

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2016-0097

WASTE DISCHARGE REQUIREMENTS

FOR
MCMANIS FAMILY VINEYARDS
MCMANIS FAMILY VINEYARDS, INC
SAN JOAQUIN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. On 5 February 2016, McManis Family Vineyards, Inc., submitted a Report of Waste Discharge (RWD) that describes expansion of an existing winery that generates process wastewater and residual solids in Ripon in San Joaquin County. An amended RWD was submitted on 27 May 2016.
2. McManis Family Vineyards, Inc. (hereafter "Discharger") owns and operates the facility that generates the waste and the proposed land application area (LAA), and is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The facility is located at 18700 East River Road in Ripon, (Section 15, T2S, R8E, MDB&M), as presented on Attachment A, which is attached hereto and is made part of this Order by reference. The facility occupies Assessor's Parcel Number (APN) 245-220-20, which consists of 46.78 acres. Six parcels consisting of vineyards are located west of the winery and are owned by associated but separate entities than the Discharger, and do not receive any wastewater.
4. WDRs Order 5-00-021, adopted by the Central Valley Water Board on 28 January 2000, prescribes requirements for the discharge. Order 5-00-021 allows a monthly average wastewater flow of up to 60,000 gallons per day (gpd) and in no case was the discharge to exceed 150,000 gpd. The Discharger proposes to expand and upgrade the facility to improve the treatment system and increase wastewater capacity to accommodate increasing wastewater flows. Therefore, Order 5-00-021 is rescinded and replaced with this Order.

Existing Facility and Discharge

5. McManis Family Vineyards, located in a primarily agricultural area, has been in operation since 1998, and consists of vineyards, a winery, and a process water management system. Almond fields are located north and east of the facility, walnuts to the south, and vineyards to the west. Single-family homes are located in the northern almond orchards. A site land use plan is presented on Attachment B, which is attached hereto and is made part of this Order by reference.

6. Activities at the winery include receiving, crushing, and pressing grapes, fermentation, processing into finished wines, bottling, and distribution. The Discharger sells the resulting products, juice, bulk wine, and packaged wine, from the processed tonnage. Bottling occurs on-site but the majority of product leaves the site as juice and bulk wine. Site details are presented on Attachment C, which is attached hereto and is made part of this Order by reference.
7. The Discharger crushes 30,000 tons of grapes annually, which produces 5 million gallons (MG) of product. Approximately 2.5 to 3 MG of product is transported off site per year as juice.
8. One agriculture well is located on the winery property along the southern boundary. The well is screened from approximately 230 to 250 feet below ground surface (bgs) and provides irrigation water for crops.
9. An on-site production well is used for processing and domestic purposes and is located approximately 320 feet northeast of the winery buildings. The well is screened from approximately 200 to 220 feet bgs. A groundwater sample was collected from the production well on 2 August 2011 and the results of select constituents are presented below.

Production Well Water Quality ¹

| Constituent | Concentration (mg/L) | WQOs (mg/L) |
|--------------------|-----------------------------|--------------------|
| FDS | 386 | -- |
| TDS | 522 | 1,000 ² |
| Sulfate | 40.4 | 500 ² |
| Total Nitrogen | 1 | 10 ³ |

BOD₅ = 5-day biochemical oxygen demand

FDS = fixed dissolved solids

TDS = total dissolved solids

mg/L = milligrams per liter

NA = not analyzed

WQO = water quality objective

¹ Sample was collected on 2 August 2011

² Upper Secondary Maximum Contaminant Level

³ Primary Maximum Contaminant Level

10. The grape crushing season is generally from August to November. Wastewater is produced during processing grapes into finished wines and juice, bottling the finished product, cleaning and sanitation of the tanks and equipment, and at the crush pad. Currently, all storm water from the facility is collected and co-mingled with the process wastewater.
11. The Discharger uses various chemicals during wine production as an additive, a fining agent, or as a cleaner and sanitizer. The chemicals used are listed below.

Chemicals Used

| Purpose | Chemical | 2015 Annual Quantities (pounds) |
|-----------------|--------------------------------|---------------------------------|
| Wine Additives | Bentonite | 1,207 |
| | Total Carbon (Decolorizing) | 761 |
| | Total Citric Acid (Food Grade) | 76 |
| | Total Copper Sulfate | 276 |
| | Cream of Tartar | 11,785 |
| | DAP | 10,216 |
| | Total Diatomaceous Earth | 167,794 |
| | KMBS | 10,216 |
| | Malic Acid | 2,719 |
| | PVPP | 2,296 |
| | Tannin | 2,346 |
| | Tartaric Acid | 124,847 |
| | Cleaning Chemicals | Chemco |
| Destain X LF | | 278 |
| Dynafoam 500 XT | | 14 gallons |
| Peroxy Clean | | 150 |
| Citric Acid | | 8,500 |

12. Wastewater, including storm water, is collected in concrete trenches and catchment basins located throughout the facility (Attachment C). Wastewater and storm water flow through various drain pipes leading to the Process Water Sump, which is equipped with a flex rake screen and has a capacity of 4,200 gallons. Influent pumps transfer screened water from the Process Water Sump to the two onsite wastewater ponds, located south of the Process Water Sump. A magnetic flow meter installed on the influent pump discharge pipe measures the amount of flow discharged to the ponds.

13. The average annual wastewater flow rate for an approximate 30,000-ton crush is 3 MG. An additional average annual flow of 1.7 MG of storm water is also collected. The daily average flow is approximately 12,900 gpd. A summary of the influent flows from 2010, 2014, and 2015 are summarized below.

| Wastewater Flow Rates | | | |
|------------------------------|--|--------------------------|-------------|
| Month | Influent Flow ¹ (MG) | | |
| | 2010 | 2014 ² | 2015 |
| January | 0.24 | -- | 0.50 |
| February | 0.05 | -- | 1.05 |
| March | 0.10 | -- | 0.64 |
| April | 0.08 | -- | 0.26 |
| May | 0.05 | -- | 0.12 |
| June | 0.08 | -- | 0.07 |
| July | 0.09 | -- | 0.13 |
| August | 0.18 | -- | 0.33 |
| September | 0.46 | -- | 0.46 |
| October | 0.39 | -- | 0.60 |
| November | 0.40 | 0.52 | 0.41 |
| December | 0.19 | 0.06 | 0.78 |
| Annual Total (MG) | 2.31 | NA | 5.35 |

MG = million gallons

NA = not applicable

¹ Includes storm water.

² Between 2011 and the end of 2014, a winery construction project prevented collection of accurate flow data until November 2014.

14. Wastewater samples were collected during periods of no rainfall from the Process Water Sump. Twenty eight samples were collected between 6 November 2012 and 3 February 2015. The results of select constituents identified in the wastewater are provided below.

Process Wastewater Quality ¹ (mg/L)

| Constituent | Average Concentration | Maximum Concentration | WQO |
|------------------|-----------------------|-----------------------|--------------------|
| BOD ₅ | 7,984 | 23,000 | -- |
| TDS | 3,999 | 9,110 | 1,000 ² |
| FDS | 2,745 | 4,090 | -- |
| Total Nitrogen | 72 | 190 | 10 ³ |
| Nitrate as N | 12.9 | 30.8 | 10 ³ |
| Sulfate | 72 | 103 | 500 ² |

Concentrations in **BOLD** exceed a Water Quality Objective

BOD₅ = 5-day biochemical oxygen demand

FDS = fixed dissolved solids

TDS = total dissolved solids

mg/L = milligrams per liter

WQO = water quality objective

-- = no established WQO

¹ Samples were collected from the Process Water Sump when storm water was not present.

² Upper Secondary Maximum Contaminant Level

³ Primary Maximum Contaminant Level

15. Process water comingled with storm water is pumped from the Process Water Sump to two lined aeration and evaporation ponds, the North and South Ponds. The lined aeration ponds are used for storage, biological treatment, and evaporation and the ponds are currently the only on-site method of disposal for the wastewater. The ponds are equipped with an engineered synthetic liner and mechanical surface brush-type aerators. The dimensions of each pond are 250 feet long by 130 feet wide by 16 feet deep with a volumetric capacity of 1.2 MG each, not including the required two feet of freeboard. Freeboard gauges were installed in both ponds on 15 May 2015. As explained in the RWD, the ponds have inadequate capacity for the existing process water and storm water quantities. Excess wastewater is transported to the East Bay Municipal Utility District (EBMUD) as needed to maintain two feet of freeboard.
16. During a site inspection on 21 January 2015, RWQCB staff observed several small perforations in the liner above the water line during a field inspection. The most significant holes appeared to be associated with tire marks where a vacuum tuck used to clean drain lines, periodically backs down to discharge material in the pond. On 16 July 2015, Geo-logic performed a geo-electric leak detection survey (water puddle method) on the North Pond. Wastewater from the pond was pumped to the South Pond to provide access to the liner. Several small perforations were noted above the water line and repairs were performed on 20 July 2015. The liner in the South Pond

was not tested because it is scheduled to be replaced and a new liner installed. Because there are no leak detection systems beneath the liners, leak detection has consisted of quarterly monitoring of the four adjacent monitoring wells to determine if potential leaks from the ponds have impacted groundwater.

17. Approximately 2.5 million pounds of semi-solid material is generated annually. Solids, consisting primarily of grape seeds, skin, and stems, are sold commercially or sent to adjacent wineries where they are composted and tilled into the soil. Semi-solid material and sludge generated during the secondary fermentation process produces lees consisting of yeast and solids coagulated with bentonite. After filtration, these wastes are stockpiled in an area approximately 800 feet southeast of the wastewater ponds during the processing season. It is unclear if this area is lined. Once processing is complete for the season, the material is hauled off-site to an appropriately permitted facility.
18. The Discharger uses four onsite water softeners to soften water for restrooms, lab, offices, and bottling and uses a boiler. The wastewater from bottling operations and boiler blow down is collected in the ponds.
19. The facility discharges domestic wastewater to four dedicated onsite septic systems not connected to the wastewater management system. The septic systems operate in accordance with permits issued by the County of San Joaquin County Environmental Health Department.
20. During a site inspection conducted by Central Valley Water Board staff on 21 January 2015, staff observed piping that allowed storm water to be discharged to an unlined non-permitted ditch located along the western site boundary due to a lack of capacity in the wastewater ponds. This discharge was a violation of the WDRs Order 5-00-021. Flow from the main wastewater pump and an auxiliary submersible pump in the sump was directed toward an 18 inch pipe leading to the western ditch. According the Discharger, storm water was discharged to the western ditch during times of no process water generation and only after a purge period of approximately one hour following the beginning of a precipitation event. Because this discharge was not authorized under the Discharger's current WDRs (Order 5-00-021), a Notice of Violation was issued on 19 February 2015 instructing the Discharger to immediately cease discharging to the ditch. In response, the Discharger immediately stopped the discharge. A Site Modifications Report was submitted by the Discharger on 31 March 2015 which explained that discharge to the ditch was eliminated by locking out the valve that allowed water to be directed to the western ditch. As described in the March 2015 report, excess wastewater would be trucked off site to a licensed facility, such as East Bay Municipal Utilities District (EBMUD), to maintain sufficient pond capacity.

Planned Changes in the Facility and Discharge

21. The Discharger plans on expanding the facility from an annual crush capacity of approximately 30,000-tons of grapes to a 50,000-ton crush capacity within the next five years, depending on market conditions. To ensure sufficient wastewater capacity, the Discharger will upgrade the wastewater system and add a LAA. The proposed improvements and winery expansion plans are described below. A process water flow schematic for the new system is shown on Attachment D, which is attached hereto and is made part of this Order by reference.
 - a. Additional wine tanks and a crushing area will be constructed south and adjacent to existing tanks and crushing area.
 - b. The existing Process Water Sump will be demolished and a new Process Water Sump, influent pump station, screen, and screenings management system will be installed.
 - c. Treatment Pond No. 2, formerly the North Pond, will be de-sludged; demolished; relocated; expanded; and lined with a new engineered synthetic liner. Treatment Pond No. 1, formerly the South Pond, will remain at its current location; however, the pond will be de-sludged, expanded, and relined with a new synthetic liner. The engineered synthetic liners will be 60-mils thick. When properly designed and installed, the liner system will have an estimated percolation rate of 10^{-9} centimeters per second or less.
 - d. The new wastewater ponds will be normally operated sequentially and a new pond water recirculation pump will cycle water from the Treatment Pond No. 1 to Treatment Pond No. 2, as needed to control pH.
 - e. The Discharger will augment aeration as needed based on facility operations (e.g., anticipated BOD loading during the crush season) and monitored pond conditions. Two additional 15-hp brush aerators will be installed to increase aeration and mixing for improved wastewater treatment at a 50,000-ton crush. The overall aeration approach will be reassessed as winery operations grow.
 - f. A storm water basin will be constructed west of proposed Treatment Ponds No. 1 and 2 and will be lined with a 60-mils thick engineered synthetic liner. During months when crush activities are not occurring (generally December to July), all storm water within the catchment area will be collected and routed to the storm water basin for evaporation and supplemental irrigation as needed. A storm water percolation area will be located east of the LAA. Storm water may be transferred to the percolation area if irrigation water is not needed on the LAA and capacity is not available in the storm water basin. When crush activities are occurring, generally August to November, all storm water will be routed to Treatment Pond No. 1 and comingled with wastewater.

