JUN 0 6 2013

Ms. Christine Ryan
E&J Gallo Winery - Brandy
600 Yosemite Blvd.,
Modesto, CA 95354

Re: **Proposed ATC / Certificate of Conformity (Significant Mod)**
     District Facility # N-7478
   **Project # N-1130542**

Dear Ms. Ryan:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is to install three 15,000 gallon (each) stainless steel spirits storage tanks.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authorities to Construct with Certificates 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 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,
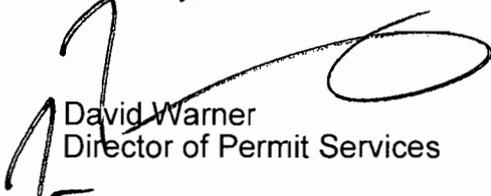
David Warner
Director of Permit Services

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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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 significant modification of E&J Gallo Winery - Brandy at 200 Yosemite Blvd., in Modesto, California. This project is to install three 15,000 gallon (each) stainless steel spirits storage tanks.

The District's analysis of the legal and factual basis for this proposed action, project #N-1130542, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and at any District office. The emissions increase associated with this proposed action will be mitigated by providing sufficient amount of offsets in the form of emission reduction credits. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact the District at (209) 557-6400. Written comments on the proposed initial permit must be submitted by July 11, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356.**

San Joaquin Valley Air Pollution Control District
Authority to Construct

Install 3 New Distilled Spirits Storage Tanks

Facility Name:	E&J Gallo Winery - Brandy	Revised Date:	May 29, 2013
Mailing Address:	600 Yosemite Blvd.,	Engineer:	Wai-Man So
	Modesto, CA 95354	Lead Engineer:	Nick Peirce
Contact Person:	Christine Ryan (Environmental Manager)		
Telephone:	(209) 341 – 8591	Cell: (209) 568 – 7297	
Fax:	(209) 341 – 1536		
Email:	christine.ryan@ejgallo.com		
Application #(s):	N-7478-33-0 through -35-0		
Project #:	N-1130542		
Deemed Complete:	April 2, 2013		

I. PROPOSAL

E & J Gallo Winery - Brandy is requesting Authority to Construct (ATC) permits for the installation of three 15,000 gallon (each) stainless steel tanks for distilled spirits storage and support the bottling operation. These insulated tanks will be equipped with pressure-vacuum (PV) relief valves, and installed outdoor.

E & J Gallo Winery 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 ATCs with a Certificate of Conformity (COC), which is EPA's 45-day review of the project prior to the issuance of the final ATCs. 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)

District Rule 4695   Bandy Aging and Wine Aging Operations (09/17/09)
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 200 Yosemite Boulevard in Modesto, California. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code, Section 42301.6 is not applicable to this project.

IV.   PROCESS DESCRIPTION

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

V.   EQUIPMENT LISTING

Permit Unit	Equipment Description
N-7478-33-0	15,000 GALLON STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #12 WITH PRESSURE/VACUUM RELIEF VALVE AND INSULATION
N-7478-34-0	15,000 GALLON STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #13 WITH PRESSURE/VACUUM RELIEF VALVE AND INSULATION
N-7478-35-0	15,000 GALLON STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #14 WITH PRESSURE/VACUUM RELIEF VALVE AND INSULATION

VI.   EMISSION CONTROL TECHNOLOGY EVALUATION

VOCs (ethanol) are emitted from distilled spirits 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). These 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. These tanks will be insulated, when the storage tanks are insulated, the breathing losses are considered to be negligible.

VII.   EMISSIONS CALCULATIONS

A.   Assumptions

- VOC is the only pollutant concern associated to this project.
- Maximum ethanol content in each tank is 99.9% volume (per applicant).
- Maximum average annual ethanol content in each tank is 99.9% volume (per applicant).
- Daily throughput for each tank is 29,032 gallons (per applicant)[1].
- Annual throughput for each tank is 900,000 gallons (per applicant).
- The emissions will be determined by modeling the tank with EPA's Tanks 4.0.9d software in conformance with the District's Policies, FYI-114 and FYI-295, for modeling emissions from ethanol/water storage tanks.
- Other assumptions will be stated as they are made.

B.   Emission Factors (EF)

N-7478-33-0 through -35-0

Pre-Project Emission Factor (EF1)

These tanks are new emission units. Therefore, EF1 is equal to zero for each unit.

Post-Project Emission Factor (EF2)

The VOC emission from each tank is calculated using EPA's Tanks 4.0.9d program. Therefore, a separate emission factor is not necessary.

C.   Potential to Emit (PE)

1.   Daily and Annual PE

N-7478-33-0 through -35-0

Pre-Project Potential Emissions (PE1)

These tanks are new emissions units. Therefore, PE1 is equal to zero for each unit.

Post-Project Potential Emissions (PE2)

The applicant proposed to install three identical 15,000 gallon (each) tanks. Therefore, only single calculation will be performed.

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[1] The daily throughput is calculated based on the annual throughput divided by 31 days (900,000 gallon ÷ 31 day = 29,032 gallon/day).

3

EPA's Tanks 4.0.9d program is used to determine vapor emissions (ethanol and water mixture) using a custom chemical database for the wine with the maximum average annual ethanol concentration and the maximum ethanol concentration, each of 99.9% volume, and the daily and annual average wine storage temperature of 77.3°F and 61.6°F respectively for Northern Region per FYI-295. See chemical database information and the Tanks 4.0.9d program reports in Appendix V of this document.

As listed in the chemical database, the average molecular weight (AMW) of the vapor from this mixture is 45.92 lb/mole for 99.9% ethanol. VOCs (ethanol) emissions are determined as follows:

$$AMW = y_a \times MW_a + (1 - y_a) \times MW_w,$$

Where,
AMW = Average Molecular Weight, (lb/mole)
ya = Molar fraction of ethanol,
MW_a = Molecular weight of ethanol, 46.02 (lb/mole)
MW_w = Molecular weight of water, 18.02 (lb/mole)

Solving for the molar fraction of ethanol,

$$ya = [AMW - MW_w] \div [MW_a - MW_w]$$

Annual Emissions

Per Tanks 4.0.9d's report, the annual emission from each tank is summarized below:

Annual PE (ethanol and water emissions) = 456.31 lb/year

With the maximum ethanol concentration of 99.9 % volume, the molar fraction of ethanol in the mixture is calculated to:

$$
\begin{aligned}
ya &= [AMW - MW_w] \div [MW_a - MW_w] \\
&= [45.92 - 18.02] \div [46.02 - 18.02] \\
&= 0.9964
\end{aligned}
$$

$$
\begin{aligned}
\text{Annual PE (ethanol)} &= \{[\text{Annual PE (ethanol and water)}/AMW] \times ya \times MW_a\} \\
&= \{[456.31/45.92] \times 0.9964 \times 46.02\} \\
&= 456 \text{ lb-ethanol/year (lb-VOC/year)}
\end{aligned}
$$

Daily Emissions:

Per Tanks 4.0.9d's reports, the monthly emission (July) from each tank is summarized below:

Monthly PE (ethanol and water emissions) = 767.30 lb/month

The daily emission is calculated by dividing the month of July emissions by the number of days in the month, of 31 days.

