**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

**SAN FRANCISCO BAY REGION**

**TENTATIVE ORDER NO. R2-2017-XXXX**

**General Waste Discharge Requirements For Discharges OF**

**WINERY WASTE to Land within the San Francisco Bay Region**



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# TABLE OF CONTENTS

[I. Findings 4](#_Toc487002332)

[A. Scope of Coverage 4](#_Toc487002333)

[B. Regulatory Framework 6](#_Toc487002334)

[C. Winery Wastewater Treatment Considerations 11](#_Toc487002335)

[D. Winery Wastewater Characteristics 12](#_Toc487002336)

[E. Effluent Limitations And Numeric Action Levels 13](#_Toc487002337)

[F. Discharge Specifications 15](#_Toc487002338)

[G. Provisions 16](#_Toc487002339)

[H. California Environmental Quality Act 17](#_Toc487002340)

[I. Antidegradation Analysis 19](#_Toc487002341)

[J. Fact Sheet 20](#_Toc487002342)

[II. Order Application Requirements 20](#_Toc487002343)

[III. Discharge Prohibitions 21](#_Toc487002344)

[IV. Effluent Limitations And Numeric Action Levels 23](#_Toc487002345)

[A. Tier 1, Low Volume Discharge Effluent Limitations 23](#_Toc487002346)

[B. Tiers 2 and 3 Effluent Limitations 24](#_Toc487002347)

[V. Discharge Specifications 30](#_Toc487002348)

[VI. Provisions 38](#_Toc487002349)

**TABLES**

[Table 1: Tier 1 Effluent Limitations 24](#_Toc487107726)

[Table 2: Tiers 2 and 3 BOD and pH Effluent Limitations 24](#_Toc487107727)

[Table 3: Technology-based effluent limits for secondary wastewater treatment systems 25](#_Toc487107728)

[Table 4: Pond Limitations 25](#_Toc487107729)

[Table 5: Loading limitations for facilities in all Tiers that discharge in areas with nitrate‑impacted groundwater 26](#_Toc487107730)

[Table 6: Effluent Limitations for Tiers 2 and 3 facilities that discharge in nitrate‑impacted groundwater areas 27](#_Toc487107731)

[Table 7: Numeric Action Levels for Tiers 2 and 3 facilities that do not discharge to nitrate impacted groundwater areas 27](#_Toc487107732)

[Table 8: Chloride Numeric Action Level 28](#_Toc487107733)

[Table 9: Sodium Adsorption Ratio and Electrical Conductivity Sodicity Numeric Action Level (NAL) Matrix 29](#_Toc487107734)

[Table 10: Total Coliform Effluent Limitations – All Tiers – Crop Irrigation 30](#_Toc487107735)

**ATTACHMENTS**

1. Monitoring and Reporting Program
2. Notice of Intent Form
3. Notice of Intent Instructions

C-1 Pre-Enrollment Required Assessments and Plans

C-2 Hydraulic Loading Rate Guidance

C-3 Pond Infiltration and Water Balance Guidance

1. Request for Authorization of County Oversight (Tier 3)
2. Tier 3 County Oversight Permitting Program Framework
3. Nitrogen Assessment and Management Plan
4. Chloride Assessment and Management Plan
5. Sodicity Assessment and Management Plan
6. Definitions
7. Figures
8. Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports
9. Notice of Termination Form

**APPENDICES**

* + - 1. Agronomic Rate Guidance
			2. County Onsite Wastewater Treatment System Technical Standards, Code, And Ordinance Resources

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The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Regional Water Board), finds that:

# FINDINGS

## SCOPE OF COVERAGE

1. Order No. R2-2017-XXXX serves as General Waste Discharge Requirements (hereafter Order) for facilities discharging winery waste to land within the San Francisco Bay Region (Region). This Order provides requirements for surface and subsurface discharges to land from enrolled facilities’ winery wastewater treatment and discharge systems.
2. **All wineries discharging to land within the Region are required to obtain coverage under this Order, unless they are covered under individual Waste Discharge Requirements (WDRs).** This Order covers discharges to land from existing, new, or expanding wineries. For purposes of this Order**:**
3. Existing wineries are wineries that are constructed and operating as of the effective date of this Order or have submitted a Report of Waste Discharge (ROWD) to the Regional Water Board prior to the Order’s effective date. All wineries that have previously submitted a ROWD to the Regional Water Board, but for which the Board has not adopted WDRs, must apply for coverage under this Order.
4. New wineries are new wineries proposing to discharge winery waste to land, and
5. Expanding wineries are existing wineries that propose to increase the quantity or change the quality of existing discharges to land.
6. **Existing dischargers covered by individual waste discharge requirements may apply for coverage under this Order, and may be required to apply for coverage under this Order.** Dischargers covered by individual WDRs may continue discharging under that authority unless the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) determines that this Order would provide an equivalent or greater level of protection for groundwater beneficial uses. Regional Water Board staff will notify Dischargers covered by individual orders if they are required to enroll under this Order. If the Regional Water Board determines that covering a winery’s discharges under this Order will not be appropriately protective of water quality, the Regional Water Board may issue individual WDRs or require a Discharger to maintain its coverage under existing or amended individual WDRs.
7. **Dischargers is the term used for owners and operators of winery wastewater systems subject to this Order.** Owners and operators of wineries discharging, or proposing to discharge, waste in any manner that could affect the quality of the waters of the State within the Region are hereinafter referred to as Dischargers and are subject to the terms and conditions of this Order.
8. **Any or all wine-making and related activities that discharge to land are subject to this Order.** A winery is a facility that engages in any or all steps of processing grapes into wine, including, but not limited to, crushing grapes to extract juice, fermentation, chemical manipulation, storage, aging, and bottling. Commercial, non-commercial, and residential wineries that perform all or part of the list above and discharge wastewater or winery solid waste to land must apply for coverage under this Order.
9. **Winery process waste is any or all waste associated with wine making, including both liquids and solids.** Winery process wastewater and solids are generated by wineries in the course of wine production. For purposes of this Order, “winery process wastewater” shall mean wastewater generated from wine production processes. Winery process wastewater is any byproduct of winemaking operations, which includes, but is not limited to, the wastewater generated from grape crushing, processing, bottling, cleaning and washing, tank, barrel, and bottle rinse water, equipment or floor wash water, and lees (wine sediment), pomace (i.e., grape skins, stems, and seeds), stillage, cooling tower blowdown, and spilled product. Wastewater is also generated when stormwater falls on or runs across areas with exposure to winery raw materials, processes, products, equipment, and wastes.

Winery solid waste are the associated solids removed from the winery process wastewater stream and may include grape marc, lees, filtered solids, stalks, winery wastewater sludge, inorganic solids such as bentonite and diatomaceous earth, and residual solids.

1. **Discharges of winery solid waste may also be covered under this Order. However, discharges of domestic waste solids or any comingled solid waste are not.** Solids removed from the winery process waste stream may also be discharged to land in accordance with the terms and conditions of the Order. The use or application of sewage sludge or solids generated from the treatment of domestic waste to land is not covered under this Order.
2. **Domestic wastewater from wineries may be covered under this Order.** Domestic wastewater is primarily composed of wastewater generated by winery personnel (including onsite residences) or visitors participating in winery special events, tastings, tours, and similar activities. This Order provides coverage for discharges of domestic wastewater and winery process wastewater so long as domestic wastewater is pretreated separately from the winery wastewater consistent with the requirements set forth herein. Domestic and winery wastewater can be combined if an onsite package wastewater treatment system is used for advanced treatment of the combined wastewater.

Discharges of waste associated with agricultural operations, such as irrigation return water, are not permitted by this Order.

1. **Winery operations in the Region vary greatly in production and waste volume.** Wineries range in size from home winemaking operations producing several hundred gallons of wine per year to large commercial operations producing millions of gallons of wine per year. This Order takes into account the diversity of conditions, such as location, treatment methods, and environmental setting, under which wineries operate within in the Region.
2. **The known inventory of wineries that will need coverage under the Order is approximately 1,000.** The currently known list of wineries in the San Francisco Bay Region includes those that are currently permitted by the Regional Water Board, those which have applied for permit coverage, and those that are currently permitted by the counties.

## REGULATORY FRAMEWORK

1. **General Orders**. Water Code Section 13263(i) allows a regional board to prescribe general waste discharge requirements for a category of discharges for which the following criteria are found to apply:

a. The discharges are produced by same or similar operations;

b. The discharges involve the same or similar types of waste;

c. The discharges involve the same or similar treatment standards; and

d. The discharges are more appropriately regulated under general discharge requirements than individual discharge requirements.

1. **Use of a general order to regulate wineries**. The Regional Water Board may use a general order to regulate wineries because wineries fit the criteria established for general orders. The discharges of winery waste to land that are subject to this Order have certain common characteristics, such as similar sources, constituents, constituent concentrations, treatment processes, and discharge methods. Similar treatment standards and discharge requirements are applicable to these discharges because of the similarities among winery practices and discharges. Use of a general order is an appropriate and efficient regulatory tool to regulate the large number of wineries in the region.
2. **Water Quality Control Plan for the San Francisco Bay (Basin Plan).** The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Regional Water Board’s master water quality control planning document. This Order incorporates Basin Plan requirements to protect the beneficial uses of groundwater throughout the Region.
3. **Basin Plan groundwater beneficial uses.** Existing and potential beneficial uses applicable to groundwater in the Region, as stated in Basin Plan Section 2.2.2 and Table 2-2, are comprised of the following:

a. Municipal and domestic water supply (MUN)

b. Industrial water supply (IND)

c. Industrial process supply (PRO)

d. Agricultural water supply (AGR)

e. Groundwater recharge (GWR)

f. Freshwater replenishment to surface waters (FRESH)

[Table 2-2](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/tab/tab_2-02.pdf) of the Basin Plan lists existing and potential beneficial uses of the 28 identified groundwater basins and seven sub-basins located in the Region that produce, or potentially could produce, significant amounts of groundwater. **Figure 2-2** of this Order states the existing and potential beneficial uses of the groundwater basins in the Region. Unless otherwise designated by the Regional Water Board, all groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply.

1. **Conflicts between the Order and the Basin Plan will be resolved by choosing the most stringent requirement**. This Order establishes minimum standards for discharges of winery waste to land, and requires Dischargers to comply with these standards, and, where applicable, any more stringent standards or requirements set forth in the Basin Plan. In the event of a conflict between the provisions of this Order and the Basin Plan, the more stringent provision prevails.
2. **Onsite Wastewater Treatment System Policy.** The statewide Onsite Wastewater Treatment System Policy (OWTS Policy) is a driver for the establishment of this Order. The OWTS Policy does not authorize local agencies to permit onsite wastewater treatment systems that accept industrial or commercial process water. This represents a change in practice in the San Francisco Bay Region, where the majority of winery wastewater discharges to land have been regulated by the County in which a winery is located, under either a Memorandum of Understanding with the Regional Water Board or via waivers of WDRs.
3. **Wineries produce high-strength wastewater.** Since wineries produce high-strength wastewater as defined by the OWTS Policy, they are required to be directly regulated by the Regional Water Boards.
4. **Counties can effectively regulate winery discharges with programs that meet the standards set forth in this Order.** County oversight of winery wastewater discharges can be effective when that local county has a highly developed existing regulatory program for those discharges that meets the standards set forth in this Order (see below discussion on Tier Three).
5. **Three tiers of regulation.** This Order has three tiers, which allows reasonable and effective regulation of the range of winery wastewater facilities in the Region. Tier One covers lower volume discharges. Lower volumes of winery wastewater may be dealt with more easily than large volumes and generally require less treatment because the environment is generally more able to assimilate smaller loads of nutrients and organics.

