicable and that those odors were reported for only 5 days of the 67 days monitored.
44. Morning Star's 1 October 2015 response to the NOV discusses the specific steps that will be implemented to address the odor violations. Page 4 of the document states that in 2015, wastewater flow was decreased by 30%, while the concentration of BOD increased from 600 mg/L average in 2014 to an average to date of 1,769 in 2015. "This resulted in a net increase of BOD produced by the facility which was applied on a smaller LAA (600 acres to 485 acres)". In addition, the NOV response states that due to installation of the center pivot irrigation system, 150 acres of LAA was not available for the first half of the season, "decreasing the LAA during a difficult start-up of the facility...the early conditions and management of the systems resulted in some foul water conditions and some odors." Morning Star states that it has planned improvements during the off season to capture more of the tomato product, install additional sprinkler irrigation, and install additional solids screening, and that these actions should reduce odors.
45. On 13 January 2016, Morning Star submitted its *Odor Monitoring and Mitigation Plan*. The document states that "the most likely sources of anaerobic odors were particular distribution ditches and fields in the LAA" due to higher wastewater strength and stagnant water, "the Cooling Pond may have been a source of volatilized slightly degraded tomato odors", and "the Settling Pond is less likely to be a source of odors to off-site receptors". These statements correspond to the 24 August letter from Chris Rufer to Wendy Wyels which states "The potential for odors can be attributed to three (3) areas, which include the Cooling Pond, Settling Pond and farm grounds." Morning Star proposes odor mitigation measures to be completed prior to the 2016 season. These include: adding aeration to the Cooling Pond, using surrogates to predict wastewater BOD prior to application, improved screening to prevent tomatoes from entering the irrigation ditches, the installation of sprinkler systems to more evenly apply wastewater to the cropland, and no longer growing rice. However, Morning Star's other documents state that it may not be able to install sprinkler irrigation in 2016,

and Morning Star does not propose any odor mitigation measures to address stagnant water in the irrigation ditches.

46. The *Odor Monitoring and Mitigation Plan* also states that Morning Star will add the sodium chlorite compound ADOX 750, an oxidizing agent, to the ponds and irrigation system to mitigate “unpredictable upsets”. The use of ADOX 750 is not discussed in the 2013 WDRs. In 2015, Morning Star introduced almost 19,000 gallons of this chemical to the ponds and irrigation ditches. The 2013 WDRs contain a mass loading limit for fixed dissolved solids (FDS) and state that groundwater has been degraded because of the discharge of salt in the wastewater. The use of ADOX 750 will increase the salinity of the wastewater. In addition, in 2015, approximately 65% of the chemical was added directly to the irrigation ditches after the monitoring point (i.e., Settling Pond Station 1) and therefore was not included in Morning Star’s calculations to determine compliance with the FDS mass loading limit. While this Order will allow the use of ADOX 750, it is to be considered a last resort to mitigate objectionable odors. If used, the chemical must be added to the wastewater disposal system prior to the collection of effluent samples at the monitoring points Settling Pond Station 1 or Station 2, and a sample must be collected and analyzed for TDS and FDS each time ADOX is added to the wastewater disposal system.
47. The Tentative CDO proposed that Morning Star install a real-time odor monitoring system and take immediate action if odors were detected. Morning Star’s 16 January 2016 document proposes a different odor monitoring program, and the Prosecution Team’s Rebuttal Response describes Board’s staff concerns with that proposal. However, in a 22 January 2016 telephone call, Morning Star stated that it would install real-time odor monitoring using the OdorLog system with an OdoWatch sulfur nose that has a detection range of 1-300 ppb. In addition, Morning Star will calibrate the OdoWatch eNose during the 2016 season in case it is needed during the 2017 season. Board staff finds this to be acceptable.
48. This Order requires Morning Star to implement its proposed actions to reduce odors: adding aeration to the Cooling Pond, use surrogates to predict wastewater BOD concentrations prior to application, and improved screening prior to the 2016 season. With respect to installation of sprinkler systems, this Order requires that Morning Star submit a report evaluating when and how sprinkler irrigation can be used on its cropland. This Order also requires Morning Star to take actions to prevent stagnant water in the irrigation ditches and to cease using wastewater to irrigate rice fields. Finally, this Order requires Morning Star to implement a real-time odor monitoring program and to take immediate actions if there are any off-site odors.

Dissolved Oxygen Violations

49. As stated in the Odor Violations section above, Discharge Specification D.7 states *“Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.”*
50. Discharge Specification D.8 of the WDRs states: *“As a means of discerning compliance with Discharge Specification D.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive weekly sampling events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.”*
51. A review of Morning Star’s 2014 monthly monitoring reports show that Morning Star consistently reported the DO concentration above the 1.0 mg/L limit for both ponds. The same was true for the beginning of the 2015 processing season. However, during the 20 August 2015 inspection, staff observed the Morning Star technician’s process for measuring DO, and determined that Morning Star had been collecting DO samples in a manner that allowed extra oxygen to enter the waste prior to the measurement²². This inappropriate sampling method²³ causes the Prosecution Team to question the DO results that have previously been reported by Morning Star. Morning Star contends that prior to 2015, it measured DO appropriately but Board staff have not confirmed this and Morning Star did not have a Sampling and Analysis Plan to document how it would collect and measure DO.
52. In response to Board staff’s request, Morning Star began collecting daily DO readings in the Settling Pond and Cooling Pond on 6 August 2015. These *Daily Assessment Reports* contain DO results for samples collected by three different methods: “direct DO”, “grab DO”, and “lab grab DO”. The “grab DO” method uses the inappropriate collection method described in the above Finding and therefore these values cannot be used for compliance determination. The “lab

²² As described in staff’s 11 September 2015 inspection report, “Grab samples were collected using a glass bottle attached to a pole which was submerged one foot below the surface. The sample was then poured into a plastic bottle and the DO measurement was taken.” The act of pouring the sample into a bottle introduces oxygen and provides an erroneous (too high) result. This is validated in staff’s inspection report which states that the DO measurements taken from the bottle sample ranged from 1.12 to 3.38 mg/L, awhile the DO measurements taken by dropping the probe directly into the pond water were all less than 1.0 mg/L . Morning Star states that it was following the instrument manufacturer’s recommendations.

²³ See for example, the US EPA discussion on how to sample dissolved oxygen at: <http://water.epa.gov/type/rs/monitoring/vms52.cfm>. See also US EPA’s standard operating procedures in the document titled “Field Measurement of Dissolved Oxygen”, available at: <http://www2.epa.gov/sites/production/files/2015-06/documents/Field-DO-Measurement.pdf>.

grab DO” results are samples which were collected by analytical laboratory staff with the grab method and then analyzed onsite with the laboratory’s equipment. These values cannot be used to determine compliance because the collection method was inappropriate. The only samples which Board staff are fairly confident were collected and analyzed correctly are the “direct DO” samples, in which the DO probe was lowered into the pond and the concentration was determined while the probe was in the pond.

53. A review of the “direct DO” results reported in the *Daily Assessment Reports* for the period of 6 August 2015 through 29 September 2015²⁴ shows that the DO in the Settling Pond was less than 1.0 mg/L for 42 of 54 days, or 78% of the time. A review of the same reports for the period of 6 August 2015 through 12 October 2015²⁵ shows that the DO in the Cooling Pond was less than 1.0 mg/L for 41 of 69 days, or 59% of the time. Coupled with the odor complaints and off-site odor monitoring, this data shows that Morning Star violated Discharge Specification D.8 of the WDRs.
54. Morning Star’s 1 October 2015 response to the NOV states “a DO study will be performed to determine if additional aeration is required to keep the DO levels above 1.0 mg/L.” The response also states that the Discharger is investigating which brand of aerator has the most efficient method of oxygen transfer. During the 20 August 2015 inspection, Board staff observed one aerator in the Settling Pond and no aerators in the Cooling Pond. It is noted that installation of the single aerator in the Settling Pond was the Discharger’s method to address the DO violations described in the 2005 CDO.
55. During the 20 August 2015 inspection, Board staff observed that Morning Star’s technician collected a DO sample from the Settling Pond in a location different than that required by the Monitoring and Reporting Program, i.e., “opposite the inlet”. The sample was collected in a location that would have the most aerated water, and was not representative of the wastewater in the entire pond. In response to the 11 September 2015 Notice of Violation, Morning Star submitted Standard Operating Procedures for collecting and measuring dissolved oxygen. However, this document needs to be updated to reflect sampling locations and proper sample collection. This Order requires the submittal of *Sampling and Analysis Plan* for sample collection and measurement of dissolved oxygen²⁶, as well as other constituents which are measured with hand-held meters.

²⁴ The date that the Settling Pond was drained.

²⁵ The date that Board staff agreed that daily monitoring could be discontinued.

²⁶ Standard operating procedures prepared by the U.S. Environmental Protection Agency, titled “Field Measurement of Dissolved Oxygen” are available at: <http://www2.epa.gov/sites/production/files/2015-06/documents/Field-DO-Measurement.pdf>.

56. On 13 January 2016, Morning Star submitted a document titled “*Cooling and Settling Ponds Technical Evaluation and Recommendations*”. With respect to the Cooling Pond, the document states: “Due to the high vacuum and temperature in the final condenser loop, the condensate water sent to the Cooling Pond likely has inherently low dissolved oxygen ” and recommends that a 15 hp floating brush aerator, or similar type of aerator, be installed in the Cooling Pond. With respect to the Settling Pond, the document states “In 2015, the dissolved oxygen level in the Settling Pond likely was depressed due to the increased wastewater strength (2.5 times the 2014 concentration) and increased hydraulic retention time due to water conservation.” The document includes a recommendation to increase the aeration for the Settling Pond and to install a variable elevation outlet to reduce the retention time. The document further states that it may not be possible to install the new outlet prior to the 2016 processing season. During a 22 January 2016 telephone call, Morning Star stated that it is no longer considering installing a variable elevation outlet.
57. This Order requires the Discharger to install a sufficient number of aerators in each pond such that dissolved oxygen is maintained above 1.0 mg/L and off-site odors due to the ponds are prevented. In addition, this Order requires the collection of daily DO measurements and clarifies the DO limit.

