

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

TIME SCHEDULE ORDER R5-2022-0901

REQUIRING
E. & J. GALLO WINERY
FRESNO WINERY
FRESNO COUNTY

TO ELIMINATE THE DISCHARGE OF ION EXCHANGE REGENERATE TO LAND

The Executive Officer of the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board or Board) finds that:

E. & J. Gallo Winery Composting Facility

1. E & J Gallo Winery (Gallo or Discharger) owns and operates the Fresno Winery (Winery) at 5610 Olive Avenue in Fresno County as shown in Attachment A of this Time Schedule Order (TSO). The Winery is regulated by Waste Discharge Requirements (WDRs) Order R5-2015-0040, which authorizes the discharge of winery process wastewater to over 400 acres of onsite land application areas.
2. Gallo also operates the Gallo Fresno Composting Facility (Composting Facility) at the Winery. The 85-acre Composting Facility is located in the central to northeastern portion of the approximately 700-acre winery property as shown in Attachment B and has been in operation since 1975. The Composting Facility is also regulated by Fresno County (Facility File No. 10-AA-0182).
3. Pomace, grape skins, seeds, and diatomaceous earth are removed from the wine making activities. This material is mixed with green waste received from the community and is processed at an approximately 16-acre receiving area as shown in Attachment C. The compost is then formed into windrows on a 60-acre compost pad for finishing and storage.
4. The finished compost is sold for use as soil amendments, primarily for agricultural applications. Pomace, grape skins, seeds, and diatomaceous earth from the wine making activities are also sold individually for other uses including soil amendments and cattle feed.
5. During the processing of wine, juice, and colorants at the Fresno Winery, Gallo generates ion exchange regenerant (IER) as a byproduct that is used for moisture management and finishing of the compost. The IER is a high-strength waste that can, and has in the past, degraded/polluted underlying groundwater at the Winery. WDRs Order R5-2015-0040, Finding 19 states:

Gallo historically discharged spent ion exchange regenerate to lands immediately south of the Winery. The discharge degraded/polluted

groundwater underlying the former land application area and downgradient of the Winery with salinity and sulfates. The direct discharge to land of the spent ion exchange regenerate was discontinued in 1994, and it is currently discharged onto the compost windrows. Groundwater quality is improving downgradient of the land application area to which the ion exchange regenerate was discharged as discussed in Finding 74.

6. The IER is currently used for moisture management and finishing of the compost. A four-inch pipeline conveys IER from a tank within the Winery to two 4,000-gallon tanks at the northeast corner of the winery by-products storage area. The IER/irrigation water is transferred to a small tanker trailer that is towed behind a specifically designed “row turning” tractor. The tractor turns the compost and the regenerant is applied internally under the hood of the row turning equipment. Other than its use at the composting facility for compost moisture management, WDRs Order R5-2015-0040 does not authorize the direct or indirect discharge to land of IER generated at the Fresno Winery.

Background

7. WDRs Order R5-2015-0040, Provision G.14.a required the submittal of a work plan for the operation of the Composting Facility by 18 April 2016. Provision G.14.a states:

Submit a work plan and proposed schedule to characterize all discharges to and from the composting facility and evaluate whether they are consistent with the Basin Plan, the State Antidegradation Policy, and requirements of WDRs Order R5-2015-0040 such that they qualify for exemption to the requirements of California Code of Regulations, Title 27. The work plan and schedule shall be subject to the approval of the Executive Officer.

8. Gallo submitted a work plan, dated 18 April 2016, that addressed proposed activities to further characterize the composting operations. Central Valley Water Board staff reviewed the Work Plan and responded in a 21 June 2016 letter to Gallo stating the Composting Facility should be enrolled under General WDRs for Composting Operations Order WQ 2015-0121-DWQ (Composting General Order).
9. Gallo submitted a Site Characterization Report on 1 May 2017 that concluded the operation of the Composting Facility was exempt from Title 27 requirements and would be better regulated under WDRs Order R5-2015-0040 rather than regulated under the Composting General Order.
10. Central Valley Waterboard staff reviewed Gallo’s 1 May 2017 Characterization Report and provided a 2 April 2019 review letter and memorandum. The 2 April 2019 letter concluded that “*WDRs Order R5-2015-0040, as currently written, are insufficient to properly regulate the operations of the composting facility...*” and

that the Composting General Order “*was written specifically for composting facilities and addresses potential impacts composting facilities could have on underlying groundwater quality.*” The letter directed Gallo to submit a Notice of Intent for coverage under the Composting General Order by 1 July 2019

11. Gallo provided a response to the Central Valley Water Board’s 2 April 2019 review letter on 28 May 2019. Gallo acknowledged Central Valley Water Board staff’s desire to regulate the Composting Facility under the Composting General Order but stated its reluctance to accept the additional regulatory compliance burden of having two separate permits. Gallo indicated in the May 2019 Letter that because composting is not part of its core business, it would evaluate the need to continue to operate the Composting Facility and requested 12 months for Gallo to evaluate long-term options for the Composting Facility in lieu of submitting a Notice of Intent for the Composting General Order. In a 17 August 2020 letter, Gallo submitted a “Proposed Transition Plan, Elimination of Ion Exchange Regenerant (IER) – Compost Operations” (Transition Plan), which is discussed in greater detail beginning in Finding 23.

Ion Exchange Regenerate (IER) and Composting Facility

12. WDRs Order R5-2015-0040 includes Monitoring and Reporting Program (MRP) R5-2015-0040, which requires Gallo, in part, to inspect the Composting Facility and record the volume of compost generated on a daily basis. The MRP also requires Gallo to monitor the IER and the stormwater/leachate present in the collection sumps at the Composting Facility.
13. MRP R5-2015-0040 requires Gallo to monitor the IER monthly. The 2019, 2020, and 2021 annual average monitoring results for biochemical oxygen demand (BOD), total nitrogen, electrical conductivity (EC), total dissolved solids (TDS), sulfate, and pH are summarized in Table 1.

