

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2016-XXXX

FOR

GOLDSTONE LAND COMPANY, LLC
KURT AND SANDRA KAUTZ
BEAR CREEK WINERY
SAN JOAQUIN COUNTY

This monitoring and reporting program (MRP) incorporates requirements for monitoring of the process wastewater, wastewater ponds, land application areas, solid waste, and groundwater. 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 should 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. Wastewater flow monitoring shall be conducted continuously using a flow meter and shall be reported in cumulative gallons per day.

Field test instruments (such as pH 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.

Analytical procedures shall comply with the methods and holding times specified in the following: 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. 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.

INFLUENT FLOW MONITORING

The monitoring shall be performed at the headworks. Influent BOD concentration shall be monitored after the wastewater treatment system is installed. Influent monitoring shall include the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Daily Flow	gallons	Continuous	Daily ¹	Monthly
Monthly Average Flow	gpd	Calculated	Monthly	Monthly
BOD ²	mg/L	Grab	Weekly	Monthly

¹ Continuous monitoring requires daily meter reading or automated data collection.

² 5-day biochemical oxygen demand.

WASTEWATER TREATMENT POND MONITORING

Effective on the date of Executive Officer approval of *Wastewater System Improvement Phase II Completion Report* submitted pursuant to Provision H.1.g, the Discharger shall monitor the treatment ponds. 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 foot. The Discharger shall monitor each of the ponds as specified below:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Dissolved Oxygen ¹	mg/L	Grab	Weekly	Monthly
Freeboard	feet (±0.1)	Measurement	Weekly	Monthly
pH	Std.	Grab	Weekly	Monthly
Berm Condition ²	--	Observation	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly

¹ Samples shall be collected at a depth of one foot, opposite the inlet.

² Pond containment berms shall be observed for signs of seepage or surfacing water along the exterior toe.

WINERY WASTEWATER MONITORING

Prior to installation of wastewater treatment system, wastewater samples shall be collected prior to discharge to the rapid infiltration basins and vineyards used as Land Application Areas (LAAs). Effective on the date of Executive Officer approval of *Wastewater System Improvement Phase II Completion Report* submitted pursuant to Provision H.1.g, the effluent shall be monitored after the trickling system prior to discharge to the rapid infiltration basins and the vineyard LAAs. Monitoring shall include, at a minimum, the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	Std.	Grab	Weekly	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
Chloride	mg/L	Grab	Monthly	Monthly

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Sodium	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Standard Minerals ^{2,3}	mg/L	Grab	Annually	Annually

¹ Five-day, 20° Celsius Biochemical Oxygen Demand.

² Standard Minerals shall include at least the following compounds: arsenic, boron, calcium, dissolved iron, dissolved manganese, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

³ Samples shall be filtered prior to preservation using a 0.45µ filter.

RAPID INFILTRATION BASIN AND LAND APPLICATION AREA MONITORING

Wastewater shall be mainly applied to the vineyard LAAs. Wastewater shall only be applied to the rapid infiltration basins as a backup disposal method.

The Discharger shall monitor the discharge to the rapid infiltration basins and vineyard LAAs. Monitoring of the rapid infiltration basins and LAAs shall be conducted daily during operation and the results shall be included in the monthly monitoring report. Evidence of erosion, runoff, or the presence of nuisance conditions shall be noted in the report. Wastewater and supplemental irrigation water monitoring data shall be used, as applicable, to calculate loading rates at the rapid infiltration basins and vineyard LAAs. Monitoring 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>
Total wastewater flow to Rapid Infiltration Basins	Gallons	Continuous ¹	Daily	Monthly
BOD ₅ loading rate for Rapid Infiltration Basins ⁵	Lbs/acre/day	Calculated	Monthly	Monthly
Total wastewater flow to vineyard LAAs	Gallons	Continuous ¹	Daily	Monthly
Total supplemental irrigation flow to vineyard LAAs	Gallons	Run Time	Daily	Monthly
Applied acreage ²	Acres	Calculated	Daily	Monthly
Combined wastewater and supplemental irrigation application rate for vineyard LAAs	Inches	Calculated	Daily	Monthly
Total nitrogen loading rate for vineyard LAAs ³	Lbs/acre	Calculated	Monthly	Monthly
Flow weighted FDS concentration for vineyard LAAs ⁴	mg/L	Calculated	Monthly	Monthly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
BOD ₅ loading rate for vineyard LAAs ⁵	Lbs/acre/day	Calculated	Monthly	Monthly