Unpermitted Expansion of Settling Pond

58. According to Morning Star’s 12 January 1995 letter submitted with its Report of Waste Discharge²⁷, the Settling Pond was 40,000 square feet (0.92 acres in size), with a depth of 5 feet. The volume was therefore 4.6 acre-feet. However, Findings 12-13 of the 2013 WDRs states that the Settling Pond has a capacity of 5 acre-feet (i.e., 1 acre in size by 5 feet deep). The Findings also state that the pond and was constructed with clay soils compacted in lifts.
59. Based on observations during the 2 November 2015 inspection, staff suspected that the Discharger increased the size of the Settling Pond beyond the 5 acre-foot volume. Subsequent to this inspection, Board staff confirmed the probable size increase by reviewing photos taken during previous inspections and a Google Earth aerial image dated 10 July 2013.²⁸ On 3 November 2015, Morning Star was issued a California Water Code Section 13267 Order to provide the current capacity of the Settling Pond.
60. On 13 November 2015, Morning Star responded to the 13267 Order. A registered engineer determined that the top of the Settling Pond is now 440 feet

²⁷ 12 January 1995 letter *Description of Liquid Waste Discharge to Land by The Morning Star Packing Company Tomato Processing Facility in Williams, California*

²⁸ See a 4 November 2015 memo from Howard Hold to Morning Star case file titled “Settling Pond Expansion”

by 196 feet (1.98 acres) by 7.65 feet deep (allowing for two feet of freeboard). The current volume of the Settling Pond is 10.16 acre feet²⁹. The document also references “the 2011 staking plans for the pond expansion.” The pond was expanded in the spring of 2011, yet Morning Star did not communicate this to the Board’s Permitting staff when the updated WDRs were being prepared in 2013. The Anti-degradation Analysis of the 2013 WDRs is based on a 5 acre-foot Settling Pond, not a 10.16 acre-foot Settling Pond.

61. The Prosecution Team contends that the unauthorized expansion of the Settling Pond is not consistent with the Settling Pond as described in the 1995 Report of Waste Discharge for the WDRs³⁰ resulting in a violation of Standard Provision A.4 of the 1995 WDRs. Furthermore, the Prosecution Team contends that the expanded Settling Pond constitutes a violation of Prohibition A.3 of the 2013 WDRs. This Order provides Morning Star with a choice to either: (a) restore the Settling Pond to meet the size and location described in the 2013 WDRs or (b) operate the Settling Pond consistent with the underlying intent of the 2013 WDRs, i.e., in a manner that protects water quality, while collecting data for a new Report of Waste Discharge and amended WDRs for the current operations.

Nitrogen Effluent and Mass Loading Limitation Violations

62. Effluent and Mass Loading Limitations C.2 of the WDRs states: “Wastewater applied to each LAA field shall not exceed the following mass loading limits:

Constituent	Units	Maximum	Annual Maximum
Total Nitrogen Mass Loading ¹	lb/ac/year	--	Crop Demand
BOD Mass Loading ¹	lb/ac/day	100 ²	--

¹ Based on all sources, including residual solids, commercial fertilizers and cattle manure, as well as water from the Settling Pond and plant sanitation and cleaning activities.

² This limit applies as an irrigation cycle average. For the purpose of this Order, “irrigation cycle” is defined as the time period between the start of an irrigation event for a single field and the start of the next irrigation event for the same field.”

63. Effluent and Mass Loading Limitations C.2.b. of the WDRs articulates the formula Morning Star shall follow to calculate BOD Mass Loading and determine compliance with the BOD Mass Loading Limitation. The Prosecution Team and Morning Star agree that there is an error in this formula in that the “V” or Volume input should not account for gallons per day, but rather gallons per irrigation

²⁹ See the 16 November 2015 memo from Howard Hold and Mike Fischer to Wendy Wyels titled “Settling Pond Seepage Increase Estimate, Morning Star Packing Company, Williams Facility, Colusa County”

³⁰ Although the Settling Pond size is not explicitly provided in the 1995 WDRs, the size is found in the Report of Waste Discharge.

cycle. The Parties further agree that BOD Mass Loading data submitted to the Board during the 2014 and 2015 processing seasons did not strictly comply with the erroneous formula in the 2013 WDRs. Strict compliance with that erroneous formula would yield no violations of the 100 lbs/acre/day BOD mass loading limit during 2014 and 2015 processing seasons as confirmed by Morning Star's 1 April 2016 data submission to the Board using the 2013 WDRs formula for those reporting years. ~~Data contained in the July through October 2015 monthly monitoring reports show that the BOD mass loading concentrations exceeded the 100 lb/ac/day irrigation cycle average for 27 separate irrigation cycles, with loading as high as 216 lb/ac/day. However, in January 2016, Morning Star indicated in Exhibit J of its evidence submission³⁴ that the monthly reports contained incorrect results. Errors included reporting by individual checks instead of by field, flows taken from a different cycle than reported, BOD taken from a different cycle period than reported, and cycle periods calculated by check and not application field.~~

64. Based on the recognition that the formula for BOD mass loading is incorrect in the 2013 WDRs, the Parties agree that Morning Star will prospectively use the corrected formula articulated in Ordered Paragraph 12 of this Amended CDO beginning with the 2016 processing season. The corrected formula is consistent with Morning Star's previous calculations detailed in the 8 January 2016 Technical Memorandum titled *Land Application Loading Rates* and a 4 February 2016 letter from its consultant titled *BOD Loading Rate Calculation Details for Morning Star Williams*. The corrected formula for BOD Mass Loading is intended to be the interim formula for the term of the Amended CDO unless or until the Board adopts revisions to the 2013 WDRs with a corrected formula. ~~In its Exhibit J (*Land Application Loading Rates*), Morning Star recalculated the BOD loading rate for the 27 irrigation cycles originally reported as being in violation of the BOD loading rate. Table 2 of Exhibit J shows that Morning Star violated the BOD loading limit of 100 lb/ac/day a total of 15 times during the 2015 tomato processing season. The highest BOD loading rate calculated by Morning Star was 198 lbs/ac/day for field MS-14 in September 2015. Board staff requested that the Discharger recalculate all of reported loading results and submit revised calculations as specified by the 2013 WDRs Effluent and Mass Loading Limitations section C.2.b. Morning Star submitted revised calculations on 4 February 2016 which show that Morning Star exceeded the BOD loading rate limitation of 100 lb/acre/day during 15 irrigation cycles.~~
 65. Upon reviewing Morning Star's ~~calculations~~ monitoring reports, it is evident that there is uncertainty in the volume of wastewater flowing to each field which reduces the accuracy of the BOD loading rate calculations. Currently, only the total discharge to the irrigation fields is measured and the percentage that
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discharges to each field is estimated. To improve the accuracy of the actual loading rates to each field, this Order requires additional flow monitoring to each field. ~~Morning Star's monitoring reports calculated BOD loading rates in the same manner that was done in the original 2015 monitoring reports. However, Morning Star must resubmit both its 2015 and 2014 monitoring reports with corrected BOD loading calculations based on the corrections identified in Exhibit J. At this point, it is unknown whether Morning Star also violated the BOD loading limit in 2014.~~

66. Section 2.1 of the *Land Application Loading Rates* document discusses how the land application area should be operated, and with respect to surface irrigation, states “*The [wastewater] application period varies by field and ranges from 2 to 6 days. The drying time ranges from 6 to 8 days. The total cycle of irrigation ranges from 8 to 14 days. Drying is a critical part of the total cycle and cycle times less than 8 days should be avoided.*” However, a review of the 2015 monitoring reports for the fields irrigated by surface irrigation shows that Morning Star did not follow this advice, especially during the month of September when many fields only had a drying time of 1-2 days. A reduced drying time reduces the opportunity for BOD to break down within the soil column, and increases the potential for groundwater impacts.
67. There can be up to a one month delay between when a BOD sample is collected and when the results are received. While the Discharger awaits the laboratory results of the samples, wastewater has already been applied to the cropland without confirmation that the BOD loading limits can be met. Without real-time data, there is a potential for Morning Star to continue to violate its BOD loading limit. The *Land Application Loading Rates* document proposes two surrogates for managing BOD loading before BOD concentrations are known: in the early season, a correlation with the tonnage of tomatoes processed, and for most of the season, a correlation to the brix (sugar) content of the wastewater. However, Morning Star has recently modified its proposed surrogate for early in the season preferring to use COD instead of tonnage as a surrogate for BOD.
68. A review of the January through October 2015 monthly monitoring reports shows that Morning Star has violated the nitrogen loading limit for two of its 12 fields. Rice was grown on field MS-6 and Morning Star applied 319 pounds of nitrogen/acre, significantly in excess of the crop demand of 110 lbs nitrogen/acre/year. Sudan grass was grown on field MS-24 and Morning Star applied 389 pounds of nitrogen/acre exceeding the crop demand of 325 lb nitrogen/ac/year. Morning Star violated Effluent and Mass Loading Limitations C.2 of the WDRs.
69. This Order requires Morning Star to ~~submit revised 2014 and 2015 monitoring reports with the correct calculations for BOD loading, use a corrected formula for BOD Mass Loading for the term of the Amended CDO unless or until the Board~~

adopts revisions to the 2013 WDRs, follow the recommendations for wastewater application periods and cycle drying times, use the two surrogates to manage BOD loading, and describe the changes it will make to ensure that it meets the ~~nitrogen loading and BOD-Effluent and Mass~~ Loading Limitations.

70. Effluent and Mass Loading Limitations section C.1 of the 2013 WDRs contains the following limitation:

Prior to application to the land application areas, wastewater collected from Flow Metering Station 1, which is representative of Settling Pond water and any plant sanitation and clean-up water, shall not exceed the following effluent limit:

Constituent	Units	Daily Maximum	Annual Average
<i>Average FDS Concentration</i> ¹	<i>mg/L</i>	--	<i>900</i>

¹ *Flow-weighted annual average.*

Effluent and Mass Loading Limitations section C.1.a specifies the manner in which the FDS limitation shall be calculated. Board staff used the data in Morning Star’s July through October 2015 monitoring reports and the formula found in the WDRs to calculate a flow-weighted annual average Fixed Dissolved Solids (FDS) concentration. Staff determined that the 2015 average FDS value was 999 mg/L, in violation of Effluent Limitation C.1. When the ADOX applications are included, the value rises to 1,004 mg/L. This Order requires that Morning Star submit a *Salinity Reduction Report* describing the actions it will take to limit its discharges of FDS to return to compliance with the 2013 WDRs.

