



JUL 26 2011

Mike Tollstrup, Chief  
Project Assessment Branch  
Air Resources Board  
P O Box 2815  
Sacramento, CA 95812-2815

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-3386  
Project # N-1111823**

Dear Mr. Tollstrup:

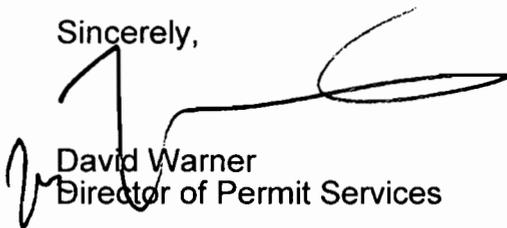
Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is to re-evaluate the amount of VOC offsets for four new wine storage tanks.

Enclosed is the engineering evaluation of this application and proposed Authorities to Construct # N-3386-470-1 to '-473-1 with Certificates of Conformity. After demonstrating compliance with the Authorities to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 30-day comment period that begins on the date you receive this letter. 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

DW:JK/st

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



JUL 26 2011

Gerardo C. Rios, Chief  
Permits Office  
Air Division  
U.S. EPA - Region IX  
75 Hawthorne St.  
San Francisco, CA 94105

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-3386  
Project # N-1111823**

Dear Mr. Rios:

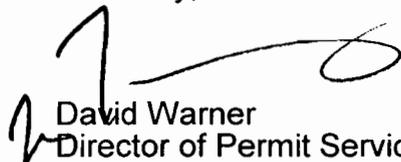
Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for E & J Gallo Winery 600 Yosemite Blvd, Modesto, which has been issued a Title V permit. E & J Gallo Winery is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. This project is to re-evaluate the amount of VOC offsets for four new wine storage tanks.

Enclosed is the engineering evaluation of this application and proposed Authorities to Construct # N-3386-470-1 to -473-1 with Certificates of Conformity. After demonstrating compliance with the Authorities to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. 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

DW:JK/st

Enclosures

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Executive Director/Air Pollution Control Officer

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# San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



## HEALTHY AIR LIVING™

JUL 26 2011

Mr. Steven Sylvester  
E & J Gallo Winery  
600 Yosemite Blvd  
Modesto, CA 95354

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # N-3386  
Project # N-1111823**

Dear Mr. Sylvester:

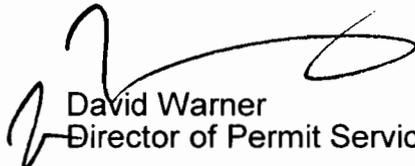
Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is to re-evaluate the amount of VOC offsets for four new wine storage tanks.

After addressing any EPA comments made during the 45-day comment period, the Authorities to Construct will be issued to the facility with Certificates of Conformity. Prior to operating with modifications authorized by the Authorities 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

DW:JK/st

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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Modesto Bee

**NOTICE OF PRELIMINARY DECISION  
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND  
THE PROPOSED SIGNIFICANT MODIFICATION OF FEDERALLY  
MANDATED OPERATING PERMIT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed modification of E & J Gallo Winery for its winery 600 Yosemite Blvd, Modesto, California. This project is to re-evaluate the amount of VOC offsets for four new wine storage tanks.

The District's analysis of the legal and factual basis for this proposed action, project #N-1111823, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356-8718.



California Health & Safety Code 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, Modesto, California. The proposed tanks will not be located within 1,000 feet of any K-12 school. Therefore, public notice under the California Health & Safety Code 42301.6 is not required.

### **IV. PROCESS DESCRIPTION**

The proposed tanks will be used to store and supply wine to the wine bottling operation.

### **V. EQUIPMENT LISTING**

N-3386-470-1 to '-473-1

53,000 GALLON STEEL WINE STORAGE TANK WITH PRESSURE/VACUUM VALVE AND INSULATION

### **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 new tanks will be equipped with pressure/vacuum valves to reduce release of VOCs 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. Further, the new tanks will be insulated, to minimize the breathing losses.

### **VII. CALCULATIONS**

#### **A. Assumptions**

- VOC is the only pollutant of concern related to this project.
- Wine stored in each tank will be maintained at or below 40°F.
- Maximum ethanol content in the wine stored in each tank will be 14%.
- Each tank's maximum throughput would be 5,000,000 gallons per year.
- Other assumptions will be stated as they are made for this project.

