



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

DEC 12 2013

Mr. Todd Seely  
E & J Gallo Winery  
600 Yosemite Blvd.,  
Modesto, CA 95354

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-3386  
Project # N-1133147**

Dear Mr. Seely:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is to convert an existing 333,614 gallon high fructose corn syrup storage tank to a wine storage tank.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authority to Construct with a Certificate of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400.

Thank you for your cooperation in this matter.

Sincerely,

David Warner  
Director of Permit Services

Enclosures

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

Seyed Sadredin  
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# San Joaquin Valley Air Pollution Control District Authority to Construct

## ***Conversion of an existing tank (Non-Wine Service) to Wine Storage Tank***

Facility Name:	E & J Gallo Winery	Revised Date:	October 31, 2013
Mailing Address:	600 Yosemite Blvd., Modesto, CA95353-1130	Engineer:	Wai-Man So
Contact Person:	Todd Seely (EH&S Assistant)	Lead Engineer:	Nick Peirce
Telephone:	(209) 341 – 8779	Cell:	(209) 765 – 5297
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Application #(s):	N-3386-485-0		
Project #:	N-1133147		
Deemed Complete:	October 17, 2013		

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### **I. PROPOSAL**

E. & J Gallo Winery (hereinafter Gallo) is requesting an Authority to Construct (ATC) for the conversion of an existing High Fructose Corn Syrup (HFCS) storage tank (non-wine service) to a wine storage tank.

Gallo possesses a Title V permit. The proposed project is a Significant Modification to the Title V permit since the project triggers a Federal Major Modification under Rule 2201. The applicant has requested to issue the ATC with a Certificate of Conformity (COC), which is EPA's 45-day review of the project prior to the issuance of the final ATC. This project will be published in the local newspaper, Modesto Bee, for public review and comment. The public comment period will last 30-days from the date of publication. Both COC and public notice will run concurrently.

### **II. APPLICABLE RULES**

District Rule 2201	New and Modified Stationary Source Review (04/21/11)
District Rule 2410	Prevention of Significant Deterioration (effective 11/26/12)
District Rule 2520	Federally Mandated Operating Permits (06/21/01)
District Rule 4001	New Source Performance Standards (04/14/99)
District Rule 4002	National Emissions Standards for Hazardous Air Pollutants (05/02/04)
District Rule 4101	Visible Emissions (02/17/05)
District Rule 4102	Public Nuisance (12/17/92)
District Rule 4623	Storage of Organic Liquids (05/19/05)
District Rule 4694	Wine Fermentation and Storage Tanks (12/15/05)
CH & SC 41700	Public Nuisance
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 600 Yosemite Blvd., in Modesto, California. The District has verified that this facility is not located within 1,000 feet of the outer boundary of any K-12 school. Therefore, the school noticing requirements of California Health and Safety Code, Section 42301.6 do not apply.

### **IV. PROCESS DESCRIPTION**

Gallo 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 (CO<sub>2</sub>) 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 CO<sub>2</sub>. 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. All tanks in the winery typically operate as two separate emissions units: (1) a fermentation operation during which the tank is vented directly to the atmosphere to release the evolved CO<sub>2</sub> byproduct from the fermentation reaction; and (2) a storage operation during which the tank is closed to minimize contact with air and refrigerated to preserve the wine. 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**

333,614 GALLON, INSULATED, STEEL ENCLOSED TOP, WINE STORAGE TANK (#3079) EQUIPPED WITH PRESSURE/VACUUM RELIEF VALVE

## **VI. EMISSION CONTROL TECHNOLOGY EVALUATION**

VOCs (ethanol) are emitted from the 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. When wine storage tanks are insulated or located in a climate controlled building, breathing losses are considered to be negligible.

## **VII. EMISSIONS CALCULATIONS**

### **A. Assumptions**

- VOC is the only pollutant concern associated to this project.
- The wine processed in the proposed tank contains a maximum of 21% alcohol by volume (per applicant).
- A daily storage tank throughput will not exceed the maximum nominal tank capacity (per applicant).
- An annual storage tank throughput will not exceed twenty-four times the maximum nominal tank capacity (per applicant).
- Other assumptions will be stated as they are made.

### **B. Emission Factors (EF)**

#### ***Pre-Project Emissions Factor (EF1)***

This is a new emissions unit. Therefore, EF1 is equal to zero.

#### ***Post-Project Emissions Factor (EF2)***

The proposed tank will be used only for wine storage.