- g. A sixteen acre LAA has been designated to receive wastewater. Vineyards in the proposed LAA have been removed and the LAA will be replanted and double cropped with forage crops in the winter and grass crops such as Sudan grass in the summer. The LAA will be irrigated using an engineered pump and irrigation system with flow meters.
 - h. A sprinkler irrigation system will be installed to distribute the pond water effluent, supplemental irrigation water, and storm water as needed evenly across the LAA. The pond water will be supplemented with water from the onsite irrigation wells and storm water to satisfy crop irrigation demands. Irrigation water may also be applied directly to the LAA if needed. LAA soil and crops will provide additional treatment of process water. Prior to the use of the LAA, berms or other controls will be constructed to contain process waster and storm water to prevent tailwater from leaving the property. In addition to berms, an existing buried tile drain system in the LAA may be used to collect and pump excess water back to the lined treatment ponds, if needed. Effluent will not be applied to the LAA if the LAA is flooded or has standing water.
 - i. A pond effluent pump equipped with a new flow meter will be installed and used to monitor the treated pond effluent transfer to the proposed 16 acres of LAA. An additional meter will be installed to measure the flow from the on-site supply well used to supplement irrigation of the LAA prior to mixing with the wastewater.
22. Based on the design criteria in the 2016 RWD, the modified aerated dual pond system will provide approximately 35 days of detention time per pond for a flow rate of 49,649 gpd, which is the estimated average flow rate for the month with peak flow and BOD loading (November) at 50,000-ton crush operation. At 69 days total detention, the pond system will provide an estimated 99.5% of BOD reduction and a pond effluent BOD concentration near 30 milligrams per liter (mg/L).
23. The sludge and solids generated from grape processing will continue to be used as a soil amendment or hauled off-site.
24. Background groundwater conditions in the area of the proposed 16-acre LAA are currently unknown. On 24 August 2016, the Discharger submitted a *Monitoring Well Installation Work Plan* describing the locations of three proposed wells in the area of the proposed LAA. The *Monitoring Well Installation Work Plan* was approved on 12 September 2016. Once installed, groundwater monitoring data collected from the new wells will be presented in the Monitoring and Reporting Program included in this Order.

Site-Specific Conditions

25. The ground surface at the facility is approximately 75 feet above mean sea level and is relatively flat. However, there is a 12-foot elevation difference between the low-land where the LAA is located and the high-land, where the facility is located.
26. Surface water drainage is towards the south to the Stanislaus River. The facility is within the Manteca Hydrologic Area (No. 531.10), as depicted on the interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
27. The LAA is within the Federal Emergency Management Agency (FEMA) Zone AE with a base flood elevation line and value equal to 62 feet AMSL.
28. Based on percolation tests and well boring logs, the subsurface is generally composed of alternating layers of sandy-silts, silty-sands, sand, and thin layers of clay. United States Department of Agriculture Natural Resources Conservation Service predominantly maps the area as poorly drained Merritt silty clay loam. The percolation rate for the area is reported to be 28 cubic feet per square foot per day.
29. Based on the 2016 ROWD, there are no major geologic formations at the facility and there is no evidence of bedrock beneath the general area.
30. The mean rainfall for the area is 11.5 inches per year. Climate Station No. 045738 shows that the average annual precipitation is 11.9 inches per year. The climatic data collected from the Modesto Airport Station is approximate for estimating precipitation at the facility because: (1) the facility is located 11 miles northwest of the airport station; (2) the Station and facility are at similar elevations and both are near rivers; and (3) the Modesto Airport Station period of record extends back to year 1906. The 365-day precipitation quantity having a recurrence interval of 1-in-100 years is 26.5 inches per year based on statistical calculations for the data collected at the Modesto Airport Station since 1906.
31. The average-year reference crop evapotranspiration (ET_o) is estimated at 52.4 inches per year based on the California Irrigation Management Information System (CIMIS) Manteca Station #70 with a period of record from 1987 to 2015.
32. Just north of the site is the South San Joaquin Irrigation District Canal. Local land use in the area around the facility is mixed farming, primarily consisting of vineyards and orchards.

Groundwater Conditions

33. Four onsite groundwater monitoring wells, MW-1 through MW-4, were installed between February and April 2001. The wells are located around the lined wastewater ponds. Depth to groundwater measurements collected between 2001 and 2014 are shown below.

| Groundwater | | |
|------------------------|---|---------------------------------------|
| Monitoring Well | Depth to Groundwater ¹ (feet bgs) | Screen Interval (feet bgs) |
| MW-1 | 27.57 – 44.73 | 26 – 46 |
| MW-2 | 25.17 – 44.62 | 22 – 42 |
| MW-3 | 24.65 – 39.42 | 25 – 46 |
| MW-4 | 22.71 – 37.58 | 25 – 46 |

¹ Depth to groundwater is shown as a range between the shallowest depth to the maximum depth measured between 2001 and 2014.

34. Based on the 2016 RWD, depth to groundwater data collected between 2001 and 2014 indicate that the downgradient direction of groundwater flow ranges between west-northwest and northwest, with occasional variation to the north, northeast, west, south, and southwest. Between 2001 and 2014, the average gradient was 0.002 feet/foot.
35. Data collected from the four groundwater monitoring wells represent shallow groundwater conditions near the two lined ponds. Relative to the ponds, MW-2 and MW-3 are considered upgradient wells and MW-1 is a downgradient well. The location of MW-4 makes it difficult to characterize the well as an upgradient or downgradient well; MW-4 data most likely represents cross gradient conditions. There are no monitoring wells located near the proposed LAA.
36. Groundwater samples were collected from the monitoring wells between 2001 and 2014. The analytical results from these wells are considered pre-discharge data because all wastewater has been collected in lined wastewater ponds and the analytical data from the up and down gradient wells are relatively the same (within the same order of magnitude). During testing of the North Pond, no obvious tears or holes were identified that would allow wastewater to reach the subsurface. In addition, no land application of the wastewater has occurred. The groundwater monitoring results for select constituents are presented below.

Pre-Discharge Groundwater Monitoring Analytical Results (mg/L)

| | TDS | Nitrate as N | Chloride | Sulfate | Sodium |
|-------------|--------------------|---------------------|------------------|------------------|-----------------------|
| WQO | 1,000 ² | 10 ³ | 500 ² | 500 ² | 69 ¹ |
| MW-1 | | | | | |
| Average | 447 | 26 | 16 | 41 | 21 |
| Maximum | 880 | 43 | 66 | 52 | 71⁴ |
| MW-2 | | | | | |
| Average | 429 | 34 | 10 | 45 | 17 |
| Maximum | 540 | 49 | 24 | 69 | 24.4 |
| MW-3 | | | | | |
| Average | 371 | 26 | 7 | 39 | 15 |
| Maximum | 530 | 40 | 21 | 60 | 21.9 |
| MW-4 | | | | | |
| Average | 398 | 26 | 9.5 | 46 | 16 |
| Maximum | 530 | 41 | 31 | 91 | 20 |

Concentrations in **BOLD** are greater than WQOs

mg/L = milligrams per liter

TDS = total dissolved solids

WQO= water quality objective

¹ Agricultural Water Quality Goal

² Upper Secondary Maximum Contaminant Level

³ Primary Maximum Contaminant Level

⁴ This concentration is likely an anomaly because all other sodium concentrations detected in the existing data set were less than the WQO of 69 mg/L.

37. The pre-discharge groundwater has nitrate as nitrogen concentrations exceeding the Water Quality Objectives (WQOs) of 10 mg/L. TDS, chloride, and sodium concentrations are less than the WQO of 1,000 mg/L, 500 mg/L, and 69 mg/L, respectively.

Basin Plan, Beneficial Uses, and Regulatory Considerations

38. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised June 2015* (hereafter Basin Plan) designates beneficial uses, establishes WQOs, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to California Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.
39. Local drainage is to the Stanislaus River, located approximately 1.3 miles south of the facility. The beneficial uses of the river, as stated in the Basin Plan, are municipal and domestic supply.

40. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.
41. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
42. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.
43. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
44. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.
45. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
46. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.
47. The list of crops in Finding No. 21.g is not intended as a definitive inventory of crops that are or could be grown in the area receiving the discharge.
48. Typically, irrigation with high strength wastewater results in high BOD loading on the day of application. It is reasonable to expect some oxidation of BOD at the ground surface and within the evapotranspiration zone. The maximum daily BOD loading

rate that can be applied to land without creating nuisance conditions can vary significantly depending on soil conditions and operation of the land application system.

Pollution Abatement in the Fruit and Vegetable Industry, published by the United States Environmental Protection Agency, cites BOD loading rates in the range of 36 to 600 lbs/acre-day on the day of application to prevent nuisance, but indicates the loading rates can be even higher under certain conditions.

49. The California League of Food Processors' *Manual of Good Practice for Land Application of Food Processing/Rinse Water* proposes risk categories associated with particular BOD loading rate ranges as follows:
- a. Risk Category 1: (less than 50 lbs/ac/day; depth to groundwater greater than 5 feet) Indistinguishable from good farming operations with good distribution important.
 - b. Risk Category 2: (less than 100 lbs/ac/day; depth to groundwater greater than 5 feet) Minimal risk of unreasonable groundwater degradation with good distribution more important.
 - c. Risk Category 3: (greater than 100 lbs/ac/day; depth to groundwater greater than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations that consider site-specific application cycles and soil properties and special monitoring.

The *Manual of Good Practice* recommends allowing a 50 percent increase in the BOD loading rates in cases where sprinkler irrigation is used, but recommends that additional safety factors be used for sites with heavy and/or compacted soils.

50. Although it has not been subject to a scientific peer review process, the *Manual of Good Practice* provides science-based guidance for BOD loading rates that, if fully implemented, are considered a best management practice to prevent groundwater degradation due to reduced metals.
51. This Order sets an irrigation cycle average BOD loading rate for the LAA of 150 lbs/acre/day consistent with Risk Category 2 in the *Manual of Good Practice* for discharges using sprinkler application to land with well drained soils.

Antidegradation Analysis

52. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
- a. The degradation is consistent with the maximum benefit to the people of the state.

- b. The degradation will not unreasonably affect present and anticipated future beneficial uses.
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
 - d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
53. Degradation of groundwater by some of the typical waste constituents associated with discharges from a winery, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The Discharger's operation provides 16 full time jobs and up to 58 temporary, seasonal employees annually. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.
54. The Discharger has been monitoring groundwater quality site since 2001. Pre-discharge data are available to perform an anti-degradation analysis. However, the data indicate that groundwater degradation has occurred but is likely associated with the long term agricultural nature of the surrounding area which prevents a determination of pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on pre-discharge groundwater quality.
55. Constituents of concern that have the potential to degrade groundwater, based on data collected from the Process Water Sump and known constituents in winery wastewater, include TDS, nitrate as nitrogen, sodium, and chloride.
- a. **Total Dissolved Solids.** The average wastewater TDS concentration in wastewater samples from the Process Water Sump not commingled with storm water is 3,999 mg/L. As noted in previous findings, the maximum pre-discharge concentration in groundwater with respect to TDS is 880 mg/L. Because wastewater has never been land applied, TDS concentrations in groundwater are relatively consistent (within the same order of magnitude) between the four monitoring wells. TDS in groundwater likely represents pre-discharge conditions.

For the purpose of this analysis, the secondary MCL of 1,000 mg/L is the WQO for TDS and the Antidegradation Policy applies because pre-discharge groundwater quality meets the WQO. Therefore, this Order sets a numeric TDS trigger concentration for groundwater lower than the WQO. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the WQO or implement additional treatment or control measures to ensure compliance with the groundwater limitation.

- b. **Nitrate.** Groundwater quality is poor with respect to nitrogen because nitrate as nitrogen concentrations exceed the primary MCL of 10 mg/L in the groundwater monitoring wells. Nitrate concentrations in the four monitoring wells are within the same order of magnitude and the wastewater has never been land applied, indicating that the data represent pre-discharge conditions. Wastewater discharges from the facility have not likely degraded groundwater and elevated nitrogen in groundwater is likely the result of long-term agricultural use in the area. For nutrients such as nitrate, the potential for groundwater degradation depends on wastewater quality, crop uptake, and the ability of the vadose zone beneath the LAA to support nitrification and denitrification to convert the nitrogen to nitrogen gas before it reaches the water table. The new LAA system will optimize nitrogen uptake by crops and minimize the potential for nitrate to migrate to groundwater.