Tier Two and Tier Three contain the remaining wineries, with Tier Three applying to facilities that are located within a county that has an accepted County Oversight Program of which the County is the program administrator. Napa County is expected to apply for and obtain recognition of its County Oversight Program for wineries. If a facility is located in a County that is enrolled in Tier 3, the County can apply the Tier 1 requirements to facilities that discharge less than 1,500 gallons per day as described in the Tier One discharge flow requirement. The three tiers are as follows:

Tier One: Dischargers discharging less than 1,500 gallons per day (gpd) monthly average of winery waste during crush season and 1,500 gpd daily maximum during non‑crush season.

Tier Two: All other Dischargers discharging greater than a crush season monthly average and non-crush season daily maximum of 1,500 gpd, except for those in Tier Three.

Tier Three: Dischargers with facilities located in a County that is authorized as program administrator, pursuant to a county oversight program that has been approved by the Regional Water Board Executive Officer.

The County administrator requirements are further detailed in the Findings and **Attachment E** of this Order.

1. **County Oversight (Tier Three).** This Order includes an authorization process for County Oversight (Tier Three) of the discharges of winery wastewater to land by counties that have comprehensive winery wastewater regulatory programs. Winery discharges in an authorized county will be required to obtain coverage under this Order and held to the requirements of this Order, but they will be inspected by and report to the county through that county’s winery regulatory program.
2. **Criteria for a county becoming an authorized Tier Three County Oversight Program Administrator.** In order for a county to be authorized by the Regional Water Board to provide oversight of the winery permitting program under Tier Three, the county must have in place a framework for management of wineries and discharges to land in accordance with this Order. **Attachments D** and **E** contain the application form and criteria, respectively, for becoming an authorized County Program Administrator.
3. **Summary of Tier Three county roles**. Tier Three authorizes a county to facilitate compliance with this Order’s winery discharge requirements for winery wastewater facilities that discharge to land within that county. The intent of Tier Three is to streamline the permitting process by counties providing administrative oversight of the following aspects of Order compliance:
4. Review, accept, and oversee wastewater treatment system design and construction;

b. Conduct inspection of winery wastewater treatment systems;

c. Assist Dischargers with the development and implementation, if applicable, of the supplemental plans/reports required under this Order;

d. Review monitoring reports as required in this Order’s Monitoring and Reporting Program (**Attachment A**); and

e. Coordinate with the Regional Water Board staff when Dischargers exceed this Order’s effluent limitations and/or numeric action limits.

**Attachment E** contains information on the county winery permitting program framework.

1. **Partial county oversight is possible under Tier Three authorization**. Some counties may prefer to serve as the county oversight program administrator for only a subset of the winery wastewater facilities in their jurisdiction. This is an acceptable approach under this Order. If a county develops or is implementing a winery permitting program that covers a sole method of discharge, such as subsurface discharge, and the program consists of the elements outlined in **Attachment E** of this Order, authorization may be granted, at the discretion of the Executive Officer, to the county to provide county oversight of those wineries that discharge via the specified discharge method. A county may submit the Request for Authorization in **Attachment D** at any time following the adoption of this Order.
2. **Submitting an application for coverage is required** **for all wineries discharging wastewater to land within the Region.** Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, that could affect the quality of the waters of the State, file a Report of Waste Discharge. For wineries, submittal of the Notice of Intent Package constitutes the filing of a Report of Waste Discharge. The Notice of Intent Package includes the following:
3. Location Map
4. Facility Site Plan or Map
5. Wastewater Flow and Treatment Diagram
6. Water Mass Balance
7. Notice of Intent (NOI) Form
8. Notice of Intent Technical Report
9. Application fee, which serves as the first annual fee
10. CEQA Compliance for Tiers 2 and 3 wineries

Instructions for completing the Notice of Intent and the Notice of Intent Technical Report are included in **Attachment C**. The information submitted in the NOI and accompanying Notice of Intent Package ensure that the wastewater system is designed to sufficiently treat and properly dispose of the waste generated by the facility and to ensure that the Order requirements are met. The Technical Report substantiates the information presented in the NOI.

1. **Discharge authorization process**. Regional Water Board staff will review the submittal to verify that all the required components of the Notice of Intent Package have been included, and, at that point, will issue a Discharge Authorization Letter to the Discharger. The Regional Water Board retains the authority to deny permit coverage to any entity based on insufficient application materials.
2. **Discharger shall operate facility based on the Notice of Intent Package**. Upon receipt of a Discharge Authorization Letter, the Discharger is authorized to discharge as described in its submitted Notice of Intent Package, consistent with the requirements of this Order and any conditions set forth in the Discharge Authorization Letter. The Discharger is authorized to discharge as of the date of the Discharge Authorization Letter. The Discharge Authorization Letter will include identification of the Threat to Water Quality and Complexity ratings assigned to the given discharges, and any special conditions or requirements applicable to the discharges. If a Discharger needs to change any element of its system or operations, it must submit a revised NOI and Notice of Intent Package and obtain acceptance of the revised information by the Regional Water Board Executive Officer prior to implementing the change.
3. **Annual fee**. The Discharger is responsible for payment of an annual fee, pursuant to Water Code section 13260 and the Annual Fee Schedule as stated in CCR, Title 23, division 3, chapter 9, section 2200 (Annual Fee Schedules). The fee amount is determined by the type of order and the Threat to Water Quality and Complexity ratings assigned to that discharge. Refer to the Water Quality Fee Schedule accessible at <http://www.waterboards.ca.gov/resources/fees/water_quality/#wdr>.
4. **Other Water Boards permits.** Other Regional Water Board permits that wineries are or may be required to obtain include stormwater permits and 401 water quality certifications. **Section B.8** of the Fact Sheet contains additional information on the permits.
5. **Applicability of General Waste Discharge Requirements**. Although the tiered framework of this Order provides coverage for most wineries that discharge to land, the Regional Water Board Executive Officer may determine that individual Waste Discharge Requirements (WDRs) may be more applicable. The determination of coverage will be based on project-specific characteristics such as discharge flow rate, location of discharge, and whether groundwater is impacted. If coverage under this Order is determined to not be applicable, Regional Water Board staff will notify the Discharger in writing of this determination.
6. **Other agencies may also regulate the facility.** This Order does not preempt or supersede the authority of cities, counties, flood control districts, or other agencies to prohibit, restrict, or control discharges of waste subject to their jurisdiction.
7. **U.S. EPA requirement applicable to wineries that discharge via a septic system**. The U.S. Environmental Protection Agency (U.S. EPA) states that a Class V well is used to inject or dispose of non‑hazardous fluids underground. Septic system leachfields are considered a Class V well. The Discharger must register under the U.S. EPA Underground Injection Control Program as operating a Class V well if wastewater is disposed of via a septic system leachfield. Wineries covered by this Order must separately register their septic system leachfields using the U.S. EPA Region 9 underground injection well inventory form located online at <http://www.epa.gov/sites/production/files/2015-10/documents/7520-16_508c.pdf>.
8. **Public notice processes followed.** The Regional Water Board has followed required public processes in the issuing of this Order.

a. **Public Notification.** The Regional Water Board has notified all known dischargers, potential dischargers, and interested parties of the intent to prescribe WDRs by adoption of this Order.

b. **Public Hearing.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the adoption of this Order.

## WINERY WASTEWATER TREATMENT CONSIDERATIONS

1. **Wastewater system.** The term *wastewater system* refers to the collection and conveyance system, treatment equipment and systems, pumping stations, monitoring systems, and other systems associated with the collection, treatment, storage, and discharge of wastewater.
2. **Alternative septic systems may be used by facilities covered under this Order, but conventional septic systems may not.** Alternative septic systems are designed to accommodate winery (high-strength) waste. Using a conventional septic tank designed for domestic wastewater for the treatment of winery wastewater is prohibited in this Order for Tier 2 facilities and Tier 3 facilities that discharge greater than 1,500 gallons per day, unless it is used as a pretreatment settling unit prior to additional treatment. For existing Tier 1 wineries, the conventional septic system can be used if the wastewater entering the septic system has a BOD concentration less than 300 mg/L and a TSS concentration less than 330 mg/L.
3. **Solids must be removed before discharge to a leachfield so that the leachfield distribution system does not clog.** If the Discharger uses a septic system that results in subsurface discharge via a leachfield, solids and organic matter in the wastewater may result in leach drain clogging and have a negative impact on permeability at the discharge site. This Order requires that the wastewater is treated to reduce the concentration of solids and organic matter prior to discharge via a leachfield.
4. **Treatment and discharge of wastewater must demonstrate Best Practicable Treatment or Control (BPTC) for winery wastewater and domestic wastewater, where applicable.** BPTC is demonstrated by compliance with all of the following:
5. Compliance with the Order;
6. Compliance with the Notice of Intent Package, as submitted; and
7. Compliance with:
8. Applicable Basin Plan groundwater limitations as stated in Section 3.4 of the Basin Plan.
9. Requirements for operation of the wastewater treatment system and disinfection requirements provided by the Division of Drinking Water approved Title 22 Engineering Report. The Engineering Report is required if the treated wastewater contains domestic wastewater and the recycled water is being used to irrigate vineyards. The uses and water quality treatment requirements of recycled water that is used for irrigation are contained in CCR Title 22 section 60304.
10. Water quality-related mitigation measures from an approved site-specific CEQA document (if one is prepared).

The information submitted in the NOI and accompanying Notice of Intent Package ensures that a facility is designed to sufficiently treat and properly dispose of the waste generated by the facility and to ensure that the Order requirements are met. The Technical Report substantiates the information presented in the NOI and the Notice of Intent Package.

## WINERY WASTEWATER CHARACTERISTICS

1. **Winery wastewater has variable chemistry.** Winery process wastewater can have a high organic load, low pH, variable salinity, and nutrient levels that have the potential to impact water quality. The variability in the winery wastewater characteristics is attributed to differences in winemaking processes and techniques, amounts of water used, and overall winery design.
2. **Most winery wastewater is generated during the crush season.** Depending on the size and type of activity occurring at a winery, the production of winery wastewater is generated during two primary seasons, referred to herein as “crush” and “non-crush.” The crush generally spans three months a year, between September and December, but can vary in length from about 42 to 140 days depending on the size of the vineyard and grape ripeness. Discharges during the crush typically include wastewater generated during harvesting and crushing grapes. It is during the crush that the majority (generally greater than 60 percent) of the wastewater is generated. Floor and barrel washing, racking, sanitation, and bottling occur throughout the year and contribute to the wastewater generated during the non-crush season.
3. **Water quality constituents of interest: characteristics and management**. The following is a discussion of water quality constituents that may be discharged in winery wastewater. It is intended to describe those constituents most likely to be discharged, but is not exhaustive. Additional information on winery waste water quality is provided in **section D.4** of the Fact Sheet.
4. **Organic / Biochemical Oxygen Demand (BOD) loading can lead to anaerobic conditions, which slows the soil’s natural wastewater treatment processes.** This Order addresses BOD through effluent limitations and the requirement to allow resting periods for the soil.
5. **Low or high pH** **can deteriorate soil health and mobilize metals.** This Order contains an effluent pH limitation range of 6.0 to 9.0, which ensures that the effluent is neither too basic nor too acidic to support microbial activity in the receiving soil and groundwater.
6. **Total suspended solids are filtered by the soil, but they can also clog the soil, which decreases the soil’s ability to receive and treat wastewater.** This Order has an effluent limitation for total suspended solids. Furthermore, this Order requires total suspended solids to be taken into account in determining the appropriate hydraulic loading.
7. **Nitrate in groundwater can be health hazard.** Nitrate concentrations can be reduced prior to land application, and it can also be removed through wastewater application dosing and cropping management practices during application. Nitrate is addressed in this Order with numeric action levels and, for wineries discharging to known nitrate-impacted groundwater areas, nitrate effluent limitations. **Figures 3** through **5** in **Attachment J** depict the nitrate-impacted groundwater areas.
8. **Salinity and total dissolved solids are two different ways of measuring dissolved salts in water.** Of the different types of salts and dissolved solids, sodium chloride and fixed dissolved solids have increased potential for impacting the soil and groundwater. Thus, this Order addresses salinity and dissolved solids with monitoring for the forms that are more likely to impact groundwater and soil, source control best management practices, and numeric action levels that trigger further study and action when exceeded.
9. **Chloride and sodium are of particular concern because excess sodium can restrict water movement through the soil.** It is difficult and can be more costly to remove sodium and chloride from solution, thus source control efforts are important. Chloride can cause adverse environmental impacts to soil and groundwater because chloride is highly soluble, does not adsorb onto soil particles, does not degrade, and generally inhibits biological processes. This Order addresses chloride and sodium with Numeric Action Levels that trigger further studies and action when exceeded.