Emissions factors are taken from District FYI-114, *VOC Emission Factors for Wine Fermentation and Storage Tanks*, for facility located in the Northern Region with ethanol concentration of 21% volume, as interpolated and summarized as follows:

Daily Emission Factor:  $[(22\% - 21\%) + (0.333 - EF)] = [(22\% - 20\%) + (0.333 - 0.303)]$   
Solving for EF yields 0.318

Annual Emission Factor:  $[(22\% - 21\%) + (0.194 - EF)] = [(22\% - 20\%) + (0.194 - 0.175)]$   
Solving for EF yields 0.185

Wine Type	EF2 (lb-VOC/1,000 gallon of wine)		Source
	Daily	Annual	
Red/White	0.318	0.185	FYI-114, Table 1

**C. Potential to Emit (PE)**

**1. Daily and Annual PE**

***Pre-Project Potential Emissions (PE1)***

This is a new emissions unit. Therefore, PE1 is equal to zero.

***Post-Project Potential Emissions (PE2)***

The potential daily and annual VOC emissions of the proposed tank are determined as follows:

Daily PE2 = EF (lb-VOC/1,000 gal) x tank capacity (gal/tank) x turnover rate (tank/day)  
Annual PE2 = EF (lb-VOC/1,000 gal) x tank capacity (gal/tank) x turnover rate (tank/year)

Permit Unit	Daily EF	Annual EF	Tank Capacity	Turnover rate	Turnover rate	Daily	Annual
	(lb-VOC/1,000 gal)	(lb-VOC/1,000 gal)	(gallon)	(tank/day)	(tank/yr)	(lb/day)	(lb/yr)
N-3386-485-0	0.318	0.185	333,614	1	24	106.1	1,481

**2. Quarterly Emission Changes (ΔPE)**

The Quarterly Emissions Changes (QEC) is calculated for each pollutant, for each unit, as the difference between the quarterly PE2 and the quarterly baseline emissions (BE). The annual emissions are evenly distributed throughout each quarter using the following equation:

$$QEC \text{ (lb/quarter)} = [\text{Annual PE2} - \text{Annual PE1}] \text{ (lb/year)} / 4 \text{ (quarter/year)}$$

The quarterly VOC emissions for the proposed tank is summarized and listed as follow:

Permit Unit	Pollutant	Quarterly Net Emission Changes (QNEC)			
		1 <sup>st</sup> Quarter (lb/quarter)	2 <sup>nd</sup> Quarter (lb/quarter)	3 <sup>rd</sup> Quarter (lb/quarter)	4 <sup>th</sup> Quarter (lb/quarter)
N-3386-485-0	VOC	370	370	370	371

**3. Adjusted increase in Permitted Emissions (AIPE)**

AIPE is used to determine if Best Available Control Technology (BACT) is required for emission units that are being modified.

This is a new emissions unit. Therefore, AIPE calculations are not required.

**D. Facility Emissions**

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

Pursuant to District Rule 2201, § 4.9, 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 facility is contiguous with facility N-7478 (E & J Gallo Winery - Brandy), is under common ownership, and shares the same two-digit SIC code. Therefore, pursuant to District Rule 2201, facilities N-3386 and N-7478 are considered to be the same stationary source.

SSPE1 values are taken from engineering evaluation N-1132554, and summarized below.

Permit Number	Pollutants (lb/year)				
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1 (N-3386 & N-7478)	15,739	954	72,980	56,068	310,684
ERC N-849-2	125	0	0	0	0
ERC N-260-3	0	0	0	783	0
ERC N-964-1	0	0	0	0	90,000
SSPE1 with ERCs	15,739	954	72,980	56,851	400,684
Major Source Threshold Level	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	Yes

**2. Post-Project Stationary Source Potential to Emit (SSPE2)**

Pursuant to District Rule 2201, § 4.10, 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.

Permit Number	Pollutants (lb/year)				
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1 (N-3386 & N-7478)	15,739	954	72,980	56,068	310,684
ATC N-3386-485-0	0	0	0	0	1,481
SSPE 2 w/o ERCs	15,739	954	72,980	56,068	312,165
ERC N-849-2	125	0	0	0	0
ERC N-260-3	0	0	0	783	0
ERC N-964-1	0	0	0	0	90,000
SSPE2 with ERCs	15,739	954	72,980	56,851	402,165
Major Source Threshold Level	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	Yes

### 3. Stationary Source Increase in Permitted Emissions (SSIPE)

SSIPE calculations are used to determine if the project triggers public notice pursuant to District Rule 2201, § 5.4.5. If SSIPE results greater than 20,000 lb/yr for any one pollutant then project requires public notification. At this time, it is District Practice to define the SSIPE as the difference of SSPE2 to SSPE1.

	Pollutants (lb/yr)				
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	15,739	954	72,980	56,851	402,165
SSPE1	15,739	954	72,980	56,851	400,684
SSIPE	0	0	0	0	1,481

### 4. Major Source Determination

#### Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, Section 3.24, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purpose of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- emissions from non-road IC engines (i.e. IC engines at a particular site at this facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Permit Number	Pollutant (lb/yr)				
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	15,739	954	72,980	56,068	310,684
SSPE2	15,739	954	72,980	56,068	312,165
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Existing Major Source?	No	No	No	No	Yes

As seen in the previous table, the facility is an existing Major Source for VOC and will remain a Major Source for VOC as a result of this project.