For the purpose of this analysis, 10 mg/L is the WQO for nitrate as nitrogen and the Controllable Factors Policy applies because pre-discharge groundwater quality does not meet the WQO. Therefore, this Order prohibits any further groundwater degradation and requires that nutrients associated with the wastewater and other sources be applied to the LAA at rates consistent with crop demand. The Groundwater Limitation requires the discharge to not cause any statistically significant increase in groundwater nitrate concentrations.

- c. **Sodium.** The process wastewater is not currently monitored for sodium; however, sodium is known to be a key salinity constituent in winery wastewater and facilities with water softeners and boilers. The average sodium concentration in groundwater is 10 mg/L, which is less than the WQO of 69 mg/L. Degradation of groundwater due to sodium has not occurred as a result of the facility's activities or the activities in the surrounding area. Because degradation of groundwater from sodium is not occurring, the Antidegradation Policy applies.

Because sodium has the potential to degrade groundwater, this Order prohibits any groundwater degradation from sodium or cause exceedances of the WQO of 69 mg/L. Therefore, this Order sets a numeric sodium trigger concentration for groundwater lower than the WQO. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the WQO in shallow groundwater or implement additional treatment or control measures to ensure compliance with the groundwater limitation.

- d. **Chloride.** The process wastewater is currently not monitored for chloride; however chloride is known to be a key salinity constituent in winery wastewater and in wastewater from facilities with water softeners and a boiler. Chloride concentrations in groundwater range from 7 mg/L to 66 mg/L, less than the WQO of 500 mg/L. Degradation of groundwater due to chloride has not occurred as a result of the facility's activities or the activities in the surrounding area. Because

degradation of groundwater from chloride is not occurring, the Antidegradation Policy applies.

Because chloride has the potential to degrade groundwater, this Order prohibits any groundwater degradation from chloride or cause exceedances of the WQO of 500 mg/L. Therefore, this Order sets a numeric chloride trigger concentration for groundwater lower than the WQO. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the WQO in shallow groundwater or implement additional treatment or control measures to ensure compliance with the groundwater limitation.

56. Excessive BOD loading rates to the LAA have the potential to deplete oxygen, resulting in anoxic conditions. This results in reducing conditions that favor dissolution of naturally occurring metals, specifically iron and manganese, from native soil. Therefore, the BOD loading rate will not exceed 150 lbs/ac/day, as included in Finding No. 51.
57. This Order establishes effluent and groundwater limitations for the facility that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan as follows:
 - a. For TDS, sodium, and chloride, the nature of the waste, site-specific conditions, and pre-discharge groundwater monitoring data indicate that the discharge may cause degradation, but will not cause exceedance of a water quality objective. The Discharger proposes to implement BPTC, so the degradation is allowable under Resolution 68-16.
 - b. For nitrate as nitrogen, the nature of the waste, site-specific conditions, and pre-discharge groundwater monitoring data indicate that the discharge could cause (or contribute to) exceedance of a water quality objective. The provisions of this Order require that the Discharger implement BPTC and contain a time schedule to ensure that the discharge will comply with water quality objectives.
58. Upon completion of the proposed improvements, the Discharger will provide treatment and control of the discharge that incorporates:
 - a. Engineered and synthetically lined wastewater collection ponds that are used for evaporation and treatment;
 - b. Wine making activities are limited to only areas that drain to the process water system;
 - c. Periodic removal of sludge from the ponds;
 - d. Employees are trained on proper cleanup and handling procedures in the event of a spill;

- e. Overflow and bypass are prevented by automatic pump controls with visual and audible high-level alarms in the Process Water Sump and staff gauges in the ponds that clearly show a red warning line indicating the minimum amount of freeboard has been reached.
- f. In the event the LAA is flooded and pond discharge needs to occur, the Discharger will cease process water generating activities or transport water to a licensed facility, such as EBMUD.
- g. Current operations and maintenance procedures include routine observances of equipment and facilities, collecting samples and meter readings, scheduling as-needed maintenance activities, and adjusting system settings based on anticipated operation and pond conditions.

Other Regulatory Considerations

- 59. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
- 60. Based on the threat and complexity of the discharge, the facility is determined to be classified as 2B as defined below:
 - a. Category 2 threat to water quality: "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
 - b. Category B complexity, defined as: "Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units."
- 61. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

- (b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and
- (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

(f) Soil Amendments - Use of nonhazardous decomposable waste as a soil amendment pursuant to applicable best management practices, provided that RWQCBs may issue waste discharge or reclamation requirements for such use.

62. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:
 - a. Discharges to the North and South Ponds and to the LAA are exempt pursuant to Title 27, section 20090(b) because they are discharge of wastewater to land and:
 - i. The Central Valley Water Board is issuing WDRs.
 - ii. The discharge is in compliance with the Basin Plan, and;
 - iii. The treated effluent discharged to the ponds does not need to be managed as hazardous waste.
 - b. Discharge of processing residual solids to the LAA is exempt pursuant to Title 27, section 20090(b) because it constitutes use of nonhazardous decomposable waste as a soil amendment and this Order requires implementation of applicable best management practices.
63. The U.S. EPA published *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (hereafter "Unified Guidance") in 2009. As stated in the Unified Guidance, the document:

...is tailored to the context of the RCRA groundwater monitoring regulations ... [however, t]here are enough commonalities with other regulatory groundwater monitoring programs ... to allow for more general use of the tests and methods in the Unified Guidance... Groundwater detection monitoring involves either a comparison between different monitoring stations ... or a contrast between past and present data within a given station... The Unified Guidance also details methods to compare background data against measurements from regulatory compliance points ... [as well as] techniques for comparing datasets against fixed numerical standards ... [such as those] encountered in many regulatory programs.

The statistical data analysis methods in the Unified Guidance are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.

64. The State Water Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger submitted a Notice of Non-Applicability, as allowed by NPDES General Permit CAS000001.

65. Water Code section 13267(b)(1) 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 having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports 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.

The technical reports required by this Order and the attached Monitoring and Reporting Program **R5-2016-0097** (Attachment G, which is attached hereto and made part of this Order by reference), are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

66. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

67. A Negative Declaration was certified by the San Joaquin County Community Development Department on 22 January 1998, in accordance with California Environmental Quality (CEQA) (Pub. Resources Code, § 21000 et seq.). The Initial Study and Negative Declaration describe the construction of a winery facility consisting of several structures, wine storage tanks, and other accessory buildings on APN 254-220-20. The proposed LAA and new treatment ponds are located on this parcel. The Initial Study found that the project would not cause significant impacts to water quality and that mitigation measures were not necessary.

68. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the CEQA, in accordance with the California Code of Regulations, title 14, section 15301.

69. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

70. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
71. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.
72. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order 5-00-021 is rescinded and, pursuant to Water Code sections 13263 and 13267, the Discharger, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.
3. Discharge of waste classified as 'designated', as defined in CWC Section 13173, in a manner that causes violation of groundwater limitations, is prohibited.
4. Treatment system (ponds, sump, screen, and LAA) bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.
5. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.
6. Discharge of toxic substances into any wastewater treatment system or land application area such that biological treatment mechanisms are disrupted is prohibited.

7. Discharge of process wastewater to the domestic wastewater treatment system (septic system) is prohibited.
8. Discharge of domestic wastewater to the process wastewater ponds, land application areas, or any surface waters is prohibited.

B. Flow Limitations

1. **Effectively immediately**, the required two feet of freeboard in both the existing North and South Ponds shall be maintained at all times. Because the Discharger does not currently have sufficient capacity to store the facility’s wastewater, any excess wastewater will be trucked off-site to a licensed facility to maintain the two feet of freeboard.
2. **Effective on the date of the Executive Office approval** of the *Land Application Area Completion Report* submitted pursuant to Provision H.1.d , flows to the LAA shall not exceed the following limits:

| Flow Measurement | Flow Limit ¹ |
|---|-------------------------|
| Total Annual Flow ² | 6 MG |
| Maximum Average Daily Flow ³ | 0.05 MGD |

¹ Includes average year storm water. Additional storm water application is allowed in above average rainfall years, provided all other provisions in the WDRs are met
² As determined by the total flow for the calendar year.
³ As determined by the total flow during the calendar month divided by the number of days in that month.

3. **Effective on the date of Executive Office approval** of the *Wastewater Treatment Facility Modification Completion Report* submitted pursuant to Provision H.1.f, flows to the LAA shall not exceed the limits specified in the following table. Approval is dependent on submittal of a water balance capacity analysis demonstrating that the as-built hydraulic capacity of the system is consistent with the flow limits.

| Flow Measurement | Flow Limit ^{1,4} |
|---|---------------------------|
| Total Annual Flow ² | up to 7 MG |
| Maximum Average Daily Flow ³ | up to 0.08 MGD |

¹ Flow limit applies once the facility expansion is complete and a water balance based on the final as-built shows sufficient capacity for the projected flow.
² As determined by the total flow for the calendar year.
³ As determined by the total flow during the calendar month divided by the number of days in that month.
⁴ Includes storm water for processing months only.

C. Effluent and Mass Loading Limitations

1. The blend of treated wastewater and storm water applied to the LAA shall not exceed the following effluent and mass loading limits:

| Constituent | Units | Limit ¹ |
|--|-------------|--------------------|
| BOD Mass Loading (Sprinkler Irrigation) | lbs/ac/day | 150 |
| Total Nitrogen Mass Loading Limit | lbs/ac/year | Crop Demand |
| FDS Mass Loading Limit | lbs/ac/year | 5,400 ² |

¹ The same limits are required for wastewater flow rates corresponding to both a 30,000-ton crush and a 50,000-ton crush.

² Includes treated wastewater and storm water applied to the LAA from the ponds. Does not include supplemental irrigation water.

Compliance with the above requirements shall be determined as specified in the Monitoring and Reporting Program.

D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause a violation of the Groundwater Limitations of this Order.
2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
3. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.
4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
5. 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.
6. As a means of discerning compliance with Discharge Specification D.5, 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 10 days and shall include a specific plan to resolve the low DO results within 30 days.

7. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow, such as an overflow pipe). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level and enable determination of available operational freeboard.
8. Wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
9. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications D.7 and D.8.
10. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
 - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
11. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
12. The Discharger shall monitor sludge accumulation in the wastewater treatment/storage ponds at least **every five years from submittal of the Construction Completion Report**, and shall periodically remove sludge as necessary to maintain adequate storage capacity. Specifically, if the estimated volume of sludge in the ponds exceeds 3 feet or 25 percent of the designed pond

capacity, the Discharger shall complete sludge cleanout within 12 months after the date of the estimate.

13. **Every five years from submittal of the *Construction Completion Report***, the Discharger shall test the integrity of all pond liners and repair all significant leaks in accordance with an approved workplan pursuant to Provision H.1.g.
14. Storage of residual solids, including pomace and/or diatomaceous earth on areas that allow storm water or leachate infiltration is prohibited.
15. Process wastewater used for on-site dust control or landscape irrigation shall be used in a manner that will not cause discharge of eroded sediment in storm water runoff to areas not controlled by the Discharger.

E. Groundwater Limitations

Release of waste constituents from any portion of the facility shall not cause groundwater to contain any of the specified constituents greater than the maximum allowable concentration or show statistically significant increases where pollution has occurred. Maximum allowable concentrations and trigger concentrations for constituents in groundwater are specified in the Monitoring and Reporting Program (MRP).

1. For all compliance monitoring wells, as a result of the discharge, groundwater samples shall not contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations.
2. For all compliance monitoring wells, as a result of the discharge, groundwater samples shall not contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

Compliance with these limitations shall be determined annually as specified in the Monitoring and Reporting Program using approved statistical methods.

If additional wells are designated as compliance wells in the future, the Executive Officer will issue a revised MRP specifying the applicability of subparagraphs 1 and 2 to those wells.

F. Land Application Area Specifications

1. Crops shall be grown in the LAA.
2. Land application of wastewater shall be managed to minimize erosion and prevent offsite discharger.

3. The LAA shall be managed to prevent breeding of mosquitoes or other vectors.
4. The LAA shall be designed, maintained, and operated to comply with the following setback requirements:

| Setback Definition | Minimum Irrigation Setback (feet) |
|---|--|
| Edge of LAA to property boundary | 25 ¹ |
| Edge of LAA to manmade or natural surface water drainage course | 25 |
| Edge of LAA to domestic water supply well | 100 |

¹ Unless a shorter distance can be justified while meeting all other provisions of the WDRs.

5. Irrigation of the LAA shall be managed by appropriately trained personnel.
6. The LAA shall be inspected periodically to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with this Order, the Discharger shall temporarily stop recycled water use immediately and implement corrective actions to ensure compliance with this Order.
7. Spray irrigation with wastewater is prohibited when wind speed (including gusts) exceeds 30 mph.
8. Sprinkler heads shall be designed, operated and maintained to create a minimum amount of mist.
9. Any irrigation runoff (tailwater) shall be confined to the LAA or returned to the ponds and shall not enter any surface water drainage course or storm water drainage system.
10. Discharge to the LAA shall not be performed when the ground is saturated.
11. Discharge of storm water runoff from the LAA to off-site land or surface water drainage courses is prohibited.