Groundwater Pollution

Groundwater Limitation Violation for Manganese

71. Groundwater Limitations section E.1 of the 2013 WDRs states, in part, that “*The release of waste constituents from any portion of the Facility shall not cause the groundwater to: 1. Contain any of the specified constituents in a concentration statistically greater than the maximum allowable concentration tabulated below. The wells to which these requirements apply are specified in the Monitoring and Reporting Program.*”
72. The Applicability of Groundwater Limitations section of the Monitoring and Reporting Program contains, in part, the following:

Constituent	Groundwater Limitation	Compliance Wells to which Limitation Applies
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Manganese	0.05 mg/L ¹	MW2, MW3, MW6, MW9
Manganese	Current Groundwater Quality ^{1,2}	MW7, MW8

¹ Compliance with this requirement shall be determined on an intrawell basis for each of the specified wells using approved statistical methods.

² "Current groundwater quality" means the quality of groundwater in the well as evidence by monitoring completed as of the date of the WDRs.

73. The *Second Half Semi Annual 2015 Groundwater Monitoring Report* contains historical tabulated monitoring well data. Manganese data for selected compliance wells are tabulated below. Note that only results from samples collected after issuance of the 2013 WDRs (5 December 2013) are provided.

Well	Date	Manganese Concentration, mg/L	Groundwater Limit, mg/L ³²	Was Limit Exceeded?
MW-7	Dec-13	0.19	0.2	No
	Feb-14	0.27	0.2	Yes
	May-14	0.24	0.2	Yes
	Aug-14	0.26	0.2	Yes
	Nov-14	0.31	0.2	Yes
	Feb-15	0.31	0.2	Yes
	May-15	0.33	0.2	Yes
	Aug-15	0.69	0.2	Yes
MW-8	Dec-13	0.96	0.56	Yes
	Feb-14	1.18	0.56	Yes
	May-14	1.15	0.56	Yes
	Aug-14	1.33	0.56	Yes
	Nov-14	1.64	0.56	Yes
	Feb-15	1.73	0.56	Yes
	May-15	1.44	0.56	Yes
	Aug-15	1.34	0.56	Yes
MW-9	Dec-13	0.14	0.05	Yes
	Feb-14	0.10	0.05	Yes
	May-14	0.10	0.05	Yes
	Aug-14	0.19	0.05	Yes

³² Morning Star's groundwater monitoring reports did not contain calculated limits for MW-7 or MW-8. Therefore, Board staff estimated the limits in November 2015. Morning Star subsequently submitted a 13 January 2016 *Groundwater Manganese in Land Application Area* report which contains acceptable limits for MW-7 and MW-8; those limits are reflected in the this table.

Well	Date	Manganese Concentration, mg/L	Groundwater Limit, mg/L ³²	Was Limit Exceeded?
	Nov-14	0.32	0.05	Yes
	Feb-15	0.23	0.05	Yes
	May-15	0.34	0.05	Yes
	Aug-15	0.37	0.05	Yes

74. The data in the above table shows that Morning Star has violated the manganese groundwater limitation in monitoring wells MW-7, MW-8, and MW-9. In addition, Morning Star's 2014 Annual Report states that the manganese concentrations in well MW-7 and MW-8 were not in compliance with the groundwater limitation (although Morning Star did not specify the limitation that they used to make this determination, and did not recognize that MW-9 also exceeded the specified limit). The 2015 groundwater data shows that there continues to be manganese pollution in all three wells.
75. As described in Finding 58.d of the 2013 WDRs, the wastewater is not expected to contain manganese. However, excessive loading of BOD onto the cropland can deplete oxygen in the soil resulting in anoxic conditions that can solubilize naturally occurring metals in the soil. At the time the WDRs were adopted, BOD overloading on the LAA had already caused groundwater pollution by manganese³³ in monitoring wells MW-7 and MW-8. The WDRs set a groundwater limit to prohibit any increase in pollution and set a protective BOD loading limit for the cropland. ~~However, as discussed-noted in the table above, Morning Star has exceeded its BOD loading limit numerous times during the 2015 season, and the extent of manganese pollution in the groundwater has increased.~~
76. On 13 January 2016, Morning Star submitted its *Groundwater Manganese in Land Application Area* report. It concludes that the increased levels of manganese may be due to factors other than BOD overloading, including the drought and rice farming. However, the Prosecution Team contends that the report does not contain enough detail to support this conclusion.
77. This Order requires that Morning Star take immediate steps to reduce the manganese in the groundwater, ~~including reducing the BOD loading to its fields~~ and ~~submitting~~ a report describing its actions. Alternatively, Morning Star may attempt to show that the manganese pollution may be due to factors other than the disposal of wastewater.

³³ WDR Finding 58.d.

Groundwater Trigger Violation for Total Dissolved Solids

78. The Groundwater Monitoring Section of Monitoring and Reporting Program (MRP) R5-2013-0144 includes groundwater trigger concentrations to be used in assessing whether the discharge has the potential to cause a violation of the Groundwater Limitations of the WDR. This section states that if the annual average of one or more trigger concentrations are exceeded in any compliance well during a calendar year, then by 1 May of the following year, the Discharger shall submit a technical report describing the reasons for the increase and either (a) a demonstration that continuing the discharge with no change will not result in an exceedance of the groundwater limitation or (b) a plan to evaluate facility changes to prevent an exceedance of the groundwater limitation.
79. The 2014 Annual Monitoring Report states that no groundwater trigger concentrations were exceeded during 2014. However, Board staff's calculation of the 2014 annual average TDS concentration for Monitoring Well MW-9, using quarterly groundwater data collected for the months of February, May, August, and November 2014, shows that in 2014 the annual average TDS concentration was 1,296 mg/L, which exceeds the trigger concentration limit of 1,200 mg/L for well MW-9³⁴. Morning Star should have submitted the reports described in the above Finding, but did not.
80. The *Second Half Semi Annual 2015 Groundwater Monitoring Report* shows that well MW-9 is on track to again exceed the TDS trigger concentration. The average TDS concentration for the first three quarters of 2015 in well MW9 is 1,307 mg/L, which exceeds the trigger concentration of 1,200 mg/L.
81. Morning Star has violated the MRP by not submitting the technical report(s) required when the 2014 groundwater trigger was exceeded. The report for the 2015 trigger exceedance is not required until 1 May 2016. This Order requires that both reports be submitted, and that Morning Star evaluate the use of ADOX 750 as a contributor to TDS in the groundwater.

Solid Waste Management Violations

82. Discharge Specification D.5 of the WDRs states: "*The Discharger shall operate all systems and equipment to optimize the quality of the discharge.*"
83. Finding 60 of the WDRs states: "*The Discharger currently provides treatment and control of the discharge that incorporates the following...b. Wastewater screening*

³⁴ Morning Star made this determination based on the average concentration of two semi-annual data points. However, Morning Star collected quarterly samples, and therefore all four values must be used for the calculation.

to reduce BOD.”

84. Residual Solids Disposal Specification G.2 of the WDRs states, in part: “[s]ludge, solid waste, or residual solids shall be removed from screens, sumps, and ponds as needed to ensure optimal operation and adequate storage capacity.”
85. Residual Solids Disposal Specification G.5 of the WDRs states in part: “*Prior to the use of residual solids as a soil amendment on the LAAs... the Discharger shall obtain the Executive Officer’s written approval of the Residual Solids Management Plan Provision H.3 ...*”

Tomato Solids in Ditches

86. During the 20 August 2015 inspection, Board staff observed tomato solids in the ditches used to transport the wastewater from the facility to the cropland. The tomato solids are a source of excessive BOD and odors, and should not be present in the irrigation ditches. The presence of the tomato solids is a violation of Discharge Specification D.5, Solids Specification G.2, and Finding 60 of the WDRs.
87. Morning Star states in its 1 October 2015 response to the NOV that “an investigation into the discharge of tomatoes to the ditches and settling pond determined that the removal of rock trap screens from the stream of water flowing to the rotary screens caused a large number of tomatoes to be discharged to the Settling Pond when the rock dump valves opened.” Morning Star further states that in addition to removing the rock trap screen, there was also a timing issue with tomatoes being released from the streams to the conveyor belt. Morning Star states that it has replaced the screen and fixed the timing issue.
88. The presence of tomato solids in the ditches is a violation of Discharge Specifications D.5 and G.2 of the 2013 WDRs. This Order requires that Morning Star take measures to prevent this discharge, conduct daily monitoring, and on a daily basis, remove and appropriately dispose of any tomatoes in the irrigation ditches.

Application of Residual Solids to Land

89. Morning Star has not submitted the *Residual Solids Management Plan* referenced in Provision H.3 of the WDRs. Therefore, Morning Star is not permitted to apply residual solids (including cull tomatoes, vines, and tomato pomace) to the LAAs. However, a review of the August 2015 and corrected September 2015 monthly monitoring reports show that Morning Star disposed of 1,215 tons of pomace and 1,215 tons of wet waste to field MS24. This disposal is in violation of Discharge Specification G.5.