B. Emission Factors (EF)

1. Pre-Project Emission Factors (EF1)

The proposed wine storage tanks are new tanks; therefore, EF1 is not available at this point.

2. Post-Project Emission Factors (EF2)

The applicant has proposed to use EPA's Tanks 4.0.d program to evaluate the potential vapor emissions (ethanol and water), and then adjust these emissions to determine VOC (ethanol) emissions. Therefore, EF2 is not listed here.

C. Potential to Emit

1. Pre-Project Potential to Emit (PE1)

PE1 = 0 for all new tanks

2. Post-Project Potential to Emit (PE2)

EPA's Tanks 4.0.d program is used to determine vapor (ethanol and water mixture) emissions using a custom chemical database for wine 14% vol. alcohol (chemical data report is included in Appendix III of this document) and the maximum wine storage temperature of 40°F. The summary results are as follows (EPA's Tanks 4.0.d runs are included in Appendix III of this document).

PE2 = 247 lb/yr (ethanol and water)

The average vapor molecular weight for wine 14% vol. alcohol is 26.79 lb/lb-mole, and the molecular weight of ethanol and water are 46.02 lb/lb-mole and 18.02 lb/lb-mole respectively. VOCs (ethanol) are determined as follows:

$$AMW = y_a \times 46.02 + (1 - y_a) \times 18.02,$$

Where,

AMW = average molecular weight

$y_a$  = fraction of ethanol

Rearranging the above equation,

$$\begin{aligned} y_a &= (AMW - 18.02)/(46.02-18.02) \\ &= (26.79 - 18.02)/(46.02-18.02) \\ &= 0.3132 \end{aligned}$$

$$\begin{aligned} PE2 &= (PE2 \text{ (ethanol and water)}/AMW) \times y_a \times 46.02 \\ &= (247/26.79) \times 0.3132 \times 46.02 \\ &= 133 \text{ lb/yr-tank (ethanol)} \end{aligned}$$

The applicant has proposed to install 4 identical tanks. So, the total VOCs (ethanol) emissions would be:

$$\begin{aligned} PE2 &= 133 \text{ lb-VOC/yr-tank} \times 4 \text{ tanks} \\ &= 532 \text{ lb-VOC/yr} \end{aligned}$$

The month of July information is used to determine the maximum daily emissions. The results from EPA's Tanks 4.0 program for July month are as follows:

$$PE2 = 165.9 \text{ lb/month (ethanol and water)}$$

$$\begin{aligned} PE2 &= (PE2 \text{ (ethanol)}/AMW) \times y_a \times 46.02 \\ &= (165.9/26.79) \times 0.3132 \times 46.02 \\ &= 89.3 \text{ lb/month-tank (ethanol)} \end{aligned}$$

There are 31 days in July; so the daily emissions would be:

$$\begin{aligned} PE2 &= 89.3/31 \\ &= 2.9 \text{ lb-VOC/day-tank} \end{aligned}$$

### 3. Quarterly Emissions Changes (QEC)

This calculation is required for application's emission profile, which is used for the District's internal tracking purposes. Typically, QECs are calculated as follows:  $QEC = (PE2 - PE1) \text{ lb/year} \div 4 \text{ quarters/yr}$ . QEC for each tank would be:

Pollutant	Q1 (lb)	Q2 (lb)	Q3 (lb)	Q4 (lb)
VOC	33	33	33	34

### 4. Adjusted Increase in Permitted Emissions (AIPE)

AIPE is used to determine if BACT is required for emission units that are being modified. AIPE is calculated using the equations mentioned in Section 4.3 and 4.4 of Rule 2201.

$$AIPE = PE2 - \left( \frac{EF2}{EF1} \right) (PE1)$$

These tanks are new emission units. Therefore, AIPE calculations are not necessary.

D. Facility Emissions

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

Pursuant to Section 4.9 of District Rule 2201, SSPE1 is the Potential to Emit 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 (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions (AERs) that have occurred at the source, and which have not been used on-site. SSPE1 balance is as follows:

Category	VOC (lb/yr)
SSPE1	2,005,698
Major Source Thresholds	20,000
Major Source?	Yes

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

Pursuant to Section 4.10 of 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.

Category	VOC (lb/yr)
SSPE1	2,005,698
N-3386-477-1 to '-473-1	532
SSPE2	2,006,230
Offset Thresholds	20,000
Offsets Triggered?	Yes
Major Source Thresholds	20,000
Major Source?	Yes

3. Stationary Source Increase in Permitted Emissions (SSIPE)

It is District practice to define SSIPE as the difference between SSPE2 and SSPE1. Negative SSIPE will be equated to zero. SSIPE for this project is 532 lb-VOC/yr.