Table 1 – IER Monitoring Data: 2019 – 2021 (see 1 below)

Year	BOD (mg/L)	Total Nitrogen (mg/L)	EC (µmhos/cm)	TDS (mg/L)	Sulfate (mg/L)	pH (s.u.)
2019	3,050	4,250	45,800	23,600	20,300	2.4
2020	2,769	3,985	46,583	24,433	35,752	2.1
2021	2,667	8,233	45,583	24,583	21,250	2.2

1. mg/L = milligrams per liter; µmhos/cm = micromhos per centimeter;
 s.u. = standard units

14. The IER monitoring data indicate an acidic waste stream with EC, TDS, and sulfate detected at concentrations far greater than the applicable water quality objectives.

This high strength wastewater, as previously mentioned (Finding 5 above), has previously polluted groundwater when discharged directly to land. The IER is applied to the windrowed compost as a finishing agent and for moisture control. Sampling results of soil samples collected from within the composting pad and presented in Gallo's 1 May 2017 Characterization Report show elevated levels of EC, potassium, and sulfate in surficial samples, but the concentrations decrease with depth.

15. The annual volumes of compost, pomace, and spent diatomaceous earth processed and sold at the Composting Facility since 2018 are presented below in Table 2. The results are presented in tons.

Table 2 – Annual Compost, Pomace, and Diatomaceous Earth Generation (in Tons)

Year	Compost	Pomace	Diatomaceous Earth
2018	12,681	34,206	14,640
2019	11,614	53,329	9,601
2020	19,949	60,690	15,519
2021	20,064	63,899	21,603

16. Storm water and leachate are collected in five sumps surrounding the Composting Facility. The collection sumps are identified in Attachment C (CMP-01 through CMP-5). Sumps CMP-01 and CMP-02 are along the northern edge of the composting pad and primarily collect storm water runoff from the composting pad. CMP-03 through CMP-05 are set around the materials storage and handling area of the Composting Facility. CMP-03 through CMP-05 collect a mixture of storm water and leachate that drains primarily from the spent diatomaceous earth and pomace that is temporarily stored at the materials storage and handling area. The materials handling and storage area is asphalt paved. The surface was observed to be cracked and in disrepair during a 2019 inspection of the Composting Facility. Gallo has since initiated a program where it inspects the paved surface and seals observed cracks with a sealant.
17. The averages of leachate/storm water sampling from 2019 through 2021 are presented in Table 3 for BOD, total nitrogen, EC, TDS, chloride, and sulfate. During these three years, Gallo reported 14 results for CMP-01, 10 results for CMP-02, 24 for CMP-03, 25 for CMP-04, and 19 for CMP-05.

Table 3 – Leachate/Stormwater Collection Sump Data (2019 – 2021)

Constituent	CMP-01	CMP-02	CMP-03	CMP-04	CMP-05
BOD (mg/L)	74	26	48,971	37,004	23,684
Total Nitrogen (mg/L)	109	34	1,692	1,171	667
EC (µmhos/cm)	4,285	2,040	14,125	25,724	9,577
TDS (mg/L)	3,210	1,670	54,279	41,712	22,904
Chloride (mg/L)	129	62	333	252	444
Sulfate (mg/L)	1,639	766	925	892	832

18. The results generally show that concentrations in CMP-01 and CMP-02 (positioned along the northern end of the compost pad), which primarily collect stormwater from the compost pad, are typically lower than the results from the samples from CMP-03 through CMP-05 (positioned within the materials handling and storage area) that collect primarily leachate from the pomace and spent diatomaceous earth. The exception is the sulfate average in CMP-01, which is higher than the sulfate averages for CMP-03 through CMP-05. A 9,300 mg/L sulfate value from the February 2021 sample collected from CMP-01 elevates the average, but the value was not removed as an outlier because all other constituents in the sample are similarly elevated, and no other laboratory issues were noted in the laboratory report.
19. The reported data for BOD, total nitrogen, EC, TDS, and sulfate show elevated concentrations/levels, especially for CMP-03 through CMP-05. These concentrations illustrate the importance of handling the stormwater/leachate carefully and conducting the required inspections to ensure the paved surface is maintained repaired routinely to minimize the potential for the stormwater/leachate to degrade the soil and/or groundwater underlying the Composting Facility
20. The 2017 Characterization Report indicates that Gallo used approximately 120,000 gallons of irrigation water (groundwater) over three years (2014 – 2016) or an average of about 40,000 gallons of water per year on the composting windrows. In 2016, Gallo applied 11.7 million gallons of IER to the compost, which indicates that IER compromised 97 percent of the liquids used for moisture management for the compost in 2016. The volume of irrigation water used for moisture control from 2017 through 2021 is not reported, so a percentage of the liquid used for moisture management for these years cannot be assessed. The volume of IER used from 2016 through 2021 is presented in Table 4. The annual IER baseline for this TSO is established as 7.7 MGY (three-year average for years 2019-2021). As discussed in more detail below, future reductions of allowable IER specified per this TSO will be based on this value.

Table 4 – Volume of IER Applied to Compost (million gallons)

2016	2017	2018	2019	2020	2021
11.7	11.9	7.2	7.1	5.9	10.0

Groundwater

21. Gallo maintains a groundwater monitoring well network at the Fresno Winery. Groundwater flow is generally from east to west. The monitoring well locations are depicted in Attachment B. Wells MW-1 through MW-3 provide background monitoring along the eastern property boundary. Wells MW-4 through MW-8 provide onsite groundwater monitoring along the western and downgradient edge of the Fresno Winery property. Wells MW-9 and MW-10 monitor groundwater quality within the Fresno Winery property. MW-9 is set downgradient of the Composting Facility and MW-10 is set in the central portion of the northern land application areas. Offsite downgradient groundwater monitoring is provided by groundwater monitoring wells MW-B-18-1, MW-11OS, MW-12OS, and MW-12AOS.
22. The average of the groundwater monitoring results from the four quarterly monitoring events of 2021 are shown below in Table 5.