90. During the 2 November 2015 meeting, staff learned that Morning Star's previous practice was to have its residual solids hauled off-site by a contractor. However, for 2015, the hauler raised its price and Morning Star decided instead of hauling the residual solids off-site, that it would mix it with other materials and make silage. Staff observed multiple large silage tubes on the south and east side of the property.
91. A review of the July through October 2015 monthly reports³⁵ shows that 21,971 tons of pomace and 25,242 tons of wet waste were generated during this three month period. Of that, 2,430 tons were applied to a field and the remaining 44,783 tons were made into silage. The WDRs do not discuss silage operations or provide any specification or monitoring to ensure that water quality is protected while conducting this type of operation. The Discharger violated Discharge Prohibition A.3 and Standard Provision A.4 of the 2013 WDRs.
92. Silage leachate can contain up to 12,000-90,000 mg/L of BOD³⁶ and can therefore impact groundwater or surface water quality. On 13 January 2016, the Discharger submitted a *Silage Process Management Plan*. The document describes how silage was produced in 2015, including where it was processed, the raw materials used, how wastewater was managed, and the steps that Morning Star will implement to prevent nuisance conditions. A review of the report finds that the 2015 method of managing wastewater is not protective of water quality.
93. Although likely unrelated to the silage activity, the aerial map provided with the 13 January 2016 report shows that the storm water pond next to the Settling Pond contained water during the processing season. It is not clear why the pond would have water in the middle of the summer, and the 2013 WDRs prohibit process water from entering storm water ponds. A Google Earth image taken in the summer of 2010 also showed that the storm water pond contained water during the processing season. This Order requires the Discharger to monitor the storm water pond on a daily basis and if water is present, determine its source.
94. This Order requires that the Discharger submit the *Residual Solids Management Plan* required by the WDRs. With respect to silage, this Order provides the Discharger with a choice to either: (a) remove the existing silage and stop producing any more or (b) construct a silage leachate and storm water collection system such that this waste is collected, contained, and disposed of in a manner that protects water quality. In addition, the Discharge would be expected to monitor the leachate and silage-related activities.

³⁵ Amended 21 January 2016

³⁶ Silage Leachate Collection and Treatment Webinar, sponsored by the USDA Natural Resources Conservation Service.

Storm Water Violations

95. Morning Star should have applied for coverage under the State Water Resources Control Board's General Permit for Storm Water Discharges Associated with Construction Activity (Order 2009-0009-DWQ) for the warehouse expansion project. However, it failed to do so.
96. This Order requires the Discharger to file a Notice of Intent to obtain storm water coverage under the State Water Resources Control Board's General Permit for Storm Water Discharges Associated with Construction Activity (Order 2009-0009-DWQ) for any future construction project that meet the conditions for coverage under the Construction General Permit.
97. Finding 68 of the 2013 WDRs states that Morning Star "prevents all storm water from leaving the tomato processing facility during the processing season" and therefore the Discharger is not required to obtain coverage under General Permit for Industrial Storm Water Discharges Associated with Industrial Activities (NPDES General Permit CAS000001). However, Morning Star has significantly expanded its facility. In addition, the State Water Board's Industrial Storm Water General Permit has been renewed (i.e., Order 2014-0057-DWQ) and contains new requirements. On 6 October 2015, the Discharger submitted a Notice of Non-Applicability for Order 2014-0057-DWQ. However, the NONA did not contain sufficient information. This Order requires that Morning Star submit the outstanding information, as required below.

REGULATORY CONSIDERATIONS

98. As a result of the events and activities described in this Order, the Central Valley Water Board finds that the Discharger has caused or permitted waste to be discharged in such a manner that it has created, and continues to threaten to create, a condition of pollution or nuisance. The Board also finds that a discharge of waste is taking place or threatening to take place in violation of WDRs Order R5-2013-0144, as described in the Findings of this Order. This Order requires the Discharger to take appropriate remedial action and to comply in accordance with the time schedule set forth below.
99. It is the intent of this Order to provide the Discharger with a choice regarding its path of compliance with its underlying WDRs by either (a) making facility improvements and operational changes to strictly comply with the 2013 WDRs or (b) continuing to operate the Facility as-built in a manner not authorized by the current WDRs with limitations to protect water quality and requirements to collect the data necessary to submit a new ROWD to revise the WDRs. Due to the seasonal variability of Morning Star's operations, it is anticipated that three years of data collection would be needed before Morning Star would submit a Report of Waste Discharge and apply for revised WDRs. Therefore, if the Discharger

elects option (b), it is anticipated that this CDO would be effective for approximately four years. New WDRs may or may not permit Morning Star to continue the current operations as provisionally allowed under this Order.

100. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. These requirements implement the Basin Plan.
101. Local drainage is to the Colusa Basin Drain. The beneficial uses of Colusa Basin Drain as stated in the Basin Plan, are agricultural supply; water contact recreation; warm freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.
102. The beneficial uses of the underlying groundwater, as specified in the Basin Plan are municipal, domestic, and industrial supply.
103. Section 13050(m) of the California Water Code defines “nuisance” as anything which meets the following requirements:
 - (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
 - (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
 - (3) Occurs during, or as a result of, the treatment or disposal of wastes.
104. Section 13301 of the California Water Code states in part: *“When a Regional Board finds that a discharge of waste is taking place or threatening to take place in violation of the requirements or discharge prohibitions prescribed by the regional board or the state board, the board may issue an order to cease and desist and direct that those persons not complying with the requirements or discharge prohibitions (a) comply forthwith, (b) comply in accordance with a time schedule set by the board, or (c) in the event of a threatened violation, take appropriate remedial or preventive action.”*
105. Section 13267(b) of the California Water Code states: *“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or*

political agency or entity of this state person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

106. The technical reports required by this Order are necessary to ensure compliance with this Order and WDRs Order R5-2013-0144, and to ensure the protection of water quality. The Morning Star Packing Company, LP and Fred Gobel own and operate the facility that discharges waste subject to this Order and WDRs Order R5-2013-0144.
107. The issuance of this Order is being taken for the protection of the environment and as such is exempt from provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) pursuant to California Code of Regulations, title 14, sections 15061 subdivision (b)(3), 15306, 15307, 15308, and 15321 subdivision (a)(2).
108. The 1995 WDRs state that Colusa County certified a Final Environmental Impact Report (EIR), in accordance with the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.) prior to the construction of the facility. The 2013 WDRs contain the same CEQA finding, and state that because the 2013 WDRs “do not envision or allow any significant change in the Facility or the discharge the action to update the WDRs is exempt from CEQA”. Staff has contacted both the City of Williams and Colusa County and learned that Morning Star was issued building permits between 9 December 2014 and 4 July 2015 for the construction of footings and foundations of a building. Morning Star indicated that it was not required to conduct CEQA for these activities. However, it is possible that additional CEQA analysis may be required as part of future WDR revisions.
109. On 18 February 2016, in Rancho Cordova, California, after due notice to the Discharger and all other affected persons, the Central Valley Water Board conducted a public hearing at which evidence was received to consider a Cease and Desist Order under Water Code section 13301 to establish a time schedule to achieve compliance with waste discharge requirements.
110. On 18/19 August 2016, in Rancho Cordova, California, after due notice to the Discharger and all other affected persons, the Central Valley Water Board

considered the proposed amendments to Cease and Desist Order No. R5-2016-0007-01.

IT IS HEREBY ORDERED that, pursuant to Water Code Sections 13301 and 13267, Morning Star Packing Company, LP and Fred Gobel shall implement the following measures in order to comply with WDRs Order R5-2013-0144.

This Order requires submittal of technical reports. These technical reports shall contain the information and decisions required by the following paragraphs. If a report is submitted without the required information or decision, then the Discharger is in violation of this Order and subject to additional enforcement action.

The Board has transitioned to a paperless office. Therefore, all technical reports required by this Order must be converted to a searchable pdf file and emailed to centralvalleysacramento@waterboards.ca.gov. The following information shall be included in the body of the email: Attention: Guy Childs, Compliance Section, Waste Discharge to Land Unit. In addition, include the Discharger name, facility name, county, and CIWQS place ID (272617) in the body of the email.

Restoring Cooling Pond and Settling Pond, Replacing LAAs, and Use of Entire LAA Acreage

1. By **1 March 2016**, Morning Star shall submit a report stating whether it will implement Option A or Option B, below.

Option A

i. **Effective immediately**, all 695 acres of cropland described in the WDRs, including LAAs MS20A, MS20B, and the Gobel property (field MS1) shall be available for wastewater disposal.

ii. By **15 March 2016**, the Discharger shall submit a *Cooling Pond, Settling Pond, and LAA Replacement Workplan*. The Workplan shall contain a description of the work and schedule for (a) restoring the Cooling Pond to its permitted size of 60 acres and volume of 210 acre-feet, (b) restoring the Settling Pond to its permitted volume of 5 acre-feet, and (c) restoring land application areas MS20A, MS20B, and MS21 (a total of 90.5 acres) for use as cropland. The schedule to complete the work shall not extend beyond **1 June 2016**.

iii. **At least 15 days before beginning the restoration**, the Discharger shall file a Notice of Intent to obtain storm water coverage under the State Water Resources Control Board General Storm Water Permit 2009-0009-DWQ for the construction associated with restoring the Cooling Pond to 60 acres, the Settling Pond to 5-acre feet, and replacing LAAs MS20A, MS20B, and MS21.

iv. By **15 June 2016**, the Discharger shall submit a *Cooling Pond, Settling Pond, and LAA Replacement Report of Results* showing that the Cooling Pond and Settling Pond have been restored to its original size and volume, and that LAAs MS20A, MS20B, and MS21 have been replaced and planted with a crop.

v. By **15 July 2016**, the Discharger shall submit a *Gobel Field Report* documenting that an agreement is in place to allow wastewater to be applied to the Gobel property, field MS1, during each processing season as long as WDRs Order R5-2013-0144 remains in effect.

Option B

i. By **1 April 2016**, the Discharger shall submit a *Cooling Pond Monitoring Well Installation Work Plan* to install additional monitoring wells, at least one directly upgradient of the Cooling Pond, and one directly downgradient along the eastern side of the Cooling Pond. The *Work Plan* shall contain the information listed in the first section of Attachment B to this Order. The wells shall be installed no later than 1 July 2016.

ii. **Effective 1 July 2016**, the maximum daily process wastewater flow (including the flows from the Settling Pond, Cooling Pond, and plant sanitation and cleaning activities) shall not exceed an average daily flow of 3.0 million gallons per day (as determined by the total flow during the month divided by the days in the month). The total annual flow shall not exceed 294 million gallons (as determined by the total flow during a calendar year). These flow rates are based on the availability of 485 acres of cropland, and regardless of the BOD concentration of the wastewater and the volume of wastewater produced, Morning Star must still meet its BOD loading limit of 100 pounds BOD/ac/day/irrigation cycle and its nitrogen loading limit of crop demand. iii. **Effective 1 July 2016**, the Discharger shall conduct the Cooling Pond and Settling Pond monitoring described in the "Revisions to the Monitoring and Reporting Program" section below.

iv. By **1 August 2016**, the Discharger shall submit a *Cooling Pond Monitoring Well Installation Report of Results* containing the information listed in the second section of Attachment B to this Order.

v. By **1 December 2016**, the Discharger shall submit a *Soil Cement Evaluation* which contains an evaluation of converting the bottom of the Settling Pond to soil cement. The evaluation should describe in detail how this would be accomplished, how solids would be removed from the pond without damaging the soil cement, the expected hydraulic conductivity of such a layer, and the expected water quality improvements.