- ¹ Continuous monitoring requires daily meter reading or automated data collection.
- ² Land application areas used shall be identified. If a portion of the area is used, the acreage used in the calculation shall be estimated.
- ³ Total nitrogen applied from all sources, including wastewater, fertilizers, supplemental irrigation water, lees and diatomaceous applied to the vineyard LAAs.
- ⁴ From wastewater and supplemental irrigation water.
- ⁵ Report application cycle average and maximum daily loading.

SUPPLEMENTAL IRRIGATION WATER MONITORING

The Discharger shall monitor the supplemental water used to irrigate vineyard LAAs. Monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u>
Total Dissolved Solids	mg/L	Grab	Annually
Fixed Dissolved Solids	mg/L	Grab	Annually
Chloride	mg/L	Grab	Annually
Sodium	mg/L	Grab	Annually
Nitrate as Nitrogen	mg/L	Grab	Annually

GROUNDWATER MONITORING

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below. All samples shall be collected using EPA approved methods and water table elevations shall be calculated and used to determine groundwater gradient and direction of flow.

Prior to wastewater discharge to Vineyard 3 and Vineyard 4, the following table designates the compliance wells:

MW3D, MW5D, MW6D, MW7D

After land application of wastewater to Vineyard 3 and Vineyard 4, the following table designates the compliance wells:

MW2D, MW3D, MW5D, MW6D, MW7D

The Groundwater Limitations set forth in Section E of the WDRs shall apply to the specific compliance monitoring wells in the table above.

Prior to sampling, depth to groundwater elevations shall be measure and the wells shall be purged at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Depth to groundwater shall be measured to the nearest 0.01 feet. 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
Electrical Conductivity	µmhos/cm	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Bicarbonate	mg/L	Grab	Quarterly
Nitrate as Nitrogen	mg/L	Grab	Quarterly
pH	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Dissolved Iron ²	µg/L	Grab	Quarterly
Dissolved Manganese ²	µg/L	Grab	Quarterly
Standard Minerals ^{2,3}	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 Samples shall be filtered prior to preservation using a 0.45µ filter.

³ Standard Minerals shall include at least the following compounds: arsenic, boron, calcium, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

SLUDGE AND/OR BIOSOLIDS MONITORING

Lees and diatomaceous earth applied to the vineyard LAAs shall be analyzed annually to determine the total nitrogen loading rate.

Sludge and/or biosolids samples shall be analyzed to determine the total concentration in mg/Kg for the following constituents each time sludge is removed from any pond:

Arsenic	Lead	Nickel
Cadmium	Mercury	Selenium
Copper	Molybdenum	Zinc
Total Nitrogen	Total Solids	

Sludge and/or biosolids monitoring records shall be retained for a minimum of five years in accordance with 40 CFR, Part 503.17. A log shall be kept of sludge quantities generated and of handling, application, and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis to report sludge monitoring.

EFFLUENT AND MASS LOADING CALCULATIONS

- a. The mass of BOD applied to each LAA on a daily basis shall be calculated using the following formula:

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

Where: M = mass of BOD applied to an LAA in lb/ac/day
 C = concentration of BOD in mg/L based on most recent monitoring result
 V = volume of wastewater applied to the LAA in millions of gallons per day
 A = area of the LAA irrigated in acres
8.345 = unit conversion factor

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

- c. The flow-weighted average annual FDS concentration shall be calculated using the following formula:

$$C_a = \frac{\sum_{i=1}^{12} [(C_{Pi} \times V_{Pi}) + (C_{Si} \times V_{Si})]}{\sum_{i=1}^{12} (V_{Pi} + V_{Si})}$$

- Where: C_a = Flow-weighted average annual FDS concentration in mg/L
 i = the number of the month (e.g., January = 1, February = 2, etc.)
 C_{Pi} = Monthly average wastewater FDS concentration for calendar month i in mg/L
 C_{Si} = Monthly average supplemental irrigation water FDS concentration for calendar month i in mg/L (considering each supplemental source separately)
 V_{Pi} = volume of wastewater applied to LAAs during calendar month i in million gallons
 V_{Si} = volume of supplemental irrigation water applied to LAAs during calendar month i in million gallons (considering each supplemental source separately)