Table 5 – 2021 Average Groundwater Monitoring Well Results

Well Number	EC (µmhos/cm)	TDS (mg/L)	Nitrate (as N) (mg/L)
MW-1	1,250	813	15.0
MW-2	225	180	5.2
MW-3	528	378	10.3
MW-4	1,850	1,325	75.8
MW-4a	1,625	1,098	56.5
MW-5	1,750	1,175	68.3
MW-5a	1,175	798	38.8
MW-5b	560	370	14.2
MW-6	2,000	1,375	120
MW-6a	368	258	11.5
MW-8	1,010	630	23.3
MW-8a	883	613	22.8

Well Number	EC (µmhos/cm)	TDS (mg/L)	Nitrate (as N) (mg/L)
MW-9	1,200	765	43.0
MW-10	1,325	890	32.8
MW-11OS	983	665	23.5
MW-12OS	748	510	10.9
MW-12AOS	788	520	17.8
MW-B18-1	750	513	9.0

**Phased Elimination of IER Application at the Composting Facility
 (17 August 2020 Transition Plan)**

23. Gallo submitted a 17 August 2020 “*Proposed Transition Plan, Elimination of Ion Exchange Regenerant (IER) – Compost Operations*” (Transition Plan) to the Central Valley Water Board. The proposed Transition Plan consists of a multi-year approach to eliminate the application of ion exchange regenerate (IER) at the Composting Facility. Gallo conducted pilot studies using bi-polar electro dialysis (BPED) membrane in lieu of an ion exchange system. The attached information sheet includes more information about the proposed BPED system and phased implementation. In general, Gallo proposes to install the BPED System in two phases. Phase I will consist of one BPED membrane stack (STACK 1) and will be expanded with the addition of a second stack (STACK 2). Phase II will include two additional BPED membrane stacks (STACKS 3 and 4).

24. According to Gallo, the waste stream from the BPED can be used to replace/reduce chemicals used to adjust the pH of the discharge from Gallo’s Fresno Anaerobic Treatment System (FATS) and/or to replace caustic cleaning materials. Gallo staff indicated in March 2021 that the schedule proposed in August 2020 letter is currently accurate and is generally on schedule. The proposed phased elimination of IER for composting operations at the Fresno Winery is summarized in Table 6 below.

Table 6 – IER Transition Plan

Year(s)	Transition Plan Activity
2022	Begin operation of Phase I of the BPED System by 2022 (install STACK I).
2024	Ramp up Phase I of the BPED System (i.e., install STACK 2). Reduce IER application by at least 10% (i.e., not apply more than 6.93 million gallons of IER annually for the 2024 and 2025 calendar years to the Compost Facility).
2025	Optimize Phase I and advance capital for Phase II of the BPED System.
2026	Begin Phase II of the BPED System (Install STACKs 3 and 4). Reduce IER application by at least 20% (i.e., not apply more than 6.2 million gallons of IER for the 2026 calendar year to the Compost Facility).
2027	Continue ramp up of Phase II and reduction of IER process. Reduce IER application by at least 40% (i.e., not apply more than 4.6 million gallons of IER for the 2027 calendar year to the Compost Facility).
2028	Continue ramp up of Phase II and reduction of IER process. Reduce IER application by at least 60% . (i.e., not apply more than 3.1 million gallons of IER for the 2028 calendar year to the Compost Facility).
2029	Continue ramp up of Phase II and reduction of IER process. Reduce IER application by at least 80% . (i.e., not apply more than 1.5 million gallons of IER for the 2029 calendar year to the Compost Facility).
By 1 January 2030	Complete elimination of IER application to the compost facility.

25. Gallo has indicated that composting activities may continue at the Composting Facility past 2029. Gallo met with the City of Fresno (City) to develop a green waste transition plan to aid in the City in meeting its waste diversion goals, but the City’s long-term plan for using the site is unknown at this time. Should the Composting Facility remain in operation, this TSO includes Task 1.c that requires Gallo, by 2 January 2030, to submit an NOI for enrolling the Composting Facility under the Composting General Order. This amount of time is needed to allow the City of Fresno to find appropriate means to address green waste issues associated with discontinuing operation of the Compost Facility.
26. This TSO does not authorize the discharge of IER to land other than the continued application of the IER (at increasingly reduced volumes) at the Composting Facility for moisture management of the compost (until 1 January 2030). IER that cannot properly be used on the compost for moisture management shall be disposed of offsite at an appropriately permitted disposal facility.

BPED Waste Streams

27. To characterize the BPED process and resulting waste streams, Gallo submitted a BPED Characterization Report dated 20 December 2021, prepared by Kennedy Jenks. The proposed BPED system will generate two waste streams (or process residual streams), referred to as the potassium hydroxide (KOH) waste stream and Clean-in-Place (CIP) waste stream. When juice is added to the BPED system, a process residual stream consisting of basic (pH around 10.5) potassium hydroxide is generated (KOH waste stream). When the membranes require cleaning, sulfuric acid is recirculated through the system followed by softened water. The CIP process generates a residual waste stream that is also basic in nature.
28. Gallo conducted a bench-scale study in January 2019 using its Valley Dark Red juice concentrate, softened water, and sulfuric acid, which produced a KOH waste stream, to assess the viability of a BPED system. Gallo followed the bench-scale study with pilot scale trials in November 2019, conducted at Gallo's California Natural Colors facility in Fresno. The results of the 2019 BPED study are shown in Table 2.

Table 7 – 2019 BPED Pilot Studies Results

Constituent	Results
EC	15,000 – 17,000 μ mhos/cm
Potassium	5,000 – 6,100 mg/L
Sodium	180 mg/L
Sulfate	<7,000 – 8,000 mg/L

29. Gallo conducted another pilot study at their Sonoma winery in July 2021 and a bench-scale study in December 2021. Gallo reported analytical results for both the KOH and CIP process residual waste streams in July and just the KOH waste stream in December 2021. Wastewater sampling results from these studies are summarized in Table 8 below.