4. SB 288 Major Modification

The purpose of Major Modification calculations is to determine the following:

- A. If Best Available Control Technology (BACT) is triggered for a new or modified emission unit that results in a Major Modification (District Rule 2201, §4.1.3); and
- B. If a public notification is triggered (District Rule 2201, §5.4.1).

Per section VII.D.2 of this document, this facility is a Major Source for VOC emissions. To determine whether a Major Modification can be triggered, first net emissions increase (NEI) is determined, and then NEI is compared with the Major Modification threshold limit of 50,000 lb/year for VOC.

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. The proposed tanks are considered new for the purpose of this project; therefore, HE is equal to zero. So,

$$\begin{aligned} \text{NEI} &= \sum \text{PE2} \\ &= 532 \text{ lb-VOC/yr} \end{aligned}$$

NEI is not greater than 50,000 lb-VOC/yr. Therefore, the proposed project is not an SB 288 Major Modification for VOC.

5. Federal Major Modification

The purpose of Federal Major Modification calculations is to determine the following:

- A. If a Rule-compliance project qualifies for District Rule 2201's Best Available Control Technology (BACT) and offset exemptions (District Rule 2201, §4.2.3.5); and
- B. If an Alternate Siting analysis must be performed (District Rule 2201, §4.15.1);
- C. 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
- D. If a public notification is triggered. (District Rule 2201, §5.4.1).

Per section VII.D.2 of this document, this facility is a Major Source for VOC emissions. To determine whether a Major Modification can be triggered,

first net emissions increase (NEI) is determined, and then NEI is compared with the Major Modification threshold limit of 0 lb/year for VOC.

NEI can be calculated as the sum of the difference of the project actual emissions (PAE) and the baseline actual emissions (BAE) for the emissions units involved in this project. BAE is equal to zero since the proposed tanks are new tanks.

$$\begin{aligned} \text{NEI} &= \Sigma \text{PAE} \\ &= 532 \text{ lb-VOC/yr} \end{aligned}$$

NEI is greater than 0 lb-VOC/yr. Therefore, the proposed project is a Federal Major Modification for VOCs.

## VIII. COMPLIANCE

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

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

BACT requirements shall be triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless exempted pursuant to Section 4.2, BACT shall be required for the following actions:

- Any new emissions unit or relocation from one Stationary Source to another of an existing emissions unit with a Potential to Emit (PE2) exceeding 2.0 pounds in any one day;
- Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding 2.0 pounds in any one day;
- Any new or modified emissions unit, in a stationary source project, which results in a Major Modification, as defined in this rule.

Per section VII.C.2 of this document, PE2 from each tank is greater than 2.0 pounds per day. Thus, BACT is triggered for each storage tank.

Pursuant to the "Top-Down BACT Analysis" in Appendix II of this document, BACT has been satisfied with the following:

VOC: Insulated tank, pressure/vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas tight" tank operation and continuous storage temperature not exceeding 40°F.

The following conditions will be included in each permit. Please note that the equipment description of each permit will include that a tank is an "insulated tank", therefore, separate condition stating the "tank shall be insulated" is not included in each permit.

- 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]
- 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]
- The temperature of the wine stored in this tank shall be maintained at or below 40 degrees Fahrenheit. [District Rules 2201 and 4694]

## 2. Offsets

Per section VII.D.2 of this document, this facility's total VOC are above the offset threshold of 20,000 pounds per year. Therefore, offset calculations are required for this project.

Section 4.7.1 states that for pollutants with SSPE1 greater than the emission offset threshold levels, emission offsets shall be provided for all increases in Stationary Source emissions, calculated as the differences of post-project Potential to Emit (PE2) and the Baseline Emissions (BE) of all new and modified emissions units, plus all increases in Cargo Carrier emissions. Thus,

$EOQ = \Sigma(PE2 - BE) + ICCE$ , where

PE2 = Post-Project Potential to Emit (lb/yr)

BE = Baseline Emissions (lb/yr)

ICCE = Increase in Cargo Carrier emissions (lb/yr)

There is no increase in Cargo Carrier emissions from this project. Thus,

$EOQ = \Sigma(PE2 - BE)$

This facility is a Major Source for VOC. The proposed units are new emission units. Therefore, BE is equal to zero for each emission unit. Thus,

$EOQ = \Sigma PE2$

= 532 lb-VOC/yr

Per section 4.8.1 of Rule 2201, for NO<sub>x</sub> and VOC offsets for new Major Sources and Federal Major Modifications, the distance offset ratio shall be 1.5. This project triggers a Federal Major Modification. Therefore, the amount of offset would be 798 pounds per year (532 lb-VOC/yr × 1.5).