Rule 2410 Major Source Determination:

This facility is contiguous with facility N-7478 (E & J Gallo Winery - Brandy), is under common ownership, and shares the same two-digit SIC code. Therefore, pursuant to 40 CFR 52.21(b)(5) and (b)(6), facilities N-3386 and N-7478 are considered to be the same stationary source.

The pre-project potential CO<sub>2</sub>e emission of 15,926.7 ton-CO<sub>2</sub>e/year from this stationary source is taken from engineering evaluation N-1132554.

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 thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Estimated Facility PE before Project Increase	7.8	155.3	0.5	28.0	36.5	36.5	15,926.7
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

As shown above, the facility is not an existing major source for PSD for any pollutant. Therefore, the facility is not an existing major source for PSD.

**5. Baseline Emissions (BE)**

The BE calculation (in lb/year) is performed on a pollutant-by-pollutant basis to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold. Pursuant to section 3.8, baseline emissions shall be equal to the sum of:

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 section 3.23.

Since this is a new emissions unit. Therefore, the baseline emissions are equal to the pre-project potential to emit, BE = PE1 = 0.



**6. SB 288 Major Modification**

SB 288 Major Modification calculation is to determine the following:

- a. Pursuant to District Rule 2201, section 4.1.3, if Best Available Control Technology (BACT) is triggered for a new or modified emission unit that results in an SB 288 Major Modification; and
- b. Pursuant to District Rule 2201, section 5.4.1, if a public notification is triggered.

As shown in Section VII.D.4 of this document, this facility is an existing Major Source for VOC emissions. In order to determine whether a SB 288 Major Modification can be triggered, the Net Emissions Increase (NEI) is calculated and is compared with the SB 288 Major Modification threshold limit of 50,000 lb-VOC/year listed on Table 3-5 of Rule 2201, section 3.36.

NEI can be calculated as the sum of the difference of post-project potential emissions (PE2) and historical emissions (HE) for the emissions units involved in this project. Since this project involves only new emissions units, and no change to the existing emissions units. The historical emissions for these units are each equal to zero. Thus,

$$NEI = \sum(PE2 - HE)_{New}$$

Where:

$$HE_{New} = 0$$

$$NEI = \sum(PE2)_{New}$$

As indicated in Section VII.C.1 of this document, the emission from the new tank is calculated to 1,481 pounds of VOC per year.

$$NEI = \sum(PE2)_{New} = 1,481 \text{ lb-VOC/year}$$

SB 288 Major Modification Thresholds and Determination			
Pollutant	PE2 (lb/year)	Thresholds (lb/year)	SB 288 Major Modification?
VOC	1,481	50,000	No

As indicated in above table, this project does not constitute an SB 288 Major Modification.

**7. Federal Major Modification**

Federal Major Modification is to determine the following:

- a. Pursuant to Rule 2201, section 4.2.3.5, if a Rule-compliance project qualifies for District Rule 2201's Best Available Control Technology (BACT) and offset exemptions;
- b. Pursuant to Rule 2201, section 4.15.1, if an Alternate Siting analysis must be performed; and if the applicant must provide certification that all California stationary

sources owned, operated, or controlled by the applicant that are subject to emission limits are in compliance with those limits or are on a schedule for compliance with all applicable emission limits and standards; and

c. Pursuant to Rule 2201, section 5.4.1, if a public notification is triggered.

This facility is an existing Major Source for VOC emissions. In order to determine whether a Federal Major Modification can be triggered, the Net Emissions Increase (NEI) is calculated and is compared with the significant threshold limit of 0 lb-VOC/year listed on Table 3-1 of Rule 2201, section 3.18.1.4.

NEI can be calculated as the sum of the difference of the project actual emissions (PAE) and baseline actual emissions (BAE) for the emissions units involved in this project. Since this project involves only new emissions units, and no change to the existing emissions units. The baseline actual emissions for the new units are each equal to zero. Thus,

$$NEI = \sum(PAE - BAE)_{New}$$

Where:

$$BAE_{New} = 0$$

$$NEI = \sum(PAE)_{New}$$

As discussed above, emissions from the new tank is equal to 1,481 pounds of VOC per year. Thus, NEI = 1,481 lb-VOC/year.

Federal Major Modification Thresholds and Determination			
Pollutant	PE2 (lb/year)	Thresholds (lb/year)	Federal Major Modification?
VOC	1,481	0	Yes

As indicated in the above table, this project constitutes a Federal Major Modification..

### 8. 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
- Greenhouses gases (GHG): CO2, N2O, CH4, HFCs, PFCs, and SF6

As determined in Section VII.D.4 of this document, this facility is not an existing PSD Major Source. Therefore, the emission increase for each attainment/unclassified pollutant is compared to the PSD major source thresholds to determine if the project is subject to the requirements of Rule 2410.