Table 8 - 2021 BPED Pilot Study Results

Constituents	July 2021 BPED KOH Waste Stream	July 2021 BPED CIP Waste Stream	December 2021 BPED KOH Waste Stream
Sodium - mg/L	250	50	150
Chloride - mg/L	<200	<200	36
EC - µmhos/cm	19,000	13,000	11,000
FDS - mg/L	12,000	5,200	7,000
TDS - mg/L	13,000	6,000	7,800
Ammonia as N – mg/L	120	11	37
Nitrate as N – mg/L	<45	<45	<4
Nitrite as N – mg/L	<30	<30	<3
TKN – mg/L	180	78	130
Sulfate – mg/L	7,400	1,700	4,400

30. The BPED Characterization Report indicates Gallo will generate around 1.76 million gallons of BPED system wastewater in 2022, consisting of 1.6 million gallons of KOH wastewater and 0.16 million gallons of CIP wastewater. By 2024, Gallo estimates it will generate 3.24 million gallons of BPED wastewater and 6.67 million gallons by 2026.
31. The BPED Characterization Report states that Gallo intended to reuse the BPED system wastewater in house, but also indicated it would be discharged to the Fresno Winery’s Fresno Anaerobic Treatment System (FATS). FATS effluent is discharged to both the Fresno-Clovis Regional Wastewater Treatment Facility (Regional WWTF) and to Fresno Winery’s onsite land application areas (LAA’s) permitted under WDRs Order R5-2015-0040.
32. In response to the information provided in the BPED Characterization Report, Central Valley Water Board staff had multiple meetings in February and March 2022 with Gallo representatives to inform Gallo that WDRs Order R5-2015-0040 does not authorize the discharge of BPED system wastewater to land and expressed staff’s concerns with the discharge of BPED system wastewater to the Winery’s LAA. Subsequently, in a letter dated 25 February 2022, Gallo informed the Central Valley Water Board that the City of Fresno granted Gallo a wastewater bypass for the BPED system wastewater. This agreement allows direct discharge of the BPED system wastewater to the City of Fresno’s Regional WWTF. Therefore, at

this time, Gallo is no longer proposing to discharge the BPED system wastewater to the LAA.

33. This TSO does not authorize the discharge of any wastewater generated from the BPED system directly to land. For Gallo to receive revised WDRs authorizing such discharge, Gallo must submit a Report of Waste Discharge pursuant to California Water Code 13260 that demonstrates the discharge of BPED wastewater to land will comply with the California Water Code and State Water Resources Control Board Resolution 68-16 (Antidegradation Policy). Specifically, the Report of Waste Discharge must demonstrate how the discharge of this high-strength waste to land would not further degrade underlying groundwater conditions at the Fresno Winery and onsite land application area.

Time Schedule Order (TSO)

34. This Order establishes milestones for Gallo to eliminate the application of IER to the Composting Facility. As described above, IER from the Fresno Winery has the potential to violate Discharge Specifications C.1, C.2, and C.8 and Groundwater Limitations F.1, F.2, and F.3. This Order provides regulatory oversight for the proposed phased discontinuation of IER application at the Fresno Winery and the potential closure of Gallo's Fresno Composting Facility.
35. This Order requires Gallo to provide annual progress reports to the Central Valley Water Board staff, documenting the progress of the phased changeover from the ion exchange system to the BPED system and the corresponding elimination of IER application to compost at the Compost Facility.
36. Water Code section 13300, states:

Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board ... the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements.

37. Water Code section 13267, states, in part, that:

In conducting an investigation ... the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the

regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.

38. The technical reports required by this Order are necessary to ensure compliance with this TSO, and to assure protection of the public health and safety. The persons named in this Order own and/or operate the facilities that discharge the wastes subject to this Order.
39. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Dischargers shall bear the professional's signature and stamp.
40. The issuance of this Order is an enforcement action by a regulatory agency, and therefore, is exempt from the provisions of the California Environmental Quality Act, pursuant to California Code of Regulations, title 14, section 15321(a)(2).

IT IS HEREBY ORDERED that, pursuant to sections 13300 and 13267 of the California Water Code, E & J Gallo Winery, its agents, successors, and assigns shall:

1. **By 1 January 2030**, Gallo Winery shall comply with WDRs Order R5-2015-0040, including Discharge Specifications C.1, C.2, and C.8 and Groundwater Limitations F.1, F.2, and F.3, and cease the application of IER to the Compost Facility **in accordance with the following compliance schedule.**

Table 9 – Compliance Schedule

<u>Task</u>	<u>Task Description</u>
a.	By 15 September 2022 , Gallo shall commence Phase I of the BPED system as described in Gallo's August 2020 Transition Plan (summarized in Findings 23 and 24 above). By this date, Gallo shall provide certification that Phase I of the BPED system has commenced.
b.	By 1 July 2026 , Gallo shall commence Phase II of the BPED system as described in Gallo's August 2020 Transition Plan (summarized in Findings 23 and 24 above). By this date, Gallo shall provide certification that Phase II of the BPED system has commenced.

<u>Task</u>	<u>Task Description</u>
c.	By 1 January 2030 , Gallo shall cease discharge of IER to compost. By this date, Gallo shall provide certification that IER is no longer used in composting. If composting activities are still occurring at the Winery at this date, Gallo and the composting operator (if a separate entity) shall submit a Notice of Intent (NOI)/ application by 2 January 2030 for enrollment under General Waste Discharge Requirements for Commercial Composting Operations, State Water Resources Control Board Order WQ 2020-0012-DWQ (Composting General Order) or subsequently revised Composting General Order if applicable.