G. Solids Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid organic matter removed from wastewater treatment, settling, and storage vessels or ponds. Solid waste refers to solid inorganic matter removed by screens and soil sediments from washing of unprocessed fruit or vegetables. Residual solids means organic food processing byproducts such as culls, pulp, stems, leaves, and seeds that will not be subject to treatment prior to disposal or land application.

1. Sludge and solid waste shall be removed from screens, sumps, and ponds as needed to ensure optimal operation and adequate storage capacity.
2. Any handling and storage of sludge, solid waste, and residual solids shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.
3. Sludge and residual solids generated during fermentation, including skins, pulp, seeds, and stems, may be discharged to land in accordance with the Land Application Area Specifications of this Order. If removed from the site, sludge residual solids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for reuse as animal feed, or land disposal at facilities (i.e., landfills, composting facilities, soil amendment sites operated in accordance with valid waste discharge requirements issued by a Regional Water Board) will satisfy this specification.
4. Application of pomace and other grape wastes, including stems, skins, pulp, and seeds may be land applied and composted and tilled into the soil. Lees, consisting of yeasts and solids coagulated with bentonite, are filtered with diatomaceous earth (DE). The spent DE is often hauled off-site as a solid waste but occasionally tilled into the soil as an amendment.
5. Any proposed change in solids use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

H. Provisions

1. The following reports shall be submitted pursuant to CWC section 13267 and shall be prepared as described in Provision H.4:
 - a. By **1 April 2017**, the Discharger shall submit a *Wastewater System Design and Construction Quality Assurance (CQA) Plan and a Flow Metering Systems Improvement Plan*. The wastewater system design report shall specify the final design of the new wastewater storage ponds, new sump pump and distribution system, and liner systems, including complete pond geometry, liner materials, liner thickness, seaming methods, and details of anchorage. The CQA workplan shall describe the specific construction quality assurance procedures

and test methods that the Discharger proposes to ensure and verify that the liner subgrade preparation, installation and seaming will comply with the specifications; the entire liner is tested following installation to verify that all seams and liner penetrations are leak-free at the time of acceptance; and the entire liner is inspected for visible material defects and construction damage such as holes or tears prior to acceptance.

The Flow Metering Systems Improvement Plan shall describe the planned installation of flow meters systems for the upgraded treatment system. The upgrades shall allow for continuous direct flow measurements and accurate calculation of daily total flows for:

- i. Influent flow from the Process Water Sump to the North Pond or Treatment Pond No. 1,
- ii. Effluent flow from the South Pond or Treatment Pond No. 2 to the LAA, and
- iii. Supplemental water flow from the onsite well to Treatment Pond No. 2.

The plan shall describe how the metering systems will be calibrated and used in conjunction with appropriate wastewater sampling stations (whether existing or new) to ensure accurate calculation of waste constituent loadings. The plan shall document that all wastewater flow meters shown in Attachment D will be independently calibrated by a third party.

- b. By **1 May 2017**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* that describes the installation of the new groundwater monitoring wells. As described in Finding 24, additional wells are needed to determine background groundwater conditions and to monitor potential impacts to groundwater from the application of wastewater on the LAA. The report shall be prepared in accordance with, and including the items listed in, the second section of Attachment E: "*Monitoring Well Workplan and Monitoring Well Installation Report Guidance*". The report shall describe the installation, development, and sampling of all new monitoring wells, and explain any deviations from the approved workplan. The report shall also have a Groundwater Sample and Analysis Plan (SAP), as described in section G of Attachment E. Groundwater monitoring of these wells is described in the Monitoring and Reporting Program.
- c. By **30 January 2018**, the Discharger shall submit a *Background Groundwater Quality Study Report* and a *Groundwater Limitations Compliance Assessment Plan*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data and calculation of the concentration in background monitoring wells. The *Groundwater Limitations Compliance Assessment Plan* shall propose the specific statistical approach and methods that will be used to determine compliance with the

Monitoring and Reporting Program. Determination of background quality and assessment of compliance with the Monitoring and Reporting Program shall be made using the appropriate statistical methods that have been selected based on site-specific information and the U.S. EPA Unified Guidance document cited in Finding 63 of this Order. The report shall explain and justify the selection of the appropriate statistical methods.

- d. At **least 30 days** prior to discharge to the LAA, the Discharger shall submit a *Land Application Area Completion Report* that certifies completion of the new LAA as described in the findings. The report shall describe the irrigation and tailwater control systems for each LAA, and shall include as-built drawings.
- e. By **1 September 2017**, the Discharger shall submit a *Best Practicable Treatment or Control Workplan* that evaluates options for further salinity reduction and nutrient management. The workplan shall include the following:
 - i. A *Salinity Reduction Workplan* that describes specific salinity reduction activities performed to date, includes flow estimates and laboratory characterization of all current contributing waste streams (including seasonal variation), evaluates the feasibility of additional salinity control measures, specifies those measures that will be implemented, and presents an implementation schedule. Estimates of capital and operation/maintenance costs for each option shall be provided. Full implementation shall be achieved no more than 3 years from the date of this Order.

The workplan shall present updated flow rates and salinity concentrations for the following waste streams: influent to the North Pond (to Treatment Pond No. 1 once constructed) and effluent from the South Pond (from Treatment Pond No. 2) to the LAA.
 - ii. The *Nutrient Management Workplan* shall evaluate the nutrient load to each land application area and develop pollution prevention management practices to restrict nutrient loading necessary.
- f. At **least 60 days** before the flow rate is increased after construction, the Discharger shall submit a *Wastewater Treatment Facility Improvements Completion Report* that certifies construction and start-up testing of the wastewater system has been completed, and certifies that the facility can comply with the applicable effluent limitations. Specifically, the report shall document the construction of any additional ponds (including pond descriptions, final dimensions, berm material, and percolation rates, if applicable) and certify that the ponds are fully functional and ready to receive wastewater in compliance with the requirements of this Order. In addition, a *Pond Liner Integrity Evaluation and Sludge Cleanout Workplan* that specifies the means and methods that the Discharger proposes to use to perform a 5-year evaluation of all geosynthetic liner systems to comply with Discharge Specification D.13. The plan shall also include a detailed plan for sludge

removal, methods to be used to remove sludge without damaging the liners, drying, and disposal and will be used for all sludge cleanout events. The plan shall describe the measures to be used to control runoff or percolate from the sludge as it is drying.

The report shall include as-built drawings of the facility's modifications and a detailed water balance model that provides the following hydraulic capacity information:

- i. Average daily dry weather flow for the months of August through November, inclusive.
- ii. Maximum monthly average flow based on a reasonable allowance for a 100-year, 365-day precipitation event.
- iii. Total annual flow volume.

The water balance shall include documentation of, and technical support for, all data inputs used and shall consider at least the following.

- i. The as-built geometry of all ponds and effluent disposal areas;
 - ii. A minimum of two feet of freeboard in each pond at all times;
 - iii. Historical local pan evaporation data (monthly average values) used to estimate pond evaporation rates;
 - iv. Local precipitation data (for the 100-year 365-day event distributed in accordance with mean monthly precipitation patterns) applied as direct precipitation onto all ponds and effluent recycling areas; and
 - v. Proposed wastewater generation rates based on historical flows and new development to be served by the expansion distributed monthly in accordance with expected seasonal variations.
- g. **Within 60 days** after submittal of *Wastewater Treatment Facility Improvements Completion Report*, the Discharger shall submit and implement an *Operation and Management Plan (O&M Plan)* that addresses operation of the upgraded wastewater treatment system, and documents that the facility will be operated as described in the Findings of this Order. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel and they shall be familiar with its contents. At a minimum, the O&M Plan will describe the following:
- i. The daily operation and maintenance of the treatment system.
 - ii. The practices used to treat the wastewater within limits specified in this Order.

- iii. Detailed wastewater pond inspection and maintenance, including procedures for replacement or repair of the liner when a leak is detected.
 - iv. The locations of the LAA; irrigation protocols for the LAA; management practices to maintain and secure the LAA; and management procedures and practices to prevent excessive BOD, nitrogen, or dissolved solids loading of LAA.
 - iv. A description of how and where the sludge and solids will be handled and stored prior to land application or disposal, including observations related to the storage, a troubleshooting guide, and disposal procedures.
 - v. The locations of flow, influent and effluent sampling points
 - vi. Quality control sampling procedures necessary to obtain representative samples.
 - vii. The locations of solid waste disposal areas, methods of disposal, and the daily practices associated with the disposal of solid waste.
 - ix. Planning for potential response to natural disasters.
 - x. Planning for potential response to a facility wide power failure.
 - xi. Institutional controls such as Best Management Practices (BMPs).
 - xii. Standard Operating Procedures (SOP).
 - xiii. Specific procedures to ensure that contaminated storm water is discharged to the winery wastewater treatment system and uncontaminated storm water is managed as part of the facility's *Storm and Process Water Management Plan*.
 - xiv. Employee orientation and training.
2. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain any waste constituents in concentrations greater than WQOs or statistically greater than the Groundwater Limitations of this Order, within 120 days of the request of the Executive Officer, the Discharger shall submit a BPTC Evaluation Workplan that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of each component of the wastewater treatment, storage and disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.
 3. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the previous three years' average dry weather flows, peak wet weather flows and total

annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.

4. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.
5. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.
6. The Discharger shall comply with Monitoring and Reporting Program **R5-2016-0097** which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
7. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" included as Attachment F, dated 1 March 1991, and attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)".
8. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

9. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.
10. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
11. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
12. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
13. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
14. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
15. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
16. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance

with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

17. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
18. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

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, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order 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 that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 6 December 2016.

Original Signed by

PAMELA C. CREEDON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2016-0097

FOR

MCMANIS FAMILY VINEYARDS
MCMANIS FAMILY VINEYARDS, INC.
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) incorporates requirements for wastewater discharge and groundwater monitoring for McManis Family Vineyards. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All wastewater samples shall be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Field test instruments (such as pH, electrical conductivity, and dissolved oxygen) may be used provided that:

1. The operator is trained in the proper use of the instrument;
2. The instruments are field calibrated prior to each use;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA);
- *Test Methods for Evaluating Solid Waste* (EPA);
- *Methods for Chemical Analysis of Water and Wastes* (EPA);
- *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA);
- *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and
- *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125).

Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

FLOW MONITORING

Hydraulic flow rates shall be measured at the three flow meter locations specified in this MRP and depicted on Attachment D in the WDRs. Central Valley Water Board staff shall approve any proposed changes to flow monitoring locations prior to implementation of the change. All flow monitoring systems shall be appropriate for the conveyance system (i.e., open channel flow or pressure pipeline) and liquid type. Unless otherwise specified, each flow meter shall be equipped with a flow totalizer to allow reporting of cumulative volume as well as instantaneous flow rate. Flow meters shall be calibrated at the frequency recommended by the manufacturer; typically at least once per year and records of calibration shall be maintained for review upon request. Flow rates to the ponds and land application area (LAA) shall be monitored as follows:

| <u>Parameter</u> ¹ | <u>Units</u> | <u>Type of Sample</u> | <u>Sampling Frequency</u> ² | <u>Reporting Frequency</u> |
|--|--------------|-----------------------|--|----------------------------|
| <u>Existing System</u> | | | | |
| Influent Flow Meter (from sump to North Pond) | Gallons | Meter Reading | Daily | Monthly |
| Effluent Flow Meter ³ (from South Pond to LAA) | Gallons | Meter Reading | Daily | Monthly |
| Supplemental Water (from onsite well to South Pond) | Gallons | Meter Reading | Daily | Monthly |
| <u>Proposed System</u>⁴ | | | | |
| Influent Flow Meter (from sump to Treatment Pond No. 1) | Gallons | Meter Reading | Daily | Monthly |
| Effluent Flow Meter (from Treatment Pond No. 2 to LAA) | Gallons | Meter Reading | Daily | Monthly |
| Supplemental Water (from onsite well to Treatment Pond No. 2) | Gallons | Meter Reading | Daily | Monthly |

¹ Flow meters listed above are part of the current and planned wastewater system. If additional flow meters are installed as part of the facility upgrades, the sampling requirements for the new meters will be same as those listed in the table above.

² Daily flow monitoring is required when land application occurs, generally from August to November, and monthly during other times.

³ Effluent flow to the LAA will begin once the LAA have been constructed and are ready for wastewater application.

⁴ The requirements for the proposed system will be in effect upon the Executive Officer’s approval of winery expansion.