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 thresholds are applicable.

<b>PSD Major Source Determination: Potential to Emit</b>							
<b>(tons/year)</b>							
	<b>NO2</b>	<b>VOC</b>	<b>SO2</b>	<b>CO</b>	<b>PM</b>	<b>PM10</b>	<b>CO2e</b>
<b>Total PE from New and Modified Units</b>	0	0.7	0	0	0	0	0
<b>PSD Major Source Thresholds</b>	250	250	250	250	250	250	100,000
<b>New PSD Major Source ? (Y/N)</b>	N	N	N	N	N	N	N

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD Major Source Thresholds. Therefore, Rule 2410 is not applicable and no further discussion is required.

### **VIII. COMPLIANCE**

#### **District Rule 2201 New and Modified Stationary Source Review Rule**

##### **1. Best Available Control Technology (BACT)**

Pursuant to District Rule 2201, § 4.1.1, BACT requirements are triggered in a pollutant-by-pollutant basis for new emissions unit with a Potential to Emit (PE) exceeding 2.0 lb/day, unless the unit is otherwise exempt per section 4.2. Section 4.2.1 provides an exemption from BACT requirements for CO emissions if the facility is located in a CO attainment area and the SSPE<sub>CO</sub> is less than 200,000 lb/yr. As well, BACT may be triggered if the modification is an SB 288 Major Modification or Federal Major Modification per section 4.1.3.

As shown in Section VII.C.1 of this document, PE of VOC emission from the proposed storage tank exceeds 2.0 lb/day. In addition, as shown in Section VII.D.7, this project constitutes a Federal Major Modification. Therefore, BACT is triggered and required for this project.

BACT Guideline 5.4.13 lists VOC emissions control requirements for Wine Storage Tanks. The requirement is listed in the following table:

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible
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	<ol style="list-style-type: none"> <li>1. Capture of VOC and thermal or catalytic oxidation or equivalent (98% control)</li> <li>2. Capture of VOC and carbon adsorption or equivalent (95% control)</li> <li>3. Capture of VOC and absorption or equivalent (90% control)</li> <li>4. Capture of VOC and condensation or equivalent (70% control)</li> </ol>

The "Top-Down BACT Analysis" for VOC emissions is performed in Appendix II of this document.

Pursuant to the analysis, BACT for VOC emissions has been satisfied with the following: insulated or installed indoor, 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°F, achieved within 60 days of completion of fermentation.

The following conditions will be listed on the ATC to ensure compliance with the BACT requirements:

- *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 Rule 2201]*
- *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 Rule 2201]*
- *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 2201]*

## 2. Offsets

Offsets are examined on a pollutant-by-pollutant basis, and are triggered for any pollutant with a SSPE2 equal to or greater than the values listed in § 4.5.3, table 4-1.

As discussed above, this facility is an existing Major Source for VOC emissions, and the SSPE2 of VOC exceeds the offsets threshold. Therefore, offset calculations are required, and pursuant to § 4.7.1, emission offset is calculated as the sum of differences between the PE2 and the BE of all the new and modified emissions units, plus all increases in Cargo Carrier emissions. The emissions offset are calculated as follows:

$$\text{Emission offset} = \Sigma (\text{PE2} - \text{BE}) \times \text{DOR} + \text{ICCE}$$

Where,  
 PE2 is post project potential to emit  
 BE is baseline emissions  
 DOR is the distance offset ratio determined under Rule 2201, § 4.8  
 ICCE is Increase in Cargo Carrier emissions

There are no increases in Cargo Carrier emissions as a result of this project, and the proposed project constitutes a Federal Major Modification, which result DOR = 1.5. Then,

$$\text{Emission offset} = \Sigma (\text{PE2} - \text{BE}) \times 1.5 + 0$$

$$\text{Emission offset} = [\Sigma (\text{PE2} - \text{BE})_{\text{Existing units}} + \Sigma (\text{PE2} - \text{BE})_{\text{New units}}] \times 1.5$$

This project involves only new emission unit and no modification to the existing units.

Therefore, PE2 = BE for each existing unit, results  $\Sigma (\text{PE2} - \text{BE})_{\text{Existing units}} = 0$ . Thus,

$$\text{Emission offset} = \Sigma (\text{PE2} - \text{BE})_{\text{New units}} \times 1.5$$

For new emission unit, BE = 0. Thus,

$$\text{Emission offset} = \Sigma (\text{PE2} - 0)_{\text{New units}} \times 1.5$$

As shown in Section VII.C.1 of this document,  $\Sigma \text{PE2}_{\text{New unit}}$  is calculated to 1,481 lb-VOC/yr.

$$\text{Emission offset required} = 1,481 \times 1.5 \text{ lb-VOC/yr} = 2,222 \text{ lb-VOC/yr}$$