2. By **1 February of every year**, until the application of IER at the Composting Facility ceases and the time schedule above is satisfied, Gallo shall provide a detailed annual update on the status and progress of utilizing BPED technology for its processing needs and the progress of eliminating the application of IER to compost. The progress reports shall document the total volumes of IER and BPED waste(s) produced annually, including their reuse (no BPED waste stream may be discharged to land) and disposal.
3. Should Gallo choose to discontinue its efforts to use the BPED system to eliminate the generation and application of the IER, Gallo must notify the Central Valley Water Board in writing within 30 days of the decision and provide a technical report describing how it will use and/or dispose of the IER moving forward. The technical report must also describe if composting activities will continue at Gallo Winery. If so, Gallo must also apply for enrollment under the Composting General Order.
4. If Gallo wishes to discharge any waste generated by the proposed Winery BPED system to land (including the onsite land application areas permitted by WDRs Order R5-2015-0040), Gallo must submit a Report of Waste Discharge, pursuant to California Water Code 13260, to revise the Winery WDRs to authorize the new discharge. As discussed in the Findings included in this Time Schedule Order, Gallo would need to demonstrate in the Report of Waste Discharge how the proposed discharge would comply with the Antidegradation Policy and not further degrade groundwater underlying the Winery and land application areas.

If, for any reason, Gallo is unable to perform any activity or submit any document in compliance with the time schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Executive Officer, Gallo may request, in writing, an extension of the time specified not to exceed one year. The extension request shall include justification for the delay. An extension may be granted by revision of this Order or by letter from the Executive Officer.

If, in the opinion of the Executive Officer, Gallo violates this Order, the Executive Officer may refer the matter to the Attorney General for judicial enforcement or alternately issue a formal complaint for Administrative Civil Liability.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The petition must be received by the State Water Board Office of the Chief Counsel, P.O. Box 100, Sacramento, California 95812-0100, within 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. [Copies of the law and regulations applicable to filing petitions](#) may be found on the Internet.

(http://www.waterboards.ca.gov/public_notices/petitions/water_quality/)

or will be provided upon request.

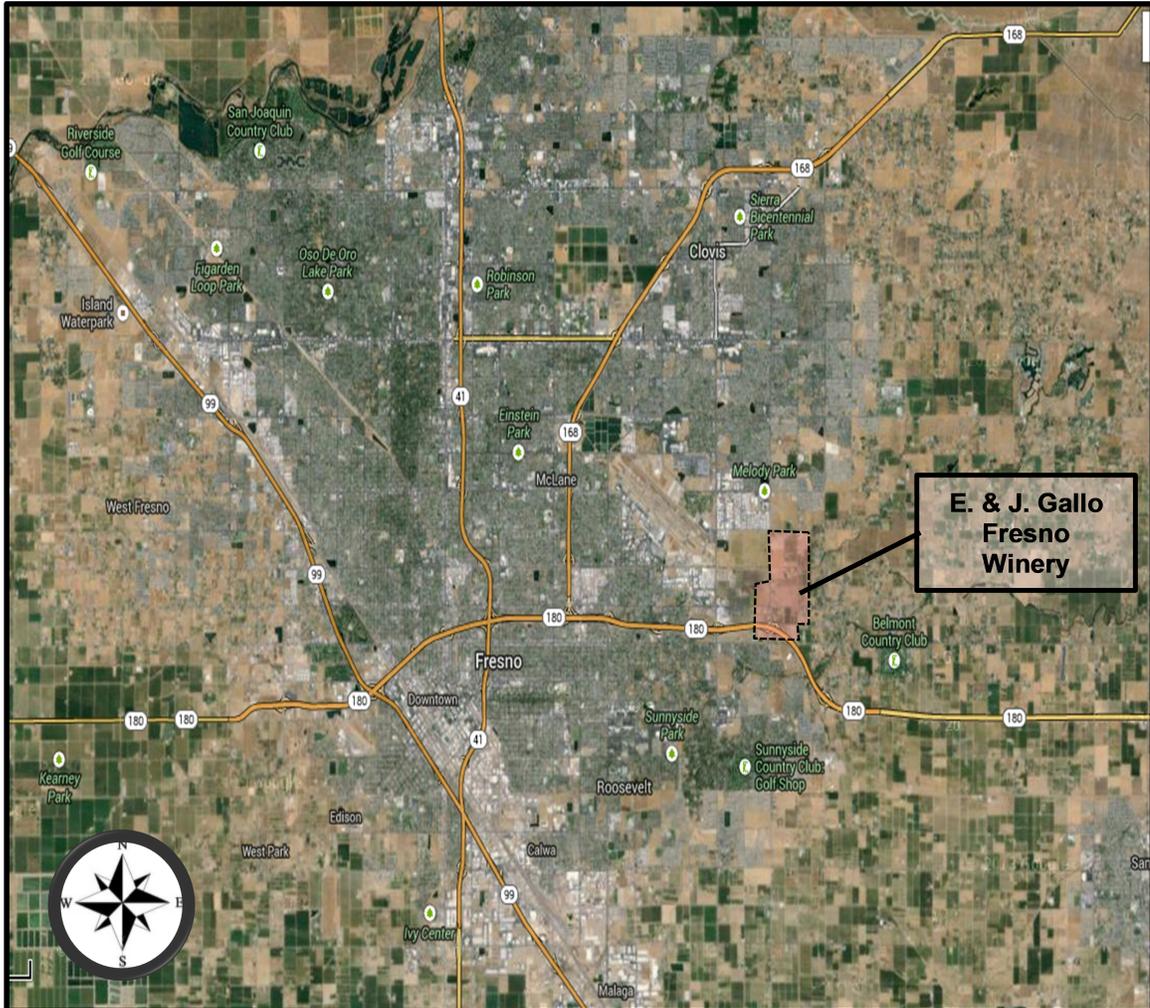
This Order is issued under authority delegated to the Executive Officer and his/her deputies by the Central Valley Water Board pursuant to Resolution R5-2018-0057 and is effective upon signature.