INFLUENT WASTEWATER MONITORING

For the existing and proposed wastewater treatment systems, the influent sampling for both systems is the same. Samples shall be collected prior to discharge to the North Pond or Treatment Pond No. 1. Sampling shall include, at a minimum, the following:

| <u>Constituent</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Sampling Frequency</u> | <u>Reporting Frequency</u> |
|--------------------------------|--------------|-----------------------|---------------------------|----------------------------|
| Nitrate as Nitrogen | mg/L | Composite | Monthly | Monthly |
| Total Kjeldahl Nitrogen | mg/L | Composite | Monthly | Monthly |
| Ammonia as Nitrogen | mg/L | Composite | Monthly | Monthly |
| Total Nitrogen | mg/L | Composite | Monthly | Monthly |
| BOD ₅ ¹ | mg/L | Composite | Monthly | Monthly |
| Total Dissolved Solids | mg/L | Composite | Monthly | Monthly |
| Fixed Dissolved Solids | mg/L | Composite | Monthly | Monthly |
| pH | Standard | Composite | Monthly | Monthly |
| Electrical Conductivity | µmhos/cm | Composite | Monthly | Monthly |
| Metals/Inorganics ² | µg/L | Composite | Annually | Annually |

¹ Five-day, 20° Celsius biochemical oxygen demand.

² All samples shall be filtered prior to preservation. Metal/Inorganics analyses include, at a minimum, the following: calcium, chloride, potassium, dissolved iron, dissolved magnesium, dissolved manganese, sodium, and sulfate.

EFFLUENT WASTEWATER MONITORING

For the existing and proposed wastewater treatment systems, the effluent sampling for both systems is the same. Effluent monitoring is only required once the LAA are ready for wastewater application. Samples shall be collected from the effluent from the South Pond or Treatment Pond No. 2 prior to application on the LAA.

| <u>Constituent</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Sampling Frequency</u> | <u>Reporting Frequency</u> |
|--------------------------------|--------------|-----------------------|---------------------------|----------------------------|
| Nitrate as Nitrogen | mg/L | Grab | Monthly | Monthly |
| Total Kjeldahl Nitrogen | mg/L | Grab | Monthly | Monthly |
| Ammonia as Nitrogen | mg/L | Grab | Monthly | Monthly |
| Total Nitrogen | mg/L | Grab | Monthly | Monthly |
| BOD ₅ ¹ | mg/L | Grab | Monthly | Monthly |
| Total Dissolved Solids | mg/L | Grab | Monthly | Monthly |
| Fixed Dissolved Solids | mg/L | Grab | Monthly | Monthly |
| Electrical Conductivity | µmhos/cm | Grab | Monthly | Monthly |
| pH | Standard | Grab | Monthly | Monthly |
| Metals/Inorganics ² | µg/L | Grab | Annually | Annually |

¹ Five-day, 20° Celsius biochemical oxygen demand.

² All samples shall be filtered prior to preservation. Metal/Inorganics analyses include, at a minimum, the following: calcium, chloride, potassium, dissolved iron, dissolved magnesium, dissolved manganese, sodium, and sulfate.

POND MONITORING

The North and South Ponds, proposed Treatment Ponds No. 1 and 2, and the Storm Water Pond shall be monitored as specified below:

| <u>Parameter</u> | <u>Units</u> | <u>Sample Type</u> | <u>Monitoring Frequency</u> ³ | <u>Reporting Frequency</u> |
|---------------------------|--------------|--------------------|--|----------------------------|
| Presence/Absence of Water | -- | Observation | Weekly/ Monthly | Monthly |
| Freeboard ^{1,2} | 0.1 feet | Measurement | Weekly/ Monthly | Monthly |
| Dissolved Oxygen | mg/L | Measurement | Weekly/Monthly | Monthly |
| Odors | -- | Observation | Weekly/ Monthly | Monthly |
| Berm condition | -- | Observation | Weekly/ Monthly | Monthly |

¹ Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet.

² Because the North and South Ponds do not have sufficient capacity for the 2016 processing season, any excess water will be shipped off-site to a licensed facility to maintain the two feet of freeboard until the LAAs have been approved and are available. Receipts from the facility taking the excess water shall be submitted monthly with the monthly monitoring reports once the receipts are available from the facility.

³ Weekly monitoring is required during the processing season, generally from August to November, and monthly during the off-season.

In addition, the Discharger shall inspect the condition of the ponds once per week during the processing season and once per month in the off-season and document visual observations. Notations shall include observations of:

- Presence of weeds in the water or along the berm;
- Accumulations of dead algae, vegetation, scum, or debris on the pond surface;
- Animal burrows in the berms;
- Evidence of seepage from the berms or downslope of the ponds;

SUPPLEMENTAL IRRIGATION WATER MONITORING

Supplemental irrigation water used to irrigate the LAA and for blending in the ponds shall be monitored as described below. Irrigation water samples shall be collected prior to mixing with the wastewater.

| <u>Constituent</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Sampling and Reporting Frequency</u> |
|--------------------------------|--------------|-----------------------|---|
| Nitrate as Nitrogen | mg/L | Grab | Annually |
| Total Kjeldahl | mg/L | Grab | Annually |
| Ammonia as Nitrogen | mg/L | Grab | Annually |
| Total Nitrogen | mg/L | Grab | Annually |
| Total Dissolved Solids | mg/L | Grab | Annually |
| Fixed Dissolved Solids | mg/L | Grab | Annually |
| pH | Standard | Grab | Annually |
| Metals/Inorganics ¹ | µg/L | Grab | Annually |

¹ Analysis shall include, at a minimum, the following: calcium, chloride, potassium, dissolved iron, dissolved magnesium, dissolved manganese, sodium, and sulfate.

LAND APPLICATION AREA MONITORING

The Discharger shall monitor the land application areas year-round and shall submit the results in the corresponding monthly monitoring reports. Monitoring of the land application area shall include the following:

When Land Application Occurs (generally between August and November)

| <u>Constituent</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Monitoring Frequency</u> | <u>Reporting Frequency</u> |
|---------------------------------------|------------------------|-----------------------|---------------------------------|----------------------------|
| Total Wastewater Flow ¹ | Gallons | Continuous | Daily | Monthly |
| Total Supplemental Irrigation | Gallons | Continuous | Daily | Monthly |
| Total Acreage Applied ¹ | Acres | Estimated | Daily | Monthly |
| BOD Loading Rate ² | lbs/ac/day | Calculated | Daily | Monthly |
| Nitrogen Loading Rate ³ | lbs/ac/mo ⁴ | Calculated | Daily | Monthly |
| Flow Weighted TDS Loading Rate | lbs/ac/mo ⁴ | Calculated | Daily | Monthly |
| LAA Soil Condition ⁵ | NA | Inspection | Monthly | Monthly |
| <u>Year-Round Requirements</u> | | | | |
| Crop | NA | Inspection | Annually | Annually |
| Condition of Containment Berms | NA | Inspection | Weekly/ Monthly ⁶ | Monthly |

| | | | | |
|--|----|------------|---------------------------------|---------|
| Nuisance Conditions | NA | Inspection | Weekly/ Monthly ⁶ | Monthly |
| Evidence of Erosion | NA | Inspection | Weekly/ Monthly ⁶ | Monthly |
| Any Corrective Action Taken (based on observations) | NA | Inspection | Weekly/ Monthly ⁶ | Monthly |

¹ If only a portion of the LAA is used, then the application acreage shall be estimated.

² Calculate the daily application rates, based on the most recent BOD effluent results.

³ Total nitrogen applied from all sources, including fertilizers, compost, and supplemental irrigation water if used.

⁴ Report monthly total and cumulative annual to date.

⁵ LAA soil conditions (saturated or unsaturated) shall be determined prior to wastewater application.

⁶ Weekly when land application occurs (generally August to November) and monthly during other times (generally December to July).

At least **once per week** during the processing season when wastewater is being applied to the land application areas, the entire application area shall be inspected to identify any equipment malfunction or other circumstance that might allow irrigation runoff to leave the area and/or create ponding conditions that violate the Waste Discharge Requirements. A log of these inspections shall be kept at the facilities and be submitted with the monthly monitoring reports. If wastewater was not applied to the land application area, then the monthly monitoring reports shall so state.

SOLIDS MONITORING

The Discharger shall monitor the solids generated and disposed of on a monthly basis. The following shall be monitored and reported monthly:

1. Volume of solids generated. Solids may include pomace, seeds, stems, diatomaceous earth, screenings, and sump/clarifier solids, or other material.
2. Volume disposed of on- and off-site. Describe the location the solids are stored, disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.), the amount disposed (tons), the name of the hauling company, and the location where the material was transported.

GROUNDWATER MONITORING

The groundwater monitoring program applies to groundwater monitoring wells tabulated below and any wells subsequently installed under direction of the Central Valley Water Board. The following table lists all existing monitoring wells and designates the purpose of each well:

| <u>Groundwater Well</u> | <u>Location</u> |
|-------------------------|---|
| MW-1 ¹ | Northwestern corner of Northern Pond ³ |
| MW-2 ¹ | Eastern edge of Northern Pond ³ |
| MW-3 ¹ | Southeast corner of Southern Pond ³ |
| MW-4 ¹ | Southwestern corner of Southern Pond ³ |
| LAA Wells ² | To Be Determined |

¹ Existing monitoring wells that are associated with the ponds. Planned facility upgrades may require the demolition or re-location of existing wells.

² New monitoring wells (to be installed) will be used to monitor potential impacts to groundwater from the wastewater applied to the LAA.

³ After completion of the planned upgrades, the South Pond will be Treatment Pond No. 1 and the North Pond will be Treatment Pond No. 2.

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction, based on surveyed well casing elevations. Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

| <u>Constituent</u> | <u>Units</u> | <u>Type of Sample</u> | <u>Sampling and Reporting Frequency</u> |
|------------------------------------|--------------|-----------------------|---|
| Depth to Groundwater | ±0.01 feet | Measurement | Quarterly |
| Groundwater Elevation ¹ | ±0.01 feet | Calculated | Quarterly |
| Gradient | feet/feet | Calculated | Quarterly |
| Gradient Direction | -- | Calculated | Quarterly |
| pH | pH units | Grab | Quarterly |
| Electrical Conductivity | µmhos/cm | Grab | Quarterly |
| Total Dissolved Solids | mg/L | Grab | Quarterly |
| Total Kjeldahl | mg/L | Grab | Quarterly |
| Ammonia as Nitrogen | mg/L | Grab | Quarterly |
| Total Nitrogen | mg/L | Grab | Quarterly |
| Nitrate as Nitrogen | mg/L | Grab | Quarterly |
| Dissolved Metals ² | mg/L | Grab | Annually |

¹ Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well.

² Metals shall include at a minimum, calcium, chloride, potassium, dissolved iron, dissolved magnesium, dissolved manganese, sodium, and sulfate. Samples shall be filtered using a 0.45 µ filter prior to sample preservation.

GROUNDWATER TRIGGER CONCENTRATIONS

The following groundwater trigger concentrations are intended only to serve as a means of assessing whether wastewater discharge to the LAA might potentially cause a violation of one or more of the Groundwater Limitations of the WDRs at some later date. These trigger concentrations only apply to existing and future compliance monitoring wells.

| <u>Constituent</u> | <u>Maximum Allowable Concentration (Trigger Concentration) (mg/L)</u> ¹ | <u>WQO (mg/L)</u> |
|----------------------------------|--|-----------------------|
| Chloride ² | 250 | 500 ⁶ |
| TDS ² | 900 | 1,000 ⁵ |
| Nitrate as Nitrogen ³ | No statistically significant increase ⁴ | |
| Sodium ² | 60 | 69 ⁶ |

- ¹ Annual average groundwater concentration
- ² Constituent concentrations reported in samples from the groundwater monitoring wells, collected between 2001 and 2014, were less than WQOs as shown in Finding 36.
- ³ Constituent concentrations reported in samples from the groundwater monitoring wells, collected between 2001 and 2014, were greater than WQOs as shown in Finding 36.
- ⁴ No statistically significant increase means the quality of groundwater as evidenced by monitoring completed to date for each of the specified compliance monitoring wells listed in the Monitoring and Reporting Program.
- ⁵ Upper Secondary Maximum Contaminant Level
- ⁶ Lowest Agricultural Water Quality Goal
- ⁷ Primary Maximum Contaminant Level

If the annual evaluation of groundwater quality performed pursuant to this MRP shows that the annual average of one or more of the trigger concentrations has been exceeded in any compliance monitoring well during the calendar year, the Discharger shall submit one or both of the following technical reports (as applicable) by **1 May of the following calendar year** (e.g., if one or more trigger concentrations are exceeded for calendar year 2020, the appropriate report is due by 1 May 2021):

- a. A technical evaluation of the reason(s) for the concentration increase for each constituent and a technical demonstration that, although the concentration has increased more than expected in one or more compliance wells, continuing the discharge without additional treatment or control will not result in exceedance of the applicable groundwater limitation.
- b. An Action Plan that presents a systematic technical evaluation of each component of the facility’s waste treatment and disposal system to determine what additional treatment or control is necessary and feasible for each waste constituent that exceeds a trigger concentration. The plan shall evaluate each component of the wastewater treatment, storage, and disposal system (as applicable); describe the applicability and feasibility of available treatment and/or control technologies; provide preliminary capital and operation/maintenance cost estimates for each; designate the preferred option[s] for implementation; and specify a proposed implementation schedule. The schedule for full implementation shall not exceed one year without justification for a longer schedule, and the Discharger shall immediately implement the proposed improvements.