The applicant has proposed to use ERC S-3666-1 to offset the VOC increase from this project. This certificate has 80,000 pounds of VOC per quarter, significantly more than the required amount of 200 pounds of VOC per quarter. Therefore, this certificate is determined to be sufficient to offset the VOC increase from this project.

### 3. Public Notification

District Rule 2201, section 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 SSPE exceeding 20,000 lb/yr for any one pollutant

This project triggers a Federal Major Modification. Therefore, a 30-day public notice is required for this project.

### 4. Daily Emission Limits (DELs)

The daily emissions limitations (DELs) and other enforceable conditions are required by Section 3.17 to restrict a unit's maximum daily emissions. The following conditions will be included in each permit:

- The ethanol content of wine stored in this tank shall not exceed 14.0 percent by volume. [District Rule 2201]
- The maximum wine storage throughput in this tank shall not exceed 53,000 gallons per day. [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

The applicant is required to monitor the temperature of the wine stored in each tank on daily basis.

Recordkeeping

The facility will be required to keep 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, along with the records of total gallons of wine contained in a tank and temperature of the stored wine.

These records are required to be retained on-site for a period of at least five years and made available for District inspection upon request.

Reporting

No reporting is required to demonstrate compliance with Rule 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 (ethanol) for which AAQS does not exist; therefore, AAQA is not performed for this project.

7. Additional Requirements for new Major Sources and Federal Major Modifications

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

Compliance Certification

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. The compliance certification from the facility is included in Appendix IV of this document.

#### Alternative Siting Analysis

The current project occurs at an existing winery with a pre-project total wine tank volume of 86,242,565 gallons. With these four new tanks the wine tank volume would be 86,454,565 gallons, which represents an increase of 0.2% of the existing total wine tank volume. 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 is expected to result in the least possible impact to the environment 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.

Compliance is expected with this Rule.

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

E & J Gallo Winery 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. The applicant has requested to issue the ATCs with COC. Therefore, the following conditions will be included in each permit:

- 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 NSR Rule]
- 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 IV 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. E & J Gallo Winery is expected to notify the District by filing TV Form-008 upon

implementing the ATCs. The District Compliance Division is expected to submit a change order to implement ATCs into Permits to Operate (PTOs).

Compliance is expected with this Rule.

**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 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 storage tank operations.

**Rule 4102 Nuisance**

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. The following condition will be placed on each permit:

- 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 hazardous air pollutant (HAP) as defined by Section 44321 of the California Health and Safety Code. Therefore, health risk assessment is not necessary.

Compliance is expected with this Rule.

## **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.

The wine tanks at this facility are used for wine storage and bottling operations. No fermentation takes place at this site, even though some tanks (N-3386-93, and '-425 to '-430), are allowed as storage/fermentation tanks. This facility claims an exemption under Section 4.1 (Section 4.1 states, except for recordkeeping requirements specified in Section 6.4.4, this rule shall not apply to any winery which has a Baseline Fermentation Emissions of less than 10 tons per year) of Rule 4694 (12/15/2005). Therefore, requirements for fermentation tanks are not discussed in the following section.

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 condition will be included in the permits to ensure compliance with the requirements of Section 5.2.1:

- 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]
- 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 applicant has proposed to maintain the temperature of the stored wine at or below 40°F in the proposed tanks. The following condition will be included in the permits 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 40 degrees Fahrenheit. [District Rules 2201 and 4694]

Section 6.4.2 requires that weekly records be kept of wine volume and temperature of wine contained in each storage tank. The following conditions will enforce on-going compliance with this section. The recording frequency is consistent with similar permits issued to this facility under project N-1100247.

- 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 2201 and 4694]
- The operator shall record, on a daily basis, the total gallons of wine contained in the tank and temperature of the stored wine. [District Rules 2201 and 4694]

Section 6.4.4 states that the operators claiming exemption pursuant to Section 4.0 shall maintain annual records of the total gallons of red wine and the total gallons of white wine fermented at the winery, and total gallons of wine in storage tanks. Records submitted to the United States Department of Treasury - Alcohol and Tobacco Tax and Trade Bureau for the purpose of tax determination shall be adequate, provided the operator indicates the volumes of red and white wines fermented.