PATRICK PULUPA, Executive Officer

Attachments

Attachment A: Location Map
Attachment B: Site Map
Attachment C: Composting Facility
Information Sheet

TIME SCHEDULE ORDER (TSO) R5-2022-0901
E & J GALLO FRESNO WINERY
FRESNO WINERY
FRESNO COUNTY



**E. & J. Gallo
Fresno
Winery**

LOCATION MAP

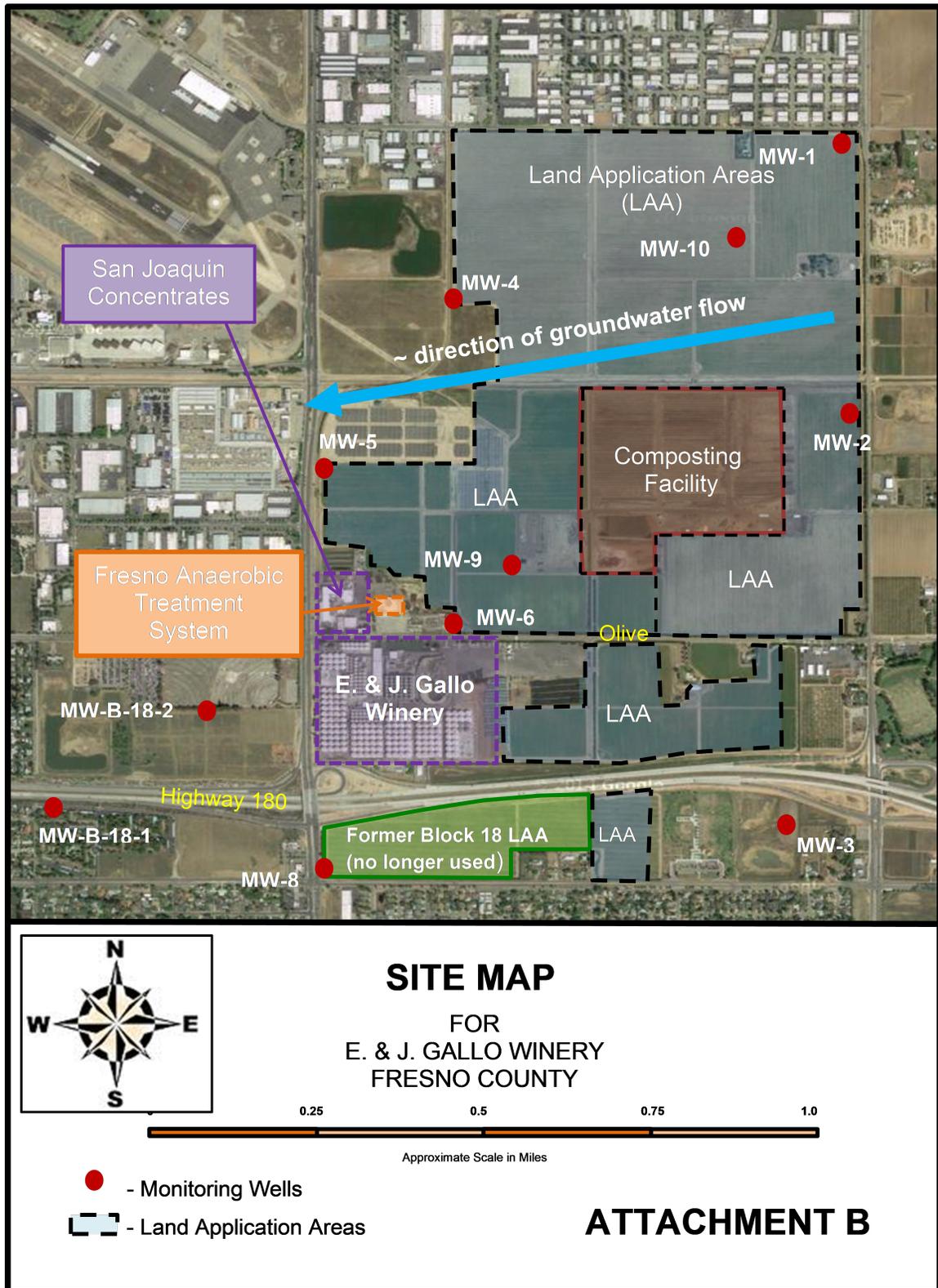
FOR
E. & J. GALLO WINERY
FRESNO WINERY
FRESNO COUNTY



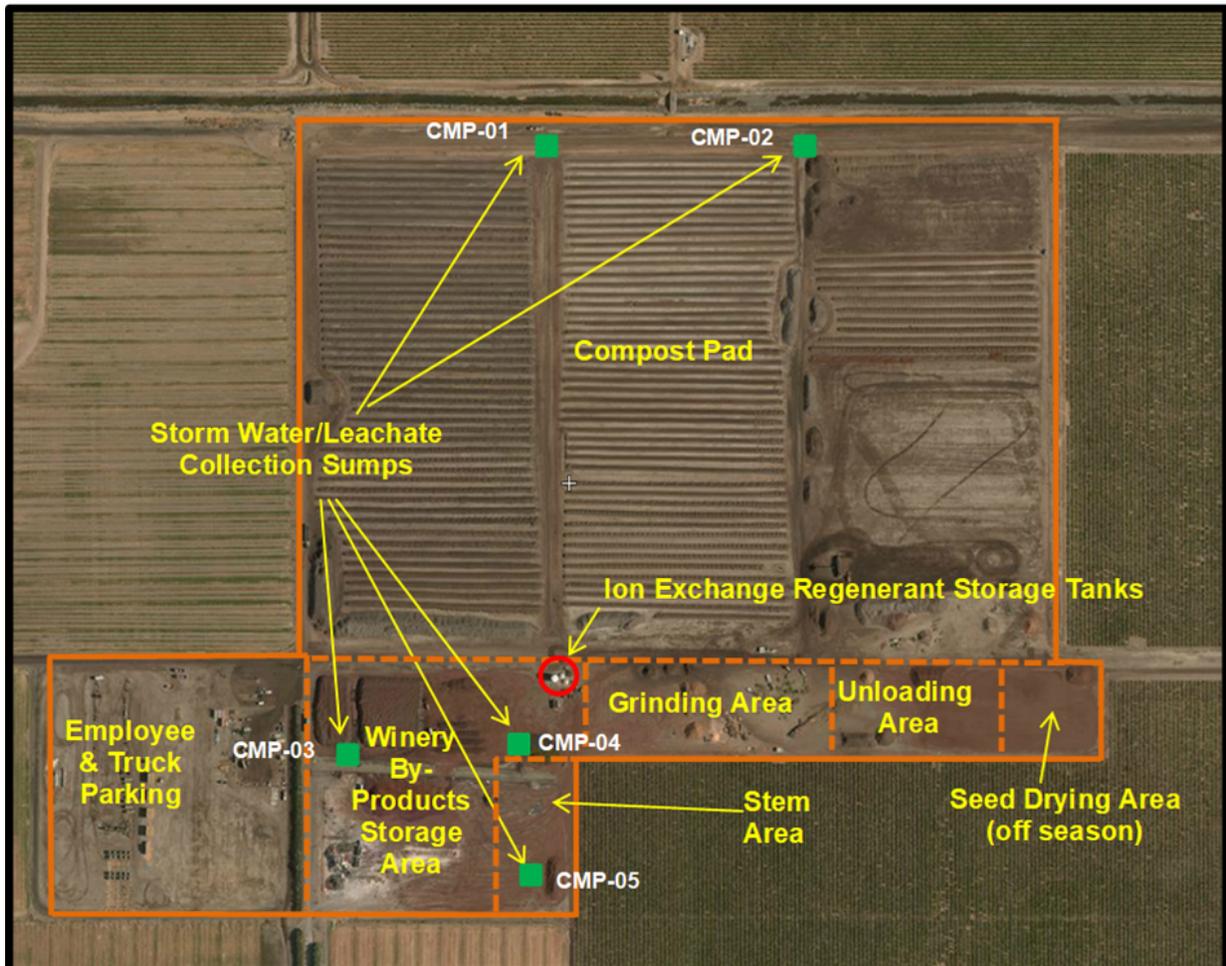
Approximate Scale in Miles

ATTACHMENT A

TIME SCHEDULE ORDER (TSO) R5-2022-0901
E & J GALLO FRESNO WINERY
FRESNO WINERY
FRESNO COUNTY



TIME SCHEDULE ORDER (TSO) R5-2022-0901
E & J GALLO FRESNO WINERY
FRESNO WINERY
FRESNO COUNTY



COMPOSTING FACILITY

FOR
E. & J. GALLO WINERY
FRESNO COUNTY



Approximate Scale
1-inch = ~400 feet

 - Facility Boundary

ATTACHMENT C

INFORMATION SHEET

INTRODUCTION

E. & J. Gallo Winery (Gallo or Discharger) owns and operates the Gallo Fresno Winery (Fresno Winery) at 5610 Olive Avenue in Fresno. The Winery generates wine processing wastewater that is discharged to both the Fresno-Clovis Wastewater Treatment Facility and to over 400 acres of land application area present around the Fresno Winery. The Central Valley Water Board issued Waste Discharge Requirements (WDRs) Order R5-2015-0040 to regulate the discharge of up to 54.2 million gallons annually of wine processing wastewater to about 430 acres of cropped land application areas.

BACKGROUND

Wine making and distillation activities have occurred at the Fresno Winery since the 1930s and the property was purchased by Gallo in 1953. The earliest Waste Discharge Requirements (WDRs) for the Gallo Fresno Winery were WDRs Order 56-18, adopted on 3 May 1956. WDRs Order 94-103 regulated the discharges from the Fresno Winery prior to the adoption of WDRs Order R5-2015-0040 in April 2015.