As shown above, offset are required for this project. The applicant has proposed to utilize ERC certificate S-4050-1 to offset the increase of VOC emissions in this project. The available credit on this certificate is listed in the table below:

ERC S-4050-1	1 <sup>st</sup> Quarter (lb)	2 <sup>nd</sup> Quarter (lb)	3 <sup>rd</sup> Quarter (lb)	4 <sup>th</sup> Quarter (lb)
VOC	60,000	60,000	60,000	60,000

The amount of credit of the ERC certificate after offset is summarized in the table below:

ERC S-4050-1:

VOC	1 <sup>st</sup> Quarter (lb)	2 <sup>nd</sup> Quarter (lb)	3 <sup>rd</sup> Quarter (lb)	4 <sup>th</sup> Quarter (lb)
Available Offset	60,000	60,000	60,000	60,000
Total Reserved	(17,057)	(17,000)	(17,115)	(17,201)
Minus Offset required for this project	(555)	(555)	(555)	(557)
Remaining Offset	42,388	42,445	42,330	42,242

Therefore, the ERC certificate S-4050-1 has sufficient credits to fully offset the increase of VOC emissions in this project.

To ensure the emission credits from ERC Certificate S-4050-1 (or a certificate split from this certificate) utilize for offset the increase of VOC emissions in this project, the following conditions will be listed on the ATC:

- *ERC certificate S-4050-1 (or a certificate split from this certificate) 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: 1<sup>st</sup> quarter - 370 lb, 2<sup>nd</sup> quarter - 370 lb, 3<sup>rd</sup> quarter - 370 lb, and 4<sup>th</sup> quarter - 371 lb. Offsets shall be provided at an offset ratio 1.5 to 1. [District Rule 2201]*

**3. Public Notification**

District Rule 2201, § 5.4, requires a public notification for the affected pollutants from the following types of projects:

- New Major Sources
- Federal Major Modifications
- SB 288 Major Modifications
- New emission units with a PE>100 lb/day of any one pollutant
- Modifications with SSPE1 below an Offset threshold and SSPE2 above an Offset threshold on a pollutant-by-pollutant basis
- New stationary sources with SSPE2 exceeding Offset thresholds
- Any permitting action with a SSIPE exceeding 20,000 lb/yr for any one pollutant

This project triggers a Federal Major Modification, and the potential VOC emissions are greater than 100 pounds per day. Therefore, a 30-day public notice is required for this project.

#### **4. Daily Emission Limits (DELs)**

Daily Emissions Limitations (DELs) and other enforceable conditions are required by § 3.16 to restrict a unit's maximum daily emissions. Therefore, the following conditions will be listed on the permit:

- *The daily VOC emissions for wine storage shall not exceed 106.1 pounds. [District Rule 2201]*
- *Ethanol content of wine stored in this tank shall not exceed 21 percent by volume. [District Rule 2201]*
- *The daily wine storage throughput of this tank shall not exceed 333,614 gallons. [District Rule 2201]*

#### **5. Compliance Assurance**

##### Source Testing

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

##### Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

##### Record Keeping

Recordkeeping is required to demonstrate compliance with the offsets, public notification and daily emission limit requirements of Rule 2201. In addition, recordkeeping is also required for winery tanks per Rule 4694. Therefore, the following conditions will be listed on the permit:

- *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]*
- *The permittee shall maintain the following records: a) the ethanol concentration in volume percent of the wine stored, b) the maximum temperature of the wine stored, c) the daily throughput, and d) the calculated 12 month rolling wine storage throughput rate (gallons per 12 month rolling period, calculated monthly). [District Rule 2201] [District Rule 2201]*

- *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 and 2201]*

## **6. Ambient Air Quality Analysis**

Per Section 4.14 of Rule 2201, ambient air quality analysis (AAQA) shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse the violation of an Ambient Air Quality Standard (AAQS).

This project involves only VOCs (mainly ethanol) for which AAQS does not exist; therefore, AAQA is not performed for this project.

## **7. Additional Requirements for new Major Source and Federal Major Modifications**

Per Section 4.15 of Rule 2201, "Alternative Siting" and "Compliance Certification" is required for any project which constitutes a new Major Source or a Federal Major Modification.

### Per section 4.15.1, Alternative Siting Analysis:

In addition to winery tank, 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. Therefore, 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.

### Per section 4.15.2, Compliance Certification:

A source undergoing a 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.

This project constitutes a Federal Major Modification. Therefore, compliance certification is required, and a copy of compliance certification from the facility is included in Appendix III of this document.

Therefore, compliance with the requirements of this Rule is expected.



### **District Rule 2410 Prevention of Significant Deterioration**

The provisions of this rule shall apply to any source and the owner or operator of any source subject to any requirements under Title 40 Code of Federal Regulations (40 CFR) Part 52.21 as incorporated into this rule.

As demonstrated in Section VII.D.8 of this document, the proposed project is not subject to the requirements of Rule 2410; therefore no further discussion is required.