Facility-wide permit N-3386-0-3 (Condition 42) requires the facility to keep the records mentioned in the above section. Therefore, continued compliance is expected.

### **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 Significance Determination**

Terrestrial carbon sequestration is the process through which carbon dioxide (CO<sub>2</sub>) from the atmosphere is absorbed by trees, plants and crops through photosynthesis, and stored as carbon in biomass (tree trunks, branches, foliage and roots) and soils. The term "sinks" is also used to refer to forests, croplands, and grazing lands, and their ability to sequester carbon. Agriculture and forestry activities can also release CO<sub>2</sub> to the atmosphere. Therefore, a carbon sink occurs when carbon sequestration is greater than carbon releases over some time period.

Grape vines sequester CO<sub>2</sub> from the atmosphere to produce biomass, including grapes. Much of the CO<sub>2</sub> sequestered in grapes is in the form of glucose, which has a molecular weight of 180.16 g mol<sup>-1</sup>. CO<sub>2</sub> has a molecular weight of 44.01 g mol<sup>-1</sup>. Fermentation yields two molecules of CO<sub>2</sub> per each molecule of glucose, resulting in a conversion ratio of 48.86 percent, by weight. While these emissions are real, the amounts of carbon remaining sequestered in biomass and residual sugars in wine result in an overall long-term carbon balance which is considered to be a carbon sink.

Furthermore, CO<sub>2</sub> emissions resulting from fermentation processes and CO<sub>2</sub> emissions released when grape biomass decays at a future date originates from atmospheric CO<sub>2</sub>, which was absorbed by grape vines through photosynthesis. The, re-release of this short-term sequestered CO<sub>2</sub> into the atmosphere would not result in an overall increase in atmospheric CO<sub>2</sub>. Thus, these biogenic CO<sub>2</sub> emissions are considered to be carbon neutral.

**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 § 15031 (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 regulations is expected. Therefore, issuance of ATCs is recommended upon addressing comments from the public, EPA, CARB, and the applicant.

**X. BILLING INFORMATION**

Permit Number	Fee Schedule	Fee Description	Previous Fee Schedule
N-3386-470-1 to '-473-1	3020-05 D	53,000 gallons	None

**APPENDICES**

- Appendix I: Draft ATC Permits
- Appendix II: BACT Guideline and Top-Down BACT Analysis
- Appendix III: Emission Calculations - EPA's Tanks 4.0.d Sheets
- Appendix IV: Compliance Certification Documents

**Appendix I**  
**Draft ATC Permits**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO: N-3386-470-1

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

LOCATION: 600 YOSEMITE BLVD  
MODESTO, CA 95354

EQUIPMENT DESCRIPTION:  
MODIFICATION OF 53,000 GALLON STEEL WINE STORAGE TANK WITH PRESSURE/VACUUM VALVE AND  
INSULATION: TO RE-CALCULATE THE AMOUNT OF OFFSETS

**CONDITIONS**

1. The Authority to Construct N-3386-470-0 shall be cancelled upon implementation of this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
2. {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 NSR Rule] Federally Enforceable Through Title V Permit
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5. 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

N-3386-470-1 : Jul 21 2011 5:22PM - KAH/LONJ : Joint Inspection NOT Required

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475

6. The temperature of the wine stored in this tank shall be maintained at or below 40 degrees Fahrenheit. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit
7. The ethanol content of wine stored in this tank shall not exceed 14.0 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
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DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** N-3386-471-1

**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:**  
MODIFICATION OF 53,000 GALLON STEEL WINE STORAGE TANK WITH PRESSURE/VACUUM VALVE AND INSULATION: TO RE-CALCULATE THE AMOUNT OF OFFSETS

**CONDITIONS**

1. The Authority to Construct N-3386-471-0 shall be cancelled upon implementation of this permit. [District Rule 2201] Federally Enforceable Through Title V Permit
2. {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 NSR Rule] Federally Enforceable Through Title V Permit
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Seyed Sadredin, Executive Director / APCO

**DAVID WARNER, Director of Permit Services**  
N-3386-471-1 : Jul 21 2011 5:22PM - KAH, LONJ : Joint Inspection NOT Required

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DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO: N-3386-472-1