Daily PE (ethanol and water emissions)   = 767.30 lb/month ÷ 31 day/month
                                                    = 24.75 lb/day

As calculated above, the molar fraction of ethanol in this mixture with maximum ethanol concentration of 99.9 % volume is equal to, y_a = 0.9964.

Daily PE (ethanol)   = {[Daily PE (ethanol and water)/AMW] x y_a x MW_a}
                        = {[24.75/45.92] x 0.9964 x 46.02}
                        = 24.7 lb-ethanol/day (lb-VOC/day)

The daily and annual post-project potential emissions from these new tanks are summarized in the table below:

Permit Unit	Daily PE (lb-VOC/day)	Annual PE (lb-VOC/year)
N-7478-33-0	24.7	456
N-7478-34-0	24.7	456
N-7478-35-0	24.7	456

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 (lb/quarter) = [Annual PE2 – Annual PE1] (lb/year) / 4 (quarter/year)

The quarterly VOC emission for each permit unit is listed as follow:

| Permit | Quarterly Net Emission Changes (QNEC) | | | |
	1st Quarter (lb-VOC/quarter)	2nd Quarter (lb-VOC/quarter)	3rd Quarter (lb-VOC/quarter)	4th Quarter (lb-VOC/quarter)
N-7478-33-0	114	114	114	114
N-7478-34-0	114	114	114	114
N-7478-35-0	114	114	114	114

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.

These tanks are new emissions units. 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-3386 (E & J Gallo Winery), 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 summarized in the following table. See detail SSPE1 values in Appendix II of this document,

Permit Number	Pollutants (lb/year)				
	NO_x	SO_x	PM_{10}	CO	VOC
SSPE1 (N-3386 & N-7478)	15,339	954	72,977	56,030	309,316
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_x	SO_x	PM_{10}	CO	VOC
SSPE1 (N-3386 & N-7478)	15,339	954	72,977	56,030	309,316
ATC N-7478-33-0	0	0	0	0	456
ATC N-7478-34-0	0	0	0	0	456
ATC N-7478-35-0	0	0	0	0	456
SSPE2	15,339	954	72,977	56,030	310,684
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_x	SO_x	PM_{10}	CO	VOC
SSPE2	15,339	954	72,977	56,030	310,684
SSPE1	15,339	954	72,977	56,030	309,316
SSIPE	0	0	0	0	1,368

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_x	SO_x	PM_{10}	CO	VOC
SSPE1	15,339	954	72,977	56,030	309,316
SSPE2	15,339	954	72,977	56,030	310,684
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Existing Major Source?	No	No	No	No	Yes

As seen above, 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-3386 (E & J Gallo Winery), 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_2e emissions from this stationary source including wine fermentation operations and all fossil fuel fired equipment are calculated to 16,287.8 ton-CO_2e/year. See detail PSD Major Source Determination Calculations in Appendix III of this document.

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	7.7	154.7	0.5	28.0	36.5	36.5	16,287.8
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 these are new emissions units, the baseline emissions are equal zero.

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 a 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 tanks is calculated to 1,368 pounds of VOC per year.

$NEI = \sum(PE2)_{New} = 1,368$ lb-VOC/year

SB 288 Major Modification Threshold and Determination			
Pollutant	NEI (lb/year)	Thresholds (lb/year)	SB 288 Major Modification?
VOC	1,368	50,000	No

As indicated above, 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 and

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 significance 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 tanks is equal to 1,368 pounds of VOC per year. Thus, NEI = 1,368 lb-VOC/year.

Federal Major Modification Threshold and Determination			
Pollutant	NEI (lb/year)	Thresholds (lb/year)	Federal Major Modification?
VOC	1,368	0	Yes

As indicated above, 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.

PSD Major Source Determination: Potential to Emit (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Total PE from New and Modified Units	0	0.7	0	0	0	0	0
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
New PSD Major Source ? (Y/N)	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 $SSPE2_{CO}$ is less than 200,000 lb/yr. As well, BACT may be triggered if the modification is SB 288 Major Modification or Federal Major Modification per Section 4.1.3.

As shown in Section VII.C.1, PE of VOC emission from each 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 each tank associated with this project.

BACT Guideline 5.4.15 lists VOC emissions control requirements for Distilled Spirits 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[2], Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation	1. Capture of VOC and thermal or catalytic oxidation or equivalent (98% control) 2. Capture of VOC and carbon adsorption or equivalent (95% control) 3. Capture of VOC and absorption or equivalent (90% control) 4. Refrigerated storage (70% control)

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

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[2] Tank located indoor in a climate controlled building to limit exposure to diurnal temperature variations.

Pursuant to the analysis, BACT for VOC emissions has been satisfied with the following: insulated, pressure vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas-tight" tank operation.

The following conditions will be listed on each 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]*

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:

Emission offset = Σ (PE2 – BE) x DOR + 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 result of this project, and the proposed project constitutes a Federal Major Modification, which result DOR = 1.5. Then,

Emission offset = Σ(PE2 – BE) x 1.5 + 0

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

This project involves only new emission units and no modification to the existing units. Therefore, PE2 = BE for each existing unit, results $\Sigma(PE2 – BE)_{Existing\ units}$ = 0. Thus,

Emission offset = $\Sigma(PE2 – BE)_{New\ units}$ x 1.5, where for new emission unit, BE = 0. Thus,

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

As shown in Section VII.C.2 of this document, the quarterly emissions from these three new units are summarized in the table below.

Permit Unit	VOC				
	1st Qr (lb)	2nd Qr (lb)	3rd Qr (lb)	4th Qr (lb)	Total (lb)
N-7478-33-0	114	114	114	114	456
N-7478-34-0	114	114	114	114	456
N-7478-35-0	114	114	114	114	456
Total					1,368

Total potential emission from these three new units is calculated to 1,368 lb-VOC/year.

With the Distance Offset Ratio of 1.5, the emission offset required from these three new units are summarized in the table below.

Permit Unit	VOC				
	1st Qr (lb)	2nd Qr (lb)	3rd Qr (lb)	4th Qr (lb)	Total (lb)
N-7478-33-0	171	171	171	171	684
N-7478-34-0	171	171	171	171	684
N-7478-35-0	171	171	171	171	684
Total	513	513	513	513	2,052

Therefore, the emission offset required for this project is calculated to 2,052 lb-VOC/year.

As shown above, offset are required for this project. The applicant has proposed to utilize ERC certificate S-4025-1 (or the successor of this certificate) to offset the increase of VOC emissions in this project. The available credit on this certificate is listed in the table below:

ERC S-4025-1	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
VOC	44,473	44,472	44,465	44,397

The amount of credit of the ERC certificate, S-4025-1 after offset is summarized in the table below:

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
Available Offset	44,473	44,472	44,465	44,397
Total Reserved	(24,004)	(24,004)	(24,066)	(24,090)
Minus Offset required for this project	(513)	(513)	(513)	(513)
Remaining Offset	19,956	19,956	19,886	19,794

Therefore, the ERC certificate S-4025-1 has sufficient credits to fully offset the increase of VOC emissions in this project.