Unauthorized Discharge of Organic Waste to Cooling Pond

2. By **1 March 2016**, Morning Star shall submit a report stating whether it will implement Option A or Option B, below.

Option A

- i. **Effective immediately**, the discharge of organic matter (tomato waste) into the Cooling Pond is prohibited. By **15 May 2016**, the Discharger shall submit a *Cooling Pond Influent Report* documenting the changes that have been made to the evaporation units and other facility processes to ensure that organic matter is not discharged to the Cooling Pond. The report shall also clearly describe the waste streams which are directed to the Cooling Pond and provide estimated constituent concentrations for each waste stream.

- ii. The Discharger shall conduct the Cooling Pond Influent monitoring described in the "Revisions to the Monitoring and Reporting Program" section below.

Option B

- i. **Effective immediately**, evaporator condensate vapor discharged to the Cooling Pond may contain low concentrations of organic waste, so long as BOD concentrations in the Cooling Pond do not exceed a guideline of 45 mg/L, as measured at the northwest corner of the Cooling Pond. This guideline is not intended as an enforceable limit.

- ii. The Discharger shall conduct the Cooling Pond Influent monitoring described in the "Revisions to the Monitoring and Reporting Program" section below.

- iii. By **1 December 2016**, Morning Star shall submit a *Cooling Pond BOD Compliance Report* that evaluates the Cooling Pond influent BOD concentrations versus the BOD concentrations measured in the northwest corner of the pond, and the effectiveness of the aerator in reducing BOD. If the BOD guideline of 45 mg/L was exceeded, then the *Report* shall propose specific improvements to be implemented prior to the 2017 processing season such that Morning Star will consistently meet the BOD pond guideline.

- iv. If the *Cooling Pond BOD Compliance Report* finds that facility improvements are necessary to meet the BOD pond guideline, then by **1 July 2017**, the Discharger shall submit an *Improvement Report* documenting that the improvements have been completed.

Odor Monitoring and Mitigation

3. **Effective immediately**, wastewater shall not be applied to fields used to grow rice.

4. By **15 April 2016**, Morning Star shall submit a *Sprinkler Irrigation and Ditch Management Work Plan* describing (a) how and when the fields that currently are surface irrigated will be converted to sprinkler irrigation, and (b) how it will monitor and manage its wastewater ditches to prevent stagnant water.
5. By **15 April 2016** the Discharger shall submit an *Odor Identification and Mitigation Plan*. The plan shall describe how the Morning Star facility, land application areas, and ditches will be continuously monitored during the processing season using real time sensors, such as Odowatch© (or similar system for odor monitoring) to identify the presence of nuisance odors associated with wastewater treatment and disposal. The plan must also include notification and corrective action procedures for Morning Star to follow when odors are identified.
6. By **15 June 2016**, the Discharger shall submit an *Implementation Report* certifying that a real time continuous odor monitoring system has been installed in accordance with the approved *Odor Identification and Mitigation Plan*. The Discharger shall provide Water Board staff with log-in information so that staff can also review the real time data.
7. The Discharger shall submit monthly *Odor Monitoring Reports* as described in the "Revisions to the Monitoring and Reporting Program" section below.
8. **Effective immediately**, sodium chlorite (e.g., ADOX 750) shall only be used as a last resort to manage odors, and only in conjunction with the monitoring described in "Revisions to the Monitoring and Reporting Program", below. If used, it must be applied to the wastewater disposal system prior to the location at which effluent samples are collected (i.e., prior to sampling station 1 or sampling station 2). The use of ADOX must be included in the calculations to determine compliance with the FDS loading limit.

Dissolved Oxygen Compliance/Installation of Aerators

9. By **15 May 2016**, the Discharger shall submit an *Addition of Aerators Work Plan* which shall propose the installation of at least one additional aerator in the Settling Pond and an aerator(s) of at least 15 hp in the Cooling Pond. The work plan shall contain calculations showing that the size of each aerator is appropriate to ensure that the dissolved oxygen content of each pond is consistently maintained above 1.0 mg/L and that the generation of off-site odor is prevented. The aerators shall be installed and operational prior to the 2016 processing season.
10. Discharge Specification D.8 of the 2013 WDRs shall be revised to read "As a means of discerning compliance with Discharge Specification D.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be

less than 1.0 mg/L for three consecutive sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board in writing within three days and shall implement a specific plan to resolve the low DO within 30 days.”

Sampling and Analysis Plan

11. By **1 July 2016** the Discharger shall submit a *Sampling and Analysis Plan (SAP)* that describes specific sampling procedures for all samples required to be collected by the MRP, including groundwater samples. The SAP shall also describe the procedure and schedule for calibration of field test instruments, including pH, DO, and ORP meters. The SAP shall document that dissolved oxygen shall be measured in situ (i.e., probes shall be lowered into the wastewater). The SAP shall also contain a discussion of the sampling location for each pond. Samples shall be collected at a location that complies with the MRP (i.e., at a depth of one foot, opposite the inlet) or as clarified in this Order. As required by the MRP, field calibration documentation for all field test instruments shall be submitted with the monthly monitoring reports.

BOD, Nitrogen, and Salt Loading on the LAAs

12. ~~By 1 October 2016, the Discharger shall submit revised monitoring reports for 2014 and 2015.~~ All BOD loading reports shall include an Excel spreadsheet that shows the BOD loading calculations for each irrigation cycle and field. This spreadsheet shall be cumulative for the year, and at a minimum, shall include the following columns: field irrigated, dates of irrigation, BOD concentration (based on three most recent results), estimated flow, BOD loading (lb/day), irrigation acreage, irrigation cycle in days, resting time between cycles, and BOD loading rate (lb/ac/day). The spreadsheet shall also include text describing how the BOD loading rates were calculated, and shall document that they were calculated ~~as required by Effluent Loading Limitations C.2.b of the 2013 WDRs according to the correct formula as articulated below:~~

$$M = \frac{8.345 (CV) + M_x}{A (CT)}$$

- Where:
- M = mass of BOD applied to each LAA field in lb/ac/day/irrigation cycle
 - C = concentration of BOD (in mg/L) based on the average of the three most recent wastewater monitoring results
 - V = total volume of wastewater applied to the LAA field during the irrigation cycle, in millions of gallons
 - A = area of the LAA field irrigated, in acres
 - CT = cycle time, in days (i.e., irrigation cycle length from the first day water was first applied to the last day of the drying time)
 - M_x = BOD mass from other sources (e.g., cattle manure, Settling Pond solids, and residual solids) in pounds
 - 8.345 = unit conversion factor

For compliance and enforcement purposes, beginning with the 2016 processing season, the Discharger shall calculate BOD mass loading according to the formula articulated above for the effective term of this Order unless or until the 2013 WDRs are revised with a corrected formula. BOD mass loading computation calculated pursuant to the terms of this Order shall be in lieu of the erroneous calculation articulated in the 2013 WDRs.

13. Effective **1 July 2016**, the Discharger shall ensure that for any field which is surface irrigated (i.e., not irrigated by sprinkler), the irrigation cycle includes sufficient drying time to break down BOD. In general, this is expected to be 6 to 8 days of drying time. If the drying time for any irrigation cycle is less than 6 days, then the cover letter of the applicable monthly monitoring report shall explain why there was a shorter drying time.
14. By **1 July 2016**, the Discharger shall submit an *Effluent Loading Update* that documents the changes that the Discharger has made to ensure that, when irrigating with wastewater on its LAAs, it will comply with the BOD loading limit of 100 lb/ac/day, the nitrogen loading limit of annual crop demand, and will strive to achieve 6-8 days of drying time. Where the drying time for an irrigation cycle is less than 6 days, an explanation shall be provided in the cover letter of the applicable monthly monitoring report.
15. The Discharger shall implement the proposal in its *Land Application Loading Rates* document regarding use of two surrogates for managing BOD loadings before BOD concentrations are received from the laboratory: in the early season, a correlation with wastewater COD, and for most of the season, a correlation to the brix (sugar) content of the wastewater. COD, BOD, and brix shall be measured twice per week until a correlation between COD and BOD, as well as

brix and BOD, is determined. After that, BOD sampling may revert back to once per week. All BOD samples collected shall be used in the BOD loading calculations.

16. By **1 June 2016**, Morning Star shall submit a *Salinity Reduction Plan* describing the steps it will take to ensure compliance with the annual average Fixed Dissolved Solids (FDS) effluent limitation of 900 mg/l. The *Plan* shall discuss each source of FDS in the waste stream, the percentage contribution, and specific changes that will be made in order to meet the effluent limit in 2016 and beyond. Each change shall be discussed and quantified in order to show that the limit will be achieved.
17. By **1 December 2016**, Morning Star shall submit a *Field Flow Monitoring Plan* describing how it will accurately measure the flow of wastewater to each field. The purpose of this monitoring is to enable calculation of accurate BOD loading rates.
18. By **1 May 2017**, Morning Star shall submit a *Field Monitoring Report of Results* certifying that it has made the improvements recommended in the approved *Field Flow Monitoring Plan* necessary to more accurately measure the flow of wastewater to the land application area for purposes of calculating BOD loading rates.