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:  
MODIFICATION OF 53,000 GALLON STEEL WINE STORAGE TANK WITH PRESSURE/VACUUM VALVE AND  
INSULATION: TO RE-CALCULATE THE AMOUNT OF OFFSETS

**CONDITIONS**

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Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services  
N-3386-472-1: Jul 21 2011 5:22PM - KAHLOJ : Joint Inspection NOT Required

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DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: N-3386-473-1

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:  
MODIFICATION OF 53,000 GALLON STEEL WINE STORAGE TANK WITH PRESSURE/VACUUM VALVE AND INSULATION: TO RE-CALCULATE THE AMOUNT OF OFFSETS

**CONDITIONS**

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Seyed Sadredin, Executive Director APCO

**DRAFT**

DAVID WARNER, Director of Permit Services  
N-3386-473-1; Jul 21 2011 6:22PM - KAHLOUJ : Joint Inspection NOT Required

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**Appendix II**  
**BACT Guideline 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 - Permit Specific BACT Determinations on Next Page(s)**

## 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, 3rd quarter 2009, 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). 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.

#### 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 information, 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 14% ethanol content in the wine being stored:

$$E_f \text{ (industry standard)} = 0.198 \text{ lb-VOC/1000 gal of wine throughput}$$

#### Uncontrolled emissions for Twelve-Tank Battery

$$\begin{aligned} \text{Uncontrolled Emissions} &= \text{Gallons Throughput/year} \times 0.1.98 \text{ lb-VOC/1000 gallons} \\ &= (39.6 \times 10^6 \text{ gal/year}) \times (0.198 \text{ lb-VOC/1000 gal}) \\ \text{Uncontrolled Emissions} &= 7,841 \text{ lb/year} \end{aligned}$$

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<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.

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Uncontrolled Emissions} \times 0.98 \\ &= 7,841 \text{ lb-VOC/year} \times 0.98 \\ &= 7,684 \text{ lb-VOC/year} \\ &= 3.84 \text{ tons-VOC/year} \end{aligned}$$

**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.
- A linear foot 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 2011 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.

**Fixed Capital Investment for Options 2, 3, 4 and 5**

Item	Qty	Unit	Unit Material Cost	Total Item Material Cost	Unit Labor Cost	Total Item Labor Cost	Unit Subcontract Price	Total Item Subcontract Cost	Total Item Direct Cost
<b>Direct Cost</b>									
6" Dia. Ducting	75	ft	\$32.11	\$2,408	\$29.20	\$2,190			\$4,598
12" Dia. Ducting	870	ft	\$75.33	\$65,537	\$68.49	\$59,586			\$125,123
Drilled Piers	32	ea.					\$1,000.00	\$32,000	\$32,000
Structural Steel Supports	1	lot	\$45,273	\$287,630	\$45,273	\$45,273			\$332,903
Direct Cost Subtotals				\$355,575		\$107,049		\$32,000	\$494,624
Sales Tax				\$28,446					\$28,446
Total Direct Cost				\$384,021		\$107,049		\$32,000	\$523,070
<b>Indirect Costs</b>									
Engineering @ 15% of Direct Cost									\$78,461
Construction Expense and Contractor's Fee @ 20% of Direct Cost									\$104,614
Contingency @ 15% of Fixed Capital Investment									\$124,614
Fixed Capital Investment (2005 Cost)									\$830,759
Escalation to 2011 @ 3%/year									\$161,211
Fixed Capital Investment (2011 Cost)									\$991,970

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 = \$991,970 × 0.163 = \$161,691

Cost Effectiveness = Annualized Cost/Annual Emission Reductions

**Cost Effectiveness = \$161,691/3.84 tons-VOC = \$42,107/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 maintain a continuous storage temperature of 40°F. These BACT requirements will be placed on the ATCs as enforceable conditions.