### **District Rule 2520 Federally Mandated Operating Permits**

Gallo possesses a Title V permit. The proposed project is considered a Significant Modification to the Title V permit since this project triggers a Federal Major Modification under Rule 2201. Therefore, the following conditions will be listed on the permit:

- *{1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201]*
- *{1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]*

In accordance with Rule 2520, the application meets the procedural requirements of section 11.4 by including:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs and
- The source's suggested draft permit (Appendix I of this document) and
- Certification by a responsible official that the proposed modification meets the criteria for use of major permit modification procedures and a request that such procedures be used (Appendix III of this document)

Section 5.3.4 of this rule requires the permittee shall file an application for administrative permit amendments prior to implementing the requested change except when allowed by the operational flexibility provisions of section 6.4 of this rule.

Gallo is expected to notify the District by filing the appropriate TV modification application forms upon implementing the ATC. Therefore, compliance with the requirements of this Rule is expected.

### **District 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 and/or storage tank operations.

### **District 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 storage tank operations.

### **District Rule 4101 Visible Emissions**

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringelmann 1 or equivalent to 20% opacity. Therefore, the following conditions will be listed on the permit:

- *{15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]*

### **District Rule 4102 Nuisance**

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, the following conditions will be listed on the permit:

- *{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 1905-1 (March 2, 2001) - 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 an HAP as defined by Section 44321 of the California Health and Safety Code. Therefore, a health risk assessment is not necessary and no further risk analysis is required.

### **District Rule 4623 Storage of Organic Liquids**

The purpose of this rule is to limit of volatile organic compound (VOC) emissions from the storage of organic liquids.

Section 4.1.4 of this rule provides an exemption for tanks used in wine fermentation and for storage of resulting products, by-products, and spirits. The new tank will be used to store wine. Therefore, the requirement of this rule does not apply to this project.

### **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 any winery fermenting wine and/or storing wine in bulk containers.

Section 4.1 of this rule states that except for record keeping requirements specified in section 6.4.4, this rule shall not apply to any winery which has a Baseline Fermentation Emissions (BFE) of less than 10 tons per year.

The proposed tank will be used only for wine storage. In addition, per engineering evaluation N-1130542, only 7 out of 398 tanks in this facility will be used for both fermentation and storage. No fermentation of wine takes place in the rest of tanks at this stationary source (both facilities N-7478 and N-3386).

In addition, the BFE for this stationary source is limited to less than 10 tons per year pursuant to condition number 42 under the facility wide permit N-3386-0-3. Therefore, only recording keeping requirements specified in section 6.4.4 will be required.

Section 6.4.4 requires keeping the total gallons of wine in storage. The permittee will keep the daily and annual throughput records. Therefore, compliance with the requirements of this rule is expected.

### **California Health & Safety Code 42301.6 (School Notice)**

As discussed in Section III of this document, the California Health and Safety Code 42301.6 requirement does not apply to this project.

### **California Environmental Quality Act (CEQA)**

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 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; and
- 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. 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 N-3386-485-0 subject to the permit conditions listed on the attached draft Authority to Construct in Appendix I.

**X. BILLING INFORMATION**

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
N-3386-485-0	3020-05-E (100,000 or Greater but less than 500,000 gallon)	333,614 gallons	\$ 246

**APPENDICES**

- Appendix I: Draft Authority to Construct (ATC)*
- Appendix II: BACT Guideline & Top-Down BACT Analysis*
- Appendix III: Compliance Certification*

# **Appendix I**

## **Draft Authority to Construct (ATC)**

**N-3386-485-0**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-3386-485-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY  
MAILING ADDRESS: 600 YOSEMITE BLVD  
MODESTO, CA 95354

LOCATION: 600 YOSEMITE BLVD  
MODESTO, CA 95353

EQUIPMENT DESCRIPTION:  
333,614 GALLON, INSULATED, STEEL ENCLOSED TOP, WINE STORAGE TANK (#3079) EQUIPPED WITH PRESSURE/VACUUM RELIEF VALVE

**CONDITIONS**

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 370 lb, 2nd quarter - 370 lb, 3rd quarter - 370 lb, and 4th quarter - 371 lb. Offsets shall be provided at an offset ratio 1.5 to 1. [District Rule 2201]
4. ERC certificate S-4050-1 (or a certificate split from this certificate) 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]
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
6. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