EFFLUENT AND MASS LOADING CALCULATIONS

The mass of BOD applied to each LAA as an irrigation cycle average shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{AT}$$

| | | | |
|--------|----------|---|---|
| Where: | <i>M</i> | = | mass of BOD applied to an LAA in lb/ac/day |
| | <i>C</i> | = | concentration of BOD in mg/L based on the most recent monitoring result |
| | <i>V</i> | = | total volume of wastewater applied to the LAA during the irrigation cycle, in millions of gallons |
| | <i>A</i> | = | area of the LAA irrigated in acres |
| | <i>T</i> | = | irrigation cycle length in days (from the first day water was applied to the last day of the drying time) |
| | 8.345 | = | unit conversion factor |

The mass of total nitrogen applied to each LAA on an annual basis shall be calculated using the following formula and compared to published crop demand for the crops actually grown:

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

| | | | |
|--------|----------------------|---|---|
| Where: | <i>M</i> | = | mass of nitrogen applied to LAA in lb/ac/yr |
| | <i>C_i</i> | = | monthly average concentration of total nitrogen for month <i>i</i> in mg/L |
| | <i>V_i</i> | = | volume of wastewater applied to the LAA during calendar month <i>i</i> in million gallons |
| | <i>A</i> | = | area of the LAA irrigated in acres |
| | <i>i</i> | = | the number of the month (e.g., January = 1, February = 2, etc.) |
| | <i>M_x</i> | = | nitrogen mass from other sources (e.g., fertilizer and compost) in pounds |
| | 8.345 | = | unit conversion factor |

The mass of wastewater fixed dissolved solids applied to the LAA on an annual basis shall be calculated using the following formula and compared to the FDS loading rate limit:

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i))}{A}$$

Where:

- M = Mass of FDS applied to LAA in lbs/ac/yr
- C_i = Monthly average concentration of FDS for month in i in mg/L
- V_i = Volume of wastewater applied to the LAA during the calendar month in i in million gallons
- A = Area of LAA irrigated in acres
- i = The number of the month (e.g., January = 1, February = 2, etc.)
- 8.345 = Unit conversion factor

REPORTING

All monitoring reports should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50 MB should be emailed to: centralvalleysacramento@waterboards.ca.gov.

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the body of the email:

Attention: Compliance/Enforcement Section
McManis Family Vineyards
San Joaquin County
Place ID: 252876

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board
ECM Mailroom
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any correspondence used to transmit documents to this office:

| | | |
|---|---------------------|------------------------|
| Facility Name: McManis Family Vineyards, San Joaquin County | | |
| Program: Non-15 | Order: R5-2016-0097 | CIWQS Place ID: 252876 |

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., wastewater monitoring, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in the monthly monitoring reports. Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Tabulated influent wastewater flow monitoring data for each month of the calendar year, including average daily flow, cumulative flow to date, and comparison to the Flow Limitations of the WDRs;
2. Results of Pond Monitoring. If any water is shipped off-site due to a lack of capacity, such as the LAA is saturated, the volume of water and receipts from the licensed receiving facility shall be included in the monthly reports;
3. Results of Land Application Area Monitoring when land applying, and include:
 - a. Calculated irrigation cycle average BOD loading rate for each LAA and irrigation cycle;
 - b. Type of crop planted and harvest dates; and
 - c. Crop nitrogen demand and amount of supplemental nitrogen applied to the LAA.
4. Results of Solids Monitoring;
5. Discharge specifications and an explanation of any violation of those requirements;
6. For each discrete LAA, a comparison of monitoring data to the loading rate limitations and discharge specifications and an explanation of any violation of those requirements;
7. If requested by staff, copies of laboratory analytical report(s); and
8. Copies of current calibration logs for all field test instruments.

B. Quarterly Monitoring Reports

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Regional Board by the **1st day of the second month after the quarter** (e.g.

the January-March quarter is due by May 1st) each year. The Quarterly Monitoring Report submittal schedule is shown in the table below.

| Quarter | Month | Quarterly Report Due Date |
|---------|--------------------|---------------------------|
| First | January – March | 1 May |
| Second | April – June | 1 August |
| Third | July – September | 1 November |
| Fourth | October - December | 1 February |

The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; method of purging and parameters measured before, during, and after purging. Low or no-purge sampling methods are acceptable if described in an approved Sampling and Analysis Plan;
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement;
4. Summary data tables of historical and current water table elevations and analytical results;
5. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
6. If requested by staff, copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Reports

An Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February** each year. The Annual Monitoring Report shall include the following:

1. Calculation of the annual average wastewater monitoring results for all monitored wastewater constituents.
2. Calculated total nitrogen and FDS loading rates for the LAA.
3. Results of the supplemental irrigation water monitoring.
4. A detailed description of any operational changes, new water treatment systems that might affect the character of the wastewater, and changes to the equipment cleaning process.
5. If requested by staff, tabular and graphical summaries of all data collected during the year with data arranged to confirm compliance with the WDRs.

6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
8. Whether any expansion of the water treatment plant's capacity is planned or anticipated in the next calendar year.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facilities modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: Original Signed by
PAMELA C. CREEDON, Executive Officer

(Date)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS

1 March 1991

A. General Provisions:

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
2. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
3. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge;
 - d. A material change in the character, location, or volume of discharge.
4. 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. A material change includes, but is not limited to, the following:
 - a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements.
 - b. A significant change in disposal method, location or volume, e.g., change from land disposal to land treatment.
 - c. The addition of a major industrial, municipal or domestic waste discharge facility.
 - d. The addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.

Waste Discharge to Land

5. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
6. The discharger shall take all reasonable steps to minimize any adverse impact to the waters of the state resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.
7. The discharger shall maintain in good working order and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
8. The discharger shall permit representatives of the Regional Board (hereafter Board) and the State Water Resources Control Board, upon presentations of credentials, to:
 - a. Enter premises where wastes are treated, stored, or disposed of and facilities in which any records are kept,
 - b. Copy any records required to be kept under terms and conditions of this Order,
 - c. Inspect at reasonable hours, monitoring equipment required by this Order, and
 - d. Sample, photograph and video tape any discharge, waste, waste management unit, or monitoring device.
9. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.
10. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be a defense for the discharger's violations of the Order.
11. Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the California Water Code, Section 13050.
12. The discharge shall remain within the designated disposal area at all times.

B. General Reporting Requirements:

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at **(916) 464-3291** [*Note: Current phone numbers for all three Regional Board offices may be found on the internet at http://www.swrcb.ca.gov/rwqcb5/contact_us.*] as soon as it or its agents

Waste Discharge to Land

have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within **two weeks**. The written notification shall state the nature, time and cause of noncompliance, and shall include a timetable for corrective actions.

2. The discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events.

This plan shall:

- a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.
- b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes of contingency plans.
- c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

The Board, after review of the plan, may establish conditions that it deems necessary to control leakages and minimize their effects.

3. All reports shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in 3a, 3b or 3c of this requirement if;
 - (1) the authorization is made in writing by a person described in 3a, 3b or 3c of this provision;
 - (2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a waste management unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - (3) the written authorization is submitted to the Board

Any person signing a document under this Section 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 inquiry of the 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.”

4. Technical and monitoring reports specified in this Order are requested pursuant to Section 13267 of the Water Code. Failing to furnish the reports by the specified deadlines and falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the discharger.
5. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Note: Current addresses for all three Regional Board offices may be found on the internet at http://www.swrcb.ca.gov/rwqcb5/contact_us or the current address if the office relocates.

C. Provisions for Monitoring:

1. All analyses shall be made in accordance with the latest edition of: (1) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA 600 Series) and (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition). The test method may be modified subject to application and approval of alternate test procedures under the Code of Federal Regulations (40 CFR 136).
2. Chemical, bacteriological, and bioassay analysis shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to EPA guidelines or to procedures approved by the Board.

Unless otherwise specified, all metals shall be reported as Total Metals.

3. The discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to

Waste Discharge to Land

complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

Record of monitoring information shall include:

- a. the date, exact place, and time of sampling or measurements,
 - b. the individual(s) who performed the sampling of the measurements,
 - c. the date(s) analyses were performed,
 - d. the individual(s) who performed the analyses,
 - e. the laboratory which performed the analysis,
 - f. the analytical techniques or methods used, and
 - g. the results of such analyses.
4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.
 5. The discharger shall maintain a written sampling program sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the discharger shall be familiar with the sampling plan.
 6. The discharger shall construct all monitoring wells to meet or exceed the standards stated in the State Department of Water Resources *Bulletin 74-81* and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.22

D. Standard Conditions for Facilities Subject to California Code of Regulations, Title 23, Division 3, Chapter 15 (Chapter 15)

1. All classified waste management units shall be designed under the direct supervision of a California registered civil engineer or a California certified engineering geologist. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:
 - a. demonstrate that the waste management unit has been constructed according to the specifications and plans as approved by the Board.
 - b. provide quality control on the materials and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.
2. Prior to the discharge of waste to any classified waste management unit, a California registered civil engineer or a California certified engineering geologist must certify that the waste management unit meets the construction or prescriptive standards and performance goals in Chapter 15, unless an engineered alternative has been approved by the Board. In the case of an engineered alternative, the registered civil engineer or a certified engineering geologist must

Waste Discharge to Land

certify that the waste management unit has been constructed in accordance with Board-approved plans and specifications.

3. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the waste management units.
4. Closure of each waste management unit shall be performed under the direct supervision of a California registered civil engineer or a California certified engineering geologist.

E. Conditions Applicable to Discharge Facilities Exempted from Chapter 15 Under Section 2511

1. If the discharger's wastewater treatment plant is publicly owned or regulated by the Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to California Code of Regulations, Title 23, Division 4, Chapter 14.
2. By-pass (the intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The Board may take enforcement action against the discharger for by-pass unless:
 - a. (1) By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); and
 - (2) There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or
 - b. (1) by-pass is required for essential maintenance to assure efficient operation; and
 - (2) neither effluent nor receiving water limitations are exceeded; and
 - (3) the discharger notifies the Board ten days in advance.

The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. above.

3. A discharger that wishes to establish the affirmative defense of an upset (see definition in E.6 below) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

Waste Discharge to Land

- a. an upset occurred and the cause(s) can be identified;
- b. the permitted facility was being properly operated at the time of the upset;
- c. the discharger submitted notice of the upset as required in paragraph B.1. above; and
- d. the discharger complied with any remedial measures required by waste discharge requirements.

In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Board by **31 January**.
5. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to disposal. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
6. Definitions
 - a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper action.
 - b. The monthly average discharge is the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging. This number is to be reported in gallons per day or million gallons per day.

Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges by the number of days during the month when the measurements were made.
 - c. The monthly average concentration is the arithmetic mean of measurements made during the month.
 - d. The "daily maximum" **discharge** is the total discharge by volume during any day.

Waste Discharge to Land

- e. The “daily maximum” **concentration** is the highest measurement made on any single discrete sample or composite sample.
- f. A “grab” sample is any sample collected in less than 15 minutes.
- g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period;
 - (1) at equal time intervals, with a maximum interval of one hour
 - (2) at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

7. Annual Pretreatment Report Requirements:

Applies to dischargers required to have a Pretreatment Program as stated in waste discharge requirements.)

The annual report shall be submitted **by 28 February** and include, but not be limited to, the following items:

- a. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the influent and effluent for those pollutants EPA has identified under Section 307(a) of the Clean Water Act which are known or suspected to be discharged by industrial users.

The discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR (Code of Federal Regulations) Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

- b. A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the discharger knows or suspects were caused by industrial users of the system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any

Waste Discharge to Land

additional limitations, or changes to existing requirements, may be necessary to prevent Pass Through, Interference, or noncompliance with sludge disposal requirements.

- c. The cumulative number of industrial users that the discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.
- d. An updated list of the discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:
 - (1) Complied with baseline monitoring report requirements (where applicable);
 - (2) Consistently achieved compliance;
 - (3) Inconsistently achieved compliance;
 - (4) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
 - (5) Complied with schedule to achieve compliance (include the date final compliance is required);
 - (6) Did not achieve compliance and not on a compliance schedule;
 - (7) Compliance status unknown.

A report describing the compliance status of any industrial user characterized by the descriptions in items (d)(3) through (d)(7) above shall be **submitted quarterly from the annual report date** to EPA and the Board. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order.

- e. A summary of the inspection and sampling activities conducted by the discharger during the past year to gather information and data regarding the industrial users. The summary shall include but not be limited to, a tabulation of categories of dischargers that were inspected and sampled; how many and how often; and incidents of noncompliance detected.