## EFFLUENT LIMITATIONS AND NUMERIC ACTION LEVELS

1. **General Concepts.**
	1. **Numeric action levels.** This Order also contains numeric action levels. Three exceedances of a numeric effluent limitation in a 12-month period triggers additional Order requirements for further investigation and corrective actions. Numeric action levels measured at the discharge point allows the Discharger to gauge the effectiveness of preventing water quality objective exceedances, and also collect information to inform wastewater treatment system operation and management approaches.
	2. **Technology and water quality-based effluent limitations.** Effluent limitations are established based upon the technology used to treat the wastewater or by the water quality protection needs of the receiving water. This Order contains both technology-based effluent limitations (TBELs) and water quality-based effluent limitations (WBELs).
2. **BOD loading limitation.** The mass-based limitation for BOD was selected from U.S. EPA guidance and applies to all tiers.
3. **Technology-based effluent limitations – secondary wastewater treatment – Tiers 2 and 3 facilities.** This Order includes technology-based effluent limitations for BOD and total suspended solids that apply to facilities covered under Tiers 2 and Tier 3 (discharging greater than 1,500 gpd) of the Order.
4. **Technology-based effluent limitation and other numeric requirements – ponds.** Ponds, which can be used to treat domestic and industrial wastewater, can be used alone or in combination with other wastewater treatment processes. Algae impacts total suspended solids removal in ponds. Ponds need adequate freeboard in order to not overflow during the wet season. **P**onds need to be managed to control odors. The Order contains a dissolved oxygen limitation for the water contained in ponds, which is greater than the dissolved oxygen level that can lead to odor.

Various causes can lead to pond failure, and this Order contains requirements that safeguard against the common causes of pond failure. Ponds may contribute to groundwater contamination, and therefore, this Order requires a pond infiltration rate assessment. This Order contains further requirements that safeguard against ponds causing groundwater degradation.

1. **Water quality-based effluent limitations.** Water quality based effluent limitations (WQBELs) involve an evaluation of the discharge and its effect on the receiving water. A WQBEL is designed to protect the quality of the receiving water by ensuring that State water quality objectives are met.

a. **Groundwater-driven water quality-based effluent limitations.** Basin Plan Section 3.4 and Tables 3-5 and 3-6 state water quality objectives for groundwater. A groundwater-driven water quality-based effluent limitation is established to prevent a constituent such as nitrate in the effluent applied to land from exceeding the Basin Plan water quality objective in the groundwater saturated zone.

i. **Nitrate numeric action level and effluent limits**. This Order contains nitrate numeric action levels or numeric effluent limitations if the winery discharges to an area with nitrate-impacted groundwater.

a) The nitrate effluent limit or numeric action level of 12.5 mg/L with no managed vegetative cover in the discharge area and the depth to groundwater is greater than five feet, and it is 20 mg/L with managed vegetative cover such as crop or landscape.

b) The values of 12.5 mg/L (no managed vegetation) and 20 mg/L (managed vegetation) at the point of discharge assumes that nitrate concentrations will be reduced by the soil before the discharge reaches the groundwater table.

c) Discharges to areas with known nitrate-impacted groundwater have nitrogen loading rate and nitrate effluent limitations.

ii. **Chloride numeric action limit.** This Order establishes a numeric action level for chloride rather than an effluent limitation. The factors that Regional Water Board staff considered in establishing the numeric action level include the following: (a) there has not been a chloride effluent limitation for wineries in the past, (b) variable factors make it difficult to predict the chloride concentration at the time that the effluent reaches the groundwater table, and (c) chloride is one ion to consider in salinity.

1. **Water quality-based effluent limitations and discharge prohibitions and specifications – location-specific.** There are additional requirements in this Order, which apply to wineries in regionally-specific areas and driven by impacted groundwater. These additional requirements contain the safeguards for allowing wineries to be located within these sensitive areas and meet the required higher level of water quality protection to not further degrade, and to improve, the receiving water.
2. **Ground water-driven water quality-based effluent limitations**. For wineries that discharge to areas of known nitrate-impacted groundwater areas, the numeric criteria are implemented as effluent limitations rather than numeric action levels. Also, the exceedance of the numeric effluent limitation, triggers the requirement to perform an assessment. At the time of drafting this Order, information is available about the nitrate-impacted groundwater areas in the Livermore Valley in Alameda County and Petaluma Valley groundwater basin in Sonoma County. Therefore, the nitrogen mass loading effluent limitations, which apply to areas of known nitrate-impacted groundwater, are derived from the Nutrient Management Plan recommendations developed by Zone 7 Water Agency of Alameda County. Additional information regarding other impacted groundwater areas may be determined during the life of this Order, particularly as regional Salt and Nutrient Management Plans continue to be developed. Therefore, Dischargers must refer to this website <http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/on_site_wastewater_treatment_systems.shtml> for updated maps of the areas of nitrate-impacted groundwater. In addition, Regional Water Board staff will periodically review available groundwater data for nitrogen, chloride, and sodium, and inform Dischargers as to whether additional effluent limitations apply. **Figures 3** through **5** depict the nitrate-impacted groundwater areas (**Attachment J**).
3. For discharges of wastewater to known nitrate-impacted groundwater, the Discharger shall conduct a site-specific assessment Nitrogen Assessment and Management Plan. The purpose of the Nitrogen Assessment is to assess whether the effluent leaving the discharge point meet the groundwater nitrate water quality objective of 10 mg/L-N by the time the effluent reaches the groundwater surface. Additionally, the Nitrogen Assessment will identify practices that the Discharger shall implement to minimize adverse impacts to groundwater from the land application of nitrogen found in winery process wastewater and processing solids.

## DISCHARGE SPECIFICATIONS

1. **Solids disposal requires proper management to ensure that groundwater is protected.** Winery solid waste is generated during the wine production process. Land application of winery solid waste can be a valuable soil amendment that increases soil water holding capacity, reduces runoff, adds beneficial microorganisms, adds organic matter, and sequesters carbon. Winery solid waste may contain nutrients, salts, and oxygen reducing compounds that can degrade water quality if allowed to migrate into groundwater or surface water. To provide assurance that the solids do not create an adverse effect on public health and safety or the environment, solids disposal requirements are included in **Section V.17**. Discharge Specifications of this Order.
2. **Winery solid waste includes** grape marc, lees, filtered solids, stalks, wastewater sludge, inorganic solids, winery wastewater sludge, inorganic solids, and residual solids. Winery solid waste may be discharged to land in accordance with the Notice of Intent Package.
3. Application of winery solids or wastewater to the discharge area or crop lands shall be at rates which are reasonable for the crop, soil, climate, special local situations, and management system. **Appendix 1** contains additional information on applying wastewater at agronomic rates. The wastewater discharge system shall be designed based on site-specific characteristics.
4. **If composting of winery solids happens onsite, the Composting General Order may be required.** Composting is the biological decomposition of organic materials by microorganisms under controlled aerobic conditions to create a product (e.g., soil amendment or soil blend). If greater than 500 cubic yards of winery processing solids are stored onsite at one time, additional coverage may be required under State Water Board Order No. WQ 2015‑0121‑DWQ, General Waste Discharge Requirements for Composting Operations (Composting General Order).[[1]](#footnote-2)

## PROVISIONS

1. **Installation notification requirement.** For new or expanding wineries,following receipt of the Discharge Authorization Letter, the Discharger is required to notify Regional Water Board staff before the wastewater treatment system is installed. This allows Regional Board staff the opportunity to inspect the installation of the system to verify that the system is being installed per the accepted design.
2. **Monitoring and Reporting Program.** The monitoring and reporting program is needed to ensure that the Discharger complies with this Order. The following are elements of the monitoring and reporting program:
3. **Effluent monitoring.** The Regional Water Board needs accurate water use data from Dischargers to fulfill its statutory responsibilities and to protect the State's water resource. Wastewater system monitoring will include flow monitoring and effluent water quality monitoring. The monitoring and reporting requirements in this Order and the associated Monitoring and Reporting Program (**Attachment A**), and any future revisions, are necessary to determine compliance with the conditions of this Order and to determine the discharge impacts, if any, on groundwater.
4. **Groundwater Monitoring**. Since impacts to groundwater depend on site-specific considerations, facility-specific data for facilities are necessary to assess compliance with ground water quality objectives. The Monitoring and Reporting Program allows determination of compliance with effluent limits, receiving water limitations, and discharge prohibitions. This Order requires sampling of existing groundwater wells, including existing monitoring wells or agricultural production wells, located at facilities in Tier 2 and Tier 3 that discharge greater than 1,500 gpd (monthly average).

Additionally, groundwater monitoring is required for wineries discharging greater than 10,000 gpd in nitrate-impacted groundwater areas.

1. **Nitrogen Hazard Index.** The Nitrogen Hazard Index, which all surface irrigation Dischargers must submit with their first annual report, allows the Discharger to assess the potential level of impact of the nitrogen in the effluent on the receiving groundwater.
2. **Fixed dissolved solids and sodium.**  Fixed dissolved solids and sodium monitoring will provide additional information that can be used by the Regional Water Board to provide effective management and regulation of salinity.
3. **Sodium adsorption ratio (SAR)**. The SAR, along with electrical conductivity, can be used as an indicator of negative impacts caused by effluent salinity on the soils in the discharge area, specifically, on the soil infiltration capacity. Thus, this Order has a numeric action level for various combinations of SAR and electrical conductivity.

## CALIFORNIA ENVIRONMENTAL QUALITY ACT

1. **Regional Water Board is the CEQA Lead Agency.** The Regional Water Board is the lead agency for purposes of complying with the California Environmental Quality Act (CEQA), Public Resources Code sections 21100-21177. As lead agency under the CEQA, the Regional Water Board provided notice of intent to adopt a mitigated negative declaration (SCH No. #) for this Order on December 13, 2017 (CCR, Title 14, § 15072). Following the consideration of the mitigated negative declaration and comments received during the public review process, the Regional Water Board hereby determines that any potential effects of the proposed project are mitigated by the strict eligibility criteria, discharge prohibitions, waste discharge specifications, monitoring and reporting requirements, and other provisions of the Order, such that no significant effects will occur.

The documents and other materials, which constitute the record, are located at 1515 Clay Street, Suite 1400, Oakland, CA 94612, and online at <http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/on_site_wastewater_treatment_systems.shtml>.