To ensure the emission credits from ERC Certificate S-4025-1 utilize for offset the increase of VOC emissions in this project, the following conditions will be listed on each ATC:

- *ERC certificate S-4025-1 (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: 1st quarter - 114 lb, 2nd quarter - 114 lb, 3rd quarter - 114 lb, and 4th quarter - 114 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 Federal Major Modification under Rule 2201. 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 each permit:

N-7478-33-0 and N-7478-35-0:

- *The daily VOC emissions for distilled spirits storage shall not exceed 24.7 pounds. [District Rule 2201]*

- *The daily distilled spirits storage throughput of this tank shall not exceed 29,032 gallons. [District Rule 2201]*

- *The maximum ethanol concentration of the distilled spirits stored in this tank shall not exceed 99.9 percent of volume. [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. Therefore, the following conditions will be listed on each permit:

- *The permittee shall maintain the following records: a) the maximum ethanol concentration in volume percent of the distilled spirits stored, b) the daily throughout, and c) the calculated 12 month rolling distilled spirits throughput rate (gallons per 12 month rolling period, calculated monthly). [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 Sources 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:

The current project occurs at an existing facility with a pre-project total tank volume of 86,677,065 gallons[3]. The applicant proposes to install new storage tanks totaling 45,000 gallons in volume, which represents an increase of 0.05% of the existing total tank volume. In addition to tanks, the operation of a winery requires a large number support equipment, services and structures such as raw material receiving stations, crushers, piping, filtering and refrigeration units, warehouses, laboratories, bottling and shipping facilities, and administration buildings.

Since the current project involves only a minimal increase in the facility's total tank volume and no change to any other facets of the operation, installing the proposed emission units at 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 is required 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 VI 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

E&J Gallo Winery – Brandy 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

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[3]The total tank capacity of this stationary source is taken from engineering evaluation N-1121092.

Modification under Rule 2201. Therefore, the following conditions will be listed on each 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 VI 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 – Brandy is expected to notify the District by filing the appropriate TV modification application forms upon implementing the ATCs. 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 distilled spirits manufacturing 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 distilled spirits manufacturing 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 Ringlemann 1 or equivalent to 20% opacity. Therefore, the following condition will be listed on each 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]*

Compliance with the requirements of this Rule is expected.

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 condition will be listed on each 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 a 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.

Compliance with the requirements of this Rule is expected.

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 tanks will be used to store distilled spirits. 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 new tanks will be used for only distilled spirits storage and support the bottling operation in the brandy manufacturing facility.

Only 7 out of 398 tanks in facility N-3386 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.

District Rule 4695   Brandy Aging and Wine aging Operations

The purpose of this rule is to limit volatile organic compound (VOC) emissions from brandy aging and wine aging operations.

Section 3.1 of this rule states that aging is to keep, in a non-temporary or transient manner, brandy or wine in containers with the objective of acquiring desirable characteristic from contact with wood.

The proposed new stainless steel tanks will be used for distilled spirits storage and support the bottling operation. Therefore, the requirement of this rule does not apply to this project.

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 § 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 rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct N-7478-33-0 through N-7478-35-0 subject to the permits conditions listed on the attached draft Authorities to Construct in Appendix I.

X.   BILLING INFORMATION

Annual Permit Fees				
Permit Number	Previous Fee Schedule	Fee Schedule	Fee Description	Annual Fee
N-7478-33-0	N/A	3020-05-B (5,000 or Greater but less than 20,000 gallon)	15,000 gallons	$ 93
N-7478-34-0				$ 93
N-7478-35-0				$ 93

APPENDICES

Appendix I: Draft Authorities to Construct (ATC)
Appendix II: SSPE1 Calculations
Appendix III: PSD Major Source Determination
Appendix IV: BACT Guideline & Top-Down BACT Analysis
Appendix V: EPA's Tanks 4.0.9d Reports
Appendix VI: Compliance Certification

Appendix I

Draft Authorities to Construct (ATC)
N-7478-33-0 through N-7478-35-0

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-7478-33-0

ISSUANCE DATE: DRAFT

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

LOCATION:
200 YOSEMITE AVE
MODESTO, CA 95353

EQUIPMENT DESCRIPTION:
15,000 GALLON STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #12 WITH PRESSURE/VACUUM RELIEF VALVE AND INSULATION

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 - 114 lb, 2nd quarter - 114 lb, 3rd quarter - 114 lb, and 4th quarter - 114 lb. Offsets shall be provided at an offset ratio 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit

4. ERC certificate S-4025-1 (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] Federally Enforceable Through Title V Permit

5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director/APCO

DAVID WARNER, Director of Permit Services
N-7478-33-0 : May 29 2013 9:22AM – SCW : Joint Inspection NOT Required

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]

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 daily VOC emissions for distilled spirits storage shall not exceed 24.7 pounds. [District Rule 2201] Federally Enforceable Through Title V Permit

10. The daily distilled spirits storage throughput of this tank shall not exceed 29,032 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum ethanol concentration of the distilled spirits stored in this tank shall not exceed 99.9 percent of volume. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum distilled spirits storage throughput in this tank, calculated on a 12 month rolling basis, shall not exceed 900,000 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The permittee shall maintained the following records: a) the maximum ethanol concentration in volume percent of the distilled spirits stored, b) the daily throughput, and c) the calculated 12 month rolling distilled spirits throughput rate (gallons per 12 month rolling period, calculated monthly). [District Rule 2201] Federally Enforceable Through Title V Permit

14. 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] Federally Enforceable Through Title V Permit

DRAFT

AUTHORITY TO CONSTRUCT

PERMIT NO: N-7478-34-0

ISSUANCE DATE: DRAFT

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

LOCATION: 200 YOSEMITE AVE
MODESTO, CA 95353

EQUIPMENT DESCRIPTION:
15,000 GALLON STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #13 WITH
PRESSURE/VACUUM RELIEF VALVE AND INSULATION

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 - 114 lb, 2nd quarter - 114 lb, 3rd quarter - 114 lb, and 4th quarter - 114 lb. Offsets shall be provided at an offset ratio 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit

4. ERC certificate S-4025-1 (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] Federally Enforceable Through Title V Permit

5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director/APCO

DAVID WARNER, Director of Permit Services
N-7478-34-0 May 29 2013 9.22AM – SOW : Joint Inspection NOT Required

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]

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 daily VOC emissions for distilled spirits storage shall not exceed 24.7 pounds. [District Rule 2201] Federally Enforceable Through Title V Permit

10. The daily distilled spirits storage throughput of this tank shall not exceed 29,032 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum ethanol concentration of the distilled spirits stored in this tank shall not exceed 99.9 percent of volume. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum distilled spirits storage throughput in this tank, calculated on a 12 month rolling basis, shall not exceed 900,000 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The permittee shall maintained the following records: a) the maximum ethanol concentration in volume percent of the distilled spirits stored, b) the daily throughput, and c) the calculated 12 month rolling distilled spirits throughput rate (gallons per 12 month rolling period, calculated monthly). [District Rule 2201] Federally Enforceable Through Title V Permit