Waste Discharge to Land

- f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:
- (1) Warning letters or notices of violation regarding the industrial user's apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations;
 - (2) Administrative Orders regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;
 - (3) Civil actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;
 - (4) Criminal actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
 - (5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;
 - (6) Restriction of flow to the treatment plant; or
 - (7) Disconnection from discharge to the treatment plant.
- g. A description of any significant changes in operating the pretreatment program which differ from the discharger's approved Pretreatment Program, including, but not limited to, changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority of enforcement policy; funding mechanisms; resource requirements; and staffing levels.
- h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.
- i. A summary of public participation activities to involve and inform the public.
- j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

Duplicate signed copies of these reports shall be submitted to the Board and:

Regional Administrator
U.S. Environmental Protection Agency W-5
75 Hawthorne Street
San Francisco, CA 94105

and

State Water Resource Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812

Revised January 2004 to update addresses and phone numbers

INFORMATION SHEET

ORDER R5-2016-0097
MCMANIS FAMILY VINEYARDS

WASTE DISCHARGE REQUIREMENTS
SAN JOAQUIN COUNTY

Facility Description

McManis Family Vineyards, Inc. owns and operates a winery that plans to increase the facility's crushing capacity from 30,000 tons of grapes per year to 50,000 tons. Activities at the winery include receiving, crushing, and pressing grapes, fermentation, processing into finished wines, bottling, and distribution. The facility is located at 18700 East River Road in Ripon and consists of 301 acres over seven parcels.

The discharge is regulated under WDRs, Order 5-00-021. Currently, all wastewater is commingled with storm water and discharged to two lined evaporation ponds with a total storage capacity of 2.4 MG, not including the required two feet of freeboard. However, the ponds do not provide adequate capacity for the volume of wastewater the facility produces. The Discharger currently trucks all excess wastewater offsite to a licensed facility to maintain the two feet of freeboard. To address the lack of capacity at the current production rate of 30,000 tons per year and to meet the wastewater capacity at the proposed 50,000 ton production, the Discharger will add 16 acres of land application areas (LAA) and make modifications and upgrades to the existing wastewater system. The LAA is owned by the Discharger and consist of vineyards. The vineyards will be removed, replanted, and double cropped with forage in the winter and grasses such as sudan grass in the summer prior to applying pond effluent via sprinkler irrigation.

A Notice of Violation (NOV) was issued to the Discharger on 19 February 2015 due to unpermitted discharges of storm water to an unlined drainage ditch located along the western property boundary. In response to the NOV, the Discharger ceased the discharge and submitted a Report of Waste Discharge (RWD) to apply for new WDRs that describe the current management of wastewater and the proposed upgrades to the system.

Current Wastewater Process

All wastewater and storm water are currently captured in drains and discharged to a Process Water Sump located just north of the two wastewater ponds. The process water in the sump is pumped to the two wastewater ponds, the North Pond and the South Pond. Evaporation and off-site disposal are the only methods currently used to dispose of the wastewater.

Wastewater Characterization

Twenty-eight wastewater samples were collected from the Process Water Sump during times with no rain between November 2012 and February 2015. Average concentrations of TDS, FDS, and total nitrogen exceed their respective Water Quality Objectives (WQOs). The average BOD concentration is 7,984 mg/L with a maximum concentration of 23,000 mg/L. Analyses for sodium and chloride were not conducted but these constituents have the potential to be present at concentrations of concern because sodium and chloride are known to be key salinity constituents in winery wastewater and due to the facility's use of water softeners and a boiler.

Planned and Proposed Changes to the Facility

The Discharger plans on increasing the facility's crush capacity to 50,000 tons per year over the next five years. A summary of the planned changes as they relate to the wastewater treatment system is provided below.

- The Process Water Sump will be upgraded.
- The South Pond will be de-sludged, expanded, and relined and referred to as Treatment Pond No. 1.
- The North Pond will be demolished. A new lined wastewater pond will be constructed just west of the South Pond and referred to as Treatment Pond No. 2.
- A new pond water recirculation pump will be installed
- A lined storm water pond will be constructed west of proposed Treatment Pond No. 2 with a capacity of 4.8 million gallons. The storm water will be evaporated, used to irrigate the LAAs as needed, or discharged to an on-site storm water percolation area.
- LAAs consisting of 16 acres will be added to the wastewater system to help manage the excess water from the ponds. Wastewater will be used to irrigate the LAAs via sprinkler distribution and tailwater will be prevented from leaving the property.

Site-Specific Conditions

The ground surface at the facility is approximately 75 feet above mean sea level and is relatively flat. However, there is a 12-foot elevation difference between the low-land where the LAAs are located and the high-land, where the facility is located. There are no major geologic formations at the facility and there is no evidence of bedrock beneath the general area.

Groundwater Quality

Four groundwater monitoring wells are on site and used to monitor groundwater conditions around the North and South Ponds. Because the ponds are lined, the facility currently relies on evaporation and offsite wastewater disposal, and land application of the wastewater has not occurred, the groundwater data from these wells represent pre-discharge data. Groundwater samples have been collected from the monitoring wells between 2012 and 2015. Nitrate as nitrogen and sodium have concentrations exceeding their respective WQO. These constituents are likely the result of agricultural use in the area and not a result of the wastewater activities at the facility. However, additional information is needed to establish existing groundwater conditions and background concentrations in the area.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Local drainage is to the Stanislaus River, located approximately 1.3 miles south of the facility. The beneficial uses of the river, as stated in the Basin Plan, are municipal and domestic supply. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

Antidegradation

TDS, nitrate as nitrogen, chloride, and sodium have the potential to degrade groundwater from the application of the wastewater to the new LAA. Sodium and nitrate as nitrogen are present in groundwater at concentrations exceeding WQOs. No statistically significant increase in concentrations as specified in the Monitoring and Reporting Program using approved statistical methods will be allowed for sodium and nitrate as nitrogen. TDS and chloride have the potential to degrade groundwater but have not been detected at concentrations exceeding WQOs. Trigger concentrations have been set in the Monitoring and Reporting Program in this Order for TDS and chloride.

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

Flow and Effluent Limitations

Effectively immediately, the required two feet of freeboard in both the existing North and South Ponds shall be maintained at all times. Because the Discharger does not currently have sufficient capacity to store the facility's wastewater, any excess wastewater will be trucked off-site to a licensed facility to maintain the two feet of freeboard.

Effective on the date of the Executive Office approval of the *Land Application Area Completion Report* submitted pursuant to Provision H.1.d, flows to the LAA at a 30,000-ton crush shall not exceed 6 MG for the total annual flow and 0.05 MGD for the maximum average daily flow.

Effective on the date of Executive Office approval of the *Wastewater Treatment Facility Modification Completion Report* submitted pursuant to Provision H.1.f, flows to the LAA shall not exceed a maximum of 7 MG for the total annual flow and up to 0.08 MGD for the maximum average daily flow. Approval is dependent on submittal of a water balance capacity analysis demonstrating that the as-built hydraulic capacity of the system is consistent with the flow limits.

Effective the first day that wastewater is applied to the LAAs, wastewater discharge limits will include a daily maximum loading rate BOD limit of 100 lb/ac/yr. FDS loading limit is 5,400 lb/ac/yr with an average concentration of 700 mg/L.

Groundwater Limitations

The discharge of waste constituents to the new LAAs shall not cause groundwater to contain statistically increasing concentrations of nitrate as nitrogen and sodium. If concentrations of nitrate as nitrogen or sodium are statistically increasing or TDS or chloride exceed their respective trigger concentrations, the Discharger will submit a BPTC Evaluation Workplan that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of each component of the wastewater and disposal system and propose a time schedule for completing the comprehensive technical evaluation.

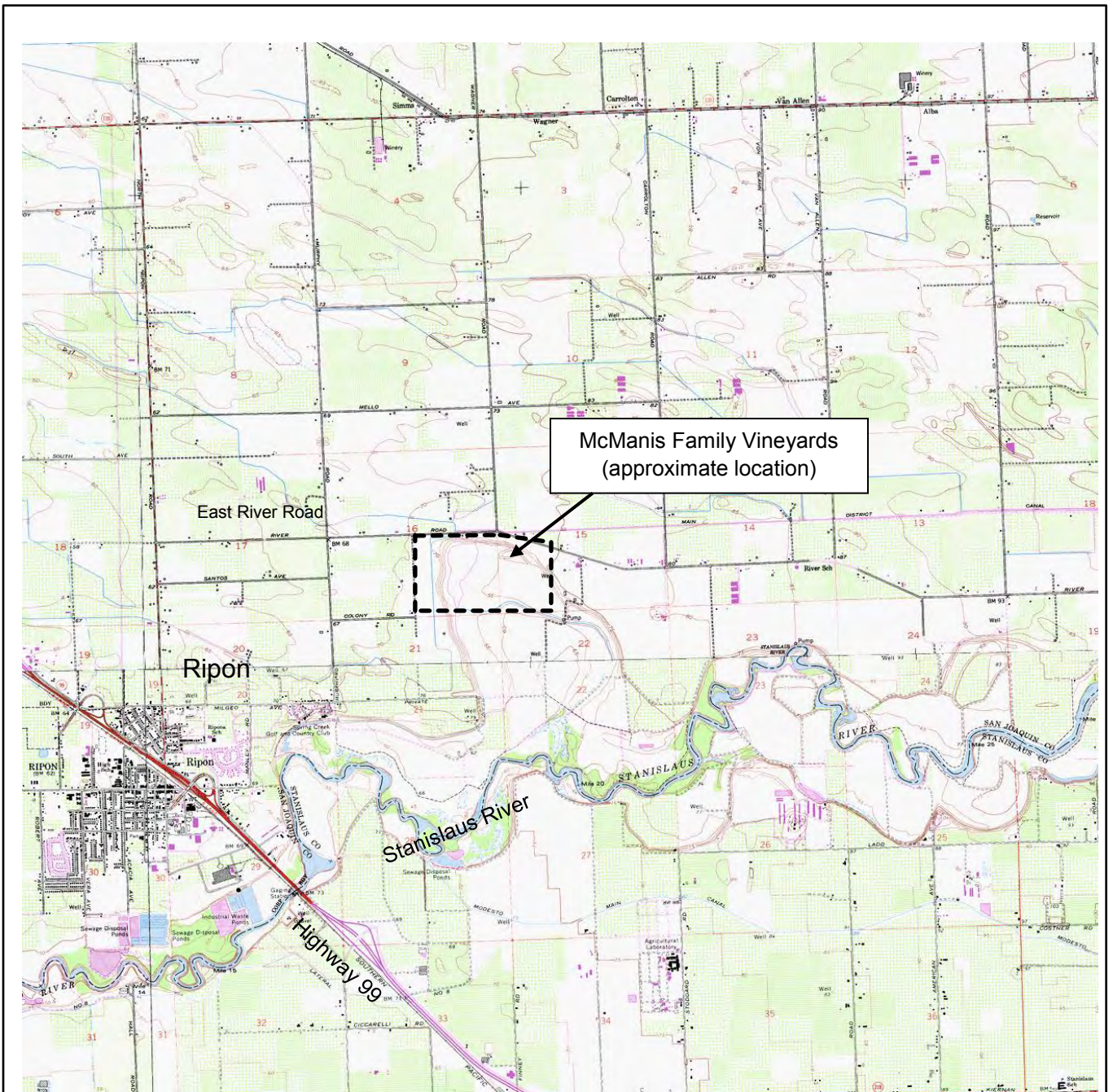
The Order requires monthly and quarterly monitoring and reporting, and submittal of an annual report. The annual report will include a comprehensive evaluation of the effectiveness of the past year's wastewater application operations in terms groundwater protection, including results of the source water monitoring and calculation of annual average wastewater concentrations for the monitored constituents. The annual report will also include a discussion of compliance, any corrective actions taken, and any planned operational changes that may affect the character of the wastewater.

Provisions

Several reports are required to be submitted by the Discharger. The schedule for report submittals is included in Section H of the Order. The following reports are required:

- *Wastewater System Design and Construction Quality Assurance (CQA) Plan and Flow Metering Systems Improvement Plan*
- *Groundwater Monitoring Well Installation Report*
- *Background Groundwater Quality Study Report*
- *Land Application Area Completion Report*
- *Best Practicable Treatment or Control Workplan*
- *Wastewater Treatment Facility Improvements Completion Report and Pond Liner Integrity Evaluation and Sludge Cleanout Workplan*
- *Operation and Management Plan (O&M Plan)*

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations, groundwater limitation, and operational requirements of the WDRs.