1. **Existing discharges.** This Order authorizes the discharge to land of specified waste from wineries that are fully constructed and operating as of the effective date of this Order, and which have subsequently undergone no expansion in size of their physical facilities beyond that anticipated in the facilities’ CEQA documents. This Order is designed to enhance the protection of surface and groundwater resources, and its application to existing facilities is exempt from the provisions of CEQA in accordance with the following categorical exemptions:
2. CEQA Guidelines Exemption 1 for Existing Facilities (Cal. Code Regs., tit.14, Section 15301), which exempts the “operation, repair, maintenance, [and] permitting…of existing public or private structures, facilities, mechanical equipment, or topographical features” from environmental review. The restoration of, or improvements to, winery waste management systems to ensure proper function in compliance with this Order will involve minor alterations of existing private facilities.
3. CEQA Guidelines Exemption 2 for Replacement of Existing Structures (Cal. Code Regs., tit. 14, Section 15302) exempts “replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.” Consistent with the categorical exemption for Replacement of Existing Structures, this Order may require wineries to replace or reconstruct treatment units, such as ponds or septic systems, on the facility to ensure proper function in compliance with this Order.
4. **New and expanded discharges:** Facilities in Tiers 2 and 3 defined as “new” or “expanding” pursuant to this Order must submit proof of compliance with the provisions of CEQA in the form of a certified Environmental Impact Report (EIR), Mitigated Negative Declaration, or Negative Declaration, together with the Notice of Intent Package. New or expanding wineries in Tier 1can receive regulatory coverage under this Order upon demonstrating compliance with CEQA by completing the Notice of Intent included with this Order as **Attachment B**. Completing the NOI includes demonstrating the following:
5. Any potential impacts to wetlands, including creeks and vernal pools, have been permitted pursuant to section 401/404 of the federal Clean Water Act or issuance of Waste Discharge Requirements under the California Water Code;
6. A Section 1602 Streambed Alteration has been procured, if necessary;
7. The Discharger has obtained coverage under the State Water Board’s Construction Stormwater General Permit, if necessary;
8. The construction of the winery is in compliance with any applicable County regulations and ordinances, including grading, construction, and building ordinances;
9. That any and all impacts to special-status species have been fully mitigated; and
10. That all potential impacts to cultural resources will be appropriately addressed and mitigated.
11. The Regional Water Board requested Tribal consultation related to Tribal cultural resources under Assembly Bill 52 Native Americans: CEQA.
12. The cumulative impacts associated with the land application of wastewater and solids resulting from many individual facilities, in combination with certain environmental conditions, such as sandy soils, has the potential to contribute to ground water quality impacts. The impact has the greatest potential to occur in areas with nitrate-impacted areas. The implementation of the following mitigation measures through this Order would reduce the cumulative impact to a less-than-significant level:
13. The Order requires that the Discharger submit a discharge area soil assessment, solids management plan, and hydraulic loading rates with the NOI Package. This information will be used by Regional Water Board staff to verify that the discharge would not cause or contribute to violations of water quality objectives.
14. The Order requires that the Discharger determine whether the discharge occurs within a nitrate-impacted groundwater area. Nitrate effluent and nitrogen loading limitations are required for discharges in the nitrate-impacted groundwater areas.
15. The Order requires that the Discharger consider the site-specific and hydrogeologic conditions in the design of the project.
16. **Facilities that discharge greater than 10,000 gpd** on a monthly average in **nitrate‑impacted areas**, will be required to conduct groundwater monitoring. Any existing representative wells located at facilities in Tier 2 and Tier 3 that discharge greater than 1,500 gpd, including domestic supply and agricultural production wells, shall be sampled per the Monitoring Program (**Attachment A**).

The potential impact to water quality from surface water runoff is less than significant because this Order requires a number of measures to minimize the risk of runoff, such as prohibiting direct discharge of wastewater and solids to water, establishing minimum setback distances to streams, and prohibiting application under conditions that could result in surface runoff.

The data gathered through the implementation of this Order, such as winery location, discharge quantity, effluent quality, soil types in the discharge area, and depth to groundwater, will provide Regional Water Board staff the information needed to conduct an ongoing comprehensive assessment of the cumulative impacts.

## ANTIDEGRADATION ANALYSIS

1. The State Water Board adopted Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California, which requires that the authorization to discharge waste maintain high quality waters of the State unless it has been demonstrated that:
	1. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
	2. The degradation will not unreasonably affect present and anticipated future beneficial uses;
	3. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and
	4. The degradation is consistent with the maximum benefit to the people of the State.
2. The Regional Water Board has determined, based upon an assessment of available pertinent information and best professional judgment, that the discharges resulting from the implementation of this Order will not be adverse to the intent and purpose of the State and federal antidegradation policies. The authorized discharge to land will not unreasonably affect present and anticipated beneficial uses of groundwater. The Regional Water Board has considered antidegradation pursuant to Title 40 Code of Federal Regulations section 131.12 and State Board Resolution No. 68-16 and finds that the permitted discharges are consistent with those provisions.
3. The adoption and implementation of the Order addresses key constituents of concern in winery discharges, and provides prohibitions, effluent limitations, specifications, and provisions to minimize groundwater quality degradation and protect beneficial uses of waters of the State.
4. This Order is consistent with the Antidegradation Policy because it includes specific requirements and conditions of discharge to maintain and protect existing water quality and/or the level of water quality necessary to protect existing and potential beneficial uses. Information obtained as a result of the Monitoring and Reporting Program will demonstrate compliance with the Order, Antidegradation Policy, and that degradation is not occurring.
5. **Groundwater protection.** This Order regulates winery wastewater discharges to land that may affect groundwater, and is protective of groundwater beneficial uses, including as a source of drinking water. This Order allows the Regional Water Board to effectively address the localized and potentially cumulative impacts of winery discharges on groundwater resources.

## FACT SHEET

1. The Fact Sheet for this Order is hereby incorporated as findings of this Order.

IT IS HEREBY ORDERED that in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, Dischargers shall comply with the following:

# ORDER APPLICATION REQUIREMENTS

1. **Obtaining coverage under this Order.** To apply for coverage under this Order, the Discharger shall submit the following documents as the Notice of Intent Package:
2. Location Map
3. Facility Site Plan or Map
4. Wastewater Flow and Treatment Diagram
5. Notice of Intent (NOI) form
6. Notice of Intent Technical Report, which substantiates the information provided in the NOI form and shall include the following:
7. Wastewater Management Plan, the development of which is supported by the following components:
8. Hydraulic Loading Rate Calculations
9. Discharge Area Soil Assessment
10. Solids Management Plan
11. Operation and Management Plan
12. Nitrogen Assessment, only submitted with the NOI Technical Report for dischargers within a discharge area overlaying nitrate impacted groundwater area plume
13. Application Fee, which serves as the first annual fee
14. CEQA Compliance for Tiers 2 and 3

**Attachment C** contains information on the assessments and plans that constitute the Notice of Intent Package.

1. **Who Must Apply.** All existing Dischargers of winery process wastewater to land, including those wineries that have previously submitted ROWDs to the Regional Water Board, located within the Regional Water Board’s boundary must obtain coverage for their discharges under this Order. The jurisdictional boundary of the San Francisco Bay Regional Water Board is depicted on the State Regional Water Board map accessible online at <http://www.waterboards.ca.gov/waterboards_map.shtml> and is displayed in **Figure 1** (**Attachment J**). The following exception applies:
2. **Winery with Individual WDRs.** A Discharger covered by individual WDRs will be considered for coverage under this Order no later than when the individual WDRs are scheduled for review or renewal. At that time, Regional Water Board staff will notify the Discharger of the existence of this Winery General Order, eligibility for coverage, and the need to submit a Notice of Intent Package, if applicable.
3. **County Oversight – Reduced Fee.** Dischargers located within a County Oversight area administered under Tier 3 pay a reduced fee.
4. **Environmental Stewardship Recognition – Reduced Fee.** Tier 2 and 3facilities who meet the Environmental Stewardship Recognition Criteria, described below in Order **section II.D**, pay a reduced fee. To be eligible for a reduced fee in recognition of Environmental Stewardship under this Order, a facility must meet the following criteria:
5. Treat wastewater to meet or exceed the standards for advanced wastewater treatment set forth in Title 22 California Code of Regulations, Division 4, when domestic wastewater is combined with the winery wastewater, and per the advanced wastewater definition in **Attachment I**.
6. Be certified through the Certified California Sustainable Winegrowing program[[2]](#footnote-3) or the Sustainability in Practice Certified Sustainable Winery Certification[[3]](#footnote-4) program.
7. Reuse winery wastewater wherever feasible, such as for vineyard irrigations, frost protection, and dust abatement.
8. Implement water conservation efforts, including, but not limited to, the following:
9. Use low volume/high pressure nozzles.
10. Implement a maintenance program to fix leaks.
11. Remove solid waste before cleaning equipment and floors to minimize the water needed for cleaning.

# DISCHARGE PROHIBITIONS

1. The discharge of waste other than as described in the Discharge Authorization Letter, and the Notice of Intent Package submitted for a given discharge, and as authorized by the Executive Officer, is prohibited.
2. The Discharger shall not discharge wastewater in excess of the flow limit(s) specified in the Discharge Authorization Letter.
3. The discharge of any waste to surface waters or surface water drainage courses is prohibited. No winery wastewater shall be allowed to escape from the designated land application area via surface flow.
4. Wastewater shall not be applied to land in quantities that degrade the soil such that it no longer supports vegetation and effectively treats wastewater.
5. The discharge of liquid wastes from winery solid waste handling or storage areas or from rainfall runoff that has come into contact with the winery solid waste being stored, to surface water is prohibited.
6. The discharge to land of untreated or partially treated or inadequately treated winery waste from anywhere within the collection, treatment, or discharge facility is prohibited.
7. The discharge of waste classified as “hazardous,” or “designated,” as defined in California Code of Regulations, title 23, chapter 15, section 2521(a), and Water Code section 13173, respectively, to any part of the wastewater discharge system is prohibited.
8. The discharge of wastewater containing greases and emulsions that can clog soils and discharge lines or nozzles, or coat vegetation is prohibited.
9. Continual application of wastewater to land is prohibited.
10. The discharge of winery process wastewater to an onsite wastewater treatment system (septic system) designed for domestic wastewater from a new or expanding winery is prohibited for Tier 2 facilities and Tier 3 facilities that discharge greater than 1,500 gallons per day.
11. The discharge of any water softening ion exchange regeneration brine in the onsite wastewater treatment system is prohibited.
12. The discharge of toxic substances into a pond treatment system that disturbs the normal biological treatment mechanisms is prohibited.
13. There shall be no discharges of treated winery process wastewater within 100 feet of any well used for domestic water supply, nor within 50 feet of any well used only for agricultural water supply.
14. If domestic wastewater is combined with winery wastewater and discharged to land via irrigation, the following setbacks based on the level of wastewater treatment apply in accordance with CCR Title 22 section 60310 (a) through (d).
15. No irrigation with disinfected tertiary recycled water shall take place within 50 feet of any domestic water supply well unless all of the following conditions have been met:
16. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface.
17. The well contains an annular seal that extends from the surface into the aquitard.
18. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
19. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
20. The owner of the well approves of the elimination of the buffer zone requirement.