REPORTING

The Central Valley Water Board has gone to a paperless office system. All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to: centralvalleysacramento@waterboards.ca.gov

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

Please include a transmittal sheet that includes the following:

Attention: Compliance/Enforcement Section
Goldstone Land Company, LLC
Kurt And Sandra Kautz
Bear Creek Winery
San Joaquin County
Place ID: 209017

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent monitoring, groundwater monitoring well, 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

Monthly monitoring reports shall be submitted to the Central Valley Water Board by the **1st day of the second month** following the end of the reporting period (e.g. the January monthly report is due by 1 March). The monthly reports shall include the following:

1. Results of influent, winery wastewater, land application area and rapid infiltration basin, and treatment pond monitoring;
2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
3. If requested by staff, copies of laboratory analytical report(s);
4. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program;
5. The total pounds of nitrogen (year to date) from all sources (wastewater, fertilizers, supplemental irrigation water, and lees and diatomaceous) applied to the vineyard land application areas, and
6. The total pounds lees and diatomaceous earth applied to the land application areas for the month and year to date.
7. The area and the volume of treated wastewater used for other beneficial use on the site, such as dust control.

B. Quarterly Monitoring Reports

The Discharger shall establish a quarterly groundwater sampling schedule such that samples are obtained approximately every three months. Regardless of the monitoring frequency, the monitoring data obtained during each calendar quarter shall be compiled into quarterly monitoring reports, which shall be submitted to the Regional Board by the **1st day of the second month after each monitored interval** (e.g. the January-March quarterly monitoring report is due by May 1st).

The Quarterly Monitoring Report shall include the following:

1. Results of all groundwater monitoring completed during the calendar quarter;
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 WDRs, 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. For each groundwater monitoring event, calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison with previous flow direction and gradient data, and discussion of seasonal trends if any;
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. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Report

The 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. If requested by staff, tabular and graphical summaries of all data collected during the year;
2. The results of the annual monitoring for the groundwater and supplemental irrigation system;
3. Calculation of the following for each vineyard LAA along with supporting data and calculations:
 - a. The total hydraulic loading in inches (including wastewater and supplemental

- irrigation water as applicable);
- b. The total nitrogen loading in pounds per acre per year (including wastewater, fertilizer, supplemental irrigation water, and lees and diatomaceous applied to the LAAs as applicable);
 - c. Maximum BOD loading rates for both daily and cycle average loadings (including wastewater, fertilizer, supplemental irrigation water, and lees and diatomaceous applied to the LAAs as applicable), and
 - d. The flow weighted annual FDS concentration of water for the vineyard LAAs (including blend of treated wastewater, storm water, and supplemental irrigation water applied to the vineyard LAAs as applicable).
4. Calculation of the following for the rapid infiltration basins along with supporting data and calculations:
 - a. The total hydraulic loading in inches;
 - b. Maximum BOD daily loading rates;
 - c. The flow weighted annual FDS concentration of applied water, and
 - d. The flow weighted annual nitrate as nitrogen concentration of applied water.
 5. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control and groundwater protection, including consideration of application management practices (e.g., waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data;
 6. A description of the quantity of solid waste (lees, stems, pomace, etc.) generated and disposed of on the site. If solid waste, sludge, or lees waste is shipped offsite, then a description of the quantity of each waste shipped offsite and the location of the disposal site shall be included with the report;
 7. A statistical evaluation of the groundwater quality under the rapid infiltration basins and vineyard LAAs in accordance with the report submitted pursuant to Provision H.1.d of the WDRs and a comparison of the results to the groundwater limitations;
 8. A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements, and
 9. A discussion of any data gaps or potential deficiencies/redundancies in the monitoring system or reporting program.

A transmittal letter shall accompany each self-monitoring report. The letter shall include a discussion of all violations of the WDRs or this MRP during the reporting period and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions taken and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. Pursuant to Section B.3 of the Standard Provisions and General Reporting Requirements, the transmittal

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letter shall contain a statement by the Discharger or the Discharger' authorized agent certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge.

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

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

LFU: March 2016