As part of its wine processing, Gallo uses ion exchange units regenerated with sulfuric acid to remove potassium and adjust the color of the wine/juice. The ion exchange units produce an ion exchange regenerant (IER) as a byproduct. As noted in Finding 19 of WDRs Order R5-2015-0040, the IER was historically discharged to land immediately south of the Fresno Winery and the discharge resulted in the degradation/pollution of the underlying groundwater. The discharge of IER directly to land was discontinued in 1994 and groundwater quality downgradient of the former land application area where the IER was applied has improved.

Gallo has operated the Composting Facility (Composting Facility) at the Fresno Winery since 1975. Gallo indicates the Composting Facility is regulated by Fresno County (Facility File No. 10-AA-0182). IER is used for moisture control in the composting process.

REGULATION OF THE COMPOSTING FACILITY

WDRs Order 94-103 described the Composting Facility and stated that grape stems, raisin, and grape pomace were mixed and composted on 68 acres adjacent the stillage disposal area and the “dried solids” are used as a soil amendment on land owned by the Discharger in Madera (discontinued). WDRs Order 94-103 also noted that the crusher/press area wash water and winery stillage wastewater were discharged to land via check irrigation (flood irrigation) but are also “*discharged onto composting material.*” WDRs Order 94-103 (Finding 4) also noted “ion exchange” is one of the wastewaters generated by the Discharger and Finding 6 states that “*Non-contact cooling water and ion-exchange rinse water are discharged to the City of Fresno sewer*”. There is no

mention of ion exchange being applied to compost. The Monitoring and Reporting Program (MRP) No. 94-103 did not require any monitoring or reporting of the Composting Facility.