1. No impoundment of disinfected tertiary recycled water shall occur within 100 feet of any domestic water supply well.
2. No irrigation with, or impoundment of, disinfected secondary-2.2 or disinfected secondary-23 recycled water shall take place within 100 feet of any domestic water supply well.
3. No irrigation with, or impoundment of, undisinfected secondary recycled water shall take place within 150 feet of any domestic water supply well.
4. Neither the treatment, storage, nor discharge of domestic or winery processing wastewater from wineries shall cause or contribute to an exceedance of applicable water quality objectives in the underlying groundwater, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance as defined in Water Code sections 13050(l) and (m) and as stated in **Attachment I**.
5. The flow discharged to the treatment system and discharge area shall not exceed the hydraulic or organic loading capacities of the treatment system or of the discharge area, as stated in the NOI.

# EFFLUENT LIMITATIONS AND NUMERIC ACTION LEVELS

#

## Tier 1, Low Volume Discharge Effluent Limitations

1. Wineries enrolled in Tier 1 discharging less than 1,500 gallons per day monthly average of winery waste during crush season and 1,500 gpd daily maximum during non-crush season shall meet the effluent limitations in **Table 1**.

Table 1: Tier 1 Effluent Limitations

|  |  |  |
| --- | --- | --- |
| **Constituent** | **Unit** | **Discharge Limitation** |
| Discharge rate | gallons per day (gpd) | 1,500 |
| BOD5 Loading Rate a | pounds/acre/day (lbs/acre/day) | 100 |
| pH | s.u.[[4]](#footnote-5) | 6.0 min to 9.0 max |
| **Existing Tier 1 wineries that use a conventional septic system designed for** **domestic wastewater – Limits apply prior to discharge to septic tank** b |
| **Constituent** | **Unit** | **Discharge Limitation** |
| BOD | mg/L | 300 (monthly average) |
| Total Suspended Solids | mg/L | 330 |
| 1. The BOD loading rate shall be calculated using the formula in **section III.G** of the Monitoring and Report Program (**Attachment A**).
 |
| 1. The BOD and total suspended solids limits only apply to existing wineries in Tier 1 that discharge winery wastewater to a conventional septic system designed for domestic wastewater. The limits apply prior to entering the septic tank only when the septic tank discharges to land via a leachfield.
 |

1. New wineries enrolled in Tier 1 discharging in an area of nitrate-impacted groundwater shall meet the nitrogen loading limitations in **Table 5**. **Figures 3** through **5** in **Attachment J** depict the nitrate-impacted groundwater areas.

## Tiers 2 and 3 Effluent Limitations

1. **Effluent Limitations that Apply to All Types of Wastewater Treatment Systems**
2. Wineries enrolled under Tiers 2 and 3 of this Order must meet the effluent limitations in **Table 2**.

Table 2: Tiers 2 and 3 BOD and pH Effluent Limitations

|  |  |  |
| --- | --- | --- |
| **Constituent** | **Unit** | **Discharge Limitation** |
| BOD5 Loading Rate a | pounds/acre/day (lbs/acre/day) | 100 |
| pH | s.u.19 | 6.0 min to 9.0 max |
| 1. The BOD loading rate shall be calculated using the formula in **section III.G** of the Monitoring and Report Program (**Attachment A**).
 |

1. **Effluent Limitations that Apply to Secondary Wastewater Treatment Systems**
2. Wineries enrolled under Tier 2 and Tier 3 (that discharge greater than 1,500 gallons per day) of this Order that are implementing secondary wastewater treatment methods shall meet the effluent limitations in **Table 3**.

Table 3: Technology-based effluent limits for

secondary wastewater treatment systems

|  |
| --- |
| **Secondary Wastewater Treatment System Effluent Limitations** |
| **Constituent** | **Unit** | **Discharge Limitation** |
| Biochemical Oxygen Demand | mg/L | 45 (monthly average) |
| Total Suspended Solids | mg/L | 30 (monthly average),45 (7-day average) |

1. **Effluent Limitations that Apply to Pond Systems**
2. Wineries that use storage or treatment ponds shall meet the limitations in **Table 4** within the pond.

Table 4: Pond Limitations

|  |  |  |
| --- | --- | --- |
| **Constituent** | **Unit** | **Limitation** |
| Dissolved Oxygen | mg/L | 2.0 minimum |
| pH | s.u. | 6.0 min to 9.0 max |
| Freeboard | feet | 2.0 |
| **Pond Treatment System**(if sole purpose for secondary treatment) |
| Total Suspended Solids | mg/L | 95 (monthly average) |

1. **Nitrogen Mass Loading Effluent Limitations that Apply to Facilities Located Above Nitrate-Impacted Groundwater – Tier 2, Tier 3, and New Tier 1**
2. Wineries enrolled under all Tiers of this Order and located in an area of nitrate‑impacted groundwater shall meet the nitrogen loading limitations in **Table 5**. The objective is to reduce and minimize contributions of nitrogen from wastewater to groundwater. **Figures 3** through **5** in **Attachment J** depict the nitrate-impacted groundwater areas. The nitrogen loading limits apply to all Tier 2, all Tier 3 discharging greater than 1,500 gpd, and new Tier 1 and Tier 3 wineries discharging less than 1,500 gpd.
3. The total nitrogen loading rate applied to the discharge area on an annual basis shall be calculated using the formula in **section III.G** of the Monitoring and Report Program (**Attachment A**).

Table 5: Loading limitations for facilities in all Tiers that discharge in areas with nitrate‑impacted groundwater

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parcel size** | **Type of treatment system** | **Type of discharge system** | **Constituent** | **Unit** | **Discharge Limitation** |
| < 7 acres | Any | Any | **Nitrogen Loading**[[5]](#footnote-6) | pounds N / parcel acre /year | 23.8 |
| > 7 acres | Any | Any | **Nitrogen Loading** | pounds N / parcel acre /year | 3.4 |

1. **Nitrate as Nitrogen - Concentration Effluent Limitations and**

 **Numeric Action Levels**

1. For subsurface and land surface discharges in Tier 2 and those in Tier 3 that discharge greater than 1,500 gpd that overlay nitrate‑impacted groundwater (**Figures 3** through **5** in **Attachment J**), the following applies:
2. Nitrate as nitrogen is an effluent limitation per **Table 6**.
3. Nitrate as nitrogen effluent limitation is 10 mg/L where the depth to groundwater is less than five feet in the discharge area.
4. Nitrate as nitrogen effluent limitation is 12.5 mg/L for dischargers that do not have actively managed vegetation or crops in the discharge area and the depth to groundwater is greater than five feet.
5. Nitrate as nitrogen effluent limitation is 20 mg/L for dischargers that have actively managed vegetation or crops in the discharge area and the depth to groundwater is greater than five feet.
6. For subsurface and land surface discharges in Tier 2 and those in Tier 3 that discharge greater than 1,500 gpd outside of nitrate-impacted groundwater areas, the following applies:
7. Nitrate as nitrogen is a numeric action level per **Table 7**, which, if exceeded, leads to required actions as described in this Order section IV. Effluent Limitations and Numeric Action Levels B.5.
8. Nitrate as nitrogen numeric action level is 12.5 mg/L for dischargers that do not have actively managed vegetation or crops in the discharge area.
9. Nitrate as nitrogen numeric action level is 20 mg/L for dischargers that have actively managed vegetation or crops in the discharge area.
10. Exceeding the applicable numeric action level stated in **Table 7** **three times** during a rolling **12-month period**, triggers the requirement to conduct, submit, and implement a Nitrogen Assessment and Management Plan, the details of which are provided in **Attachment F**. If the Discharger does not implement the required adaptive management actions, then they have violated the terms and conditions of this Order.
11. Following the third exceedance of the nitrate as nitrogen numeric action level, the Discharger shall take the following actions:
12. Notify Regional Water Board staff via email or verbally when the third exceedance of the Numeric Action Level has occurred.
13. Submit a Nitrogen Assessment and Management Plan to the Regional Water Board within **six months** of the third occurrence.
14. Not more than sixty days later, having incorporated any comments received from Regional Water Board staff, implement any management practice and system configuration changes specified in the Nitrogen Assessment and Management Plan.

Table 6: Effluent Limitations for Tiers 2 and 3 facilities that discharge in nitrate‑impacted groundwater areas

|  |  |  |  |
| --- | --- | --- | --- |
| **Tier** | **Constituent** | **Unit** | **Discharge Limitation** |
| Tier 2 and Tier 3 discharging >1,500 gpd | **Nitrate**Depth to groundwater less than 5 feet | mg/L-N | 10 |
| Tier 2 and Tier 3 discharging >1,500 gpd | **Nitrate**No vegetation and depth to groundwater greater than 5 feet | mg/L-N | 12.5 |
| Tier 2 and Tier 3 discharging >1,500 gpd | **Nitrate**Vegetation and depth to groundwater greater than 5 feet | mg/L-N | 20 |

Table 7: Numeric Action Levels for Tiers 2 and 3 facilities that do not discharge to nitrate impacted groundwater areas

|  |  |  |  |
| --- | --- | --- | --- |
| **Tier** | **Constituent** | **Unit** | **Numeric Action Level** |
| Tier 2 and Tier 3 discharging >1,500 gpd | **Nitrate**No vegetation | mg/L-N | 12.5 |
| Tier 2 and Tier 3 discharging >1,500 gpd | **Nitrate**Vegetation  | mg/L-N | 20 |

1. **Chloride Numeric Action Level – Tiers 2 and 3**
2. Wineries in Tier 2 and Tier 3 that discharge greater than 1,500 gallons per day, shall meet the chloride numeric action level of **250 mg/L** as stated in **Table 8**. Exceeding of the chloride numeric action level **three times** during a rolling **12-month period** triggers the requirement to conduct, submit, and implement a Chloride Assessment and Management Plan, the details of which are provided in **Attachment G**.
3. Following the **third exceedance** of the chloride numeric action level, the Discharger shall take the following actions:
4. Notify Regional Water Board staff via email or verbally when the third exceedance of the Numeric Action Level has occurred.
5. Submit a **Chloride Assessment and Management Plan** to the Regional Water Board within **six months** of the third occurrence.
6. Sixty days later, having incorporated any comments received from Regional Water Board staff, implement any management practice and system configuration changes specified in the Chloride Assessment and Management Plan.

Table 8: Chloride Numeric Action Level

|  |  |  |  |
| --- | --- | --- | --- |
| **Tier** | **Constituent** | **Unit** | **Numeric Action Level** |
| Tier 2 and Tier 3 discharging >1,500 gpd | **Chloride** | mg/L | 250 |

1. **Sodicity Numeric Action Level that Applies to Tier 2 and Tier 3 Facilities that Discharge to Land by Surface Application or Irrigation**
2. The Sodicity Numeric Action Level, as measured by the combination of the Sodium Adsorption Ratio and Electrical Conductivity as depicted in **Table 9**, applies to facilities in Tier 2 and Tier 3 that discharge greater than 1,500 gpd on a monthly average that discharge by land surface application, irrigation, or shallow subsurface irrigation (such as buried drip irrigation). The Sodicity Numeric Action Level does not apply to facilities that discharge through leachfields.
3. The Discharger shall monitor and report the Sodium Adsorption Ratio and electrical conductivity measurements in accordance with the schedule in the Monitoring Program (**Attachment A**).
4. Per **Table 9**, a range of Sodium Adsorption Ratio values in correspondence with Electrical Conductivity values constitute a Sodicity NAL exceedance. [[6]](#footnote-7) **Three** exceedances of the Sodicity NAL in a rolling 12-month period triggers the requirement that the Discharger shall prepare, submit, and implement a Sodicity Assessment and Management Plan. **Attachment H** specifies the information that the Discharger shall include in the Sodicity Assessment and Management Plan.
5. Following the third occurrence, the Discharger shall take the following actions:
6. Notify Regional Water Board staff via email or verbally when the third encounter of the Numeric Action Level has occurred.
7. Submit a Sodicity Assessment and Management Plan to the Regional Water Board within **six months** via email or mail following the third occurrence.
8. Not more than sixty days later, having incorporated any comments received from Regional Water Board staff, implement any management practice and system configuration changes specified in the Sodicity Assessment and Management Plan.