**Appendix III**  
**Emission Calculations - EPA's Tanks 4.0.d Sheets**

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Gallo Tanks Jag
City:	Modesto
State:	California
Company:	Gallo
Type of Tank:	Vertical Fixed Roof Tank
Description:	District Verification Run

**Tank Dimensions**

Shell Height (ft):	40.00
Diameter (ft):	15.00
Liquid Height (ft) :	40.00
Avg. Liquid Height (ft):	40.00
Volume (gallons):	51,554.93
Turnovers:	96.98
Net Throughput(gal/yr):	5,000,000.00
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)	2.00
Slope (ft/ft) (Cone Roof)	0.27

**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**

**Gallo Tanks Jag - Vertical Fixed Roof Tank**  
**Modesto, 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 14.0 % Vol Alcohol	All	40.00	40.00	40.00	40.00	0.1628	0.1628	0.1628	26.7874			19.35	Option 1: VP40 = .16276 VP50 = .24015

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Gallo Tanks Jag - Vertical Fixed Roof Tank**  
**Modesto, California**

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Annual Emission Calculations

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Standing Losses (lb):	0.0000
Vapor Space Volume (cu ft):	117.8097
Vapor Density (lb/cu ft):	0.0008
Vapor Space Expansion Factor:	0.0000
Vented Vapor Saturation Factor:	0.9943
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	117.8097
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	0.6667
Tank Shell Height (ft):	40.0000
Average Liquid Height (ft):	40.0000
Roof Outage (ft):	0.6667
<b>Roof Outage (Cone Roof)</b>	
Roof Outage (ft):	0.6667
Roof Height (ft):	2.0000
Roof Slope (ft/ft):	0.2700
Shell Radius (ft):	7.5000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0008
Vapor Molecular Weight (lb/lb-mole):	26.7874
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.1628
Daily Avg. Liquid Surface Temp. (deg. R):	499.6700
Daily Average Ambient Temp. (deg. F):	61.5458
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	499.6700
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,642.9167
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.1628
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.1628
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.1628
Daily Avg. Liquid Surface Temp. (deg R):	499.6700
Daily Min. Liquid Surface Temp. (deg R):	499.6700
Daily Max. Liquid Surface Temp. (deg R):	499.6700
Daily Ambient Temp. Range (deg. R):	25.6583
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9943
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.1628

Vapor Space Outage (ft):	0.6667
Working Losses (lb):	247.0604
Vapor Molecular Weight (lb/lb-mole):	26.7874
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.1628
Annual Net Throughput (gal/yr.):	5,000,000.0000
Annual Turnovers:	96.9839
Turnover Factor:	0.4760
Maximum Liquid Volume (gal):	51,554.9300
Maximum Liquid Height (ft):	40.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	247.0604

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

**Emissions Report for: Annual**

**Gallo Tanks Jag - Vertical Fixed Roof Tank  
Modesto, California**

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Wine 14.0 % Vol Alcohol	247.06	0.00	247.06



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	Gallo Tanks
City:	Modesto
State:	California
Company:	Gallo
Type of Tank:	Vertical Fixed Roof Tank
Description:	District Verification Run

**Tank Dimensions**

Shell Height (ft):	40.00
Diameter (ft):	15.00
Liquid Height (ft):	40.00
Avg. Liquid Height (ft):	20.00
Volume (gallons):	51,554.93
Turnovers:	31.00
Net Throughput(gal/yr):	1,598,202.83
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)	2.00
Slope (ft/ft) (Cone Roof)	0.27

**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**

**Gallo Tanks - Vertical Fixed Roof Tank**  
**Modesto, 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 14.0 % Vol Alcohol	Jul	40.00	40.00	40.00	40.00	0.1628	0.1628	0.1628	25.7874			19.35	Option 1: VP40 = .16276 VP50 = .24015

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Gallo Tanks - Vertical Fixed Roof Tank**  
**Modesto, California**