14. 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] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-7478-35-0

ISSUANCE DATE: DRAFT

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

LOCATION: 200 YOSEMITE AVE
MODESTO, CA 95353

EQUIPMENT DESCRIPTION:
15,000 GALLON STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #14 WITH PRESSURE/VACUUM RELIEF VALVE AND INSULATION

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 - 114 lb, 2nd quarter - 114 lb, 3rd quarter - 114 lb, and 4th quarter - 114 lb. Offsets shall be provided at an offset ratio 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit

4. ERC certificate S-4025-1 (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] Federally Enforceable Through Title V Permit

5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director/APCO

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]

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 daily VOC emissions for distilled spirits storage shall not exceed 24.7 pounds. [District Rule 2201] Federally Enforceable Through Title V Permit

10. The daily distilled spirits storage throughput of this tank shall not exceed 29,032 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum ethanol concentration of the distilled spirits stored in this tank shall not exceed 99.9 percent of volume. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum distilled spirits storage throughput in this tank, calculated on a 12 month rolling basis, shall not exceed 900,000 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The permittee shall maintained the following records: a) the maximum ethanol concentration in volume percent of the distilled spirits stored, b) the daily throughput, and c) the calculated 12 month rolling distilled spirits throughput rate (gallons per 12 month rolling period, calculated monthly). [District Rule 2201] Federally Enforceable Through Title V Permit

14. 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] Federally Enforceable Through Title V Permit

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Appendix II

SSPE1 Calculations

SSPE1 Calculations:

N-3386

Permit Unit	Pollutant (lb/year)				
	NO$_X$	SO$_X$	PM$_{10}$	CO	VOC
N-3386-1-10	1,022	256	1,278	21,024	256
N-3386-2-8	1,650	261	1,283	27,130	247
N-3386-3-7	1,627	255	679	1,967	257
N-3386-5-3	0	0	3,696	0	0
N-3386-6-3	0	0	105	0	0
N-3386-10-3	0	0	0	0	861
N-3386-13-3	0	0	0	0	0
N-3386-16-3	0	0	0	0	0
N-3386-17-3	0	0	0	0	0
N-3386-23-6	107	0	6	135	16
N-3386-24-4	0	0	0	0	569
N-3386-26-3	89	0	3	64	24
N-3386-27-2	710	1	11	74	32
N-3386-28-4	324	0	15	185	49
N-3386-29-3	3,499	5	81	233	10
N-3386-31-1	0	0	0	0	0
N-3386-33-1 thru -430-1 and -467-1	0	0	0	0	32,160[4] (32,082 + 78)
N-3386-469-2	0	0	225	0	633
N-3386-470-1	0	0	0	0	532
N-3386-471-1	0	0	0	0	
N-3386-472-1	0	0	0	0	
N-3386-473-1	0	0	0	0	
N-3386-474-1	0	0	613	0	0
N-3386-475-1	0	0	64,509	0	0
N-3386-476-0	0	0	0	0	133
N-3386-477-0	0	0	0	0	133
N-3386-478-0	0	0	0	0	133
N-3386-479-0	0	0	0	0	133
N-3386-480-0	0	0	0	0	133
N-3386-481-0	0	0	0	0	133
N-3386-482-0	0	0	0	0	133
N-3386-483-0	0	0	0	0	133
Total	**8,736**	**778**	**72,504**	**50,809**	**36,710**

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[4] This value includes VOC emissions from wine storage operation for these permit units (32,082 lb-VOC per engineering evaluation N-1053430), plus the VOC emission from white wine fermentation operation under permit units N-3386-33, N3386-425 through N-3386-430. See detail fermentation VOC emissions calculation in the following page.

The above emission profiles were obtained from different engineering evaluation documents, which project numbers are summarized in the following table.

Permit Units	Engineering Evaluation – Project Number
N-3386-1-10 thru -31-1	N-1094803
N-3386-33-1 thru -430-1 & -467-1	N-1094803 (and N-1053430)
N-3386-469-2	N-1094803 (and N-1074322)
N-3386-470-1 thru -473-1	N-1111823
N-3386-474-0 and -475-0	N-1111118
N-3386-476-0 thru -483-0	N-1111273

VOC emission from fermentation operations calculation:

Per engineering evaluation N-1053430, all storage tanks under permit units N-3386-3 thru N-3386-430 and N-3386-467 will be used only for storage of wine. However, per applicant's email, date April 2, 2013, seven tanks under permit units N-3386-93, and N-3386-425 thru N-3386-430 will be used for both fermentation and storage of white wine.

Therefore, the VOC emissions from the white wine fermentation operation are calculated below:

Emissions factor is taken from District FYI-114, *VOC Emission Factors for Wine Fermentation and Storage Tanks (6/13/12)*, as follows:

Wine Type	EF2 (lb-VOC/1,000 gallon of wine)		Source
	Daily	Annual	
White	1.62	2.5	FYI-114

Per applicant, the annual fermentation throughput is equal to one turnover rate of each size of tank for these seven tanks.

The potential annual VOC emission from these tanks is calculated as follows:

Annual PE2 = EF_{white} (lb-VOC/1,000 gal) x tank capacity (gal/tank) x turnover rate (tank/yr)

Permit Unit	Annual EF (lb-VOC/1,000 gal)	Tank Capacity (gallon)	Turnover Rate (tank/year)	Annual PE (lb/year)
N-3386-93-1	2.5	19,359	1	48
N-3386-425-1	2.5	1,990	1	5
N-3386-426-1	2.5	1,990	1	5
N-3386-427-1	2.5	1,990	1	5
N-3386-428-1	2.5	1,990	1	5
N-3386-429-1	2.5	1,990	1	5
N-3386-430-1	2.5	1,990	1	5
Total				78

N-7478

Permit Unit	Pollutant (lb/year)				
	NO_x	SO_x	PM_{10}	CO	VOC
N-7478-1-4	2,628	75	200	2,208	89,556
N-7478-2-4	3,504	100	266	2,943	123,271
N-7478-3-3	0	0	0	0	4,931
N-7478-4-2	471	1	7	70	32
N-7478-5-1	0	0	0	0	101
N-7478-6-1	0	0	0	0	139
N-7478-7-1	0	0	0	0	216
N-7478-8-1	0	0	0	0	273
N-7478-9-1	0	0	0	0	23
N-7478-10-1	0	0	0	0	23
N-7478-11-1	0	0	0	0	296
N-7478-12-1	0	0	0	0	4,136
N-7478-13-1	0	0	0	0	4,111
N-7478-14-1	0	0	0	0	3,145
N-7478-15-1	0	0	0	0	3,123
N-7478-16-1	0	0	0	0	3,138
N-7478-17-1	0	0	0	0	3,133
N-7478-18-1	0	0	0	0	3,148
N-7478-19-1	0	0	0	0	3,139
N-7478-20-1	0	0	0	0	3,148
N-7478-21-1	0	0	0	0	3,134
N-7478-22-1	0	0	0	0	3,139
N-7478-23-1	0	0	0	0	3,153
N-7478-24-1	0	0	0	0	3,155
N-7478-25-1	0	0	0	0	5,643
N-7478-26-2	0	0	0	0	2,465
N-7478-27-2	0	0	0	0	2,465
N-7478-28-1	0	0	0	0	74
N-7478-29-1	0	0	0	0	74
N-7478-30-1	0	0	0	0	74
N-7478-31-1	0	0	0	0	74
N-7478-32-1	0	0	0	0	74
Total	**6,603**	**176**	**473**	**5,221**	**272,606**

The above emission profiles were obtained from different engineering evaluation documents, which project numbers are summarized in the following table.