Table 9: Sodium Adsorption Ratio and Electrical Conductivity Sodicity Numeric Action Level (NAL) Matrix

|  |  |  |
| --- | --- | --- |
|  |  | **Electrical Conductivity** |
|  |  | **< 0.3** | **0.3 to 0.5** | **0.5 to 1.3** |
|  |  | dS/m[[7]](#footnote-8) | dS/m | dS/m |
| **Sodium Adsorption Ratio (SAR)** | **< 3** | Not an Exceedance | Not an Exceedance | Not an Exceedance |
| **3 - 6** | Sodicity NAL Exceedance | Not an Exceedance | Not an Exceedance |
| **6 - 12** | Sodicity NAL Exceedance | Sodicity NAL Exceedance | Not an Exceedance |
| **12 - 20** | Sodicity NAL Exceedance | Sodicity NAL Exceedance | Sodicity NAL Exceedance |

1. **Total Coliform Effluent Limitation that Applies to Discharges of Domestic Wastewater by Irrigation**
2. The total coliform effluent limitations in **Table 10** apply to winery discharges of treated domestic wastewater (either separate or combined with winery wastewater) that are discharged by irrigation of crop plants such as vineyards.
3. Treated domestic wastewater (either separate or combined with winery wastewater) shall meet the following total coliform limit prior to irrigation when the wastewater is discharged to land:
4. After adequate contact with disinfectant, the number of total coliform organisms shall not exceed the median value of 2.2 MPN/100 mL as determined from the bacteriological results of the last seven days for which sample analyses have been completed, and maximum value of 23 MPN/100 mL in more than one sample in any 30-day period.
5. If treated domestic wastewater is used for irrigation, an engineering report[[8]](#footnote-9) shall be submitted to and approved by the Division of Drinking Water. The Division of Drinking Water contacts are based on the county that the winery is located within and can be found at <http://www.waterboards.ca.gov/drinking_water/programs/documents/ddwem/DDWdistrictofficesmap.pdf>.

Table 10: Total Coliform Effluent Limitations – All Tiers – Crop Irrigation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crop** | **Constituent** | **Unit** | **Effluent Limitation** | **Treatment Level** |
| Vineyard | total coliform | MPN/100 mL | * 1. (7-day average)

23 (max within 30 days) | Disinfected secondary – 2.2 |
| Food crops where recycled water contacts the edible portion of the crop, including root crops | total coliform | MPN/100 mL | * 1. (7-day average)

23 (max within 30 days)240 (maximum) | Disinfected tertiary |
| * 1. Total coliform limitations are based on the wastewater treatment level per the California Code of Regulations, Title 22 Water Recycling Criteria, accessible online at http://www.waterboards.ca.gov/drinking\_water/certlic/drinkingwater/Lawbook.shtml
 |

# DISCHARGE SPECIFICATIONS

1. The Discharger shall operate its wastewater treatment system(s), storage system(s), and discharge system(s) according to the information submitted with the Notice of Intent Package as approved in the Discharge Authorization Letter.
2. **Operation and Maintenance.** The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control that are installed or used by the Discharger to achieve compliance with the conditions of this Order. The Discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this Order. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of operation and maintenance activities including inspections of the wastewater system or its components.
3. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise damage the treatment, storage, or discharge facilities.
4. The wastewater system shall be designed, constructed, and operated such that it will not substantially alter the natural existing drainage pattern of the site or area, and will not substantially increase the rate or amount of surface runoff in a manner that would result in flooding, erosion or siltation, onsite or offsite.
5. To prevent the breeding of mosquitoes and to support alternating wet and dry soils conditions, all applied wastewater must infiltrate completely within 48 hours.
6. All piping, valves, and outlets shall be marked to differentiate treated winery process wastewater from other sources of water and domestic wastewater.
7. There shall be no physical cross-connection between a potable water supply and a treated domestic or winery process wastewater distribution system.
8. All treatment technologies must be designed to accept the wastewater strengths associated with winery wastewater.
9. The discharge of treated winery process wastewater shall be restricted to designated vineyards, pastures, or landscape irrigation areas under the control of the Discharger, and as described in the NOI Package. Treated winery process wastewater may be discharged to an area under control of another party if a notarized agreement between all of the involved parties is submitted to and accepted by Regional Water Board staff and the wastewater treatment system discharge method and hydraulic loading rates have been designed with the soil conditions of the land receiving the discharge. The agreement shall refer to the wastewater discharge quantities and discharge specifications as submitted to the Regional Water Board in the NOI Package.
10. The site-specific hydraulic, organic, nitrogen, and salt loading rates of a land application treatment system shall be considered in the design phase to ensure proper operation.
11. Winery wastewater treatment and discharge systems shall be designed for the maximum daily flow of wastewater and organic loading generated.
12. Large solids shall be separated from winery wastewater through screening and removal system such as screened floor drains and/or rotary drum screens, prior to further treatment and disposal.
13. The Discharger shall take adequate measures to ensure that unauthorized persons are effectively excluded from wastewater treatment and discharge facility(s).
14. The Discharger shall ensure that all persons involved with operation and maintenance of the wastewater system are informed of and comply with the requirements of this Order.
15. The Discharger shall take immediate corrective actions to remedy and prevent recurrence of any wastes discharged in violation of the requirements of this Order.
16. **Wastewater application timing to account for rain -** Treated winery process wastewater shall not be discharged to land by irrigation within 24 hours of a forecasted rain event with greater than 50 percent probability of rain, during rainfall, 24 hours after a rainfall event, or when soils are saturated based on visual observations. The Discharger may propose an alternative method for determining weather-related application timing in the NOI Package. The method must ensure that the discharge of treated wastewater does not occur when soils are saturated and that no ponding or runoff will occur as a result of the discharge.
17. **Solids**
18. Winery processing solid waste (referred to as winery solid waste) from the processing facility and the wastewater control system may be land applied on the property where it is generated, as fertilizer or soil amendment, at a rate of application that does not exceed the capacity of the land or associated crop to assimilate the waste solids based on visual observation. Winery solid waste may be applied to land other than where it is generated if a notarized agreement between all involved parties is submitted to the Regional Water Board at any time prior to initiating land application.
19. Winery waste solids, as defined in the Findings, may be discharged to land in accordance with the Notice of Intent Package and Discharge Authorization Letter.
20. The maximum allowable quantity of winery waste solids that can be stored onsite for reuse is 500 cubic yards of materials at any given time. If the solids quantity is greater than 500 cubic yards, coverage may be required under State Water Board’s Composting General Order No. WQ 2015‑0121‑DWQ.[[9]](#footnote-10)
21. The application of winery waste solids to land shall be distributed uniformly over the application area. Winery waste solids shall be spread and incorporated into the soil in a manner that prevents erosion, runoff, and nuisance.
22. Winery waste solids shall not be incorporated into the soil 24 hours prior to or during rainfall. During wet weather conditions, winery waste solids shall be hauled offsite for disposal or stored onsite per Order section **V.17**.
23. The solids shall be stored in a manner to prevent any associated leachate from entering the groundwater and surface waters. All stored winery waste solids shall be controlled and contained through the implementation of best management practices, such as but not limited to, impermeable cover, containment berms, or soils amended to reduce permeability, in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the groundwater limitations as stated in Table 3-5 of the Basin Plan.
24. Solids that will not and/or cannot be used agronomically shall be disposed of at a legal point of disposal, and in accordance with the State Water Board promulgated provisions of Title 27, division 2 of the California Code of Regulations.
25. Domestic wastewater solids shall be kept separate from the solids generated by winery processing activities and disposed of at a municipal sewerage facility or an onsite wastewater treatment system which is installed, operated, and maintained in accordance with the respective county requirements and in a manner that will prevent inadequately treated domestic wastes from entering any waters of the State or from surfacing and becoming a nuisance or health hazard.
26. Use and disposal of biosolids, which is sludge from domestic wastewater that has undergone sufficient treatment and testing to qualify for reuse, shall comply with the U.S. EPA Part 503 Biosolids Rule (40 C.F.R. § 503).
27. Any storage of residual sludge, solid waste, or biosolids generated from domestic wastewater at the wastewater system shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Basin Plan ground water quality objectives.
28. Residual solids must not be applied within 100 feet of a surface water drainage course unless the land application area is graded or bermed to prevent discharge of runoff into the drainage course.
29. Residual solids must not be applied within 100 feet of a domestic water supply well.
30. **Setback Requirements.** The minimum horizontal setbacks from any winery wastewater treatment system treatment component and dispersal systems shall be as follows:
31. 5 feet from parcel property lines and structures.
32. 100 feet from water wells and monitoring wells.
33. 100 feet from any unstable land mass or any areas subject to earth slides identified by a registered engineer or registered geologist; other setback distance are allowed, if recommended by a geotechnical report prepared by a qualified professional.
34. 100 feet from springs and flowing surface water bodies where the edge of that water body is the natural or levied bank for creeks and rivers; this may be less where site conditions prevent migration of wastewater to the water body.
35. 200 feet from vernal pools, wetlands, lakes, ponds, or other surface water bodies where the edge of that water body is the high water mark for lakes and reservoirs, and the mean high tide line for tidally influenced water bodies.
36. 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet.
37. Where the effluent dispersal system is within 1,200 feet from a public water system’s surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.
38. Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water system’s surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.
39. **Nutrient and Organic Land Application Management**

a. The Discharger shall use winery processing wastewater and solids, and combined domestic and winery process wastewater application methods and timing strategies that reduce the risk of nutrient transport by ground and surface waters, such as but not limited to:

1. Incorporate surface-applied winery waste solids such as via methods such as disking, if precipitation capable of producing runoff or erosion is forecast within the time of planned application.

b. The Discharger shall reduce the amount of fertilizer applied to account for nitrogen in the treated wastewater used for irrigation.

c. The Discharger shall reduce the organic loading of the discharge through the screening or filtration of the winery waste solids prior to discharge.

d. The Discharger shall implement best management practices measures to evenly distribute the wastewater over the discharge area to minimize the potential for anoxic and reducing conditions in the soil.

1. **Subsurface Discharges**

All winery wastewater systems designed to discharge treated wastewater below ground surface by a subsurface dispersal system shall comply with the following requirements:

1. The subsurface dispersal system shall be operated and maintained so that at no time will wastewater surface at any location.

b. No part of the dispersal system shall extend to a depth where waste may be discharged directly to groundwater.

c. Soil absorption system sizing shall be based on the peak daily flow during crush season. The limiting design parameter concept shall be applied to the design of the land treatment system.[[10]](#footnote-11)

d. Infiltration surface shall be sized based on organic loading, nitrogen loading, or hydraulic loading, whichever is more conservative. Chapter 4.4.5 of the 2002 U.S. EPA Onsite Wastewater Treatment Systems Manual or most recent version contains guidelines on sizing an infiltration basin.[[11]](#footnote-12)

e. Septic tanks shall be easily assessable to inspect solids levels, pump out solids, and clean or replace effluent filters.

f. If the Discharger is an existing facility enrolled under Tier One that uses a septic system and results in subsurface discharge via a leachfield, the winery process wastewater shall have a biochemical oxygen demand concentration of less than or equal to 300 mg/L and a total suspended solids concentration of less than or equal to 330 mg/L prior to entering the septic system. **Table 1** in Order section **IV.A** contains these effluent limitations.