Groundwater Pollution

19. By **1 May 2016**, Morning Star shall submit the *Groundwater Trigger Reports* as required by the "Groundwater Trigger Concentrations" section of the MRP. The *Reports* shall be related to the TDS concentration in monitoring well MW-9 for 2014 and 2015. Morning Star shall submit both the Technical Evaluation and the Action Plan, with the content as described on page 6 of the MRP. The reports shall document the physical improvements that have been, or are proposed, to be completed to reduce salinity, and shall evaluate whether ADOX 750 is a contributor to the salinity of the groundwater.
20. By **1 September 2016**, Morning Star shall submit a revised "Groundwater Samples Lab-Test Results" table (found in Morning Star's groundwater monitoring reports). The table shall be revised for the period of First Quarter 2010 through the present, and shall contain a notation to that effect. In particular, the table shall be updated to include the laboratory PQL for each analyte for each sampling event. A result of "0.0" is not acceptable and shall instead be replaced with "ND <" and the PQL. Any "J" flagged values shall be reported. Results shall be reported exactly as presented on laboratory reports; values shall not be rounded. This updated table shall be used for all future groundwater monitoring reports.

21. By **1 October 2016**, Morning Star shall submit a *Groundwater Pollution Mitigation Report* describing the steps it has taken to prevent further groundwater pollution by manganese. The report shall also predict how long it will take for manganese concentrations in the groundwater to return to background conditions, and the steps that Morning Star will take if concentrations do not begin to decline in a reasonable period. The report shall reference the ~~corrected~~-BOD loading rates **submitted on 1 April 2016** for 2014 and 2015 **which utilized the correct formula articulated above in Ordered Paragraph 12**, as well as the revised "Groundwater Samples Lab-Test Results" table.

Alternatively, if Morning Star elects to show that the manganese pollution is not due to Morning Star's application of wastewater, then the *Groundwater Pollution Mitigation Report* shall provide more information than in Morning Star's 13 January 2016 *Groundwater Manganese in Land Application Area* report. The report shall reference the ~~corrected~~-BOD loading rates **submitted on 1 April 2016** for 2014 and 2015 **which utilized the correct formula articulated above in Ordered Paragraph 12**, as well as the revised "Groundwater Samples Lab-Test Results" table. The report shall include a *Monitoring Well Installation Work Plan* for installation of additional groundwater monitoring wells to support its point of view. The Work Plan shall contain the information in the first section of Attachment B to this Order. Monitoring wells shall be installed such that sampling shall begin with the Fourth Quarter 2016. A *Monitoring Well Installation Report*, containing the information in the second section of Attachment B, shall be submitted by **1 December 2016**.

Solid Waste Management: Tomato Solids

22. **Effective immediately**, this Order prohibits the discharge of tomato solids to the irrigation ditches leading to the land application areas. By **15 March 2016**, the Discharger shall submit a *Tomato Solids Screening Workplan* which shall contain proposals for improving the screening operations such that no tomato solids enter the irrigation ditches. All improvements shall be in place prior to the 2016 processing season.
23. Beginning **1 June 2016**, the Discharger shall monitor tomato solids as described in "Revisions to the Monitoring and Reporting Program", below.

Solid Waste Management: Residual Solids

24. The *Residual Solids Management Plan* described in Provision H.3 of the WDRs shall be submitted by **1 July 2016**. The *Plan* shall also describe how and when Settling Pond solids are applied to the LAAs, and how monitoring of this waste is conducted. Residual solid waste (including cull tomatoes, vines, and tomato pomace) may not be applied to the land application areas until the Executive

Officer has provided written approval of the report.

Solid Waste Management: Silage

25. **By 1 March 2016**, the Discharger shall submit a report stating whether it will implement Option A or Option B, below.

Option A

i. Effective immediately, the generation of silage on the Morning Star property is prohibited. All silage produced during the 2015 processing season shall be removed no later than **1 August 2016**.

Option B

i. Morning Star may continue to produce silage during the term of this Order, as long as the production and storage of silage does not cause objectionable off-site odors and does not impact surface water or groundwater quality. The only dry materials which may be used for silage production are rice bran, rice hulls, rice scalplings, walnut muller meal, ground walnut hull and shell, baled alfalfa, baled Sudan grass, Jose wheat grass, baled corn stalk, almond hulls, almonds shells, or rice straw. Use of any other dry material must be first approved by the Executive Officer.

ii. By **1 May 2016**, Morning Star shall submit a *Silage Leachate and Storm Water Collection Workplan* to construct a system to collect, contain, and dispose of leachate and stormwater in a manner that protects water quality from all areas which contain silage and silage materials. The current discharge to ditches does not meet this requirement. It is strongly suggested that Morning Star discuss its plans with the Prosecution Team prior to submitting the workplan.

iii. By **1 July 2016**, Morning Star shall submit a *Silage Leachate and Storm Water Collection Report* documenting that the improvements have been constructed.

iv. Beginning **1 July 2016**, Morning Star shall monitor the silage area as described in "Revisions to the Monitoring and Reporting Program", below.

Storm Water Permit Coverage

26. The Discharger shall file a Notice of Intent to obtain storm water coverage under the State Water Resources Control Board's General Permit for Storm Water Discharges Associated with Construction Activity (Order 2009-0009-DWQ) for any future construction project that meet the conditions for coverage under the Construction General Permit.

27. **By 1 May 2016**, Morning Star shall submit the outstanding information needed for Board staff to review its October 2015 Notice of Non Applicability (NONA) for the Industrial Storm Water General Permit (Order 2014-0057-DWQ). If the NONA is not approved, then within 30 days of notification, Morning Star shall apply for coverage under Order 2014-0057-DWQ. The outstanding information listed below shall be submitted.

i. The data set where the precipitation data was obtained.

ii. The annual precipitation data. Although the largest storm event was identified, the annual data was not provided. If the largest storm event produced 19.2 inches of precipitation, show whether or not the site can also contain the annual precipitation, in compliance with the permit which states "At a minimum, Dischargers must ensure that the containment design addresses maximum 1-hour, 24 hour, weekly, monthly, and annual precipitation data for the duration of the exclusion".

iii. Provide individual basin capacity, infiltration rates (if applicable), and size of watersheds draining to each basin.

iv. Provide a facility site map showing storm water drainage and watershed areas within the industrial portions of the facility (no fields).

v. Provide runoff coefficients used to determine runoff values, and provide the calculations.

vi. Demonstrate how all water is captured and retained onsite, especially in areas of truck traffic and entrance/exit areas (where tracking can occur).

Report of Waste Discharge

28. If Morning Star chooses to implement Item 1, Option B; Item 2, Option B, or Item 22, Option B, then no later than **1 February 2018**, Morning Star shall meet with the Board's Permitting Unit to discuss the items that must be submitted in a Report of Waste Discharge (RWD). By **1 October 2018**, Morning Star shall submit a RWD containing all of the information required by the Permitting Unit.

Revisions to the Monitoring and Reporting Program

29. Once Morning Star submits its 1 March 2016 document stating which of the above options it will implement, Board staff will prepare a revision to MRP R5-2013-0144 which will incorporate the items listed below. The MRP may be issued by the Executive Officer. Daily, weekly, or monthly sampling shall be reported with the appropriate monthly report. Quarterly sampling shall be

submitted with the appropriate semi-annual report.

- a. Morning Star shall conduct daily visual monitoring of the storm water pond which is directly to the west of the Settling Pond. Inspections shall be conducted from one week prior to the start of the processing season until the Settling Pond is drained at the end of the season. If any water is present, Morning Star shall report this fact within 24 hours to Board staff, shall investigate the source, remove the water, and stop the discharge.
- b. Dissolved oxygen (DO) and oxygen reduction potential (ORP) shall be monitored daily in the Settling Pond from the beginning of the processing season until the pond is drained at the end of the season. DO and ORP shall be monitored daily in the Cooling Pond from the beginning of the processing season until one week after the season ends. After that, DO monitoring shall revert to the frequency and location described in the MRP. At the Settling Pond, the sample shall be taken at the southern side of the pond, while at the Cooling Pond, the sample shall be taken from the northwest corner. Dissolved oxygen shall be measured with a properly calibrated probe that is lowered about one foot into the pond, and the reading taken while the probe is in the water.
- c. In order to provide sufficient data for the Report of Waste Discharge, the frequency of groundwater monitoring shall be increased from semi-annual to quarterly. The "Groundwater Samples Lab-Test Results" table (found in Morning Star's groundwater monitoring reports shall include the laboratory PQL for each analyte for each sampling event. A result of "0.0" is not acceptable and shall instead be replaced with "ND <" and the PQL. Any "J" flagged values shall be reported. Results shall be reported exactly as presented on laboratory reports; values shall not be rounded.
- d. For the BOD surrogate monitoring, Morning Star shall report the twice-weekly or weekly COD vs BOD concentration and the brix vs BOD concentration surrogate correlations.
- e. Monthly monitoring reports shall include the following information about the use of ADOX 750: date applied, location applied to, volume applied, reason for application. When used, effluent samples (from sampling station 1, 2, or the Cooling Pond, as applicable based on location of use) must be collected within 30 minutes of applying the chemical, and analyzed for TDS and FDS. Use of ADOX must be included in the calculations to determine compliance with the FDS loading limit.
- f. Beginning **1 July 2016**, the Discharger shall submit monthly *Odor Monitoring Reports*. Each report shall cover the previous month, and shall include odor plume maps and a discussion of odors attributable to the processing facility

and land application areas. If odors are present, then the report shall also describe the physical improvements that Morning Star took in response to reduce/prevent the odors. If sodium chlorite (ADOX 750) was used to control odors, then the report shall have a discussion of why Morning Star was not able to implement a non-chemical solution to prevent odors. The reports shall be submitted from 1 July through 1 November each year, until this Order is rescinded or the Executive Officer determines that they are no longer necessary.