Permit Units	Engineering Evaluation – Project Number
N-7478-1-4 and -2-4	N-1094803 (and N-1062294)
N-7478-3-3	N-1121902
N-7478-4-2	N-1094803 (and N-1093232)
N-7478-5-1 thru -25-1	N-1113336
N-7478-26-2 thru -32-1	N-1121092

The pre-project stationary source potential to emit (SSPE1) values for facilities N-3386 and N-7478 are summarized in the following table.

SSPE1

Facility	Pollutant (lb/year)				
	NO_X	SO_X	PM_{10}	CO	VOC
N-3386	8,736	778	72,504	50,809	36,710
N-7478	6,603	176	473	5,221	272,606
Total	15,339	954	72,977	56,030	309,316

Appendix III

PSD Major Source Determination

PSD Major Source Determination:

As calculated in Section VII.D.1 of this document, the SSPE VOC emission before the proposal project is calculated to 309,316 pounds of VOC per year, equivalent to 154.7 tons of VOC per year.

Facility N-3386 is a winery, which tanks could be used for fermentation and storage of wines. Facility N-7478 is a distilled spirits processing facility, which tanks will not be used for fermentation operation.

CO_2 emissions from the white wine fermentation operation:

Per applicant's email, date April 2, 2013, except the following seven tanks: tank #216 (permit unit N-3386-93), and tank #C1 thru C6 (permit units N-3386-425 thru 430), all other tanks in facility N-3836 will be used only for storage of wine. These seven wine fermentation and storage tanks will be used only for fermentation of white wine. The annual fermentation throughput and maximum ethanol content for each of these seven tanks are summarized in the following table:

Permit Unit	Maximum Ethanol Content (%)	Annual Fermentation Throughput (gal/year)
N-3386-93-1 (Tank #216)	11.5	19,359
N-3386-425-1 (Tank #C1)	11.5	1,990
N-3386-426-1 (Tank #C2)	11.5	1,990
N-3386-427-1 (Tank #C3)	11.5	1,990
N-3386-428-1 (Tank #C4)	11.5	1,990
N-3386-429-1 (Tank #C5)	11.5	1,990
N-3386-430-1 (Tank #C6)	11.5	1,990

As indicated above, the total annual fermentation throughput for facility N-3386 prior to this project is 31,299 gallons, calculated as follows:

Annual $_{Total}$ (gallons) = (19,359 + 6 x 1,990) gal = 31,299 gallons

Therefore, the CO2 emissions due to wine fermentation in facility N-3386 are calculated as follows:

CO2 (lb/year) = EF (lb-CO2/1,000 gal-wine) x annual fermentation throughput (gal/year)

EF = 6303 x VF$_{EtOH}$ [5]

Where, VF$_{EtOH}$ is the volume fraction of Ethanol in the wine (gal-ethanol/gal-wine), which is 11.5 %

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[5] Per http://www.sbcapcd.org/eng/winery/WineryCO2Calcs.pdf

I

Therefore,
CO_2 (lb/year) = 6303 x 0.115 (lb-CO_2/1,000 gal-wine) x 31,299 (gal-wine/year)
= 22,687 lb-CO_2/year (equivalent to **11.3 ton-CO_2/year**)

CO_2 emissions from the combustion of fossil fuel:

As indicated in Section VII.D.4 of this document, this stationary source has the following fossil fuel combustion equipment.

N-3386:

Permit Unit	Equipment
N-3386-1-10	10.463 MMBtu/hr natural gas-fired boiler
N-3386-2-8	10.463 MMBtu/hr natural gas-fired boiler
N-3386-3-7	10.2058 MMBtu/hr natural gas-fired boiler
N-3386-23-6	240 bhp diesel fried emergency standby IC engine powers generator
N-3386-26-3	192 bhp diesel fried emergency standby IC engine powers generator
N-3386-27-2	1,120 bhp diesel fried emergency standby IC engine powers generator
N-3386-28-4	270 bhp diesel fried emergency standby IC engine powers fire pump
N-3386-23-6	460 bhp diesel fried IC engine powers an air compressor

N-7478:

Permit Unit	Equipment
N-7478-1-4	3.0 MMBtu/hr natural gas-fired regenerative thermal oxidizer (RTO)
N-7478-2-4	4.0 MMBtu/hr natural gas-fired RTO
N-7478-4-2	954 bhp diesel fried emergency standby IC engine powers generator

For natural gas fired units, the emission factors and global warming potentials (GWP) are taken from the California Climate Change Action Registry (CCAR), Version 3.1, January 2009, Appendix C, Tables C1, C.3, and C.6.

GHG	Emission Factors & GWP (SAR, 1996)	Source
CO_2	116.7 lb/MMBtu; (1 lb-CO_2e/lb-CO_2)	CCAR, Appendix C, Tables C1 & C3
CH_4	0.011 lb/MMBtu; (21 lb-CO_2e/lb-CH_4)	CCAR, Appendix C, Table C1 & C7
N_2O	0.00022 lb/MMBtu; (310 lb-CO_2e/lb-N_2O)	CCAR, Appendix C, Table C1 & C6

For diesel fired units, the emission factors and global warming potentials (GWP are taken from the California Climate Change Action Registry (CCAR), Version 3.1, January 2009, Appendix C, Tables C1, C.3, and C.6.

GHG	Emission Factors & GWP (SAR, 1996)	Source
CO_2	22.3 lb/gallon; (1 lb-CO_2e/lb-CO_2)	CCAR, Appendix C, Tables C1 & C3
CH_4	0.006 lb/gallon; (21 lb-CO_2e/lb-CH_4)	CCAR, Appendix C, Table C1 & C6
N_2O	0.01 lb/gallon; (310 lb-CO_2e/lb-N_2O)	CCAR, Appendix C, Table C1 & C6

N-3386:

The CO_2e emission from the natural gas fired units is calculated as follows:

PE CO_2e = Total Annual Heat Input x Emissions factors

The total annual heat input for all natural gas fire units in this facility is calculated as follows:

Permit Unit	Heat I/P Rating (MMBtu/hr)	Annual Operating hour (hr/year)	Annual Heat Input (MMBtu/year)
N-3386-1-10	10.463	8,760	91,656
N-3386-2-8	10.463	N/A	30,000
N-3386-3-7	10.2058	8,760	91,656
Total			213,312

The CO_2e emission from these natural gas fired units is calculated as follows:

PE CO_2e = {[(213,312 MMBtu/year x 116.7 lb-CO_2/MMBtu) + (213,312 MMBtu/year x 0.011 lb-CH_4/MMBtu x 21 lb-CO_2e/lb-CH_4) + (213,312 MMBtu/year x 0.00022 lb-N_2O/MMBtu x 310 lb-CO_2e/lb-N_2O)] ÷ 2,000 lb/ton}

PE CO_2e = **12,482 tons-CO_2e/year**

The CO_2e emission from the diesel fired units is calculated as follows:

The maximum annual operating hours, the maximum fuel consumptions for the unit (per manufacturer' datasheet), and the annual fuel consumption for all diesel fired units are summarized in the following table.