1. All domestic wastewater generated at the winery shall be treated with an onsite wastewater treatment system that complies with their respective County’s requirements for such systems as stated in onsite wastewater treatment system technical standards, code(s), or ordinance(s). **Appendix 2** contains county onsite wastewater treatment system technical standards, code, and ordinance resources that are accessible online.

h. For a new subsurface dispersal system, the system shall be sited, designed, and operated to provide and maintain, at all times, at least five feet of vertical depth of suitable unsaturated soil between the bottom of the dispersal system and the elevation of any restrictive limiting condition encountered beneath the dispersal system, such as impermeable soil, bedrock, fractured bedrock, or highest anticipated seasonal or artificially elevated groundwater table level.

i. For a new subsurface dispersal system, the system shall include a reserve area for future replacement or expansion of the system. The reserve shall contain sufficient area, site, and soil characteristics suitable for at least 100 percent replacement of the initial subsurface dispersal system. The reserve area shall remain unencumbered until such time as the area is needed for replacement or expansion of the original system, or wastewater service is provided by connection to a municipal sewerage system.

j. Inspection risers shall be installed in leachfields to monitor water levels.

1. **Land Surface Discharges.** All winery wastewater systems that include discharge by means of discharge to the land surface shall comply with the following requirements:
2. Adequate area shall be available for all application rates sufficient to ensure that the discharges will not create a condition of nuisance (e.g., vectors, nuisance odors, and off-site discharge) or degrade the groundwater quality below the water quality objectives in the Basin Plan.
3. Alternating between the application of wastewater to land and a resting period is required of all discharge methods. The doses of wastewater application shall be spaced evenly over the 24‑hour day to optimize the soil’s treatment capacity.
4. The maximum soil water storage capacity of the site between the land surface in the discharge area and five feet depth shall not be exceeded for a single discharge event.[[12]](#footnote-13) Soil water storage capacity can be obtained from soil survey reports based on mapped soil type or direct measurement.[[13]](#footnote-14)
5. No treated winery wastewater used for irrigation may be discharged to areas outside the irrigation areas indicated in the NOI Package.
6. Land application system maintenance must be implemented to reduce surface fouling due to the accumulation of organic matter at soil surface.
7. Statewide water recycling criteria in California Code of Regulations, title 22, division 4, chapter 3 (Title 22) are applicable if domestic wastewater is discharged via irrigation. Recycled water discharges regulated under this Order shall be consistent with the requirements of Title 22.[[14]](#footnote-15)
8. The Discharger shall post warning signs on the perimeter of every area in which treated winery process and domestic wastewater is applied. The signs shall indicate use of non-potable water and shall be posted at least every 500 feet along the perimeter with at least one sign at each corner and access road.
9. A backflow prevention device shall be installed on the irrigation water source supply when irrigation water is combined with wastewater in an irrigation system.
10. Best management practices shall be used when discharging wastewater to land to prevent the erosion of soil in the discharge area.
11. **Ponds.** All winery wastewater systems that include ponds used for the treatment or storage of winery process wastewater shall comply with the following requirements:
12. The dissolved oxygen concentration of water contained in the ponds shall not be less than 2.0 mg/L at any time.
13. Ponds shall have sufficient capacity to accommodate design wastewater flow, seasonal precipitation, surface inflows, and any groundwater infiltration or inflow that may occur within the pond and the collection system. A minimum freeboard, consistent with pond design, but not less than two feet, shall be maintained at all times in any pond containing winery process wastewater. The Discharger shall install and maintain in each pond a staff gauge with calibration marks that indicate the water level and enable determination of available operational freeboard. The measurement technique shall be easily readable from the pond berms and adequately maintained.
14. The following criterion shall be used in the design of wastewater holding ponds:

i. At a minimum, the total 10-year wet seasonal rainfall shall be the design basis for holding ponds. The ponds shall have the capacity to store the anticipated rainfall plus wastewater for the wet season. An accurate water balance analysis is paramount in pond design and shall be submitted with the NOI Package.

ii. Ponds shall be adequately protected from erosion, washout, and flooding from a rainfall event having a predicted frequency of once in 100 years. The Discharger shall operate and maintain all wastewater ponds to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure.

iii. All new ponds shall be sited, designed, constructed, and operated to ensure that the wastewater contained in the ponds is effectively separated from underlying groundwater. The water containment portions of the pond (pond bottom and sides below operating water levels) shall be lined with a synthetic liner, suitable clay soils, or compacted so that percolation of water into subsurface soils has a rate of not more than 1 x 10-6 centimeters/second.[[15]](#footnote-16)

iv. All new ponds shall have a foundation or base capable of providing support for the structures and capable of withstanding hydraulic pressure gradients to prevent failure due to settlement, compression, or uplift and all effects of ground motions resulting from at least the maximum probable earthquake, as certified by a registered civil engineer or certified engineering geologist.

vi. The pond shall be capable of efficiently treating the wastewater to the degree necessary for preventing odors and other nuisances.

1. **In the Vicinity of Impacted Ground Water**
2. A County may establish conditions or prohibitions in its Local Agency Management Program (LAMP) for onsite wastewater treatment systems for areas impacted by pathogens. If domestic wastewater is discharged to land in an area impacted for pathogens, the Discharger shall comply with the applicable conditions of the LAMP.
3. Domestic wastewater shall be treated separately from winery wastewater unless an advanced wastewater treatment package plant is used to treat the combined wastewater.
4. New and expanding discharges of winery processing wastewater or combined treated domestic and winery wastewater to land overlying nitrate-impacted groundwater basins shall install wastewater treatment technologies or methodologies to reduce the nitrate concentration to meet this Order’s effluent limitations.
5. Treated wastewater shall be discharged to land based at agronomic rates. **Appendix 1** contains additional information on agronomic rates.
6. If a Discharger cannot meet the Order requirements, discharge to lined evaporation ponds or hold and haul tanks are acceptable wastewater management options if allowed by the County and pursuant to County requirements that pertain to hold and haul tanks.

# PROVISIONS

1. The discharger shall notify the Regional Water Board and County of the installation of the wastewater treatment system within 72 hours of initiating the installation of the wastewater treatment system. Regional Water Board staff shall be notified by sending an email to all of the following email addresses:

Melissa.Gunter@waterboards.ca.gov

Blair.Allen@waterboards.ca.gov

WDR.Monitoring@waterboards.ca.gov

1. **Pond Infiltration Study** – This provision applies to all facilities with ponds. The Discharger shall conduct a pond infiltration rate assessment for all existing unlined ponds within **six months** of receipt of the Discharge Authorization Letter from the Executive Officer. Refer to **Attachment C-3** for an example pond water balance methodology that may be applied to meet the pond infiltration assessment requirement.

If the infiltration rate assessment results in an infiltration rate greater than 1 x 10-6 centimeter/second, one of the following options shall be implemented within one year from the submittal date of the infiltration rate assessment results:

1. Pond shall be lined with a synthetic liner or the pond bottom and walls amended to reduce the infiltration rate to a rate equal to or less than 1 x 10-6 centimeters/second; **or**
2. Groundwater monitoring wells shall be installed to monitor the groundwater quality upgradient and downgradient of the pond to determine if the pond discharge to groundwater is causing degradation of the shallow ground water quality beyond that which exists today. A minimum of three monitoring wells shall be installed in accordance with the Groundwater Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan included in **Attachment K**.
3. **Operation and Maintenance Program**
4. All Dischargers in Tier 2 and Tier 3 that discharge greater than 1,500 gpd shall submit a facility-specific Operation and Maintenance Program Manual, with the NOI Package.
5. The Operation and Maintenance Program Manual must include descriptions of all wastewater system components and equipment, accurately dimensioned site plans identifying the locations of all components and relevant site features (buildings, wells, roads, etc.), recommended strategies and procedures for system operations in accordance with system designs and discharge requirements, procedures and criteria for process control monitoring, maintenance activities necessary to ensure continuous proper operation for the wastewater system, and identification of persons responsible for operation and maintenance of the wastewater systems and how these persons can be contacted.
6. Wastewater systems shall be operated and maintained by a qualified professional service provider or certified wastewater treatment plant operators who are experienced in and knowledgeable of the wastewater system’s design and proper operation. The certified wastewater treatment plant operator may be an employee of the Discharger or a contract employee.
7. **Monitoring and Reporting Program.** The Discharger shall conduct monitoring and reporting pursuant to the Monitoring and Reporting Program, **Attachment A** of this Order.
8. **Analyses**. All analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. All analyses shall be conducted in accordance with the latest edition of “Guidelines Establishing Test Procedures for Analysis of Pollutants,” promulgated by the U.S. EPA.
9. **Record Retention.** The Discharger shall retain records of all monitoring information obtained to document performance of the wastewater system and compliance with the requirements of this Order. Records shall include data from performance monitoring observations, measurements, sampling and analyses, maintenance and calibration of equipment, copies of all monitoring reports required by this Order. Monitoring and maintenance data records shall be maintained for a minimum of three years from the date of the monitoring or maintenance activity. This period may be extended during the course of any unresolved litigation regarding the discharge(s) or as specified by the Regional Water Board’s Executive Officer.
10. Dischargers requires sampling of existing groundwater wells, including existing monitoring wells, at any facility that discharges in areas of nitrate-impacted groundwater.
11. **General and Standard Provisions.**
12. The Discharger shall maintain a copy of this Order and the associated Discharger Authorization Letter at the discharge facility and available at all times for reference by discharge facility operating personnel.
13. The Discharger shall ensure that all operating and management personnel are knowledgeable of this Order, its requirements, and means for maintaining compliance with this Order.
14. **Change in Discharge.** The Discharger shallsubmit a written report to the Regional Water Board prior to making any material change or proposed change in the volume, character or location of the discharge as originally described in the NOI Package and authorized in the Discharge Authorization Letter. The written report shall be submitted at least 120 days prior to the changes. The written report shall include a complete description of the proposed changes, an implementation time schedule, and any other information pertinent to maintaining coverage under and compliance with this Order. The Regional Water Board shall issue a revised Discharge Authorization Letter to document the changes.
15. **Containment Failure Notification.** The Discharger shall notify the Regional Water Board, and the local County Environmental Health Department or equivalent agency, of any failure of any wastewater containment facility or of any unauthorized release of wastewater from the wastewater system. This notification shall be provided immediately upon the Discharger's knowledge of such an event. The release shall be controlled, and the problem that caused the release shall be corrected, as quickly as possible, and in accordance with the requirements of this Order.
16. **Noncompliance Reporting**. The Discharger shall report any event where the Discharger is unable to comply with any condition of this Order (noncompliance). The Discharger shall provide verbal notification to Regional Water Board staff by telephone or electronic email as soon as the Discharger or designated agents have knowledge of the noncompliance event. Electronic mail notification shall be sent to WDR.Monitoring@waterboards.ca.gov.

The Discharger shall submit a written report within **two weeks** of the telephone or email notification. The written report shall include the following:

* description of the event,
* reasons for the noncompliance,
* actions taken or planned to correct the problem and to prevent the problem from recurring,
* time schedule of completion or anticipated completion of these actions.