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

**DRAFT**

DAVID WARNER, Director of Permit Services

N-3386-485-0 Oct 31 2013 11 05AM - SOW : Joint Inspection NOT Required

7. 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 Rule 2201] Federally Enforceable Through Title V Permit
8. 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 Rule 2201] Federally Enforceable Through Title V Permit
9. 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 2201] Federally Enforceable Through Title V Permit
10. Ethanol content of wine stored in this tank shall not exceed 21 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The daily wine storage throughput of this tank shall not exceed 333,614 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit
12. The annual wine storage throughput of this tank, calculated on a 12 month rolling basis, shall not exceed 8,006,736 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit
13. 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] Federally Enforceable Through Title V Permit
14. The permittee shall maintain the following records: a) the ethanol concentration in volume percent of the wine stored, b) the maximum temperature of the wine stored, c) the daily throughput, and d) the calculated 12 month rolling wine storage throughput rate (gallons per 12 month rolling period, calculated monthly). [District Rule 2201] Federally Enforceable Through Title V Permit
15. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 1070 and 2201] Federally Enforceable Through Title V Permit

DRAFT



## **Appendix II**

**BACT Guideline & 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 VOCs from Wine Storage Operations

### Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.13 identifies achieved in practice and technologically feasible 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.
- 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)

*\*\*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.*

### 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	Option	Control	Overall Capture & Control Efficiency <sup>1</sup>
1	2	Capture of VOCs and thermal or catalytic oxidation	98 %
2	3	Capture of VOCs and carbon adsorption	95 %
3	4	Capture of VOCs and absorption	90 %
4	5	Capture of VOCs and condensation	70 %
5	1	Insulated tank, pressure/vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas tight" tank operation and 75°F tank temperature control as defined in District Rule 4694. (Achieved in Practice and Industry Standard)	0 %

<sup>1</sup> Relative to "industry standard"

#### 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 Delicato. The cost-effectiveness analysis will be performed based on the following:

- Since the most cost effective approach will be achieved by installing a common control device for multiple tanks, the analysis will be based on this approach.
- To expand the scope and generality of this BACT, the cost-effectiveness analysis will be based on a hypothetical "industry-typical" storage tank operation consisting of a battery of twelve (12) storage tanks each with a capacity of 200,000 gallons. Total annual throughput for the hypothetical tank battery is 39.6 million gallons per year based on an individual annual throughput of 3,300,000 gallons per year each (equivalent to almost 17 turns per year of each storage tank versus an estimated industry average of 6 turns per tank<sup>2</sup>). Total throughput subject to VOC control by a common VOC control device is thus 39.6 MMgal/year. Based on economies of scale, it is obvious that any control found to not be cost-effective at this level of throughput would be even less cost-effective at lower capacities (such as proposed for this project with a total annual throughput of 8 million gallons per year).

#### Industry Standard

During the development of District Rule 4694, it was determined that use of pressure/vacuum valves and some level of refrigeration on wine storage tanks is a standard operation for large wineries in the San Joaquin Valley. Additionally, essentially all storage tanks are insulated. This was directly confirmed with four large wineries: Mission Bell (Madera), Gallo-Livingston, Bronco, and Robert Mondavi. Based on this, the wine storage tank VOC control requirements of District Rule 4694 and tank insulation are also determined to be "industry standard".

The emission factor for "industry standard" operation is determined based on Table 1 of the District's FYI-114, Estimating Emissions from Wine Storage Tanks, for an insulated storage tank with up to 21% ethanol content in the wine being stored:

$$E_f (\text{industry standard}) = 0.185 \text{ lb-VOC}/1000 \text{ gal of wine throughput}$$

#### Uncontrolled emissions for Twelve-Tank Battery

$$\begin{aligned} \text{Uncontrolled Emissions} &= \text{Gallons Throughput/year} \times 0.185 \text{ lb-VOC}/1000 \text{ gallons} \\ &= (39.6 \times 10^6 \text{ gal/year}) \times (0.185 \text{ lb-VOC}/1000 \text{ gal}) \\ \text{Uncontrolled Emissions} &= 7,326 \text{ lb/year} \end{aligned}$$

---

<sup>2</sup> Per discussions with the Wine Institute (Bob Calvin of Constellation Wines) during Rule 4694 development (8/16/05)

## Capture of VOCs with Thermal or Catalytic Oxidation/ Carbon Adsorption/Absorption or Condensation (Options 2,3,4, and 5)

A common feature of all of these options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. The analysis below indicates that these options are not cost effective by showing that just the annualized direct cost for the ductwork of the collection system and supporting structural steel and foundations alone is too large, when considered at the District's cost effectiveness threshold for VOC BACT, to justify the capital investment required by these options. This approach ignores additional major costs for the actual control device and its installation and for equipment sterilization systems for ductwork and control device, instrumentation and control systems for isolation of individual tanks in the battery, site specific factors due to limited plot space (known to be a significant factor at all wineries), and operating and maintenance costs for each system. Should all these additional cost factors be included, the calculated cost effectiveness would be substantially higher than indicated below.