- g. Beginning **1 June 2016**, the Discharger shall conduct daily inspections of all irrigation ditches, and shall record whether or not tomato solids are present. If so, the Discharger shall immediately remove the solids and dispose of them appropriately. The results of the inspections and removal activities shall be submitted with the monthly monitoring reports required by the MRP. These reports shall include document when and where the tomato solids were disposed of.
- h. Monthly monitoring reports shall include an Excel spreadsheet that shows the BOD loading calculations for each irrigation cycle and field. This spreadsheet shall be cumulative for the year, and at a minimum, shall include the following columns: field irrigated, dates of irrigation, BOD concentration (based on three most recent results), estimated flow, BOD loading (lb/day), irrigation acreage, irrigation cycle in days, resting time between cycles, and BOD loading rate (lb/ac/day). The spreadsheet shall also include text documenting that the BOD loading rates were calculated ~~as specified by Effluent Limitation C.2.b of the 2013 WDRs according to the corrected formula for BOD mass loading in Ordered Paragraph 12.~~ In addition, Morning Star shall submit documentation, including daily field logs, describing how the flow to each field was determined.
- i. All BOD results shall be used in the BOD loading calculations, even if samples are collected more frequently than once per week. If the drying time for any irrigation cycle is less than 6 days, then the cover letter of the applicable monthly monitoring report shall explain why there was a shorter drying time.
- j. When reporting the flow-weighted FDS concentration in the monthly and annual monitoring reports, Morning Star shall include an Excel spreadsheet showing how the value was calculated, shall identify any ADOX applications made during the month, and describe how the ADOX salt load was included in the calculations. Calculations shall be made as required by Effluent Limitation C.1.a of the 2013 WDRs.
- k. If Morning Star chooses to implement Item 1, Option B, then it shall conduct the following Settling Pond and Cooling Pond monitoring:

(i) the Cooling Pond shall be sampled at the northwest corner once per week during the processing season for the following constituents: BOD, ~~nitrate~~, total nitrogen (reported as the sum of nitrate-nitrogen, nitrite-nitrogen, total Kjeldahl nitrogen), total dissolved solids, and fixed dissolved solids. In addition, influent to the Cooling Pond shall be monitored once per week for BOD, ~~nitrate~~, total nitrogen (reported as the sum of nitrate-nitrogen, nitrite-nitrogen, and total Kjeldahl nitrogen), total dissolved solids, and fixed dissolved solids, while influent flow shall be monitored continuously;

(ii) the Settling Pond shall be sampled once per week at the southwest corner while it contains wastewater for the following constituents: total dissolved solids, BOD, and ~~nitrate~~-total nitrogen (reported as the sum of nitrate-nitrogen, nitrite-nitrogen, and total Kjeldahl nitrogen);

(iii) groundwater samples from the Cooling Pond monitoring wells (MW-5, MW-6, and the wells installed per this Order) shall also be analyzed for dissolved oxygen, oxygen reducing potential, total Kjeldahl nitrogen, and ammonia; and

(iv) groundwater samples from the Settling Pond monitoring wells (MW-1, MW-2, MW-3, and MW-4) shall also be analyzed for dissolved oxygen, oxygen reducing potential, total Kjeldahl nitrogen, and ammonia.

l. Regardless of whether Morning Star chooses to implement Item 2, Option A or B, influent to the Cooling Pond shall be sampled on a weekly basis during the processing season. The samples shall be analyzed for BOD, fixed dissolved solids, total dissolved solids, and total nitrogen.

m. If Morning Star chooses to implement Item 23, Option B then it shall conduct the following silage monitoring.

Facility Inspections

All areas involved in the mixing or storage of silage shall be inspected as follows. Results shall be submitted with the monthly monitoring reports.

a. Operations area: perform monthly inspections of the working surfaces, berms, ditches, erosion best management practices, and any other operational surface. Identify the presence or absence of:

1. Cracking or subsidence in the working surfaces;
2. Ponding over the working surfaces or within ditches;
3. Effectiveness of erosion control BMPs;
4. Maintenance activities associated with working surfaces, berms, ditches, and erosion control BMPs;

5. Evidence of any water or wastewater leaving or entering the facility, estimated size of affected area, and estimated flow rate. Show affected areas on a map;
 6. Integrity of drainage system during the wet season; and
 7. Photographs of observed and corrected deficiencies.
-
- b. Wastewater Management System: Perform monthly inspections of the wastewater management system to identify the presence or absence of:
 1. The overall condition of the wastewater management system;
 2. The available capacity within the storage systems and the current volume of wastewater;
 3. Presence of odors from the wastewater management system. Include characterization, source, and distance observable; and
 4. Volume of wastewater discharged and location of discharge.

Wastewater Monitoring: on a monthly basis, samples of the silage wastewater shall be collected and analyzed for BOD, pH, DO, TDS, FDS, and total nitrogen.

Other: Depending on the type of wastewater system installed, the Executive Officer may order that additional monitoring be conducted.

Other Requirements

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional. Each technical report submitted by the Discharger shall contain the professional's signature and/or stamp of the seal.

As required by General Reporting Requirement B.3 of the Standard Provisions and Reporting Requirements For Waste Discharge Requirements, all reports and transmittal letters shall be signed by either a principal executive officer of the corporation with at least the level of senior vice-president or a duly authorized representative in accordance with the WDRs, and any person signing a document submitted to comply with this Order shall make the following certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney

General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 18 February 2016, **and as amended by Order R5-2016-XXXX on ____ 2016.**

PAMELA C. CREEDON, Executive Officer

Attachment A: Summary of odor complaints

Attachment B: Requirements for Monitoring Well Installation Workplans and Reports

GJC/WSW: __ 29-Jul-16

ATTACHMENT A

The following table summarizes the odor complaints received during Morning Star's 2015 tomato packing season, as well as the off-site odors reported by Morning Star.

Date	Reporting Party	Location	Additional Information
6 August 2015	County Health	Not Given	Received complaint regarding odors from the Morning Star
11 to 14 August 2015	County Health	Not Given	Received complaints regarding odors from the Morning Star
20 August 2015	Board staff	Abel/Husted	Slight odor at 8:02 am
21 August 2015	Morning Star	Crawford & Zumwalt	Slight odor at 12:10 pm
22 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 6:15 am
22 August 2015	Morning Star	Abel/Husted	Moderate odor at 6:15 am
22 August 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 9:45 am
22 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 9:45 am
22 August 2015	Morning Star	Crawford & Zumwalt	Slight odor at 3:10 pm
24 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 6:21 pm
25 August 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 5:40 am
26 August 2015	Morning Star	Abel/Husted	Slight odor at 6:15 am
26 August 2015	Morning Star	Abel/Husted	Slight odor at 9:34 am
26 August 2015	Morning Star	Abel/Husted	Slight odor at 6:21 pm
27 August 2015	Morning Star	Abel/Husted	Slight odor at 7:41 am
27 August 2015	Morning Star	Abel/Husted	Slight odor at 1:35 pm
27 August 2015	Morning Star	Abel/Husted	Slight odor at 6:40 pm
28 August 2015	Morning Star	Abel/Husted	Slight odor at 7:10 am
28 August 2015	Morning Star	Abel/Husted	Slight odor at 10:40 am
28 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 5:49 pm
28 August 2015	Morning Star	Abel/Husted	Slight odor at 5:49 pm
29 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 5:10 am
29 August 2015	Morning Star	Abel/Husted	Slight odor at 5:10 am
29 August 2015	Morning Star	Chevron Station	None to slight odor at 10:50 pm

Date	Reporting Party	Location	Additional Information
29 August 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 10:50 pm
29 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 10:50 pm
29 August 2015	Morning Star	Abel/Husted	Slight odor at 10:50 pm
29 August 2015	Morning Star	Abel/Husted	Slight odor at 5:10 pm
30 August 2015	Morning Star	Abel/Husted	Slight odor at 7:10 am
30 August 2015	Morning Star	Abel/Husted	Slight odor at 9:50 am
30 August 2015	Morning Star	Abel/Husted	Slight odor at 6:10 pm
31 August 2015	Morning Star	Abel/Husted	Slight odor at 6:15 am
31 August 2015	Morning Star	Abel/Husted	Slight odor at 2:00 pm
31 August 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 6:20 pm
31 August 2015	Morning Star	Abel/Husted	Slight odor at 6:20 pm
1 Sept 2015	Morning Star	Abel/Husted	Slight odor at 7:30 am
1 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 12:45 pm
1 Sept 2015	Morning Star	Abel/Husted	Slight odor at 12:45 pm
1 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 6:05 pm
1 Sept 2015	Morning Star	Crawford & Zumwalt	Slight odor at 6:05 pm
1 Sept 2015	Morning Star	Abel/Husted	Slight odor at 6:05 pm
2 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 5:10 am
2 Sept 2015	Morning Star	Crawford & Zumwalt	Slight odor at 5:10 am
2 Sept 2015	Morning Star	Abel/Husted	Slight odor at 5:10 am
2 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 8:00 am
2 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 8:00 am
2 Sept 2015	Morning Star	Abel/Husted	Slight odor at 8:00 am
4 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 10:03 am
6 Sept 2015	Morning Star	Abel/Husted	Slight odor at 6:15 pm
7 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 7:35 am
7 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 10:50 am
10 Sept 2015	City of Williams	Crawford Road	Several people complained that day; reported odors for multiple days
13 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 7:40 pm

Date	Reporting Party	Location	Additional Information
14 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 8:40 am
14 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 8:40 am
14 Sept 2015	Morning Star	Abel/Husted	Slight odor at 8:40 am
14 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 1:03 pm
14 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 1:03 pm
14 Sept 2015	Morning Star	Abel/Husted	Slight odor at 1:03 pm
14 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 6:41 pm
14 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 6:41 pm
14 Sept 2015	Morning Star	Abel/Husted	Slight odor at 6:41 pm
15 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 7:32 pm
15 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 7:32 pm
15 Sept 2015	Morning Star	Abel/Husted	Slight odor at 7:32 pm
16 Sept 2015	Morning Star	Valley Ranch Southeast	Slight odor at 6:50 am
16 Sept 2015	Morning Star	Crawford & Zumwalt	Slight odor at 6:50 am
16 Sept 2015	Morning Star	Abel/Husted	Slight odor at 6:50 am
16 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 10:54 am
16 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 10:54 am
16 Sept 2015	Morning Star	Abel/Husted	Slight odor at 10:54 am
16 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 8:04 pm
16 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 8:04 pm
16 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 8:04 pm
18 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 7:43 pm
19 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 4:37 pm
21 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 9:30 pm
21 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 9:30 pm
21 Sept 2015	County Health	Butte View Dr.	Odors in afternoon-evening hours

Date	Reporting Party	Location	Additional Information
22 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 7:07 am
22 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 7:07 am
22 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 4:35 pm
22 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 4:35 pm
22 Sept 2015	Morning Star	Abel/Husted	Slight odor at 4:35 pm
22 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 7:45 pm
22 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 7:45 pm
22 Sept 2015	Morning Star	Abel/Husted	Slight odor at 7:45 pm
23 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 9:03 pm
23 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 9:03 pm
23 Sept 2015	Morning Star	Abel/Husted	Slight odor at 9:03 pm
24 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 7:51 am
24 Sept 2015	Morning Star	Abel/Husted	Slight odor at 3:15 pm
24 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 7:22 pm
24 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 7:22 pm
24 Sept 2015	Morning Star	Abel/Husted	Slight odor at 7:22 pm
25 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 9:40 pm
25 Sept 2015	County Health	Butte View Dr.	Odors in afternoon-evening hours
26 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 8:11 am
26 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 10:53 pm
26 Sept 2015	Morning Star	Abel/Husted	Slight odor at 10:03 pm
27 Sept 2015	Morning Star	Abel/Husted	None to slight odor at 10:17 am
27 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 1:01 pm
27 Sept 2015	Morning Star	Abel/Husted	Slight odor at 1:01 pm
27 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 9:57 pm
27 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 9:57 pm
27 Sept 2015	Morning Star	Abel/Husted	Slight odor at 9:57 pm
27 Sept 2015	County Health	Butte View Dr.	Odors in afternoon-evening hours

Date	Reporting Party	Location	Additional Information
28 Sept 2015	Morning Star	Abel/Husted	Slight odor at 6:57 am
28 Sept 2015	Morning Star	Abel/Husted	Slight odor at 9:31 am
28 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 10:13 pm
28 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 10:13 pm
28 Sept 2015	Morning Star	Abel/Husted	Slight odor at 10:13 pm
29 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 8:55 am
29 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 8:55 am
29 Sept 2015	Morning Star	Abel/Husted	Slight odor at 8:55 am
29 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 2:20 pm
29 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 2:20 pm
29 Sept 2015	Morning Star	Abel/Husted	Slight odor at 2:20 pm
29 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 10:15 pm
29 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 10:15 pm
29 Sept 2015	Morning Star	Abel/Husted	Slight odor at 10:15 pm
30 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 9:12 am
30 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 9:12 am
30 Sept 2015	Morning Star	Abel/Husted	Slight odor at 9:12 am
30 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 1:40 pm
30 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 1:40 pm
30 Sept 2015	Morning Star	Abel/Husted	Slight odor at 1:40 pm
30 Sept 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 7:44 pm
30 Sept 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 7:44 pm
30 Sept 2015	Morning Star	Abel/Husted	Slight odor at 7:44 pm
1 October 2015	Morning Star	Abel/Husted	Slight odor at 9:20 am
1 October 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 1:41 pm
1 October 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 1:41 pm

Date	Reporting Party	Location	Additional Information
1 October 2015	Morning Star	Abel/Husted	Slight odor at 1:41 pm
1 October 2015	Morning Star	Valley Ranch Southeast	None to slight odor at 6:31 pm
1 October 2015	Morning Star	Crawford & Zumwalt	None to slight odor at 6:31 pm
1 October 2015	Morning Star	Abel/Husted	Slight odor at 6:31 pm
2 October 2015	Morning Star	Abel/Husted	None to slight odor at 6:21 am
2 October 2015	Morning Star	Abel/Husted	None to slight odor at 6:21 am
2 October 2015	Morning Star	Abel/Husted	None to slight odor at 8:56 am
2 October 2015	Morning Star	Abel/Husted	None to slight odor at 5:11 pm
4 October 2015	Morning Star	Abel/Husted	None to slight odor at 6:37 pm
5 October 2015	Morning Star	Abel/Husted	None to slight odor at 5:28 am
5 October 2015	Morning Star	Abel/Husted	Slight odor at 1:54 pm
5 October 2015	Morning Star	Abel/Husted	Sight odor at 6:09 pm
6 October 2015	Morning Star	Abel/Husted	None to slight odor at 5:58 am
6 October 2015	Morning Star	Abel/Husted	Slight odor at 8:21 pm
7 October 2015	Morning Star	Abel/Husted	None to slight odor at 9:11 am
7 October 2015	Morning Star	Abel/Husted	Slight odor at 12:38 pm
7 October 2015	Morning Star	Abel/Husted	None to slight odor at 6:17 pm
8 October 2015	Morning Star	Abel/Husted	None to slight odor at 6:17 pm
9 October 2015	Morning Star	Abel/Husted	None to slight odor at 8:55 am
9 October 2015	Morning Star	Abel/Husted	None to slight odor at 1:40 pm
9 October 2015	Morning Star	Abel/Husted	None to slight odor at 7:11 pm
12 October 2015	Morning Star	Abel/Husted	None to slight odor at 7:17 am
12 October 2015	Morning Star	Abel/Husted	None to slight odor at 2:02 pm
12 October 2015	Morning Star	Abel/Husted	None to slight odor at 7:36 pm

ATTACHMENT B TO CEASE AND DESIST ORDER R5-2016-0007
REQUIREMENTS FOR
MONITORING WELL INSTALLATION WORKPLANS AND REPORTS

Prior to installation of any groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Wells may be installed after staff concurs with the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information

- Purpose of the well installation project,
- Brief description of local geologic and hydrogeologic conditions,
- Proposed monitoring well locations and rationale for well locations,
- Topographic map showing facility location, roads, and surface water bodies,
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features.

B. Proposed Well Numbers

The proposed well numbers for each well must be provided in the text and on the site map.

C. Drilling Details

- On-site supervision of drilling and well installation activities,
- Description of drilling equipment and techniques,
- Equipment decontamination procedures,
- Continuous soil sampling and logging,
- Logging methods, which shall comply with *ASTM D2488-93 Method for Visual Classification, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for field work.*

D. Monitoring Well Design – Diagram and Narrative

The well design must be provided in both a narrative description and in a diagram, which must include the proposed well construction details:

- Borehole diameter,
- Casing and screen material, diameter, and centralizer spacing (if needed),
- Type of well caps (bottom cap either screw on or secured with stainless steel screws),
- Anticipated depth of well, length of well casing, and length and position of perforated interval,
- Thickness, position and composition of surface seal, sanitary seal, and sand pack,
- Anticipated screen slot size and filter pack.

E. Well Development

Well development must be performed at least 48 hours after the sanitary seal has been placed, and must include

- Method of development to ensure maximum removal of fines from the vicinity of the screen and to ensure free-flow of fluids (i.e., over-pumping, air-lift, surge block and bailer, jetting, etc.),
- Parameters to be monitored during development and the record keeping procedures,
- Method of determining when development is complete,
- Disposal of development water.

F. Well Survey - Horizontal and Vertical Coordinates

- Name of the Licensed Land Surveyor or Civil Engineer,
- Datum for survey measurements,
- List of well features to be surveyed, including the top of casing, ground surface, and horizontal and vertical coordinates,
- Accuracy: Horizontal must be within ± 0.1 foot and Vertical within ± 0.01 -foot.

G. Water Level Measurement

- The elevation reference point at each monitoring well must be within 0.01-foot,
- Ground surface elevation at each monitoring well must be within 0.01-foot,
- Method and time of water level measurement must be specified

H. Sampling and Laboratory Analysis

Groundwater sampling must be performed after the well is developed, and analytical results must be included with the monitoring well installation report. Groundwater sampling, field tests, and laboratory analysis must comply with the requirements in the Cleanup and Abatement Order, Monitoring and Reporting Program, and Standard Provisions. All Method Detection Limits, Practical Quantitation limits, and “trace” concentrations must be reported on the laboratory reports.

I. Proposed Schedule for Completion of Work

SECTION 2 - Monitoring Well Installation Report

Forty-five days after installation, a monitoring well installation report must be submitted which provides the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information

1. Purpose of the well installation project,
2. Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells,
3. Number of monitoring wells installed and copies of County Well Construction Permits,
4. Topographic map showing facility location, roads, surface water bodies,
5. Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details – Narrative and Graphic

1. On-site supervision of drilling and well installation activities,
2. Drilling contractor and driller’s name,
3. Description of drilling equipment and techniques,
4. Equipment decontamination procedures,
5. Soil sampling intervals and logging methods,
6. Well boring log:
 - a. Well boring number and date drilled
 - b. Borehole diameter and total depth
 - c. Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
 - d. Depth to first encountered groundwater and stabilized groundwater depth

- e. Detailed description of soils encountered, using ASTM D2488-93 *Method for Visual Classification, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for Field Work*.

C. Well Construction Details – Diagram and Narrative

1. The Discharger must verify that boring logs and well construction data have been uploaded to the State's GeoTracker system.
2. Well construction details
 - a. Well number, date started, date completed, geologist's name
 - b. Total depth drilled
 - c. Drilling Contractor and driller name and address
 - d. Depth of open hole (same as total depth drilled if no caving occurs)
 - e. Method and materials of grouting excess borehole
 - f. Footage of hole collapsed
 - g. Length of slotted casing installed
 - h. Depth of bottom of casing
 - i. Depth to top of sand pack
 - j. Thickness of sand pack
 - k. Depth to top of bentonite seal
 - l. Thickness of bentonite seal
 - m. Thickness of concrete grout
 - n. Boring diameter
 - o. Casing diameter
 - p. Casing material
 - q. Size of perforations
 - r. Well elevation at top of casing
 - s. Initial and stabilized depth to groundwater
 - t. Date of water level measurement
 - u. Monitoring well number
 - v. Date drilled

D. Well Development

1. Date(s) and method of development of each well,
2. Method of development,
3. How well development completion was determined,
4. Volume of water purged from well and method of development water disposal,
5. Field notes from well development.

E. Well Survey

1. Coordinate system, epochs, bench marks, horizontal controls, accuracy, and precision,

2. Survey results of casing elevation with the cap removed (vertical to 1/100th foot) and the ground surface,
3. California Registered Civil Engineer or Licensed Surveyor's report, field notes, and stamp/signature in an appendix,
4. Description of the measuring points (i.e. ground surface, top of casing, etc.),
5. Tabulated survey data with well numbers and horizontal and vertical coordinates.
6. Verification that survey data has been uploaded to the State's GeoTracker system.