Reporting shall include, but not be limited to, noncompliance events due to:

* 1. breakdown of waste treatment equipment;
	2. accidents caused by human error or negligence; or
	3. other causes such as acts of nature.
1. **Anticipated Noncompliance.** The Discharger shall give advance notice to the Regional Water Board of any planned changes in the regulated facility or discharges that may result in noncompliance with this Order.
2. **Vested Rights**. This Order does not convey any property rights or exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from liability under federal, state, or local laws, and do not create a vested right to continue to discharge waste.
3. **Permits by Other Agencies.** This Order does not relieve the Discharger from responsibility to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order, nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.
4. **Inspections.** All wastewater treatment and discharge systems for the discharges regulated by this Order shall be readily accessible for sampling and inspection. The Discharger shall allow the Regional Water Board or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
	1. Enter upon the premises where a regulated facility or activity is located or conducted or where records are required to be kept under the conditions of this Order;
	2. Have access to and copy at reasonable times any records required to be kept under the conditions of this Order;
	3. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under this Order; and
	4. Sample, photograph, video record, and/or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the Water Code, any equipment, substances or parameters at this location.
5. The Discharger shall furnish, within a reasonable time, any information the Regional Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the Discharger’s coverage under this Order. The Discharger shall also furnish to the Regional Water Board, upon request, copies of all records required to be kept by this Order.
6. **Terminate Permit Coverage.** The Discharger may request termination of permit coverage by submitting a Notice of Termination Form (**Attachment L**) to the Regional Water Board when one or more of the following conditions are met:
7. The facility is closed and all closure, moving, and clean-up activities are complete.
8. The facility was transferred to a new owner.
9. The facility is no longer discharging to land.
10. The facility’s discharge is regulated by individual waste discharge requirements.
11. **Document Signatory Requirements.**
12. All reports required to be submitted to the Regional Water Board by this Order, including applications, reports or other information requested by the Regional Water Board, shall be signed and certified by a person described in paragraph a. below, or by a duly authorized representative of that person, as described in paragraph b. below, with the certification statement given in paragraph 3. below.
13. Reports submitted to the Regional Water Board shall be signed and certified by the following:
14. For a corporation, by a principal executive officer or at least the level of vice president;
15. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively.
16. A person is a duly authorized representative only if:
17. The authorization is made in writing by a person described in paragraph (a) of this provision;
18. The authorization specified 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 well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
19. The written authorization is submitted to the Regional Water Board Executive Officer.
20. If an authorization under paragraph (1)(b) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (1)(b) of this provision shall be submitted to the Regional Water Board Executive Officer prior to, or with, any reports, information, or applications, to be signed by an authorized representative.
21. Any person signing a document under paragraph a. of this provision shall make the following certification:

“I certify under penalty of perjury that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

1. **Severability**. Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.
2. Other Information. When the Discharger becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application, or in any report to the Regional Water Board, the Discharger shall promptly submit correct information.

1. **Regional Water Board Authorities**
2. The Regional Water Board may review a Discharger’s Notice of Intent Package and administratively reject Order coverage if the Notice of Intent Package is deemed incomplete. The Regional Water Board may take actions that include rescinding Order coverage, requiring a Discharger to revise and resubmit their Notice of Intent Package within a specified time period, requiring the Discharge to apply for an order coverage or a different individual order, or take no action.
3. The Regional Water Board has the authority to enforce the provisions and requirements of this Order. This includes, but is not limited to, reviewing the Notice of Intent Package, Pond Infiltration Study, Operations and Maintenance Program Manual, Monitoring and Reporting Program, conducting compliance inspections, and taking enforcement actions.
4. The Regional Water Board may require a Discharger to change, modify, and improve the components of the NOI Package, report submitted in response to a numeric action level exceedance, Pond Infiltration Study, or the Operations and Maintenance Program Manual, to achieve compliance with this Order. In this case, the Discharger shall implement these revisions in accordance with a schedule provided by the Regional Water Board.
5. The Regional Water Board may require additional monitoring and reporting.

All Regional Water Board actions that modify a Discharger’s obligations under this General Order must be in writing and should also be submitted via email to WDR.Monitoring@waterboards.ca.gov.

1. **CEQA**. The Regional Water Board directs the Executive Officer to file a Notice of Determination within five days from the issuance of this Order.
2. **Order Review.** The Regional Water Board will periodically review this Order and revise requirements when necessary.

I, Bruce H. Wolfe, 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, San Francisco Bay Region, on December 13, 2017.

 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Bruce H. Wolfe

 Executive Officer

**ATTACHMENTS**

1. Monitoring and Reporting Program
2. Notice of Intent Form
3. Notice of Intent Instructions

C-1 Pre-Enrollment Required Assessments and Plans

C-2 Hydraulic Loading Rate Guidance

C-3 Pond Infiltration and Water Balance Guidance

1. Request for Authorization of County Oversight (Tier 3)
2. Tier 3 County Oversight Permitting Program Framework
3. Nitrogen Assessment and Management Plan
4. Chloride Assessment and Management Plan
5. Sodicity Assessment and Management Plan
6. Definitions
7. Figures
8. Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports
9. Notice of Termination Form

**APPENDICES**

* + - 1. Agronomic Rate Guidance
			2. County Onsite Wastewater Treatment System Technical Standards, Code, And Ordinance Resources

**REFERENCES**

Brown and Caldwell & Kennedy/Jenks Consultants. (2007). *Manual of Good Practice for Land Application of Food Processing/Rinse Water.* Prepared for California League of Food Processors.

Buelow, M. S. (2015). Characterization of Winery Wastewater for Reuse in California. *American Society for Enology and Viticulture, 66*(3), pp. 302-310.

Central Coast Regional Water Quality Control Board. (2008). General Waste Discharge Requirements for Discharges of Winery Waste Order No. R3-2008-0018.

Crites, R., & Tchobanoglous, G. (1998). *Small and Decentralized Wastewater Management Systems.* WCB/McGraw-Hill.

FSA Consulting. (2006, May). Best Practice Guide for Water and Waste Management in the Queensland Wine Industry. Brisbane, Queensland, Australia. Retrieved from http://www.fsaconsulting.net/pdfs/EPA\_Wine\_Industry\_Best\_Practice\_water\_use.pdf

Jenssen, P. D., & Siegrist, R. L. (1990). Technology assessment of wastewater treatment by soil infiltration systems. *Water Science and Technology, 22*(3/4), 83-92.

Julien, R. (2014). *Evaluation of Organic Loading and Hydraulic Rest Period of Food Processing Wastewater Irrigation to Prevent Mobilization of Transition Metals.* Michigan State University.

Kemker, C. (2014, March 03). Conductivity, Salinity and Total Dissolved Solids. Fundamentals of Environmental Measurements. Fondriest Environmental, Inc. Retrieved from http://www.fondriest.com/environmental-measurements/parameters/water-quality/conductivity-salinity-tds/

Lesch, S. M., & Suarez, D. L. (2009). A Short Note of Calculating the Adjusted SAR Index. *American Society of Agricultural and Biological Engineers, 52*(2), 493-496.

Masclaux-Daubresse, C., Daniel-Vedele, F., Dechorgnat, J., Chardon, F., Gaufichon, L., & Suzuki, A. (2010). Nitrogen uptake, assimilation and remobilization in plants: challenges for sustainable and productive agriculture. *Annals of Botany, 117*(3), 1141-1157.

McDaniel, P. A. (2006). *Anaerobic Processes. Encyclopedia of Soil Science.* Boca Raton, FL: Taylor & Francis Group.

Napa Sanitation District, & Oakley Water Strategies. (2009). *Winery Waste Management - Technical Memorandum.*

Qasim, S. (1999). *Wastewater Treatment Plants Planning, Design, and Operation* (Second ed.). Lancaster, Pennsylvania: Technomic Publishing Company, Inc.

Smith, D. J. (2006). *EPA Process Design Manual Land Treatment of Municipal Wastewater Effluents* (Vols. EPA/625/R-06/016).

State Board, C. S. (2014). Water Quality Order 2014-0153-DWQ General Waste Discharge Requirements for Discharges to Land by Small Domestic Systems.

Tchobanoglous, G., & Burton, F. (1991). *Metcalf and Eddy Wastewater Engineering Treatment, Disposal, and Reuse* (3 ed.). McGraw-Hill.

U.S. Environmental Protection Agency. (2002). *Onsite Wastewater Treatment Systems Manual* (Vols. EPA/625/R-00/008).

Wine Institute. (2008). *Comprehensive Guide to Sustainable Managment of Winery Water and Associated Energy.* San Francisco. Retrieved from http://www.wineinstitute.org/winerywaterguide

Zoecklein, D. B. (2010, August 9). Enology Notes #155. Wine / Enology Grape Chemistry Group. Blacksburg, Virginia. Retrieved from http://www.apps.fst.vt.edu/extension/enology/EN/155.html#5

1. General Waste Discharge Requirements for Composting Operations, Order No. WQ 2015-0121-DWQ can be accessed at <http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2015/wqo2015_0121_dwq.pdf>. [↑](#footnote-ref-2)
2. Certified California Sustainable Winegrowing program information is accessible online at <http://www.sustainablewinegrowing.org/certified-sustainable-winegrowing.php> [↑](#footnote-ref-3)
3. Sustainability in Practice Certified Sustainable Winery Certification program information is accessible online at <http://www.sipcertified.org/> [↑](#footnote-ref-4)
4. s.u. denotes standard units as the unit of measurement for pH. [↑](#footnote-ref-5)
5. Source: Zone 7 Water Agency 2015 Nutrient Management Plan, page 68 and Figure 6-6. [↑](#footnote-ref-6)
6. The sodium concentration of 3 dS/cm (or 0.3 dS/meter) and the maximum electrical conductivity value of 1 dS/cm (or 0.1 dS/meter) were recommended by Buelow et al. as the most common risk scenario for California wineries and negative impacts to soil permeability due to sodium accumulation. [↑](#footnote-ref-7)
7. dS/m is the unit of measurement deciSiemen per meter. µS/cm is the unit of measurement microSiemen per centimeter.

1 dS/m = 1,000 µS/cm. Conversion example: 0.3 dS/cm = 3,000 µS/cm [↑](#footnote-ref-8)
8. Guidelines for the Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water are accessible at http://www.waterboards.ca.gov/drinking\_water/certlic/drinkingwater/documents/recharge/ERGUIDE2001.pdf. [↑](#footnote-ref-9)
9. The State Water Board’s Order WQ 2015-0121-DWQ, General Waste Discharge Requirements for Composting Operations, dated August 4, 2015, can be accessed online at http://www.waterboards.ca.gov/board\_decisions/adopted\_orders/water\_quality/2015/wqo2015\_0121\_dwq.pdf [↑](#footnote-ref-10)
10. Chapter 1.7 of the U.S. EPA Process Design Manual for Land Application of Municipal Wastewater Effluents contains information the limiting design parameter concept and is accessible online at https://nepis.epa.gov/Exe/ZyPDF.cgi/2000ZYD5.PDF?Dockey=2000ZYD5.PDF. [↑](#footnote-ref-11)
11. U.S. Environmental Protection Agency onsite wastewater treatment and disposal systems resources can be accessed online at https://www.epa.gov/septic/onsite-wastewater-treatment-and-disposal-systems. [↑](#footnote-ref-12)
12. Source: Wine Institute, Kennedy/Jenks Consultants. 2004. Land Application of Winery Stillage and Non-Stillage Process Water: Study Results and Proposed Guidelines. Chapter 5. [↑](#footnote-ref-13)
13. A Natural Resources Conservation Service soil survey report is accessible online at https://websoilsurvey.sc.egov.usda.gov/. [↑](#footnote-ref-14)
14. Title 22 of the California Code of Regulations is accessible online at http://www.waterboards.ca.gov/drinking\_water/certlic/drinkingwater/Lawbook.shtml. [↑](#footnote-ref-15)
15. The seepage rate of 1x10-6 cm/sec per the California National Resources Conservation Service Conservation Practice Standard 313, which is accessible at https://efotg.sc.egov.usda.gov/references/public/CA/313-std-ca-01-14.pdf. [↑](#footnote-ref-16)