During the development of WDRs Order R5-2015-0040, Central Valley Water Board staff indicated that the Composting Facility was best regulated under General Waste Discharge Requirements Order WQ 2015-0121-DWQ (Composting General Order), but Gallo staff opined that the Composting Facility was exempt from Title 27 requirements and was better regulated under the proposed WDRs. WDRs Order R5-2015-0040 includes Provision G.14.a that required Gallo to submit a work plan to characterize all discharges to and from the Composting Facility.

The following is list of submittals and response letters regarding the regulation of the Composting Facility.

- 13 January 2016, Notice of Application Process: General Waste Discharge Requirements for Composting Operations, Gallo Vineyards, Inc., Compost Facility, Fresno County – Central Valley Water Board letter requesting Gallo apply for coverage under the Composting General Order or submit a notice of exemption by 4 August 2016.
- 18 April 2016, *Composting Operations Characterizations Work Plan for the E. & J. Gallo Fresno Winery* – Gallo letter proposing additional monitoring and data evaluation to demonstrate regulation under Title 27 and the Composting General Order is not required.
- 21 June 2016, *Review of Composting Operations Characterization Work Plan, E & J Gallo Fresno Winery, Fresno County* - Central Valley Water Board letter concluding it is appropriate to place the Gallo Winery Composting Facility under the Composting General Order for Composting Facilities.
- 1 May 2017, Composting Operations Characterization Report, E & J Gallo Fresno Winery, Fresno County
- 2 April 2019, *Review of Composting Operations Characterization Report, E & J Gallo Fresno Winery, Fresno County* - Central Valley Water Board letter again concluding the Gallo Winery Composting Facility would be better regulated under the Composting General Order and requiring Gallo to submit a Notice of Intent and technical report for coverage under the Composting General Order by 1 July 2019.
- 28 May 2019, *Response to Water Board Communications on Compost Operations E. & J. Gallo Fresno Winery, 5610 East Olive Avenue, Fresno*. Gallo

letter to Central Valley Water Board notifying its intent to evaluate the need for continuing the composting operations.

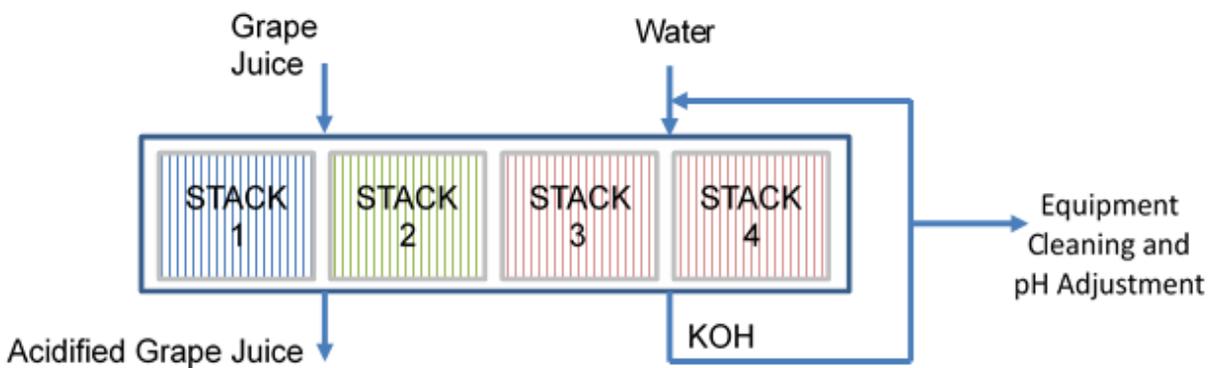
- 17 August 2020, Proposed Transition Plan, Elimination of Ion Exchange Regenerant (IER) – Compost Operations (Transition Plan) on 17 August 2020. – See below for details.

PHASED TRANSITION PLAN

Gallo submitted a *“Proposed Transition Plan, Elimination of Ion Exchange Regenerant (IER) – Compost Operations (Transition Plan) on 17 August 2020*. Gallo proposed an approximately 10-year phased elimination of IER application at the Composting Facility. Gallo conducted a pilot study using bi-polar electrodiolysis (BPED) membrane filtration system as an alternative to the existing ion exchange system. According to Gallo, the pilot study results appear to be an acceptable alternative that will meet Gallo’s processing needs.

As discussed in the Time Schedule Order Findings, Gallo submitted a BPED Characterization Report dated 20 December 2021 to characterize the waste streams generated from the BPED system. This Time Schedule Order does not authorize the discharge of any waste generated from the BPED system to land. Gallo has an agreement to discharge the BPED system waste to the Fresno-Clovis Regional Wastewater Treatment Facility (Regional WWTF).

Gallo staff provided the following flow schematic and description of the proposed BPED process.



Bipolar membrane electrodiolysis (BPED) uses a bipolar membrane to divide water into H⁺ and OH⁻ under the influence of an applied electric field (a process known as “water splitting”). A BPED stack is formed by assembling a large number of alternating bipolar and cation-exchange membranes sandwiched between spacer sheets and assembled to form juice and brine compartments.

Both bipolar and cation-exchange membranes are impermeable to liquids and only facilitate transfer of ions under the influence of an applied electric field and lead to lowering the pH of juice and in the process, generate a brine solution identified as KOH in the flow diagram above. The BPED KOH will be used multiple times through the BPED system until the cation transfer limitation is reached.

The BPED system will be installed in two phases.

Phase I: Phase I will initially be comprised of one (1) BPED membrane stack (STACK 1) comprised of 4,850 ft² of membrane area. The system will also have a process skid to monitor the BPED system and the resulting juice quality during operation. It will be expanded with an addition of a second stack (STACK 2) comprised of 4,850 ft² membrane area.

Phase II: Phase II will include an additional process skid plus two (2) additional BPED membrane stacks (STACK 3 & 4), with each stack sized as 4,850 ft² of membrane area.

At the completion of Phases I and II, there will be a total of four (4) membrane stacks, each 4,850 ft² for a total BPED membrane capacity of 19,400 ft².