Month:	January	February	March	April	May	June	July	August	September	October	November	December
<b>Standing Losses (lb):</b>							0.0000					
Vapor Space Volume (cu ft):							3,652.1015					
Vapor Density (lb/cu ft):							0.0008					
Vapor Space Expansion Factor:							0.0009					
Vented Vapor Saturation Factor:							0.8487					
<b>Tank Vapor Space Volume:</b>							3,652.1015					
Vapor Space Volume (cu ft):							3,652.1015					
Tank Diameter (ft):							15.0000					
Vapor Space Outage (ft):							20.6667					
Tank Shell Height (ft):							40.0000					
Average Liquid Height (ft):							20.0000					
Roof Outage (ft):							0.6667					
<b>Roof Outage (Cone Roof)</b>							0.6667					
Roof Outage (ft):							0.6667					
Roof Height (ft):							2.0000					
Roof Slope (ft/ft):							0.2700					
Shell Radius (ft):							7.5000					
<b>Vapor Density</b>							0.0008					
Vapor Density (lb/cu ft):							0.0008					
Vapor Molecular Weight (lb/lb-mole):							26.7874					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.1628					
Daily Avg. Liquid Surface Temp. (deg. R):							499.6700					
Daily Average Ambient Temp. (deg. F):							77.6500					
Ideal Gas Constant R (psia-cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							499.6700					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation Factor (Btu/soft day):							2,688.0000					
<b>Vapor Space Expansion Factor</b>							0.0009					
Vapor Space Expansion Factor:							0.0009					
Daily Vapor Temperature Range (deg. R):							0.0000					
Daily Vapor Pressure Range (psia):							0.0000					
Breather Vent Press. Setting Range (psia):							0.0000					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.1628					
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.1628					
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.1628					
Daily Avg. Liquid Surface Temp. (deg R):							499.6700					
Daily Min. Liquid Surface Temp. (deg R):							499.6700					
Daily Max. Liquid Surface Temp. (deg R):							499.6700					
Daily Ambient Temp. Range (deg. R):							33.5000					
<b>Vented Vapor Saturation Factor</b>							0.8487					
Vented Vapor Saturation Factor:							0.8487					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.1628					
Vapor Space Outage (ft):							20.6667					
<b>Working Losses (lb):</b>							165.9058					
Vapor Molecular Weight (lb/lb-mole):							26.7874					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.1628					
Net Throughput (gal/mo.):							1,599,202.8300					
Annual Turnovers:							31.0000					
Turnover Factor:							1.0000					
Maximum Liquid Volume (gal):							51,554.8300					
Maximum Liquid Height (ft):							40.0000					
Tank Diameter (ft):							15.0000					
Working Loss Product Factor:							1.0000					
<b>Total Losses (lb):</b>							165.9058					

**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**

**Gallo Tanks - Vertical Fixed Roof Tank**  
**Modesto, California**

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Wine 14.0 % Vol Alcohol	165.91	0.00	165.91



TANKS 4.0  
Chemical Data Report

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Chemical Name Category	CAS	Molecular Weight		Density*	Vapor Pressure (psia) at Temperature (degrees F)						Constants for Antoine's Equation			REID (psia)	ASTM Slope	
		Liquid	Vapor		40	50	60	70	80	90	100	Line 1: degrees C A	Line 2: degrees K B			C
Wine 14.0 % Vol Alcohol Organic Liquids		19.35	26.79	8.20	0.16	0.24	0.35	0.50	0.71	0.99	1.36					

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**Appendix IV**  
**Compliance Certification Documents**



# E&J Gallo Winery

8/18/11

Mr. Rupi Gill  
San Joaquin Valley Air Pollution Control District  
4800 Enterprise Way  
Modesto CA 95356-8718

**Subject: Compliance Statement for E&J Gallo Winery - Modesto**

Dear Mr. Gill:

In accordance with Rule 2201, Section 4.15, "Additional Requirements for New Major Sources and Federal Major Modifications," E&J Gallo Winery - Modesto is pleased to provide this compliance statement regarding its proposed (4) Wine Bottling Tanks project N-1111823.

All major stationary sources in California owned or operated by E&J Gallo Winery - Modesto, or by any entity controlling, controlled by, or under common control with E&J Gallo Winery - Modesto, and which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards. These sources include one or more of the following facilities:

E&J Gallo Winery: 600 Yosemite Blvd. Modesto, CA 95354

E&J Gallo - Brandy: 200 Yosemite Blvd. Modesto, CA 95354

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Please contact me if you have any questions regarding this certification.

Sincerely,

Doug Reifsteck  
Vice President - Modesto Bottling and Cellar Operations

**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  
 MINOR PERMIT MODIFICATION

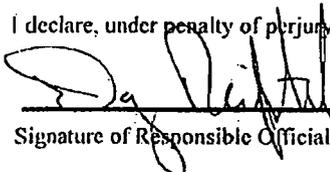
ADMINISTRATIVE  
AMENDMENT

COMPANY NAME: <b>E&amp;J Gallo Winery</b>	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: <b>E&amp;J Gallo Winery</b>	
3. Agent to the Owner: <b>Steven Sylvester</b>	

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

- Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the source 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:

  
\_\_\_\_\_  
Signature of Responsible Official

6/17/11  
\_\_\_\_\_  
Date

**Doug Reifsteck**

\_\_\_\_\_  
Name of Responsible Official (please print)

**Vice President – Modesto Bottling and Cellar Operations**

\_\_\_\_\_  
Title of Responsible Official (please print)

PROJECT # N-111823