Drawing Reference:
U.S.G.S
WATERLOO
TOPOGRAPHIC MAP
7.5 MINUTE QUAD

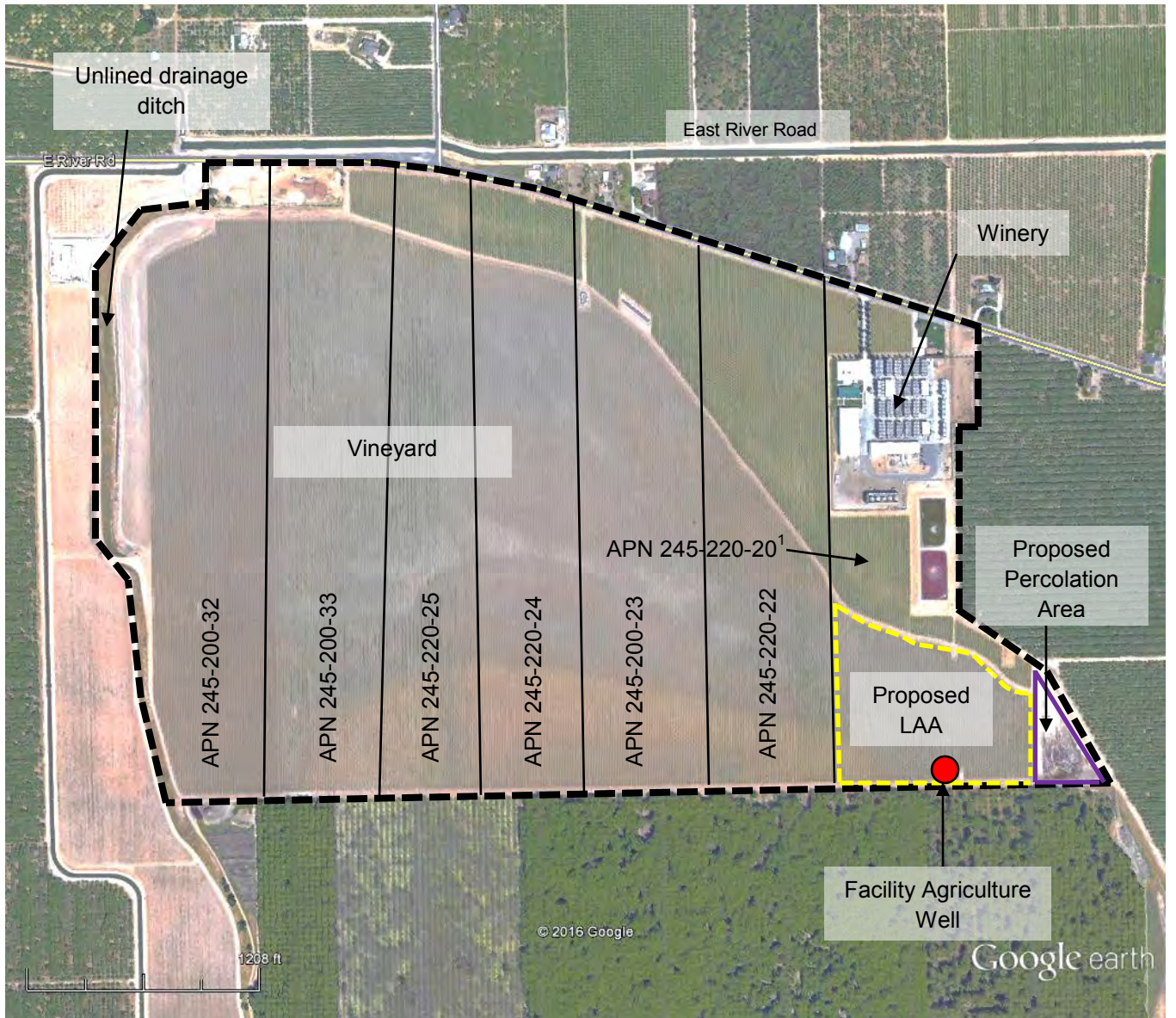


Approximate Scale
1 inch = 4,400 feet

SITE LOCATION MAP

McMANIS FAMILY
VINEYARDS

SAN JOAQUIN COUNTY



Legend

- Site Boundary
- Proposed LAAs
- Assessor Parcel Boundaries (approximate locations)

¹ This is the only parcel that will receive wastewater discharges

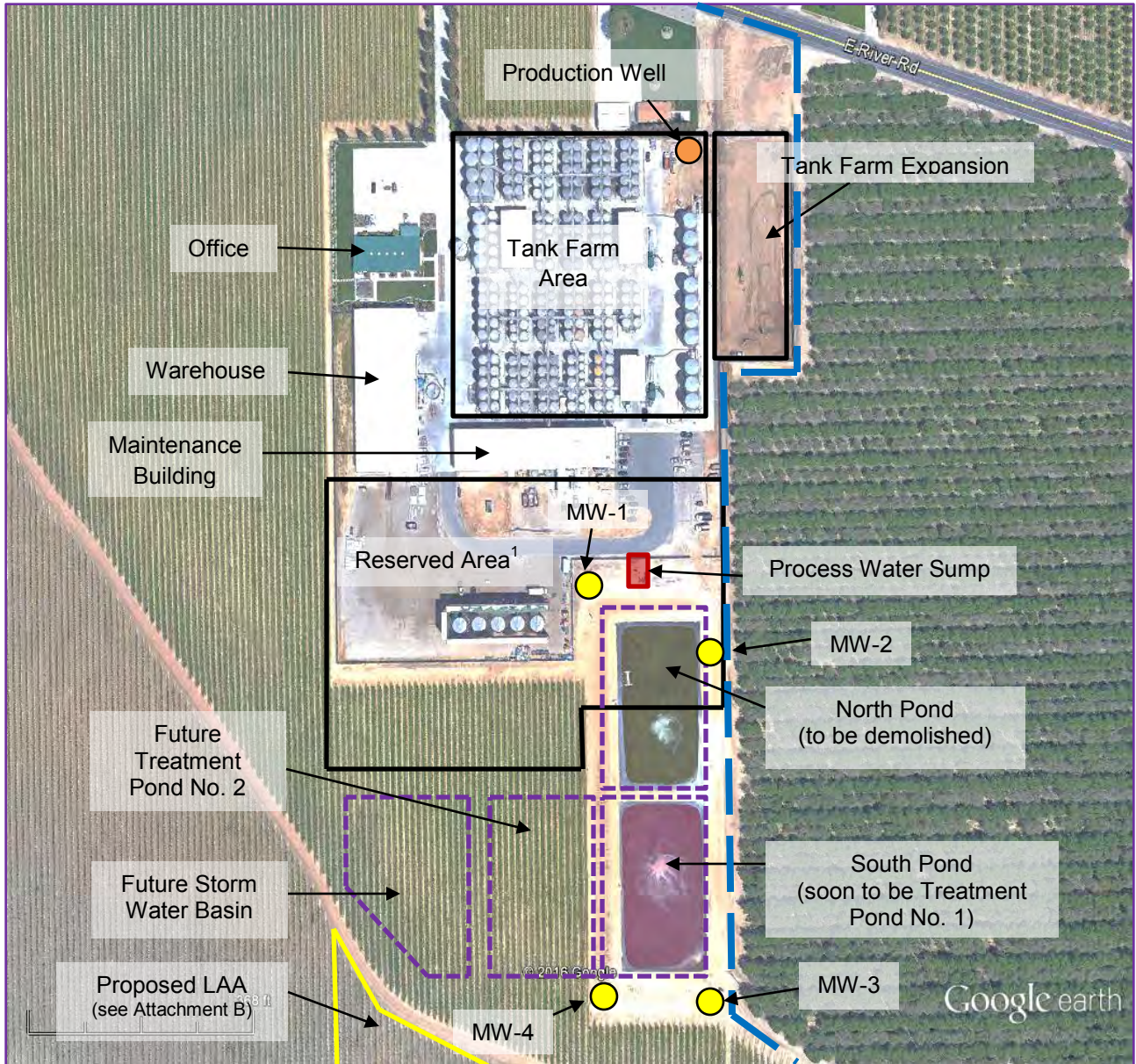


Approximate Scale
1 inch = 700 feet

LAND USE

McMANIS FAMILY VINEYARD
SAN JOAQUIN COUNTY

Drawing Reference:
Google Earth, 2016



Legend

- - - Ponds
- Site Boundary
- Groundwater Monitoring Well (approximate location)
- Production Well (approximate location)

¹ Area Reserved for Future Winery Expansion



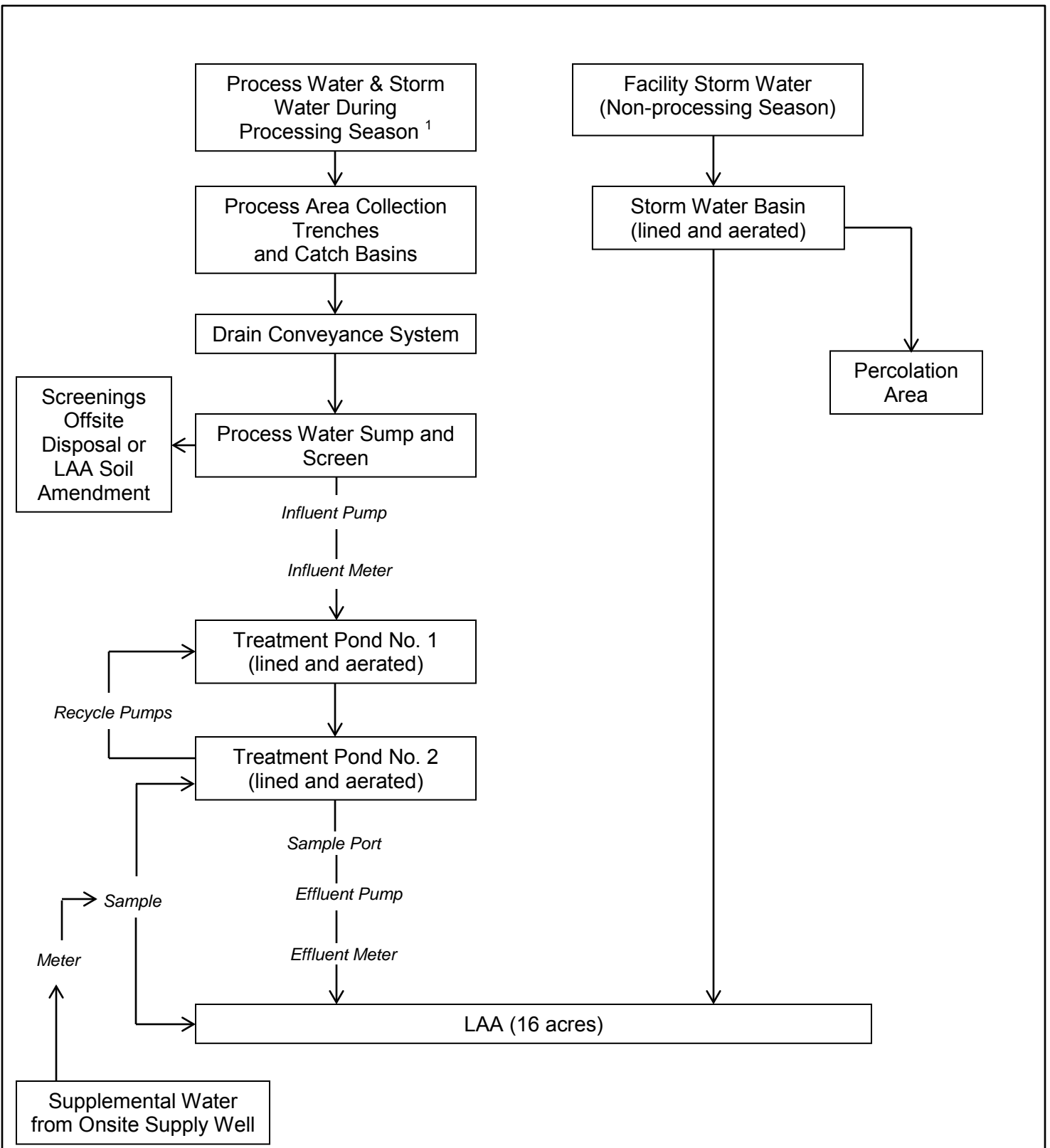
Approximate scale

1 inch = 180 feet

FACILITY AND TREATMENT PLANT

McMANIS FAMILY VINEYARD
SAN JOAQUIN COUNTY

Drawing Reference:
Google Earth, 2016



¹ During the processing season, storm water will be routed to Treatment Pond 1 and commingled with wastewater

Drawing Reference:
Report of Waste Discharge, 27 May 2016

**PROPOSED WASTEWATER
FLOW SCHEMATIC**

McMANIS FAMILY VINEYARDS
SAN JOAQUIN COUNTY

ATTACHMENT E

**REQUIREMENTS FOR
MONITORING WELL INSTALLATION WORKPLANS AND
MONITORING WELL INSTALLATION REPORTS**

Prior to installation of 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 approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report that 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 and Groundwater Sampling and Analysis Plan

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. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

Diagram of 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

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.)
- Parameters to be monitored during development and record keeping technique
- Method of determining when development is complete

Disposal of development water

- E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)
- F. Schedule for Completion of Work
- G. Appendix: Groundwater Sampling and Analysis Plan (SAP)
The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
 - General sampling techniques
 - Record keeping during sampling (include copies of record keeping logs to be used)
 - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

- A. General Information:
Purpose of the well installation project
Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells
Number of monitoring wells installed and copies of County Well Construction Permits

Topographic map showing facility location, roads, surface water bodies
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 (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log:

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements

Describe the measuring points (i.e. ground surface, top of casing, etc.)

Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix