



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

MAY 06 2014

Dan Martin
E & J Gallo Winery
18000 W River Rd
Livingston, CA 95334

Re: Notice of Preliminary Decision - Authority to Construct
Facility Number: N-1237
Project Number: N-1141254

Dear Mr. Martin:

Enclosed for your review and comment is the District's analysis of E & J Gallo Winery's application for an Authority to Construct for twelve 1,720 gallon wine storage and fermentation tanks, at 18000 W River Rd, Livingston, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice comment period, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Stanley Tom of Permit Services at (559) 230- 5900.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:st

Enclosures

cc: Mike Tollstrup, CARB (w/ enclosure) via email
cc: Gerardo C. Rios, EPA (w/ enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Twelve Wine Fermentation and Storage Tanks

Facility Name: E & J Gallo Winery
Mailing Address: 18000 W River Rd
Livingston, CA 95334
Contact Person: Dan Martin
Telephone: (209) 394-6211
Email: Dan.Martin@ejgallo.com
Application #(s): N-1237-750-0 through '761-0
Project #: N-1141254
Deemed Complete: April 3, 2014

Date: April 16, 2014
Engineer: Stanley Tom
Lead Engineer: Joven Refuerzo

I. Proposal

E & J Gallo Winery has requested Authority to Construct (ATC) permits for twelve (12) 1,720 gallon (or equivalent) wine fermentation and storage tanks.

E & J Gallo Winery received their Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). But the facility has not requested that this project be processed in that manner; therefore, E & J Gallo Winery will be required to submit a Title V significant modification application prior to operating under the revised provisions of the ATC permits issued with this project.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4102 Nuisance (12/17/92)
Rule 4694 Wine Fermentation and Storage Tanks (12/15/05)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at 18000 W River Rd in Livingston, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

E & J Gallo Winery produces both red and white table wines, as well as other specialty wine products, from the fermentation of grapes. During the "crush season," typically from late August to late November, both red and white grapes are received by truck and delivered to a crusher-stemmer which serves to crush the grapes and remove the stems. In the case of red wines, the resultant juice (termed "must" and containing the grape skins, pulp and seeds) is pumped to red wine fermentation tanks for fermentation, a batch process. The red wine fermentation tanks are specifically designed to ferment the must in contact with the skins and to allow the separation of the skins and seeds from the wine after fermentation. In the case of white wines, the must is sent to screens and presses for separation of grape skins and seeds prior to fermentation. After separation of the skins and seeds, the white must is transferred to a fermentation tank. White wine fermentation can be carried out in a tank without design provisions for solids separation since the skins and seeds have already been separated.

After transfer of the must (for red or white wine) to the fermentation tank, the must is inoculated with yeast which initiates the fermentation reactions. During fermentation, the yeast metabolizes the sugar in the grape juice, converting it to ethanol and carbon dioxide (CO₂) while releasing heat. Temperature is typically controlled by refrigeration, and is maintained at 45–65 °F for white wine fermentation and 70–95 °F for red wine fermentation. The sugar content of the fermentation mass is measured in °Brix (weight %) and is typically 22–26° for unfermented grape juice, dropping to 4° or less at the end of fermentation. Finished ethanol concentration is approximately 10 to 14 percent by volume. Batch fermentation requires 3-5 days per batch for red wine and 1-2 weeks per batch for white wine. VOCs are emitted during the fermentation process along with the CO₂. The VOCs consist primarily of ethanol along with small quantities of other fermentation byproducts.

Following the completion of fermentation, white wine is transferred directly to storage tanks. Red wine is first directed to the presses for separation of solids and then routed to the storage tanks. Tanks can potentially operate in either: (1) a fermentation operation during which the tank is vented directly to the atmosphere to release the evolved CO₂ byproduct from the fermentation reaction; (2) a storage operation during which the tank is closed to minimize contact with air and refrigerated to preserve the wine; (3) or both fermentation and storage operations. Post-fermentation operations such as cold stabilization, racking, and filtration are conducted in the tanks, resulting in a number of inter-tank transfers during the period between the end of fermentation and bottling or bulk shipment. Storage operations are conducted year-round. VOC emissions occur primarily as a result of the inter-tank transfers which are necessitated by the post fermentation operations.

V. Equipment Listing

Permit #	Equipment Description
N-1237-750-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F701) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-751-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F702) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-752-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F703) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-753-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F704) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-754-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F705) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-755-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F706) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-756-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F707) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-757-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F708) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-758-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F709) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-759-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F710) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
N-1237-760-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F711) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

N-1237-761-0	1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F712) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT
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As per District policy APR 1035 Flexibility in Equipment Descriptions in ATCs, some flexibility in the final specifications of the equipment is requested. The proposed tanks in this project will be built on-site and most likely will contain slight variations in the tank dimensions which lead to slightly different tank capacities than proposed. These slight tank variations should not have a significant effect on the tank emissions or tank operation. Therefore, the permit will specify the nominal tank dimensions and the source will submit to the District the measured tank capacity (known as the gauge volume) once the tank is constructed. The following condition will be listed on the permits to ensure compliance:

- The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

VI. Emission Control Technology Evaluation

VOCs (ethanol) are emitted from wine storage tanks as a result of both working losses (which occur when the liquid level in the tank changes) and breathing losses (expansion and contraction effects due to temperature variations). The proposed pressure/vacuum valve limits these emissions by requiring the maximum amount of variation in tank pressure before allowing the tank to vent to the atmosphere or allowing air admission to the tank.

The temperature of the fermentation is controlled to maintain an average fermentation temperature not exceeding 95 °F which avoids higher temperatures that might be damaging to the yeast cells and reduces the potential for an out-of-control fermentation reaction in the tank. Temperature control serves to minimize VOC emissions relative to a tank without temperature control since the potential emissions increase with fermentation temperature.

VII. General Calculations

A. Assumptions

Storage

- The proposed tanks will be used for red and white wine fermentation and storage
- Typically, for enclosed tanks with refrigeration and/or insulation (or equivalent) and P/V valves, breathing losses from storage of wine are assumed to be negligible.
- Maximum daily liquid storage temperature = 81.0 °F (per FYI-295)
- Maximum annual liquid storage temperature = 63.3 °F (per FYI-295)
- Storage tank daily maximum ethanol content of stored wine is 23.9% (per applicant)
- Storage tank annual average ethanol content of stored wine is 21% (per applicant)
- Maximum daily storage throughput = 1,720 gallons/day (per tank, per applicant)
- Maximum annual storage throughput = 19,585 gallons/year (per tank, per applicant)

Fermentation

- Daily VOC fermentation emissions will be determined using a worst case of one tank turnover per day (per applicant)
- Post-project wine fermentation annual throughput (per tank) = 15,000 gallons per year
- Fermentation emissions will be based upon the worst case red wine emission factors

B. Emission Factors

Storage

Tanks 4.0 will be used to calculate the emissions from the storage tanks.

Fermentation

Uncontrolled emissions factors are taken from District FYI-114, *VOC Emission Factors for Wine Fermentation and Storage Tanks*.

Wine Type	EF (lb-VOC/1,000 gallon of wine)		Source
	Daily	Annual	
White	1.62	2.5	FYI-114
Red	3.46	6.2	FYI-114

Since all the fermentation tanks can ferment either white or red wine, worst case emissions factors of red wine will be used to calculate the maximum daily and annual potential emissions.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Storage

Since these are new emissions units, PE1 = 0 (all pollutants) for the storage operation in these tanks.

Fermentation

Since these are new emissions units, PE1 = 0 (all pollutants) for the fermentation operation in these tanks.

2. Post Project Potential to Emit (PE2)

Storage

Two Tanks 4.0 runs (see Attachment A) have been performed. One run uses a throughput of 1,720 gallons/day to calculate the daily post-project potential to emit by dividing the month of February emissions by the number of days in the month. The other run uses a throughput of 19,585 gallons/year to calculate the annual post-project potential to emit.

Post-Project Potential to Emit (Storage)		
Permit Unit	Daily PE2 (lb-VOC/day)	Annual PE2 (lb-VOC/year)
N-1237-750-0	0.2	4
N-1237-751-0	0.2	4
N-1237-752-0	0.2	4
N-1237-753-0	0.2	4
N-1237-754-0	0.2	4
N-1237-755-0	0.2	4
N-1237-756-0	0.2	4
N-1237-757-0	0.2	4
N-1237-758-0	0.2	4
N-1237-759-0	0.2	4
N-1237-760-0	0.2	4
N-1237-761-0	0.2	4
Total	2.4	48

Fermentation

For either red or white wine, the fermentation process takes longer than a day (3 to 5 days for red wine and 10 to 14 days for white wine). Therefore, a maximum of one turnover per day will be used to determine the potential daily emissions.

The potential daily and annual VOC emissions are determined using the red or white wine emissions factor, tank capacity, turnover rate, and the annual throughput as follows:

$$\text{Daily PE2} = EF_{\text{red}} (\text{lb-VOC}/1,000 \text{ gal}) \times \text{tank capacity (gal/tank)} \times \text{turnover rate (\# tank/day)}$$

$$\text{Annual PE2} = EF_{\text{red}} (\text{lb-VOC}/1,000 \text{ gal}) \times \text{annual throughput (gal/year)}$$

Post-Project Potential to Emit (Fermentation)							
Permit Unit	Daily EF	Annual EF	Tank Capacity	Turnover Rate	Annual Throughput	Daily PE2	Annual PE2
	(lb-VOC/1,000 gal)	(lb-VOC/1,000 gal)	(gallon)	(tank/day)	(gal/year)	(lb/day)	(lb/year)
N-1237-750-0	3.46	6.2	1,720	1	15,000	6.0	93
N-1237-751-0			1,720		15,000	6.0	93
N-1237-752-0			1,720		15,000	6.0	93
N-1237-753-0			1,720		15,000	6.0	93
N-1237-754-0			1,720		15,000	6.0	93
N-1237-755-0			1,720		15,000	6.0	93
N-1237-756-0			1,720		15,000	6.0	93
N-1237-757-0			1,720		15,000	6.0	93
N-1237-758-0			1,720		15,000	6.0	93
N-1237-759-0			1,720		15,000	6.0	93
N-1237-760-0			1,720		15,000	6.0	93
N-1237-761-0			1,720		15,000	6.0	93
Total							

Total Post-Project Potential to Emit (Storage + Fermentation)						
Permit Unit	Daily PE2 (lb-VOC/day)			Annual PE2 (lb-VOC/year)		
	Storage	Fermentation	Total	Storage	Fermentation	Total
N-1237-750-0	0.2	6.0	6.2	4	93	97
N-1237-751-0	0.2	6.0	6.2	4	93	97
N-1237-752-0	0.2	6.0	6.2	4	93	97
N-1237-753-0	0.2	6.0	6.2	4	93	97
N-1237-754-0	0.2	6.0	6.2	4	93	97
N-1237-755-0	0.2	6.0	6.2	4	93	97
N-1237-756-0	0.2	6.0	6.2	4	93	97
N-1237-757-0	0.2	6.0	6.2	4	93	97
N-1237-758-0	0.2	6.0	6.2	4	93	97
N-1237-759-0	0.2	6.0	6.2	4	93	97
N-1237-760-0	0.2	6.0	6.2	4	93	97
N-1237-761-0	0.2	6.0	6.2	4	93	97
Total						1,164

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

This project only concerns VOC emissions. This facility acknowledges that its VOC emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE1 calculations are not necessary.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

This project only concerns VOC emissions. This facility acknowledges that its VOC emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE2 calculations are not necessary.

5. Major Source Determination

Rule 2201 Major Source Determination

This source is an existing Major Source for VOC emissions and will remain a Major Source for VOC. No change in other pollutants are proposed or expected as a result of this project.

Rule 2410 Major Source Determination

As determined in Section VII.D.4 of this document, this facility is an existing Rule 2201 major source for VOC emissions. The following table summarizes the potential VOC emissions from a previous permitting action for this stationary source before the proposed project.

Project Number	Proposed Permitting Actions	PE (lb-VOC/year)
N-1072605	Applying for In-house PTOs for existing wine storage and fermentation tanks	470,985
N-1110129	Install 2 wine fermentation tanks	8,432
N-1110722	Convert 7 existing grape juice tanks to wine fermentation tanks	15,680
N-1113344	Install 104 wine storage and fermentation tanks	94,430
N-1113395	Install 3 wine storage and fermentation tanks	10,173
N-1113047	Install 2 distilled spirit tanks	188
N-1113864	Install an ethanol evaporator system	7,719
N-1131615	Install 8 wine storage tanks and 24 wine fermentation tanks	85,064
Total		692,671

As indicated above, the SSPE for VOC emissions before the proposed project is calculated to be 692,671 pounds per year, equivalent to 346.3 tons per year.

The facility evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21(b)(1)(i). Therefore, the following PSD Major Source threshold for VOC is applicable.

PSD Major Source Determination (tons/year)	
	VOC
Facility PE before Project Increase	346.3
PSD Major Source Thresholds	250
PSD Major Source?	Yes

As shown above, the facility is an existing major source for PSD for VOC. Therefore, the facility is an existing Major Source for PSD.

6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project, to calculate the QNEC and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

Storage

Since these are new emission units, BE = PE1 = 0 for all pollutants for each unit.

Fermentation

Since these are new emission units, BE = PE1 = 0 for all pollutants for each unit.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is a major source for VOC, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds (Existing Major Source)				
Pollutant	Project PE (lb/year)		Threshold (lb/year)	SB 288 Major Modification Calculation Required?
VOC	Storage	48	50,000	No
	Fermentation	1,116		
	Total	1,164		

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

8. Federal Major Modification

District Rule 2201 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not federal major modifications if they meet the criteria of the "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a federal major modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

Significant Threshold (lb/year)	
Pollutant	Threshold (lb/year)
VOC	0

The Net Emissions Increases (NEI) for purposes of determination of a “Less-Than-Significant Emissions Increase” exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Net Emission Increase for New Units (NEI_N)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions units in this project,

$$NEI_N = PE2_N - BAE$$

The fermentation and storage tanks are new units; therefore BAE for these units is zero and,

$$NEI_N = PE2_N$$

where PE2_N is the Post Project Potential to Emit for the new emissions units.

$$\begin{aligned} PE2_N &= PE2 \text{ (storage)} + PE2 \text{ (fermentation)} \\ PE2_N &= 48 \text{ lb-VOC/year} + 1,116 \text{ lb-VOC/year} \\ &= 1,164 \text{ lb-VOC/year} \end{aligned}$$

$$NEI_N = PE2_N = 1,164 \text{ lb-VOC/year}$$

The NEI for this project is thus calculated as follows:

$$\begin{aligned} NEI &= NEI_N \\ NEI &= 1,164 \text{ lb-VOC/year} \end{aligned}$$

The NEI for this project will be greater than the Federal Major Modification threshold of 0 lb-VOC/year. Therefore, this project does not qualify for a “Less-Than-Significant Emissions Increase” exclusion and is thus determined to be a Federal Major Modification for VOC.

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

I. Project Location Relative to Class 1 Area

As demonstrated in the “PSD Major Source Determination” Section above, the facility was determined to be a existing major source for PSD. Because the project is not located within 10 km of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Significance of Project Emission Increase Determination

a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

CO₂ Emissions from Fermentation

Basis

- Project total annual fermentation emissions = 1,116 lb-VOC/year
- Assume all wine produced is white wine (worst case)
- The VOC emission factor is 2.5 lb-VOC per 1,000 gallons of white wine fermented.

- Maximum practical ethanol content for wine fermentation is 15 volume percent (higher concentrations have a negative impact on yeast reproduction with death of the yeast occurring at around 18 vol %)
- Molecular weight of ethanol and CO₂ are 46 and 44 lb/mole respectively.
- The fermentation reaction produces one mole of carbon dioxide for each mole of ethanol produced.
- Liquid density for ethanol is 6.61 lb/gal at 60 deg F.

Calculation

$$\begin{aligned} \text{Maximum Annual Wine Production Based on 100\% White Wine} &= 1,116 \frac{\text{lb-VOC}}{\text{year}} \div 2.5 \frac{\text{lb-VOC}}{1000 \text{ gallons}} \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual Wine Production Based on 100\% White Wine} &= 446,400 \text{ gallons per year} \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual Ethanol Production} &= 446,400 \frac{\text{gal}}{\text{year}} \times 15\% \text{ ethanol} \times 6.61 \frac{\text{lb-ethanol}}{\text{gallon}} \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual Ethanol Production} &= 442,606 \text{ lb-ethanol per year} \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual CO}_2 \text{ Production} &= 442,606 \frac{\text{lb}}{\text{year}} \times \frac{1 \text{ mole}}{46 \text{ lb ethanol}} \times \frac{1 \text{ mole CO}_2}{1 \text{ mole ethanol}} \times \frac{44 \text{ lb CO}_2}{\text{mole CO}_2} \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual CO}_2 \text{ Production} &= 423,362 \text{ lb-CO}_2 \text{ per year} \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual CO}_2 \text{ Production} &= 212 \text{ ton-CO}_2 \text{ per year} \end{aligned}$$

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)						
	NO ₂	SO ₂	CO	PM	PM ₁₀	CO _{2e}
Total PE from New and Modified Units	0	0	0	0	0	212
PSD Significant Emission Increase Thresholds	40	40	100	25	15	75,000
PSD Significant Emission Increase?	N	N	N	N	N	N

As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

QNEC = PE2 - PE1, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	291	0	291

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

Fermentation

The applicant is proposing to install 12 new wine fermentation and storage tanks. The storage tanks each have a PE less than 2 lb/day for VOC. The fermentation tanks each have a PE greater than 2 lb/day for VOC. Thus BACT is triggered for VOC for these emissions units for the fermentation operation.

b. Relocation of emissions units – PE > 2 lb/day

There are no emissions units being relocated from one stationary source to another, hence BACT is not triggered under this category.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in VII.C.7 and VII.C.8 above, this project constitutes a SB 288 and Federal Major Modification for VOC emissions. Therefore BACT is triggered for VOC for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

BACT Guideline 5.4.14 applies to the wine fermentation tanks. [Wine Fermentation Tank] (Appendix B)

BACT Guideline 5.4.13 applies to the wine storage tanks. [Wine Storage Tank] (Appendix C)

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (Appendix B and C), BACT has been satisfied with the following:

Fermentation

VOC: Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F.

Storage

VOC: Insulation or Equivalent**, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

Facility emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, offsets are triggered.

2. Quantity of Offsets Required

As discussed above, the facility is an existing Major Source for VOC and the SSPE2 is greater than the offset thresholds; therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = $(\sum[PE2 - BE] + ICCE) \times DOR$, for all new or modified emissions units in the project,

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Rule 2201

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE)

There are no increases in cargo carrier emissions due to this project.

Storage

Offsets Required (lb/year) = Σ [PE2 – BE] x DOR

Offsets Required – Storage		
Permit Unit	Annual PE2 (lb-VOC/year)	Annual BE (lb-VOC/year)
N-1237-750-0	4	0
N-1237-751-0	4	0
N-1237-752-0	4	0
N-1237-753-0	4	0
N-1237-754-0	4	0
N-1237-755-0	4	0
N-1237-756-0	4	0
N-1237-757-0	4	0
N-1237-758-0	4	0
N-1237-759-0	4	0
N-1237-760-0	4	0
N-1237-761-0	4	0
Total	48	0

Each Tank

$$\begin{aligned}
 \text{Offsets Required (lb/year)} &= \{[PE2 - BE]_{\text{Storage}}\} \times \text{DOR} \\
 &= [4 - 0] \text{ lb-VOC/year} \times \text{DOR} \\
 &= 4 \text{ lb-VOC/year} \times \text{DOR}
 \end{aligned}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly Offset Requirement – Storage (Each Tank)				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
VOC	1	1	1	1

Fermentation

These fermentation tanks are subject to the fermentation emission reduction requirements of Rule 4694 and are considered to be controlled sources subject to a 35% reduction in emissions. The facility is currently performing an annual demonstration that sufficient Certified Emission Reductions (CER) are provided to meet the requirements of Rule 4694 Section 5.1. The CERs are achieved by controlling the emissions from brandy tanks and barrels at a brandy plant in Modesto via an air handling system and combustion in an RTO (regenerative thermal oxidizer). Both the Fresno location and Livingston location have CERs assigned to each facility (generated from the control of the brandy plant) to cover the uncontrolled fermentation emissions at each facility. The annual compliance emissions report demonstrates the amount of CERs assigned to each facility is at least 35% of the uncontrolled fermentation emissions at each facility. As these tanks are subject to Rule 4694 and the facility is mitigating 35% of the uncontrolled fermentation emissions each year, requiring offsets for 100% of the fermentation emissions in this project would be requiring double mitigation. Therefore, the offsets required for the fermentation emissions in this project will be reduced by 35% and calculated as follows:

$$\text{Offsets Required (lb/year)} = \Sigma[\text{PE2} - \text{BE}] \times (1 - 0.35) \times \text{DOR}$$

Offsets Required – Fermentation		
Permit Unit	Annual PE2 (lb-VOC/year)	Annual BE (lb-VOC/year)
N-1237-750-0	93 x (1 - 0.35) = 60	0
N-1237-751-0	93 x (1 - 0.35) = 60	0
N-1237-752-0	93 x (1 - 0.35) = 60	0
N-1237-753-0	93 x (1 - 0.35) = 60	0
N-1237-754-0	93 x (1 - 0.35) = 60	0
N-1237-755-0	93 x (1 - 0.35) = 60	0
N-1237-756-0	93 x (1 - 0.35) = 60	0
N-1237-757-0	93 x (1 - 0.35) = 60	0
N-1237-758-0	93 x (1 - 0.35) = 60	0
N-1237-759-0	93 x (1 - 0.35) = 60	0
N-1237-760-0	93 x (1 - 0.35) = 60	0
N-1237-761-0	93 x (1 - 0.35) = 60	0
Total	720	0

Each Tank

$$\begin{aligned} \text{Offsets Required (lb/year)} &= \{[PE2 - BE]_{\text{Fermentation}}\} \times \text{DOR} \\ &= [60 - 0] \text{ lb-VOC/year} \times \text{DOR} \\ &= 60 \text{ lb-VOC/year} \times \text{DOR} \end{aligned}$$

Per Rule 2201 Section 4.5.2 states for emission offset requirements "For Stationary Sources with a quarterly Potential to Emit which remain constant throughout the year, the amount shall be calculated in pounds per year. For Stationary Sources with quarterly Potential to Emit that is not constant throughout the year, and for Seasonal Sources the amount shall be calculated in pounds per quarter". Fermentation operations occur during the crush season between August and November in the third and fourth quarter of each calendar year. Therefore, emission offset requirements for the fermentation operation will be equally distributed and assessed in the third and fourth quarter.

Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly Offset Requirement – Fermentation (Each Tank)				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
VOC	0	0	30	30

Total

For each tank, the amount of offsets required is as follows:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= \{[PE2 - BE]_{\text{Storage}} + [PE2 - BE]_{\text{Fermentation}}\} \times \text{DOR} \\ &= \{[4 - 0] + [60 - 0]\} \text{ lb-VOC/year} \times \text{DOR} \\ &= 64 \text{ lb-VOC/year} \times \text{DOR} \end{aligned}$$

As explained above, emission offset requirements for the fermentation operation will be equally distributed and assessed in the third and fourth quarter. Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly Offset Requirement –Storage and Fermentation (Each Tank)				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
VOC	1	1	31	31

For all 12 tanks, the amount of offsets required is as follows:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= \{[PE2 - BE]_{\text{Storage}} + [PE2 - BE]_{\text{Fermentation}}\} \times 12 \text{ tanks} \times \text{DOR} \\ &= \{[4 - 0] + [60 - 0]\} \text{ lb-VOC/year} \times 12 \text{ tanks} \times \text{DOR} \\ &= 768 \text{ lb-VOC/year} \times \text{DOR} \end{aligned}$$

The project is a Federal Major Modification and therefore the offset ratio for VOC is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 768 \text{ lb-VOC/year} \times 1.5 \\ &= 1,152 \text{ lb-VOC/year} \end{aligned}$$

As explained above, emission offset requirements for the fermentation operation will be equally distributed and assessed in the third and fourth quarter. Calculating the appropriate quarterly emissions to be offset is as follows:

Quarterly Offset Requirement – Storage and Fermentation (All 12 Tanks)				
Pollutant	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
VOC	18	18	558	558

ERC Certificates

The applicant has stated that the facility plans to use ERC certificates S-4160-1, C-1172-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 to offset the increases in emissions associated with this project. The above certificate has available quarterly credits as follows:

Proposed VOC ERC Certificates				
ERC Certificate #	1 st Qtr (lb/qtr)	2 nd Qtr (lb/qtr)	3 rd Qtr (lb/qtr)	4 th Qtr (lb/qtr)
S-4160-1	14,961	14,960	14,937	14,845
C-1229-1	8,075	8,075	8,041	8,040
S-3805-1	18,000	18,000	18,000	18,000
S-4126-1	9,931	9,924	9,917	9,917
S-4232-1	2,507	2,451	2,496	2,488
S-4230-1	40,553	40,537	40,520	40,504
Total	94,027	93,947	93,911	93,794

As seen above, the facility has sufficient credits to fully offset the quarterly emissions increases associated with this project.

Proposed Rule 2201 (offset) Conditions

- ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 1 lb, 2nd quarter – 1 lb, 3rd quarter – 31 lb, and 4th quarter – 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

As demonstrated in Sections VII.C.7 and VII.C.8, this project is a Federal Major Modification for VOC; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
VOC	0.2 + 6.0 = 6.2	100 lb/day	No

Therefore, public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
VOC	> 20,000	> 20,000	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	ΣPE2 (lb/year)	ΣPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
VOC	1,164	0	1,164	20,000 lb/year	No

As demonstrated above, the SSIPE for VOC is not greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification for VOC. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB), US Environmental Protection Agency (US EPA), and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC permits for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

For all wine storage tank emissions units affected by this project, the DEL is stated in the form of a daily limit on tank throughput and a maximum ethanol content for wine stored in the tank.

Proposed Rule 2201 (DEL) Conditions

For the proposed wine fermentation and storage tank emission units in this project, the DEL is enforced with the following conditions:

- The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
- The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of tank capacity. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offsets, public notification and daily emission limit requirements of Rule 2201. Recordkeeping is also required for winery tanks pursuant to District Rule 4694, *Wine Fermentation and Storage Tanks*. The following conditions will be listed on the permits to ensure compliance:

- The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694, 6.4.2]
- Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
- For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]

- The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine ethanol content and throughput rate for storage operations and VOC emission rate for fermentation operations (ethanol percentage by volume, gallons and lb-VOC per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
- All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201 and 4694]
- Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. However, since this project involves only VOC and no ambient air quality standard exists for VOC, an AAQA is not required for this project.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this source is undergoing an SB 288 Major Modification and a Federal Major Modification, therefore this requirement is applicable. Included in Appendix D is the facility's compliance certification.

H. Alternative Siting Analysis

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification.

In addition to winery tanks, the operation of a winery requires a large number support equipment, services and structures such as raw material receiving stations, crushers, piping, filtering and refrigeration units, warehouses, laboratories, bottling and shipping facilities, and administration buildings.

Since the current project involves only a minimal increase in the winery's total tank volume and no change to any other facets of the operation, the existing site will result in the least

possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures and facilities on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

The prevention of significant deterioration (PSD) program is a construction permitting program for new major stationary sources and major modifications to existing major stationary sources located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant.

As demonstrated above, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

Section 3.20.5 states that a minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project is a Title I modification (i.e. Federal Major Modification), the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has not applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with a significant modification, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permit is issued.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to wine fermentation or storage tank operations.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to wine fermentation or storage tank operations.

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of the proposed operations provided the equipment is well maintained. Therefore, the following condition will be listed on each permit to ensure compliance:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

Ethanol is not a HAP as defined by Section 44321 of the California Health and Safety Code. Therefore, there are no increases in HAP emissions associated with any emission units in this project, therefore a health risk assessment is not necessary and no further risk analysis is required.

District Rule 4694 Wine Fermentation and Storage Tanks

The purpose of this rule is to reduce emissions of volatile organic compounds (VOC) from the fermentation and bulk storage of wine, or achieve equivalent reductions from alternative emission sources. This rule is applicable to all facilities with fermentation emissions in excess of 10 tons-VOC/year. The storage tank provisions of this rule apply to all tanks with capacity in excess of 5,000 gallons.

Section 5.1 requires the winery operator achieve Required Annual Emissions Reductions (RAER) equal to at least 35% of the winery's Baseline Fermentation Emissions (BFE). Per the definition of RAER in Section 3.25 of the Rule, the RAER may be achieved by any combination of Fermentation Emission Reductions (FER), Certified Emission Reductions (CER) or District Obtained Emission Reductions (DOER) as established in the facility's District-approved Rule 4694 Compliance Plan, due every three years on December 1st beginning in 2006. The facility has submitted the required plan to the District and is currently satisfying the required emission reductions in the form of Certified Emission Reductions.

The following condition listed on the facility-wide permit ensures compliance:

- A Three-Year Compliance Plan that demonstrates compliance with the requirements of Section 5.1 of District Rule 4694 (12/15/05) for each year of the applicable compliance period shall be submitted to the District by no later than December 1, 2006, and every three years thereafter on or before December 1. [District Rule 4694]

Section 5.2 places specific restrictions on wine storage tanks with 5,000 gallons or more in capacity when such tanks are not constructed of wood or concrete. Section 5.2.1 requires these tanks to be equipped and operated with a pressure-vacuum relief valve meeting all of the following requirements:

- The pressure-vacuum relief valve shall operate within 10% of the maximum allowable working pressure of the tank,
- The pressure-vacuum relief valve shall operate in accordance with the manufacturer's instructions, and
- The pressure-vacuum relief valve shall be permanently labeled with the operating pressure settings.
- The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21.

The following conditions will be listed on the permits for stainless steel tanks $\geq 5,000$ gallons in capacity and used for storage to ensure compliance with the requirements of Section 5.2.1:

- When this tank is used for storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
- When this tank is used for storage, the pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]

Section 5.2.2 requires that the temperature of the stored wine be maintained at or below 75° F. The following condition will be placed on the permits for stainless steel tanks $\geq 5,000$ gallons in capacity and used for storage to ensure compliance with the requirements of Section 5.2.2:

- The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]

Every three years, Section 6.1 and 6.2 require the facility to submit a Three-Year Compliance Plan and a Three-Year Compliance Plan Verification respectively. Section 6.3 requires that an Annual Compliance Plan Demonstration be submitted to the District no later than February 1 of each year to show compliance with the applicable requirements of the Rule. Section 6.4.3 requires that all monitoring be performed for any Certified Emission Reductions as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained.

The following conditions listed on the facility-wide permit ensure compliance:

- A Three-Year Compliance Plan that demonstrates compliance with the requirements of Section 5.1 of District Rule 4694 (12/15/05) for each year of the applicable compliance period shall be submitted to the District by no later than December 1, 2006, and every three years thereafter on or before December 1. [District Rule 4694]
- A Three-Year Compliance Plan Verification that demonstrates that the Three-Year Compliance Plan elements are in effect shall be submitted to the District by no later than July 1, 2007, and every three years thereafter on or before July 1. [District Rule 4694, 6.2]
- An Annual Compliance Plan Demonstration that shows compliance with the applicable requirements of this rule shall be submitted to the District by no later than February 1, 2008, and every year thereafter on or before February 1. [District Rule 4694]
- Operators using CER to mitigate fermentation emissions shall perform all monitoring and recordkeeping, as established in their approved Three-Year Compliance Plan, and shall maintain all records necessary to demonstrate compliance. [District Rule 4694]

Section 6.4.1 requires that records be kept for each fermentation batch. The following condition will be listed on the permits for each fermentation tank to ensure compliance:

- For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]

Section 6.4.2 requires that weekly records be kept of wine volume and temperature in each storage tank. The following conditions will be listed on the permit for each storage tank to ensure compliance with the requirements of Section 6.4.2:

- When this tank is used for storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]

Section 6.4.3 requires that all monitoring be performed for any Certified Emission Reductions as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained. The following condition listed on the facility-wide permit ensures compliance:

- Operators using CER to mitigate fermentation emissions shall perform all monitoring and recordkeeping, as established in their approved Three-Year Compliance Plan, and shall maintain all records necessary to demonstrate compliance. [District Rule 4694]

Section 6.4 requires that records required by this rule be maintained, retained on-site for a minimum of five years, and made available to the APCO upon request. The following conditions will be listed on all permits to ensure compliance:

- All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201 and 4694]

Therefore, continued compliance with the requirements of this rule is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality ACT (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO₂e/year (equivalent to 253.5 short tons-CO₂e/year) are considered to be zero for District permitting purposes and are exempt from further environmental review. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing

use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct permits N-1237-750-0 through '761-0 subject to the permit conditions on the attached draft Authority to Construct permits in Appendix E.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-1237-750-0	3020-05-A	1,720 gallons	\$75
N-1237-751-0	3020-05-A	1,720 gallons	\$75
N-1237-752-0	3020-05-A	1,720 gallons	\$75
N-1237-753-0	3020-05-A	1,720 gallons	\$75
N-1237-754-0	3020-05-A	1,720 gallons	\$75
N-1237-755-0	3020-05-A	1,720 gallons	\$75
N-1237-756-0	3020-05-A	1,720 gallons	\$75
N-1237-757-0	3020-05-A	1,720 gallons	\$75
N-1237-758-0	3020-05-A	1,720 gallons	\$75
N-1237-759-0	3020-05-A	1,720 gallons	\$75
N-1237-760-0	3020-05-A	1,720 gallons	\$75
N-1237-761-0	3020-05-A	1,720 gallons	\$75

XI. Appendices

- A: Tanks 4.0 Calculations
- B: BACT Guideline 5.4.14 and Top Down BACT Analysis
- C: BACT Guideline 5.4.13 and Top Down BACT Analysis
- D: Compliance Certification
- E: Draft Authority to Construct Permits

Appendix A

Tanks 4.0 Calculations

TANKS 4.0.9d

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification:	N-1237-750-0 Daily
City:	Livingston
State:	California
Company:	E & J Gallo Winery
Type of Tank:	Vertical Fixed Roof Tank
Description:	A total of 12 tanks. The emission model run is for one tank only. The tanks are 1,720 gallons each, insulated, and constructed from stainless steel.

Tank Dimensions

Shell Height (ft):	7.00
Diameter (ft):	6.50
Liquid Height (ft):	7.00
Avg. Liquid Height (ft):	6.50
Volume (gallons):	1,737.59
Turnovers:	365.00
Net Throughput(gal/yr):	634,221.11
Is Tank Heated (y/n):	Y

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.00

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Stockton, California (Avg Atmospheric Pressure = 14.72 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

N-1237-750-0 Daily - Vertical Fixed Roof Tank
Livingston, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Wine 23.9 % Vol Alcohol	Jan	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Feb	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Mar	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Apr	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	May	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Jun	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Jul	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Aug	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Sep	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Oct	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Nov	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869
Wine 23.9 % Vol Alcohol	Dec	81.00	81.00	81.00	81.00	0.8500	0.8500	0.8500	30.3355			20.45	Option 1: VP70 = .58508 VP80 = .81869

TANKS 4.0.9d

Emissions Report - Detail Format

Detail Calculations (AP-42)

N-1237-750-0 Daily - Vertical Fixed Roof Tank Livingston, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Space Volume (cu ft):	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915
Vapor Density (lb/cu ft):	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vented Vapor Saturation Factor:	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915
Tank Diameter (ft):	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000
Vapor Space Outage (ft):	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
Tank Shell Height (ft):	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000
Average Liquid Height (ft):	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Shell Radius (ft):	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500
Vapor Density												
Vapor Density (lb/cu ft):	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
Vapor Molecular Weight (lb/lb-mole):	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Daily Avg. Liquid Surface Temp. (deg. R):	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700
Daily Average Ambient Temp. (deg. F):	45.0000	50.5000	54.0500	59.3000	66.7000	73.3000	77.6500	76.8000	72.7000	64.5500	53.0500	44.9500
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	597.0000	939.0000	1,458.0000	2,004.0000	2,435.0000	2,684.0000	2,688.0000	2,368.0000	1,907.0000	1,315.0000	782.0000	538.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Pressure Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Press. Setting Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Daily Avg. Liquid Surface Temp. (deg R):	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700
Daily Min. Liquid Surface Temp. (deg R):	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700
Daily Max. Liquid Surface Temp. (deg R):	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700	540.6700
Daily Ambient Temp. Range (deg. R):	16.0000	20.4000	22.9000	27.2000	29.8000	31.6000	33.5000	32.2000	30.4000	27.5000	20.7000	15.7000

Vented Vapor Saturation Factor	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780	0.9780
Vented Vapor Saturation Factor:												
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Vapor Space Outage (ft):	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
Working Losses (lb):	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752
Vapor Molecular Weight (lb/lb-mole):	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355	30.3355
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Net Throughput (gal/mo.):	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594	52,851.7594
Annual Turnovers:	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000	365.0000
Turnover Factor:	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489	0.2489
Maximum Liquid Volume (gal):	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921
Maximum Liquid Height (ft):	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000
Tank Diameter (ft):	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752	8.0752

$$\begin{aligned}
 & \underline{28} \\
 & = 0.2884 \frac{\text{lb}}{\text{day}}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{0.2884}{30.3355} \times \frac{30.3355 - 18.02}{46.02 - 18.02} \times 46.02 \\
 & = 0.2 \frac{\text{lb}}{\text{day}}
 \end{aligned}$$

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

N-1237-750-0 Daily - Vertical Fixed Roof Tank
Livingston, California

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Wine 23.9 % Vol Alcohol	96.90	0.00	96.90

TANKS 4.0.9d

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification:	N-1237-750-0 Annual
City:	Livingston
State:	California
Company:	E & J Gallo Winery
Type of Tank:	Vertical Fixed Roof Tank
Description:	A total of 12 tanks. The emission model run is for one tank only. The tanks are 1,720 gallons each, insulated, and constructed from stainless steel.

Tank Dimensions

Shell Height (ft):	7.00
Diameter (ft):	6.50
Liquid Height (ft):	7.00
Avg. Liquid Height (ft):	6.50
Volume (gallons):	1,737.59
Turnovers:	11.27
Net Throughput(gal/yr):	19,585.02
Is Tank Heated (y/n):	Y

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.00

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Stockton, California (Avg Atmospheric Pressure = 14.72 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

N-1237-750-0 Annual - Vertical Fixed Roof Tank
Livingston, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Wine 21.0 % Vol Alcohol	Jan	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Feb	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Mar	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Apr	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	May	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Jun	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Jul	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Aug	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Sep	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Oct	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Nov	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917
Wine 21.0 % Vol Alcohol	Dec	63.30	63.30	63.30	63.30	0.4479	0.4479	0.4479	29.2474			20.11	Option 1: VP60 = .39305 VP70 = .55917

TANKS 4.0.9d

Emissions Report - Detail Format

Detail Calculations (AP-42)

N-1237-750-0 Annual - Vertical Fixed Roof Tank Livingston, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Space Volume (cu ft):	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915
Vapor Density (lb/cu ft):	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vented Vapor Saturation Factor:	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915	16.5915
Tank Diameter (ft):	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000
Vapor Space Outage (ft):	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
Tank Shell Height (ft):	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000
Average Liquid Height (ft):	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Shell Radius (ft):	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500	3.2500
Vapor Density												
Vapor Density (lb/cu ft):	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
Vapor Molecular Weight (lb/lb-mole):	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479
Daily Avg. Liquid Surface Temp. (deg. R):	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700
Daily Average Ambient Temp. (deg. F):	45.0000	50.5000	54.0500	59.3000	66.7000	73.3000	77.6500	76.8000	72.7000	64.5500	53.0500	44.9500
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	597.0000	939.0000	1,458.0000	2,004.0000	2,435.0000	2,684.0000	2,688.0000	2,368.0000	1,907.0000	1,315.0000	782.0000	538.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Temperature (deg. R):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Pressure Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Press. Setting Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479
Daily Avg. Liquid Surface Temp. (deg R):	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700
Daily Min. Liquid Surface Temp. (deg R):	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700
Daily Max. Liquid Surface Temp. (deg R):	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700	522.9700
Daily Ambient Temp. Range (deg. R):	16.0000	20.4000	22.9000	27.2000	29.8000	31.6000	33.5000	32.2000	30.4000	27.5000	20.7000	15.7000

Vented Vapor Saturation Factor	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883	0.9883
Vented Vapor Saturation Factor:												
Vapor Pressure at Daily Average Liquid:	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479
Surface Temperature (psia):	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
Vapor Space Outage (ft):												
Working Losses (lb):	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090
Vapor Molecular Weight (lb/lb-mole):	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474	29.2474
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479	0.4479
Net Throughput (gal/mo.):	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854	1,632.0854
Annual Turnovers:	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714	11.2714
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921	1,737.5921
Maximum Liquid Height (ft):	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000	7.0000
Tank Diameter (ft):	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000	6.5000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090	0.5090

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

N-1237-750-0 Annual - Vertical Fixed Roof Tank
Livingston, California

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Wine 21.0 % Vol Alcohol	6.11	0.00	6.11

$$\frac{6.11}{29.2474} \times \frac{29.2474 - 18.02}{46.02 - 18.02} \times 46.02$$

$$= 4 \frac{lb}{year}$$

Appendix B

BACT Guideline 5.4.14 and Top Down BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.4.14*

Last Update 10/6/2009

Wine Fermentation Tank

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F	<ol style="list-style-type: none"> 1. Capture of VOCs and Thermal Oxidation or Equivalent (88% control) 2. Capture of VOCs and Carbon Adsorption or Equivalent (86% control) 3. Capture of VOCs and Absorption or Equivalent (81% control) 4. Capture of VOCs and Condensation or Equivalent (81% control) 	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Top Down BACT Analysis for Wine Fermentation VOC Emissions for Permit Units N-1237-750-0 through '761-0

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.14, 2nd quarter 2014, identifies achieved in practice BACT for wine fermentation tanks as follows:

- 1) Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F

The SJVUAPCD BACT Clearinghouse guideline 5.4.14, 2nd quarter 2014, identifies technologically feasible BACT for wine fermentation tanks as follows:

- 1) Capture of VOCs and thermal oxidation or equivalent (88% control)
- 2) Capture of VOCs and carbon adsorption or equivalent (86% control)
- 3) Capture of VOCs and absorption or equivalent (81% control)
- 4) Capture of VOCs and condensation or equivalent (81% control)

BACT guideline 5.4.14 (10/6/2009) lists both absorption (scrubber) and condensation systems as technologically feasible options for the control of VOC emission from wine fermentation operations. Since 2009, there has been substantial development of these two control technologies prompting a re-examination of the feasibility of these technologies in this project to determine if the technologies are considered Achieved in Practice for this class and category source.

While the control technologies of absorption and condensation are promising and have progressed significantly, the control technologies are not considered Achieved in Practice and will remain Technologically Feasible options. The Achieved in Practice determination for these control technologies will be re-examined in future projects as necessary.

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank by Control Effectiveness		
Rank	Control	Overall Capture and Control Efficiency ^(*)
1	Capture of VOCs and thermal or catalytic oxidation or equivalent	88% ^(**)
2	Capture of VOCs and carbon adsorption or equivalent	86%
3	Capture of VOCs and absorption or equivalent	81%
4	Capture of VOCs and condensation or equivalent	81%
5	Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F	Baseline (Achieved-in-Practice)

(*) Capture efficiency (90%) x removal efficiency for control device.

(**) Following recent District practice, thermal and catalytic oxidation will be ranked together.

Step 4 - Cost Effectiveness Analysis

A cost-effective analysis is performed for each control technology which is more effective than meeting the requirements of option 5 (achieved-in-practice BACT), as proposed by the facility.

Maximum Vapor Flow Rate

Based on the kinetic model provided by the facility, maximum CO₂ production rate for each fermentation tank = 8.9 scfm.

$$\text{Maximum Vapor Flow Rate} = 8.9 \text{ scfm} \times 12 \text{ fermentation tanks} = 106.8 \text{ scfm}$$

The submitted kinetic model is based upon a maximum rate 46-hour red wine fermentation with a maximum tank charge of 80% of the nominal tank capacity of 1,720 gallons (1,376 gallons of must fermented). Since the planned operation of the proposed tanks (per E & J Gallo Winery) is the production of commercial premium wines with fermentation cycles of 5-8 days, the 46 hour fermentation basis with maximum fill is a very conservative upper limit of the expected flow rate.

Uncontrolled Fermentation Emissions

For purposes of cost effectiveness analysis, uncontrolled fermentation emissions will be calculated based on the uncontrolled emission factors without consideration of the 35% reduction per Rule 4694 as these are the actual uncontrolled emissions being sent to each control technology option.

$$\begin{aligned} \text{Uncontrolled Fermentation PE} &= EF_{\text{red}} (\text{lb-VOC}/1000 \text{ gal}) \times \text{annual throughput (gal/yr)} \times 12 \text{ tanks} \\ &= 6.2 \text{ lb-VOC}/1000 \text{ gal} \times 15,000 \text{ gal/year} \times 12 \text{ tanks} \\ &= 93 \text{ lb-VOC/year} \times 12 \text{ tanks} \\ &= 1,116 \text{ lb-VOC/year} \end{aligned}$$

Capture of VOCs and condensation (> 81% collection & control)

Design Basis

- EcoPAS has provided site-specific installation costs for the proposed scope of supply (see project N-1131615 Attachment C). The District will conservatively base the cost effectiveness analysis on these costs with the exception of the following adjustments:
- Engineering costs will be assumed to be 5% of total direct cost exclusive of city/county plan check costs. The District believes that this value reflects a typical minimum for any significant industrial project and believes that this is consistent with standard estimating and good engineering practice.
- The EcoPAS cost for Permits and Testing (\$10,000) is considered adequate to cover building department costs only, including plan check and building permit fees. Due to the unsteady state operation of fermentation tanks, initial source testing is expected to be a significant technical operation with significant expense, conducted over the fermentation cycle rather than the typical three 30-minute steady state measurements. An additional cost of \$15,000 per unit will be assumed for initial source testing.
- EcoPAS has estimated a cost of \$98,100 to cover administrative cost and contingency for the project. The District's analysis will consider these items separately as "Owner's Cost" (administrative) and "Project Contingency".
- Owner's Cost: The District considers a value of \$100,000 as a minimum value to cover the project management, internal engineering and operations planning required to implement a significant new process technology of this scale (see project N-1131615) in a commercial winery.
- Project Contingency: Good engineering practice and accepted norms of the engineering industry, when applied to an conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received with approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material take-off for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction. Based on this discussion, the District will apply a conservative project contingency of 20% to the estimated capital investment for this project.
- E & J Gallo Winery has indicated that, consistent with their current plant and corporate operating philosophy, programable logic controls and data logging as well as integration with existing digital control systems will be required for any fermentation control system installed. The District has added an allowance of \$10,000 per unit to cover the expected hardware and programming cost of this item.
- Operating labor is estimated based on 1 operator hour per day and 3 shifts per day per operating unit over a 90 day crush season and an hourly cost of \$18.50 per hour.
- An allowance for annual maintenance cost was included as 1% of Total Capital Investment.
- The cost of a chiller system has been annualized and the annualized cost is estimated at \$270 per ton of recovered ethanol based on approximately \$85 per ton energy charge at \$0.13/kWh and \$100 per ton capital charge for the central chilled water facility (based on a District analysis of annualized costs for a 100 ton mechanical chiller).

- Annual source testing will be required. It is assumed that only one representative unit will require testing each year. An annual charge of \$15,000 has been included.
- EcoPAS has indicated the value of the recovered ethanol is \$25 per gallon as a 60 proof alcohol spirit. However, E & J Gallo Winery has indicated the highest value for this product would be \$[REDACTED] per gallon assuming the alcohol can be used for internal brandy production (which has not been demonstrated in practice to be true). This represents the facilities internal cost for distilling material alcohol and does not include additional processing. If the alcohol cannot be used internally, E & J Gallo Winery has indicated the product has no value outside the organization and would in fact incur a disposal cost resulting in a value less than \$0 per gallon. E & J Gallo Winery has proposed to value the recovered alcohol at a conservative value of \$[REDACTED] per gallon until it can be proven in practice to have a greater value.

Equipment Cost Refrigerated Condenser

Pricing for the EcoPAS units will be based on pricing previously received from EcoPAS LLC for District Project N-1131615.

In project N-1131615, EcoPAS sized one condenser to handle six 56,000 gallon tanks (total volume of 336,000 gallons) with a combined flow rate of 1,731.6 scfm (288.6 scfm x 6 tanks) and a combined VOC emission rate of 21,216 lb-VOC/year (3,536 lb-VOC/year x 6 tanks). The EcoPAS condenser proposed was not actually capable of actually handling the maximum flowrate but depended instead on the operational diversity of the six connected tanks to result in an actual combined peak flow less than the maximum since all six tanks would not achieve peak design flow simultaneously. Each tank in this project has a capacity of 1,720 gallons (total volume of 20,640 gallons with a combined flow rate of 106.8 scfm (8.9 scfm x 12 tanks) and a combined VOC emission rate of 1,116 lb-VOC/year (93 lb-VOC/year x 12 tanks). The capital cost of one condenser sized for the operation in project N-1131615 will be adjusted for the operation in this project using the six-tenths rule of thumb. As a conservative assumption, for this BACT analysis one condenser will serve all the tanks in this project.

As quoted by EcoPAS, based on supply of 4 PAS units each sized to control six (6) 56,000-gallon tanks (in project N-1131615), the price per condenser is estimated at \$475,318 each. The estimated price includes shipping and California sales tax.

Equipment Cost = \$475,318

In this project, as a conservative estimate one condenser will serve all twelve tanks. The vendor has indicated the equipment cost can be adjusted based upon VOC emissions sent to the control device. Using the six-tenths rule of thumb, the adjusted equipment cost is calculated as follows:

$$\begin{aligned} \text{Adjusted Equipment Cost} &= \$475,318 \times (1,116 \div 21,216)^{0.6} \\ &= \$81,205 \end{aligned}$$

All other costs (direct, indirect, and annual) will be taken from project N-1131615 and scaled using the six-tenths rule of thumb, as appropriate.

Condensation	
Cost Description	Cost (\$)
Cost of Refrigerated Condenser system (1 PAS Unit)	\$81,205
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Condenser) See Above	\$81,205
Instrumentation (included)	-
Sales Tax 8.225% (included)	-
Freight (included)	-
Purchased equipment cost	\$81,205
Labor (per EcoPAS estimate)	$\$81,600 \times (1,116 \div 21,216)^{0.6} =$ \$13,941
Installation Expense (per EcoPAS estimate)	$\$59,175 \times (1,116 \div 21,216)^{0.6} =$ \$10,110
Subcontracts (per EcoPAS estimate)	$\$18,000 \times (1,116 \div 21,216)^{0.6} =$ \$3,075
PLC/Programming (Total Allowance)	$\$40,000 \times (1,116 \div 21,216)^{0.6} =$ \$6,834
Direct installation costs	\$33,960
Total Direct Costs (TDC)	\$115,165
Indirect Costs (IC)	
Engineering (5% of TDC)	\$5,758
Permits (Building Department) (Allowance per unit)	\$10,000
Initial Source Testing (1 units x \$15,000/unit)	\$15,000
Owner's Cost (Total Allowance)	$\$100,000 \times (1,116 \div 21,216)^{0.6} =$ \$17,084
Total Indirect Cost (TIC)	\$47,842
Subtotal Capital Investment (SCI = TDC + TIC)	\$163,007
Project Contingency (20% of SCI)	\$32,601
Total Capital Investment (TCI) (TDC + TIC + Contingency)	\$195,608

Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \left[\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \right] = 0.1627, \text{ amortizing over 10 years at 10\%}$$

Therefore,

$$\text{Annualized Capital Investment} = \$195,608 \times 0.1627 = \$31,834$$

Annual Costs

Annual Costs			
Direct Annual Cost (DC)			
Operating Labor			
Operator	1 hr/shift x 3 shifts/day x 1 unit x 90 days = 270 hr/year	\$18.50/h	\$4,995
Supervisor	15% of operator		\$749
Maintenance			
Labor	1% of TCI		\$1,956
Chiller (Glycol)			
	1,116 lb/year (uncontrolled fermentation emissions) x 0.81 ÷ 2000	\$270/ton EtOH	\$122
Utility			
Electricity		\$0.102/kWh	\$0
Total DC			\$7,822
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost	0.6 x (\$4,995 + \$749 + \$1,956)	\$4,620
Administrative	2% TCI		
Property Taxes	1% TCI		
Insurance	1% TCI		
Annual Source	One representative test/year @ \$15,000		\$15,000
Total IC			\$19,620
Recovery Credits (RC)			
80 Proof Recovered	1,116 lb/year (uncontrolled fermentation emissions) x 0.81 x gal/6.62 lb ÷ 0.40	\$█/gal 80 Proof EtOH	\$925
Annual Cost (DC + IC - RC)			\$26,517

Total Annual Cost = Condenser System + Annual Cost
 = \$31,834 + \$26,517
 = \$58,351 (with Recovery Credits)

Emission Reductions

EcoPAS has indicated the PAS unit is capable of achieving a capture and control efficiency of 90%. However, the District's current BACT Guideline identifies a combined capture and control efficiency of 81% for condensation technology. The capture and control efficiency of 81% will be used in this analysis as the value of 90% has yet to be shown to be feasible.

Annual Emission Reduction = Fermentation Emissions x 0.81
 = 1,116 lb-VOC/year x 0.81
 = 904 lb-VOC/year
 = 0.45 tons-VOC/year

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = \$58,351/year ÷ 0.45 tons-VOC/year
= \$129,668/ton-VOC (with Recovery Credits)

The analysis demonstrates that the annualized purchase cost of the refrigerated condenser system and annual costs alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Collection of VOCs and control by absorption (> 81% collection & control)

Design Basis

- The District will consider the average control efficiency of the unit to be 81% for purposes of this project, consistent with the District's BACT Guideline for this class and category.
- The EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001) is used for this analysis with modifications to account for project-specific conditions.
- Instrumentation allowance of \$2,000 per NoMoVo unit has been included for a pressure transmitter and a temperature transmitter for monitoring pressure of the collection header and vent stream and temperature from the NoMoVo unit.
- Sales tax = 8.225% based on California location
- Foundations and supports: not required – unit is supported from either a tank or the pipe rack structure. Equipment price includes required attachments and clips.
- Since the units are mobile which are ready for operation upon delivery, Handling and Erection is taken to be 2% of Purchased Equipment Cost as an allowance for pre-commissioning.
- Piping is taken to be 1% of Purchased Equipment Cost based on the only requirements being Tee fittings for the tank discharge.
- E & J Gallo Winery has indicated that, consistent with their current plant and corporate operating philosophy, programable logic controls and data logging as well as integration with existing digital control systems will be required for any fermentation control system installed. The district has added an allowance of \$10,000 per unit to cover the expected hardware and programming cost of this item.
- Insulation and painting are not required.
- Recovered ethanol storage tank = \$40,000 (installed)
- Due to the unsteady state operation of fermentation tanks, initial source testing is expected to be a significant technical operation with significant expense, conducted over the fermentation cycle rather than the typical three 30-minute steady state measurements. An additional cost of \$15,000 per unit will be assumed for initial source testing.
- Engineering costs will be assumed to be 5% of total direct cost exclusive of city/county plan check costs. The District believes that this value reflects a typical minimum for any significant industrial project and believes that this is consistent with standard estimating and good engineering practice.
- An allowance of \$10,000 per unit will be added to cover plan check and building permit fees.
- Owner's Cost: The District considers a value of \$100,000 as a minimum value to cover the project management, internal engineering and operations planning required to implement a significant new process technology of this scale in a commercial winery.
- Project Contingency: Good engineering practice and accepted norms of the engineering industry, when applied to an conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received, approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material take-off for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction. Based on

this discussion, the District will apply a conservative project contingency of 20% to the estimated capital investment for this project.

- Operating labor is estimated based on 2 operator hours per day per operating unit over a 90 day crush season and an hourly cost of \$18.50 per hour.
- An allowance for annual maintenance cost was included as 1% of Total Capital Investment.
- Connected electrical load for each unit is 2.5 horsepower which is assumed to operate continuously for 90 days.
- Electric power cost = \$0.102/kWh (see regenerative thermal oxidizer Top Down BACT Analysis section below)
- Captured ethanol is recovered as a 10% solution suitable for disposal to an ethanol distillery at a cost of \$0.08 per gallon.
- Annual source testing will be required. It is assumed that only one representative unit will require testing each year. An annual charge of \$15,000 has been included.

Equipment Cost Scrubber

Pricing for the NoMoVo units will be based on pricing previously received from NohBell Corporation for District Project N-1131615.

In project N-1131615, NohBell Corporation sized 18 scrubbers to handle twenty-four (24) 56,000 gallon tanks (total volume of 1,344,000 gallons) with a combined flow rate of 6,926.4 scfm (288.6 scfm x 24 tanks) and a combined VOC emission rate of 84,864 lb-VOC/year (3,536 lb-VOC/year x 24 tanks). Each tank in this project has a capacity of 1,720 gallons (total volume of 20,640 gallons with a combined flow rate of 106.8 scfm (8.9 scfm x 12 tanks) and a combined VOC emission rate of 1,116 lb-VOC/year (93 lb-VOC/year x 12 tanks). For this project, the number of required scrubbers will be scaled based on the ratios required for project N-1131615. Since project N-1131615 required 18 scrubbers for 24 fermentation tanks, the cost analysis for this project will be based upon nine scrubbers for 12 fermentation tanks.

As quoted by NohBell for project N-1131615, based on supply of 18 NoMoVo units each sized to control twenty-four (24) 56,000-gallon tanks, the price per scrubber is shown below.

NoMoVo v4.0-18 Reactor Units = \$60,000 each
NoMoVo v2.0 Portable Pumping Skids = \$7,500 each
Total = \$60,000 + \$7,500 = \$67,500

Total Equipment Cost = \$67,500 x 9 units
= \$607,500

The vendor has indicated the equipment cost can be adjusted based upon VOC emissions sent to the control device. Using the six-tenths rule of thumb, the adjusted equipment cost is calculated as follows:

Adjusted Equipment Cost = \$607,500 x (1,116 ÷ 21,216)^{0.6}
= \$103,788

All other costs (direct, indirect, and annual) will be taken from project N-1131615 and scaled using the six-tenths rule of thumb, as appropriate.

Scrubber	
Cost Description	Cost (\$)
Refrigerated Scrubber System (9 NoVoMo Units)	\$103,788
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Scrubber System) See Above	\$103,788
Instrumentation (\$2,000 per unit)	\$18,000
Sales Tax 8.225%	\$8,537
Freight (included)	-
Purchased equipment cost	\$130,325
Foundations & supports (not required)	-
Handling & erection 2%	\$2,607
Electrical 1%	\$1,303
Piping 1%	\$1,303
Painting (not required)	-
Insulation (not required)	-
PLC & Programming (Allowance \$10,000 per unit)	90,000
Recovered Ethanol Storage Tank (installed)	\$40,000
Direct installation costs	\$135,213
Total Direct Costs (TDC)	\$265,538
Indirect Costs (IC)	
Engineering (5% of TDC)	\$13,277
Construction and field expenses (2% of TDC)	\$5,311
Permits (Building Department) (Allowance)	\$10,000
Contractor fees (2% of TDC)	\$5,311
Start-up (1% of TDC)	\$2,655
Source Testing (9 units x \$15,000/unit)	\$135,000
Owner's Cost (Total Allowance)	$\$100,000 \times (1,116 \div 21,216)^{0.6} =$ \$17,084
Total Indirect Costs (TIC)	\$171,554
Subtotal Capital Investment (SCI = TDC + TIC)	\$437,092
Project Contingency (20% of SCI)	\$87,418
Total Capital Investment (TCI) (TDC + TIC + Contingency)	\$524,510

Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \left[\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \right] = 0.1627, \text{ amortizing over 10 years at 10\%}$$

Therefore,

$$\text{Annualized Capital Investment} = \$524,510 \times 0.1627 = \$85,362$$

Wastewater Disposal Costs

Additionally, the water scrubber will generate ethanol-laden wastewater containing 0.45 tons-ethanol annually (1,116 lb/year (uncontrolled fermentation emissions) x 0.81 ÷ 2000). Assuming a 10% solution, approximately 1,365 gallons of waste water (0.45 ton-ethanol x 2000 lb/ton x gal/6.62 lb ÷ 0.10) will be generated annually. Per NohBell Corporation, an allowance of \$0.08 per gallon is applied for disposal costs.

$$\text{Annual disposal costs} = 1,365 \text{ gallons} \times \$0.08/\text{gallon} = \$109$$

Annual Costs

Annual Costs			
Direct Annual Cost (DC)			
Operating Labor			
Operator	2 hr/day x 9 units x 90 days = 1,620 hr/year	\$18.50/h	\$29,970
Supervisor	15% of operator		\$4,496
Maintenance			
Labor	1% of TCI		\$6,747
Wastewater Disposal			
	10% Solution = 1,365 gal	\$0.08/gal	\$109
Utility			
Electricity	9 units x 2.5 hp x 0.746 kW/hp x 2,160 hr/yr = 36,256 kWh/yr	\$0.102/kWh	\$3,698
Total DC			\$45,020
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost	0.6 x (\$29,970 + \$4,496 + \$6,747)	\$24,728
Administrative	2% TCI		\$10,490
Property Taxes	1% TCI		\$5,245
Insurance	1% TCI		\$5,245
Annual Source Test	One representative test/year @ \$15,000		\$15,000
Total IC			\$60,708
Annual Cost (DC + IC)			\$105,728

$$\begin{aligned} \text{Total Annual Cost} &= \text{Scrubber System} + \text{Annual Cost} \\ &= \$85,362 + \$105,728 \\ &= \$191,090 \end{aligned}$$

Emission Reductions

The District's BACT Guideline identifies an overall collection and control efficiency of 81% for absorption systems.

$$\begin{aligned}\text{Annual Emission Reduction} &= \text{Fermentation Emissions} \times 0.81 \\ &= 1,116 \text{ lb-VOC/year} \times 0.81 \\ &= 904 \text{ lb-VOC/year} \\ &= 0.45 \text{ tons-VOC/year}\end{aligned}$$

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

$$\begin{aligned}\text{Cost Effectiveness} &= \$191,090/\text{year} \div 0.45 \text{ tons-VOC/year} \\ &= \$422,784/\text{ton-VOC}\end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the water scrubber and annual costs alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Collection of VOCs and control by carbon adsorption (> 86% collection and control)

Collection System Capital Investment (based on ductwork)

A potential common feature of all thermal or catalytic oxidation/carbon adsorption options when configured as a large single control device controlling many tanks is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. Therefore, the requirements and cost of such a collection system will be considered separately.

Collection system to consist of:

- The collection system consists of stainless steel place ductwork (stainless steel is required due to food grade product status) with isolation valving, connecting twelve tanks to a common manifold system which ducts the combined vent to the common control device. The cost of dampers and isolation valving, installed in the ductwork, will be included in the cost estimate.
- A minimum duct size is established at six inches diameter at each tank to provide adequate strength for spanning between supports. The main header is twelve inches diameter to handle the potential for simultaneous venting. The main header duct size of twelve inches may be insufficient for red wine fermentation but will be utilized as a worst case scenario.

Capital Cost Ductwork

Ducting cost (see Attachment A) = \$6,924

Redundant duct = \$6,924

Unit installed cost for 6 inch butterfly valve (adjusted from 6 inch to 3 inch) = \$2,125/valve x 12 valves x 2 systems x (3/6) = \$25,500

Unit installed cost one foot removable spool (adjusted from 6 inch to 3 inch) = \$500/tank x 12 tanks x 2 systems x (3/6) = \$6,000

Knockout drums (2 drums @ 2,500 gallons each) = \$44,000

Duct support allowance = \$40,000

Total = \$6,924 + \$6,924 + \$25,500 + \$6,000 + \$44,000 + \$40,000
= \$129,348

Instrumentation and electrical (grounding and dampers) may be required but will be excluded as a worst case scenario (based on comments provided by the emission control device vendors).

Ductwork	
Cost Description	Cost (\$)
Duct Estimate (See Duct Sizing Attachment A)	\$129,348
Adjusting factor from 2005 dollars to 2014 dollars (2.75% inflation/year)	1.2475
Inflation adjusted duct cost	\$161,362
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Ductwork) See Above	\$161,362
Instrumentation (not required)	-
Sales Tax 3%	\$4,841
Freight 5%	\$8,068
Purchased equipment cost	\$174,271
Foundations & supports 8%	\$13,942
Handling & erection 14%	\$24,398
Electrical 4% (not required)	-
Piping 2% (not required)	-
Painting 1% (not required)	-
Insulation 1% (not required)	-
Direct installation costs	\$38,340
Total Direct Costs	\$212,611
Indirect Costs (IC)	
Engineering 10%	\$17,427
Construction and field expenses 5%	\$8,714
Contractor fees 10%	\$17,427
Start-up 2%	\$3,485
Performance test 1%	\$1,743
Contingencies 3%	\$5,228
Total Indirect Costs	\$54,024
Total Capital Investment (TCI) (DC + IC)	\$266,635

Capital Cost Clean-In-Place (CIP) System

A ducting system on a tank farm must have this system to maintain sanitation and quality of the product. The cost of operation of the CIP system has not been estimated. Operation of a CIP system, using typical cleaning agents, will raise disposal and wastewater treatment costs. Most likely, these costs will be significant.

Clean-In-Place (CIP) System	
Cost Description	Cost (\$)
Current cost of CIP system	\$200,000
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (CIP System) See Above	\$200,000
Instrumentation 10%	\$20,000
Sales Tax 3%	\$6,000
Freight 5%	\$10,000
Purchased equipment cost	\$236,000
Foundations & supports 8%	\$18,880
Handling & erection 14%	\$33,040
Electrical 4%	\$9,440
Piping 2%	\$4,720
Painting 1%	\$2,360
Insulation 1%	\$2,360
Direct installation costs	\$70,800
Total Direct Costs	\$306,800
Indirect Costs (IC)	
Engineering 10%	\$23,600
Construction and field expenses 5%	\$11,800
Contractor fees 10%	\$23,600
Start-up 2%	\$4,720
Performance test 1%	\$2,360
Contingencies 3%	\$7,080
Total Indirect Costs	\$73,160
Total Capital Investment (TCI) (DC + IC)	\$379,960

Annualized Capital Costs

Two CIP systems are required for a redundant ducting system.

$$\begin{aligned}
 \text{Total capital costs} &= \text{Ductwork} + \text{CIP System (x 2)} \\
 &= \$266,635 + \$379,960 + \$379,960 \\
 &= \$1,026,555
 \end{aligned}$$

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \left[\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \right] = 0.163 \text{ per District policy, amortizing over 10 years at 10\%}$$

Therefore,

$$\text{Annualized Capital Investment} = \$1,026,555 \times 0.163 = \$167,067$$

Carbon Adsorption

Water scrubber (750 cfm) capital cost = \$108,500 (per 2003 budgetary pricing obtained by Sonoma Technologies)

The Carbon Containment hardware is about equal to the scrubber hardware. A tank is needed for the steam regenerated carbon bed. It is likely two beds will be needed to be able to be on line with one bed while the other is being regenerated.

The carbon bed operated with steam to regenerate the bed produces a water alcohol mixture. The waste stream or disposal costs have not been analyzed in this project.

Carbon Capital Cost

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Fermentation Emissions} \times 0.86 \\ &= 1,116 \text{ lb-VOC/year} \times 0.86 \\ &= 960 \text{ lb-VOC/year} \\ &= 0.48 \text{ tons-VOC/year} \end{aligned}$$

Assume a working bed capacity of 20% for carbon (weight of vapor per weight of carbon)

$$\begin{aligned} \text{Carbon required} &= 0.48 \text{ tons-VOC/year} \times 2000 \text{ lb/ton} \times 1/0.20 \\ &= 4,799 \text{ lb carbon} \end{aligned}$$

$$\text{Carbon capital cost} = \$1.00/\text{lb} = \$1.00/\text{lb} \times 4,799 \text{ lb carbon} = \$4,799$$

Carbon Adsorption	
Cost Description	Cost (\$)
Carbon Adsorption cost (taken from Scrubber cost above 2003 dollars)	\$108,500
Adjusting factor from 2003 dollars to 2014 dollars (2.75% inflation/year)	1.3025
Inflation adjusted Carbon Adsorption cost	\$141,321
Gas flow rate scfm	106.8
Size adjusted Carbon Adsorption cost [$141,321 \times (106.8 \div 750)^{0.6}$]	\$43,885
Water alcohol tank cost	\$40,000
Size adjusted Carbon Adsorption + water alcohol tank cost	\$83,885
Carbon Capital Cost (see above)	\$4,799
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Carbon Adsorption System + Carbon) See Above	\$88,684
Instrumentation 10%	\$8,868
Sales Tax 3%	\$2,661
Freight 5%	\$4,434
Purchased equipment cost	\$104,647
Foundations & supports 8%	\$8,372
Handling & erection 14%	\$14,651
Electrical 4%	\$4,186
Piping 2%	\$2,093
Painting 1%	\$1,046
Insulation 1%	\$1,046
Direct installation costs	\$31,394
Total Direct Costs	\$136,041
Indirect Costs (IC)	
Engineering 10%	\$10,465
Construction and field expenses 5%	\$5,232
Contractor fees 10%	\$10,465
Start-up 2%	\$2,093
Performance test 1%	\$1,046
Contingencies 3%	\$3,139
Total Indirect Costs	\$32,440
Total Capital Investment (TCI) (DC + IC)	\$168,481

Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \left[\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \right] = 0.163 \text{ per District policy, amortizing over 10 years at 10\%}$$

Therefore,

$$\text{Annualized Capital Investment} = \$168,481 \times 0.163 = \$27,420$$

Total Annual Cost

$$\begin{aligned} \text{Total Annual Cost} &= \text{Carbon Adsorption System} + \text{Ductwork} + \text{CIP System} \\ &= \$27,420 + \$167,067 \\ &= \$194,487 \end{aligned}$$

Emission Reductions

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Fermentation Emissions} \times 0.86 \\ &= 1,116 \text{ lb-VOC/year} \times 0.86 \\ &= 960 \text{ lb-VOC/year} \\ &= 0.48 \text{ tons-VOC/year} \end{aligned}$$

Cost Effectiveness

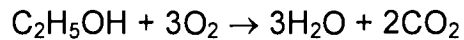
Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

$$\begin{aligned} \text{Cost Effectiveness} &= \$194,487/\text{year} \div 0.48 \text{ tons-VOC/year} \\ &= \$405,283/\text{ton-VOC} \end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the carbon adsorption system and collection system ductwork and CIP equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Collection of VOCs and control by thermal or catalytic oxidation
(> 88% collection & control)

The balanced chemical equation for combustion of ethanol is shown below.



The RTO would be connected by ducts to the tanks themselves. If the tanks were to overfill and send liquid down the duct, damage to the RTO could occur. The presence of significant liquid in the knock out drum would cause a shut down of the RTO until the issue could be corrected. The ducting costs include a knock out drum allowance.

Thermal or Catalytic Oxidation	
Cost Description	Cost (\$)
5,700 cfm Regenerative Thermal Oxidizer cost (2005 dollars)	\$279,000
Adjusting factor from 2005 dollars to 2014 dollars (2.75% inflation/year)	1.2475
Inflation adjusted Regenerative Thermal Oxidizer cost	\$348,053
Gas flow rate scfm	106.8
Size adjusted Regenerative Thermal Oxidizer cost [348,053 x (106.8 ÷ 5,700) ^{0.6}]	\$32,008
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Regenerative Thermal Oxidizer System) See Above	\$32,008
Instrumentation 10%	\$3,201
Sales Tax 3%	\$ 960
Freight 5%	\$1,600
Purchased equipment cost	\$37,769
Foundations & supports 8%	\$3,022
Handling & erection 14%	\$5,288
Electrical 4%	\$1,511
Piping 2%	\$ 755
Painting 1%	\$ 378
Insulation 1%	\$ 378
Direct installation costs	\$11,332
Total Direct Costs	\$49,101
Indirect Costs (IC)	
Engineering 10%	\$3,777
Construction and field expenses 5%	\$1,888

Contractor fees 10%	\$3,777
Start-up 2%	\$ 755
Performance test 1%	\$ 378
Contingencies 3%	\$1,133
Total Indirect Costs	\$11,708
Total Capital Investment (TCI) (DC + IC)	\$60,809

Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \left[\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \right] = 0.163 \text{ per District policy, amortizing over 10 years at 10\%}$$

Therefore,

$$\text{Annualized Capital Investment} = \$60,809 \times 0.163 = \$9,896$$

Operation and Maintenance Costs

The Direct annual costs include labor (operating, supervisory, and maintenance), maintenance materials, electricity, and fuel.

Heat of Combustion for waste gas stream -dh(c):

$$\begin{aligned} \text{heat of combustion -dHc} &= 20,276 \text{ Btu/lb} \\ \text{Daily VOC emissions rate} &= 6.2 \text{ lb/day} \times 12 \text{ tanks} = 74.4 \text{ lb/day} \\ \text{Blower flow rate} &= 106.8 \text{ scfm} \\ &= 153,792 \text{ ft}^3/\text{day} \end{aligned}$$

$$\begin{aligned} -dh(c) &= 74.4 \text{ lb/day} \times 20,276 \text{ Btu/lb} \div 153,792 \text{ ft}^3/\text{day} \\ &= 9.81 \text{ Btu/ft}^3 \end{aligned}$$

Assuming the waste gas is principally air, with a molecular weight of 28.97 and a corresponding density of 0.0739 lb/scf, the heat of combustion per pound of incoming waste gas is:

$$\begin{aligned} -dh(c) &= 9.81 \text{ Btu/ft}^3 \div 0.0739 \text{ lb/ft}^3 \\ &= 132.73 \text{ Btu/lb} \end{aligned}$$

Fuel Flow Requirement

$$Q(\text{fuel}) = \frac{P_w * Q_w * \{C_p * [1.1 T_f - T_w - 0.1 T_r] - [-dh(c)]\}}{P(\text{ef}) * [-dh(m) - 1.1 C_p * (T_f - T_r)]}$$

Where

Pw	=	0.0739 lb/ft ³
Cp	=	0.255 Btu/lb-°F
Qw	=	106.8 scfm
-dh(m)	=	21,502 Btu/lb for methane
Tr	=	77°F assume ambient conditions
P(ef)	=	0.0408 lb/ft ³ , methane at 77°F, 1 atm
Tf	=	1600°F
Tw	=	1150°F
-dh(c)	=	132.73 Btu/lb

$$Q = \frac{0.0739 \times 106.8 \times \{0.255 \times [1.1 \times 1,600 - 1,150 - 0.1 \times 77] - 132.73\}}{0.0408 \times [21,502 - 1.1 \times 0.255 \times (1,600 - 77)]}$$

$$= 164.59 \div 859.9 = 0.19 \text{ ft}^3/\text{min}$$

Fuel Costs

The cost for natural gas shall be based upon the average price of natural gas sold to "Commercial Consumers" in California for the years 2011 and 2012.¹

2012	=	\$7.05/thousand ft ³ total monthly average
2011	=	\$8.29/thousand ft ³ total monthly average
Average for two years	=	\$7.67/thousand ft ³ total monthly average

$$\text{Fuel Cost} = 0.19 \text{ cfm} \times 1440 \text{ min/day} \times 365 \text{ day/year} \times \$7.67/1000 \text{ ft}^3$$

$$= \$772/\text{year}$$

Electricity Requirement

$$\text{Power}_{\text{fan}} = \frac{1.17 \times 10^{-4} \times Q_w \times \Delta P}{\epsilon}$$

Where

ΔP	=	Pressure drop Across system = 4 in. H ₂ O
ε	=	Efficiency for fan and motor = 0.6
Qw	=	106.8 scfm

$$\text{Power}_{\text{fan}} = \frac{1.17 \times 10^{-4} \times 106.8 \text{ cfm} \times 4 \text{ in. H}_2\text{O}}{0.60}$$

$$= 0.08 \text{ kW}$$

¹ Energy Information Administration/Natural Gas; Average Price of Natural Gas Sold to Commercial Consumers by State, 2011 - 2012

Electricity Costs

Average cost of electricity to commercial users in California ²:

YTD through Jan 2014 = \$0.1339

YTD through Jan 2013 = \$0.1181

AVG = \$0.126

Electricity Cost = 0.08 kW x 24 hours/day x 365 days/year x \$0.126/kWh = \$92/year

Total Utility Costs

Annual Cost (Data from: Annual Costs for Thermal and Catalytic Incinerators, Table 3.10 – OAQPS Control Cost Manual, Fourth Edition)

Annual Cost			
Operator	0.5 h/shift	\$18.5/h x 0.5 h x 365 days/yr	\$3,376
Supervisor	15% of operator		\$506
Maintenance			
Labor	0.5 h/shift	\$18.5/h x 0.5 h x 365 days/yr	\$3,376
Material	100% of labor		\$3,376
Utility			
Natural Gas			\$772
Electricity			\$92
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost	0.6 x (\$3,376 + \$506 + \$3,376)	\$4,355
Administrative Charge	2% TCI		\$1,216
Property Taxes	1% TCI		\$608
Insurance	1% TCI		\$608
Total Annual Cost			\$18,285

Total Annual Cost

Total Annual Cost = Regenerative Thermal Oxidizer System + Ductwork + CIP System + Annual Cost
 = \$9,896 + \$167,067 + \$18,285
 = \$195,248

Emission Reductions

Annual Emission Reduction = Fermentation Emissions x 0.88
 = 1,116 lb-VOC/year x 0.88
 = 982 lb-VOC/year
 = 0.49 tons-VOC/year

² Energy Information Administration/Electric Power; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, Year-to-Date through January 2014 and January 2013

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

$$\begin{aligned}\text{Cost Effectiveness} &= \$195,248/\text{year} \div 0.49 \text{ tons-VOC/year} \\ &= \$397,621/\text{ton-VOC}\end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the regenerative thermal oxidizer system, collection system ductwork and CIP equipment, and annual costs alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Step 5 – Select BACT

All identified feasible options with control efficiencies higher than the option proposed by the facility have been shown to not be cost effective. The facility has proposed Option 1, temperature-controlled open top tank with maximum average fermentation temperature of 95 deg F. These BACT requirements will be placed on the permits as enforceable conditions.

Attachment A
Duct Sizing Analysis

Standard Size of pipe	Adjusted Standard Pipe Size	Number of Tanks to Connect	Total feet	Cost Per Foot from Eichleay	Cost Adjustment from Eichleay	Cost (adjusted if needed)	Comments
6.00	3.00	12	84	\$61.00	\$30.50	\$2,562.00	Connections From Tank to Main Duct. Three inch is used to maintain structural integrity for short distance
6.00	3.00	2	8.50	\$61.00	\$30.50	\$518.50	
6.00	3.00	4	10.27	\$61.00	\$30.50	\$626.47	
6.00	3.00	6	8.48	\$61.00	\$30.50	\$517.28	
6.00	4.00	8	8.50	\$61.00	\$40.67	\$518.50	
6.00	3.00	1	8.50	\$61.00	\$30.50	\$518.50	
6.00	3.00	2	10.27	\$61.00	\$30.50	\$626.47	
6.00	3.00	3	8.48	\$61.00	\$30.50	\$517.28	
6.00	4.00	4	8.50	\$61.00	\$40.67	\$518.50	
				Sum		\$6,924	
				one can be cleaned while the other carries fermentation gases		\$6,924	
				2 Knock drums (2500 gallons)		\$44,000	Eichleay (Adjusted for Smaller Size)
				Ducting Isolation Components		\$31,500	Adjusted from 6 inch to 3 inch
				Ducting supports Allowance		\$40,000	Allowance
				Ducting Cost		\$129,347	

1) One of the major concerns of a manifold duct system is inadvertently transferring fluids from one tank to another.

2) For these reasons it is necessary to design into the system a positive disconnect of the ducting system when the tanks is not being filled. There are a number of ways this can be done, but for illustration purposes we took very brief look at a automatic butterfly valve with a physical spool to disconnect the tank from the duct.

3) It should be pointed out that no design work has been done, and this should be considered a conceptual estimate.

6 SS Butterfly Installed per tank \$2,125
1 foot removable spool \$500

Appendix C

BACT Guideline 5.4.13 and Top Down BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.4.13*

Last Update 10/6/2009

Wine Storage Tank

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	1. Insulation or Equivalent**, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation.	1. Capture of VOCs and thermal or catalytic oxidation or equivalent (98% control) 2. Capture of VOCs and carbon adsorption or equivalent (95% control) 3. Capture of VOCs and absorption or equivalent (90% control) 4. Capture of VOCs and condensation or equivalent (70% control)	

**Tanks made of heat-conducting materials such as stainless steel may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure of diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete and wood (except for fittings) are considered self-insulating.

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Top Down BACT Analysis for Wine Storage VOC Emissions for Permit Units N-1237-750-0 through '761-0

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 2nd quarter 2014, identifies achieved in practice BACT for wine storage tanks as follows:

- 1) Insulation or Equivalent**, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation.

***Tanks made of heat-conducting materials such as stainless steel may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure to diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete and wood (except for fittings) are considered self-insulating.*

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 2nd quarter 2014, identifies technologically feasible BACT for wine storage tanks as follows:

- 2) Capture of VOCs and thermal or catalytic oxidation or equivalent (98% control)
- 3) Capture of VOCs and carbon adsorption or equivalent (95% control)
- 4) Capture of VOCs and absorption or equivalent (90% control)
- 5) Capture of VOCs and condensation or equivalent (70% control)

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank by Control Effectiveness		
Rank	Control	Overall Capture and Control Efficiency
1	Capture of VOCs and thermal or catalytic oxidation or equivalent	98%
2	Capture of VOCs and carbon adsorption or equivalent	95%
3	Capture of VOCs and absorption or equivalent	90%
4	Capture of VOCs and condensation or equivalent	70%
5	Insulation or Equivalent, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation	Baseline (Achieved-in-Practice)

Step 4 - Cost Effectiveness Analysis

A cost-effective analysis is performed for each control technology which is more effective than meeting the requirements of District Rule 4694 plus tank insulation (achieved-in-practice BACT), as proposed by the facility.

Collection System Capital Investment (based on ductwork)

A common feature of all thermal or catalytic oxidation/carbon adsorption/absorption or condensation options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device.

Collection system to consist of:

- The collection system consists of stainless steel plate ductwork (stainless steel is required due to food grade product status) with isolation valving, connecting twelve tanks to a common manifold system which ducts the combined vent to the common control device. The cost of dampers and isolation valving, installed in the ductwork, will be included in the cost estimate.
- A minimum duct size is established at six inches diameter at each tank to provide adequate strength for spanning between supports. The main header is twelve inches diameter to handle the potential for simultaneous venting.

Capital Cost Ductwork

Ducting cost (see Attachment A) = \$6,924

Redundant duct = \$6,924

Unit installed cost for 6 inch butterfly valve (adjusted from 6 inch to 3 inch) = \$2,125/valve x 12 valves x 2 systems x (3/6) = \$25,500

Unit installed cost one foot removable spool (adjusted from 6 inch to 3 inch) = \$500/tank x 12 tanks x 2 systems x (3/6) = \$6,000

Knockout drums (2 drums @ 2,500 gallons each) = \$44,000

Duct support allowance = \$40,000

Total = \$6,924 + \$6,924 + \$25,500 + \$6,000 + \$44,000 + \$40,000
 = \$129,348

Ductwork	
Cost Description	Cost (\$)
Duct Estimate (See Duct Sizing Attachment A)	\$129,348
Adjusting factor from 2005 dollars to 2014 dollars (2.75% inflation/year)	1.2475
Inflation adjusted duct cost	\$161,362
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	

Direct Costs (DC)	
Base Equipment Costs (Ductwork) See Above	\$161,362
Instrumentation 10%	\$16,136
Sales Tax 3%	\$4,841
Freight 5%	\$8,068
Purchased equipment cost	\$190,407
Foundations & supports 8%	\$15,233
Handling & erection 14%	\$26,657
Electrical 4%	\$7,616
Piping 2%	\$3,808
Painting 1%	\$1,904
Insulation 1%	\$1,904
Direct installation costs	\$57,122
Total Direct Costs	\$247,529
Indirect Costs (IC)	
Engineering 10%	\$19,041
Construction and field expenses 5%	\$9,520
Contractor fees 10%	\$19,041
Start-up 2%	\$3,808
Performance test 1%	\$1,904
Contingencies 3%	\$5,712
Total Indirect Costs	\$59,026
Total Capital Investment (TCI) (DC + IC)	\$306,555

Capital Cost Clean-In-Place (CIP) System

A ducting system on a tank farm must have this system to maintain sanitation and quality of the product. The cost of operation of the CIP system has not been estimated. Operation of a CIP system, using typical cleaning agents, will raise disposal and wastewater treatment costs. Most likely, these costs will be significant.

Clean-In-Place (CIP) System	
Cost Description	Cost (\$)
Current cost of CIP system	\$200,000
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (CIP System) See Above	\$200,000
Instrumentation 10%	\$20,000
Sales Tax 3%	\$6,000
Freight 5%	\$10,000
Purchased equipment cost	\$236,000
Foundations & supports 8%	\$18,880

Handling & erection 14%	\$33,040
Electrical 4%	\$9,440
Piping 2%	\$4,720
Painting 1%	\$2,360
Insulation 1%	\$2,360
Direct installation costs	\$70,800
Total Direct Costs	\$306,800
Indirect Costs (IC)	
Engineering 10%	\$23,600
Construction and field expenses 5%	\$11,800
Contractor fees 10%	\$23,600
Start-up 2%	\$4,720
Performance test 1%	\$2,360
Contingencies 3%	\$7,080
Total Indirect Costs	\$73,160
Total Capital Investment (TCI) (DC + IC)	\$379,960

Annualized Capital Costs

$$\begin{aligned}
 \text{Total capital costs} &= \text{Ductwork} + \text{CIP System} \\
 &= \$306,555 + \$379,960 \\
 &= \$686,515
 \end{aligned}$$

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

$$\text{Amortization Factor} = \left[\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \right] = 0.163 \text{ per District policy, amortizing over 10 years at 10\%}$$

Therefore,

$$\text{Annualized Capital Investment} = \$686,515 \times 0.163 = \$111,727$$

Capture of VOCs and condensation (> 70% collection & control)

Total Annual Cost

Total Annual Cost = Ductwork + CIP System
= \$111,727

Emission Reductions

Annual Emission Reduction = Uncontrolled Emissions x 0.70
= 4 lb-VOC/year x 12 tanks x 0.70
= 34 lb-VOC/year
= 0.0168 tons-VOC/year

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = \$111,727/year ÷ 0.0168 tons-VOC/year
= \$6,650,417/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Collection of VOCs and control by absorption (> 90% collection & control)

Total Annual Cost

Total Annual Cost = Ductwork + CIP System
= \$111,727

Emission Reductions

Annual Emission Reduction = Uncontrolled Emissions x 0.90
= 4 lb-VOC/year x 12 tanks x 0.90
= 43 lb-VOC/year
= 0.0216 tons-VOC/year

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = \$111,727/year ÷ 0.0216 tons-VOC/year
= \$5,172,546/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Collection of VOCs and control by carbon adsorption (> 95% collection and control)

Total Annual Cost

Total Annual Cost = Ductwork + CIP System
= \$111,727

Emission Reductions

Annual Emission Reduction = Uncontrolled Emissions x 0.95
= 4 lb-VOC/year x 12 tanks x 0.95
= 46 lb-VOC/year
= 0.0228 tons-VOC/year

Cost Effectiveness

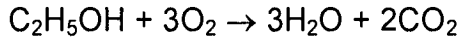
Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = \$111,727/year ÷ 0.0228 tons-VOC/year
= \$4,900,307/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

**Collection of VOCs and control by thermal or catalytic oxidation
(> 98% collection & control)**

The balanced chemical equation for combustion of ethanol is shown below.



The RTO would be connected by ducts to the tanks themselves. If the tanks were to overflow and send liquid down the duct, damage to the RTO could occur. The presence of significant liquid in the knock out drum would cause a shut down of the RTO until the issue could be corrected. The ducting costs include a knock out drum allowance.

Total Annual Cost

$$\begin{aligned} \text{Total Annual Cost} &= \text{Ductwork} + \text{CIP System} \\ &= \$111,727 \end{aligned}$$

Emission Reductions

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Uncontrolled Emissions} \times 0.98 \\ &= 4 \text{ lb-VOC/year} \times 12 \text{ tanks} \times 0.98 \\ &= 47 \text{ lb-VOC/year} \\ &= 0.0235 \text{ tons-VOC/year} \end{aligned}$$

Cost Effectiveness

$$\text{Cost Effectiveness} = \text{Total Annual Cost} \div \text{Annual Emission Reductions}$$

$$\begin{aligned} \text{Cost Effectiveness} &= \$111,727/\text{year} \div 0.0235 \text{ tons-VOC/year} \\ &= \$4,750,298/\text{ton-VOC} \end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the required collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Step 5 - Select BACT

All identified feasible options with control efficiencies higher than the option proposed by the facility have been shown to not be cost effective. The facility has proposed Option 1, insulated tank, pressure/vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas tight" tank operation and achieve and maintain a continuous storage temperature not exceeding 75 °F within 60 days of completion of fermentation. These BACT requirements will be listed on the permits as enforceable conditions.

Appendix D
Compliance Certification

N-1237
E&J Gallo Winery-Livingston
Compliance Certification Statement
For Federal Major Permit Modifications
Compliance with District Rule 2201, Section 4.15.2

"I certify under penalty of law that all major stationary sources (Title V facilities) operated under my control in California are compliant with all applicable air emissions limitations and standards. The facilities included in this certification statement include the E&J Gallo Winery-Fresno, the E&J Gallo Winery-Livingston, and the E&J Gallo Winery-Modesto."



Mr. Steve Kidd
Vice President of Operations

03/27/14

Date

Appendix E

Draft Authority to Construct Permits

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-1237-750-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F701) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services

N-1237-750-0 : Apr 29 2014 1:45PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-751-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F702) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services

N-1237-751-0 - Apr 29 2014 1:45PM - TOMS - Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201].
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-752-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F703) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

N-1237-752-0 : Apr 29 2014 1:45PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-753-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F704) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services
N-1237-753-0 - Apr 29 2014 1:45PM - TOMS - Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-1237-754-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F705) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

N-1237-754-0 : Apr 29 2014 1:45PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-755-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F706) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

N-1237-755-0 : Apr 29 2014 1:46PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-756-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F707) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District; upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-1237-756-0 : Apr 29 2014 1:46PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT
ISSUANCE DATE: DRAFT

PERMIT NO: N-1237-757-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F708) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

N-1237-757-0 : Apr 29 2014 1:46PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-758-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F709) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

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Arnaud Marjollet, Director of Permit Services
N-1237-758-0: Apr 29 2014 1:48PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-759-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F710) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services

N-1237-759-0 : Apr 29 2014 1:46PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-1237-760-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F711) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director VAPCO

Arnaud Marjolle, Director of Permit Services

N-1237-760-0 : Apr 29 2014 1:46PM - TOMS : Joint inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
7. When this tank is used for wine storage, The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]
8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694]
9. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]
10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]
11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]
13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]
14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]
15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]
16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]
17. When this tank is used for wine storage, the operator shall determine and record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
18. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]
20. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]
21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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CONDITIONS CONTINUE ON NEXT PAGE

22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]
23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
24. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201, and 4694]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: N-1237-761-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F712) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
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CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services

N-1237-761-0 : Apr 29 2014 1:46PM - TOMS : Joint Inspection NOT Required

6. When this tank is used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]
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