### **a. Control Efficiency**

Option 2 is capable of a 98% reduction in VOC emissions while the remaining options under consideration have lesser control efficiencies. Showing that all of the options under consideration are not cost effective at a 98% reduction level based on capital investment requirements of ductwork and steel alone is adequate since options other than thermal/catalytic oxidation would be even less cost effective at their actual (lower) reduction levels.

$$\begin{aligned}\text{Annual Emission Reduction} &= \text{Uncontrolled Emissions} \times 0.98 \\ &= 7,326 \text{ lb-VOC/year} \times 0.98 \\ &= 7,179 \text{ lb-VOC/year} \\ &= 3.59 \text{ tons-VOC/year}\end{aligned}$$

### **b. Capital Investment for Installation of a VOC Collection System**

#### Design and Estimate Basis:

- The basis and approach for the capital cost estimate for ductwork and support steel is summarized in BACT Attachment 1.
- The collection system consists of stainless steel plate ductwork (stainless steel is required due to cleanliness and sterilization requirements for wine quality considerations and due to the food grade product status) with isolation valving, connecting twelve 200,000 gallon 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 not be included in the cost estimate.
- A minimum duct size is established at 6 inches diameter at each tank to ensure minimal backpressure of the tank during filling operations and to provide adequate strength for spanning between supports. The main header is 12" diameter to handle the potential for simultaneously venting all tanks based on a potential fill rate of 1000 gpm for each tank (per applicant) and a duct velocity of 2000 feet per minute.

- The ductwork is designed with features to facilitate clean-in-place (CIP) operation to allow for periodic sterilization procedures as required for food grade products. The CIP system includes strategically placed spray nozzles on the ductwork for injecting sterilizing solutions into the system. Cost impacts to install CIP systems to clean the ducting are not included in the cost estimate.
- The ductwork is supported on a structural steel piperack mounted on drilled concrete piers, running through the new tank battery. Ducting elevations are established to allow continuous free draining to the separator located at the control device.
- Unit Installed Costs for Ductwork: A direct cost estimate for 12" diameter stainless steel ductwork, installed in a San Joaquin Valley winery, was taken from a study prepared by Eichleay Engineering for the Wine Institute in conjunction with development of District Rule 4694.<sup>3</sup> The estimate is based on 2nd quarter 2005 dollars, and includes fittings, miscellaneous duct supports and other materials plus field labor costs required to install the ductwork, but does not include other associated indirect costs such as construction management, engineering, owner's cost, contingency, etc. BACT Attachment 1 presents the development of unit installed costs for stainless steel ducting based on the costs derived from the Eichleay estimate.
- Linear feet of ducting required was extracted from the Eichleay Estimate for a similar system at Gallo-Livingston (See BACT Attachment 1 in project C1090293).
- Costs for structural steel supports and foundations were extracted from the Eichleay Estimate for a similar system at Gallo-Livingston (See BACT Attachment 1 in project C1090293).
- Sales tax of 8% was applied to all materials.
- Indirect costs include Engineering, Construction Expense and Contractor's Fee and Contingency. Factors for these costs are taken from Peters & Timmerhaus<sup>4</sup>.
- Capital costs taken from the Eichleay estimate are 2005 dollars. These are escalated to 2013 based on 3% overall escalation per year.

#### Capital Investment (for ductwork and steel supports)

Fixed Capital Investment is summarized in the following table:

<sup>3</sup> Eichleay Engineers of California, Fermenter VOC Emissions Control Cost Estimate (Revision 1), Eichleay Project Numbers 30892 and 30913, June 30, 2005

<sup>4</sup> Peters & Timmerhaus, Plant Design and Economics for Chemical Engineers, 2<sup>nd</sup> Edition, McGraw-Hill, 1968, p.140.



Annualized Capital Investment and Cost Effectiveness (based on ductwork):

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Amortization Factor = 0.163 per District policy, amortizing over 10 years at 10%

Therefore,

Annualized Capital Investment = \$1,052,380 × 0.163 = \$171,538

Cost Effectiveness = Annualized Cost/Annual Emission Reductions

**Cost Effectiveness = \$171,538/3.59 tons-VOC = \$47,782/ton-VOC**

As shown above, the cost of VOC reduction by capture of VOCs with thermal or catalytic oxidation, carbon adsorption, absorption or condensation would be greater than the \$17,500/ton cost effectiveness threshold for VOC in the District BACT policy, based only on the direct cost required for the collection ducting. Therefore these options are 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 placed on the ATC as enforceable conditions.



## **Appendix III**

### **Compliance Certification**

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SJVAPCD  
NORTHERN REGION

San Joaquin Valley  
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

- SIGNIFICANT PERMIT MODIFICATION
- ADMINISTRATIVE AMENDMENT
- MINOR PERMIT MODIFICATION

TS  
9-25-13

COMPANY NAME: E&J Gallo Winery	FACILITY ID: N- 3386
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: E&J Gallo Winery	
3. Agent to the Owner: Christine Ryan	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

William Stewart  
Signature of Responsible Official

9/24/13  
Date

William Stewart  
Name of Responsible Official (please print)

Vice President of Operations  
Title of Responsible Official (please print)