Permit Unit	Max Annual Operating Hour (hr/year)	Max Fuel Consumption (gal/hr)	Annual Fuel Consumption (gal/yr)
N-3386-23-6	30	13.9 (N-990474)	417
N-3386-26-3	50	9.35 (N-1011423)	467.5
N-3386-27-2	50	47.9 (N-1021069)	2,395
N-3386-28-4	100	13.5 (N-1021525)	1,350
N-3386-23-6	200	20 (N-1042414)	4,000
Total			13,929.5

The CO_2e emission from these diesel fired units is calculated as follows:

PE CO_2e = {13,929.5 gal/year x [22.3 lb-CO_2/gal + (0.006 lb-CH_4/gal x 21 lb-CO_2e/lb-CH_4) + (0.01 lb-N_2O/gal x 310 lb-CO_2e/lb-N_2O)]} ÷ 2,000 lb/ton

PE CO_2e = **177.8 ton-CO_2e/year**

The total CO_2e emission from facility N-3386 is calculated to:

Total PE CO_2e = (11.3 + 12,482 + 177.8) ton-CO_2e/year   = **12,671.1 ton-CO_2e/year**

N-7478:

The CO_2e emission from the natural gas fired units is calculated as follows:

PE CO_2e = Total Annual Heat Input x Emissions factors

The total annual heat input for all natural gas fire units in this facility is calculated as follows:

Permit Unit	Heat I/P Rating (MMBtu/hr)	Annual Operating hour (hr/year)	Annual Heat Input (MMBtu/year)
N-7478-1-4	3.0	8,760	26,280
N-7478-2-4	4.0	8,760	35,040
Total			61,320

The CO_2e emission from these natural gas fired units is calculated as follows:

PE CO_2e = {[(61,320 MMBtu/year x 116.7 lb-CO_2/MMBtu) + (61,320 MMBtu/year x 0.011 lb-CH_4/MMBtu x 21 lb-CO_2e/lb-CH_4) + (61,320 MMBtu/year x 0.00022 lb-N_2O/MMBtu x 310 lb-CO_2e/lb-N_2O)] ÷ 2,000 lb/ton}

PE CO_2e = **3,587.2 tons-CO_2e/year**

The CO_2e emission from the diesel fired unit is calculated as follows:

The maximum annual operating hours, the maximum fuel consumption for the unit (per manufacturer' datasheet), and the annual fuel consumption for all diesel fired units are summarized in the following table.

Permit Unit	Max Annual Operating Hour (hr/year)	Max Fuel Consumption (gal/hr)	Annual Fuel Consumption (gal/yr)
N-7478-4-2	50	46.2 (N-1093232)	2,310

The CO_2e emission from these diesel fired units is calculated as follows:

PE CO_2e = {2,310 gal/year x [22.3 lb-CO_2/gal + (0.006 lb-CH_4/gal x 21 lb-CO_2e/lb-CH_4) + (0.01 lb-N_2O/gal x 310 lb-CO_2e/lb-N_2O)]} ÷ 2,000 lb/ton

PE CO_2e = **29.5 ton-CO_2e/year**

The total CO_2e emission from facility N-7478 is calculated to:

Total PE CO_2e = (3,587.2 + 29.5) ton-CO_2e/year   = **3,616.7 ton-CO_2e/year**

Total CO_2e emissions from this stationary source:

The total CO_2e emission from this stationary source is calculated as follows:

PE_{Total} CO_2e = (12,671.1 + 3,616.7) ton-CO_2year   = **16,287.8 ton-CO_2e/year**

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

PSD Major Source Determination (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
Estimated Facility PE before Project Increase	7.7	154.7	0.5	28.0	36.5	36.5	16,287.8
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.

V

Appendix IV

BACT Guideline & Top-Down BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.4.15*

Last Update   11/2/2011

Distilled Spirits Storage Tank

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
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	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 adsorption or equivalent (90% control); 4) Refrigerated Storage (70% control)	

** Tank 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.

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 s 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 VOC emissions

The following VOC emission control technologies are listed in the BACT guideline 5.4.15, for Distilled Spirits Storage Tank:

Step 1 - Identify all control technologies

Achieved in Practice or contained in the SIP:

Insulation or Equivalent (located indoor in a climate controlled building to limit exposure to diurnal temperature variations), Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation.

Technologically Feasible:

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) Refrigerated Storage (70% control)

Alternate Basic Equipment:

There is no alternate basic equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank remaining options by control effectiveness

Rank by Control Effectiveness			
Rank	Option	Control	Overall Capture & Control Efficiency
1	2	Capture of VOCs & thermal or catalytic oxidation, or equivalent	98%
2	3	Capture of VOCs & carbon adsorption, or equivalent	95%
3	4	Capture of VOCs & absorption, or equivalent	90%
4	5	Refrigerated Storage	70%
5	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	0 %

Step 4 - Cost Effectiveness Analysis

A cost effectiveness analysis is performed for each control technology which is more effective than achieved-in-practice BACT. The cost-effectiveness analysis will be performed based on the most cost effective approach by installing a common control device for multiple tanks.

Tank Configuration:

The proposed three tanks (15,000 gallon each) will be used to store distilled spirits for the bottling operation.

Capacity: 15,000 gallon (each):
Quantity: 3
Size: 11' diameter x 21.5' tall (each)
Specification: SS, Vertical fixed roof (cone), pressure/vacuum valve, insulated, and installed outdoor

Maximum Vapor Flow Rate:

Determination of the maximum vapor flow rate from these tanks is calculated by the maximum product transfer rate. The applicant stated that the maximum design flow rate to transfer liquid spirits using positive displacement type pumps would be 137 GPM.

15,000 gallons x min/137 gallons x 1 hr/60 min = 1.82 hours

Therefore, it would take 5.5 hours to fill three 15,000 gallon tanks.

Moles of air displaced = 15,000 gallons/tank x ft^3/7.48 gallons x 0.07544 lb-air/ft^3 x lb-mol air/28.58 lb-air
= 5.29 lb-mol air/tank

Tanks 4.0.d Daily Spirits Emissions = (767.3 lb-VOC/month)/(31 days) = 24.8 lb-VOC/tank

Moles of spirits = 24.8 lb-VOC/tank x lb-mol/46.07 lb = 0.54 lb-mol/tank

Total moles = (5.29 + 0.54) lb-mol/tank x 3 tanks = 17.5 lb-mol

V = nRT/P
= [17.5 lb-mol x 0.7302 lb-mol °R/atm ft^3 x 520 °R] /1 atm
= 6,645 ft^3

Vapor Flow Rate = 6,645 ft^3 ÷ 5.5 hours x 1 hour/60 min = 20.1 scfm

b

Uncontrolled Emissions:

As shown in Section VII.C.2 of this document, the total VOC emissions from this project are:

Total VOC = (456 lb-VOC/tank/year x 3 tanks)
            = 1,368 lb-VOC/year

Collection System Capital Investment (based on ductwork):

A common feature of all technically feasible options (except tank refrigeration) is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. This analysis ignores additional major costs for equipment sterilization systems for ductwork and control device, instrumentation and control systems for isolation of individual tanks in the battery, and site specific factors due to limited plot space (known to be a significant factor at all wineries). Should all these additional cost factors be included, the calculated cost effectiveness would be substantially higher than indicated below.

Collection system to consist of:

- The collection system consists of stainless steel place ductwork (stainless steel is required due to food grade product status) with isolation valving, connecting three 15,000 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 be included in the cost estimate.
- A minimum duct size is established at six inches diameter at each tank to provide adequate strength for spanning between supports. The main header is twelve inches diameter to handle the potential for simultaneous venting.
- A minimum estimated length 150 feet (based on a three-tank layout (all 3 tanks in a row), 10 feet spacing between each tank, header line in the middle (11' + 10' + 11' + 10' + 5.5' + 21.5' = 69'), and control device located within 100 feet of tank array.

Capital Cost Ductwork

6" Stainless Steel Duct: 69 linear feet
12" Stainless Steel Duct: 100 linear feet

A direct cost estimate for 6 inch & 12 inch diameter stainless steel ductwork, installed in a San Joaquin Valley winery, was taken from Fermenter VOC Emission Control Cost Estimate, prepared by Eichleay Engineering for the Wine Institute in conjunction with development of District Rule 4694. 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.

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Unit installed cost for 6 inch Stainless Steel ducting: $61.30/linear foot[6]
Unit installed cost for 12 inch Stainless Steel ducting: $143.80/linear foot[3]

Installed costs = ($61.30 linear foot x 69 feet) + ($143.80 linear foot x 100 feet) = $18,610

Adjusting from 2005 dollars to 2013 dollars (multiply by 1.277, 2.75% inflation/yr)[7]

Installed costs = $18,610 x 1.277 = $23,765

Duct Valve Allowance

One of the major concerns of a manifold duct system is microorganisms spoiling the wine, and transferring from one tank to another. It is possible to completely ruin a tank of one special type of highest proof distilled spirit if a few hundred gallons of medium grade distilled spirit were back fed through the duct. It is necessary to design into the system a positive disconnect of the ducting system when the tanks are not being filled. There are a number of ways this can be done. In this case, an automatic butterfly valve with a physical spool to disconnect the tank from the duct will be utilized.

Unit installed cost for 6 inch butterfly valve = $2,125/valve
Unit installed cost one foot removable spool = $500/tank

Installed costs = ($2,125/valve x 3 tanks) + ($500/tank x 3 tanks) = $7,875

Clean-In-Place (CIP) System

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

Per engineering evaluation N-1113407, an allowance of $200,000 for a normal CIP system is included in the evaluation. However, this is a pretty small scale system including only three small tanks. Per applicant, the installed costs for this relative small scale CIP system is $50,000.

Installed costs = $50,000

Total costs = Ductwork + Duct Valve + CIP System
            = $23,765 + $7,875 + $50,000
            = $81,640

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[6] The cost information is taken from engineering evaluation N-1113407.
[7] Inflation multiplier (IM) = $(1 + i)^n$, where I is the inflation rate of 2.75%, and n is the number of year of 9. IM = $(1 + 0.0275)^9$ = 1.277

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $81,640 x 0.163 = **$13,307**

Option 1 - Capture of VOCs & thermal/catalytic oxidation or equivalent (98% control)

The smallest thermal oxidizer available is 50 scfm. Baker Furnace provided a quote for a 50 scfm thermal oxidizer with 50% recuperator at a capital cost of $37,700 (2009 dollars).

Adjusting from 2009 dollars to 2013 dollars (multiply by 1.145, 2.75% inflation/yr):

RTO (50 cfm) capital cost = $37,700 x 1.145 = $43,167

Cost Item	Cost, $
Direct Costs	
Purchased equipment costs:	
RTO cost, A	43,167
Sales tax, Modesto, 0.07625 x (A)	3,291
Freight, 0.05 x (A)	2,158
Purchased equipment cost, B	$48,616
Direct installation costs:	
Foundations & supports, 0.08 x (B)	3,889
Handling & erection, 0.14 x (B)	6,806
Electrical, 0.04 x (B)	1,945
Piping, 0.02 x (B)	972
Insulation for duct work, 0.01 x (B)	486
Painting, 0.01 x (B)	486
Direct installation costs	$14,584
Site preparation	--
Buildings	--
Total Direct Costs	$63,200
Indirect Costs (Installation)	
Engineering, 0.1 x (B)	4,862
Construction & field expenses, 0.05 x (B)	2,431
Contractor fees, 0.1 x (B)	4,862

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Start-up, 0.02 x (B)	972
Performance test, 0.01 x (B)[8]	--
Contingencies, 0.03 x (B)	1,458
Total Indirect Costs	$14,585
Total Capital Investment	$77,785

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $77,785 x 0.163 = $12,679

Total Annual Cost = $13,307 + $12,679 = $25,986

Annual Emission Reduction = Uncontrolled Emissions x 0.98
  = 1,368 lb-VOC/year x 0.98
  = 1,341 lb-VOC/year
  = 0.67 tons-VOC/year

Cost Effectiveness = $25,986/year ÷ 0.67 tons-VOC/year
  = $38,785/ton-VOC

The cost of VOC reductions considering the capture and control equipment costs alone is more than the threshold limit of $17,500/ton. Therefore, the capture and oxidation control is not cost-effective for this installation.

Option 2 - Capture of VOCs and carbon adsorption or equivalent (95% control)

EAS Corp provided a budget quote for a single stage "Dual CAS-3000" carbon adsorption system capable of handling 3,200 cfm at a capital cost of $40,000 (2011 dollars). The quoted price does not include sales tax, freight expenses, operational and maintenance costs, site preparation, etc.

Adjusting from 2011 dollars to 2013 dollars (multiply by 1.0558, 2.75% inflation/yr):

Carbon system capital cost = $40,000 x 1.0558 = $42,232

Per EAS Corp, the cost of installing and disposing carbon ranges anywhere from $2/lb to $10/lb

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[8]A performance test price is not included because it would have been required even if a company voluntarily proposes to install an RTO.

Cost Item	Cost, $
Direct Costs	
Purchased equipment costs	
Carbon system cost, A	42,232
Sales tax, Modesto, 0.07625 x (A)	3,220
Freight, 0.05 x (A)	2,112
Purchased equipment cost, B	$47,564
Direct installation costs	
Foundations & supports, 0.08 x (B)	3,805
Handling & erection, 0.14 x (B)	6,659
Electrical, 0.04 x (B)	1,903
Piping, 0.02 x (B)	951
Insulation for duct work, 0.01 x (B)	476
Painting, 0.01 x (B)	476
Direct installation costs	$14,270
Site preparation	--
Buildings	--
Total Direct Costs	$61,834
Indirect Costs (Installation)	
Engineering, 0.1 x (B)	4,756
Construction & field expenses, 0.05 x (B)	2,378
Contractor fees, 0.1 x (B)	4,756
Start-up, 0.02 x (B)	951
Performance test, 0.01 x (B)	--
Contingencies, 0.03 x (B)	1,427
Total Indirect Costs	$14,268
Total Capital Investment	$76,102

$$\text{Capital Costs } 19.6\,\text{cfm} = \text{Capital Costs } 3{,}200\,\text{cfm} \times \left(\frac{19.6\,\text{cfm}}{3{,}200\,\text{cfm}} \right)^{0.6}$$

Capital Costs 19.6 cfm = $76,102 x (19.6 ÷ 3,200)$^{0.6}$
$$= \$3{,}578/\text{year}$$

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $3,578 x 0.163 = $583

The operational costs for the carbon adsorption system include a cost to replace and dispose the saturated carbon ($2/lb of carbon).

The carbon requirement is expected to be 3,577 lb/year (0.95 × 753 lb-VOC/yr ÷ 0.2 lb-carbon/lb-VOC adsorbed). Therefore, the total carbon replacement and disposal costs would be:

= $2/lb-carbon × 3,577 lb-carbon/year = $7,154/year

Total Annual Cost = $13,307 + $583 + $7,154 = $21,044

Annual Emission Reduction = Uncontrolled Emissions x 0.95
= 1,368 lb-VOC/year x 0.95
= 1,300 lb-VOC/year
= 0.65 tons-VOC/year

Cost Effectiveness = $21,044/year ÷ 0.65 tons-VOC/year
= $32,375/ton-VOC

The cost of VOC reductions considering the capture and control equipment and carbon replacement costs is more than the threshold limit of $17,500/ton. Therefore, the capture and adsorption control is not cost-effective for this installation.

Option 3 - Capture of VOCs and absorption or equivalent (90% control)

EAS Corp provided a budget quote for a single stage "Dual One Through Water Scrubber" system capable of handling 3,200 cfm at a capital cost of $29,800 (2011 dollars). The quoted price does not include sales tax, freight expenses, operational and maintenance costs, site preparation, etc. It is assumed that one scrubber would handle 19.6 scfm.

Adjusting from 2011 dollars to 2013 dollars (multiply by 1.0558, 2.75% inflation/yr):

Carbon system capital cost = $29,800 x 1.0558 = $31,463

Cost Item	Cost, $
Direct Costs	
Purchased equipment costs	
Scrubber System cost, A	31,463
Sales tax, Modesto, 0.07625 x (A)	2,399
Freight, 0.05 x (A)	1,573
Purchased equipment cost, B	$35,435

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Direct installation costs	
Foundations & supports, 0.08 x (B)	2,835
Handling & erection, 0.14 x (B)	4,961
Electrical, 0.04 x (B)	1,417
Piping, 0.02 x (B)	709
Insulation for duct work, 0.01 x (B)	354
Painting, 0.01 x (B)	354
Direct installation costs	$10,630
Site preparation	--
Buildings	--
Total Direct Costs	$46,065
Indirect Costs (Installation)	
Engineering, 0.1 x (B)	3,544
Construction & field expenses, 0.05 x (B)	1,772
Contractor fees, 0.1 x (B)	3,544
Start-up, 0.02 x (B)	709
Performance test, 0.01 x (B)	--
Contingencies, 0.03 x (B)	1,063
Total Indirect Costs	$10,632
Total Capital Investment	$56,697

$$\text{Capital Costs } 19.6\,\text{cfm} = \text{Capital Costs } 3,200\,\text{cfm} \times \left(\frac{19.6\,\text{cfm}}{3,200\,\text{cfm}}\right)^{0.6}$$

Capital Costs 19.6 cfm = $56,697 x (19.6 ÷ 3,200)$^{0.6}$
                    = $2,666/year

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $2,666 x 0.163 = $437

Additionally, the water scrubber will generate ethanol-laden wastewater containing 0.34 tons-ethanol annually (calculated below). Assuming a 2% solution, approximately 5,136 gallons of waste water (0.34 ton-ethanol/year x 2,000 lb/ton x gal/6.62 lb ÷ 0.02) will be

generated annually. Per estimate in Sonoma Technologies study, an allowance of $0.25 per gallon is applied for disposal costs[9].

Annual disposal costs = 5,136 gallons x $0.25/gallon = $1,284

Total Annual Cost = $13,307 + $437 + $1,284 = $15,028

Annual Emission Reduction = Uncontrolled Emissions x 0.90
= 1,368 lb-VOC/year x 0.90
= 1,231 lb-VOC/year
= 0.62 tons-VOC/year

Cost Effectiveness = $15,028/year ÷ 0.62 tons-VOC/year
= $24,239/ton-VOC

The cost of VOC reductions considering the control equipment is more than the threshold limit of $17,500/ton. Therefore, the capture and absorption control is not cost-effective for this installation.

Option 4 - Refrigerated storage (70% control)

Design Basis

- A common refrigeration system will be installed for these two tanks.
- The refrigeration system will be a packaged single-stage vapor-compression system.
- Minimum refrigeration capacity will allow cooling the proposed tanks from 64.2°F to 40°F.
- The liquid transfer rate of the tank is 137 GPM.

Based on a specific heat capacity of 1.0 Btu/lb-°F and cooling three tanks from 64.2°F to 40°F, the capacity required for the refrigeration system would be:

Refrigeration Capacity = [137 gal/min x 3 tanks x 8.34 lb/gal x 1.0 Btu/lb-°F x (64.2°F – 40°F) x (60 min/hr) x (1 ton-hr refrigeration/12,000 Btu)]
= 414.8 tons
≈ 415 tons

Capital Cost

The EPA Air Pollution Control Manual, Section 3, Chapter 2, Figure 2.5, provides costs for single stage vapor compression systems up to 100 tons capacity at a condensation temperature of 40°F. Conservatively, using the purchase price for a 174 ton unit yields:

Refrigeration System Cost = $201,739[10]

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[9] This cost information is consistent with the engineering evaluation N-1113407.

This cost is in 1990 dollars; therefore, it is adjusted by conservatively assuming an average inflation rate of 2.75% as follows:

Current Refrigeration System Cost = $201,739 x 1.866 = $376,445

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $376,445 x 0.163 = $61,361

To compare the cost and size of a 174 ton condenser to the subject 404 ton condenser, the six-tenths rule of thumb is used.

$$\text{Annualized Costs } 415\,\text{ton} = \text{Annualized Costs } 174\,\text{ton} \times \left(\dfrac{415\,\text{ton}}{174\,\text{ton}}\right)^{0.6}$$

Annualized Costs 415 ton   = $61,361 x $(415 \div 174)^{0.6}$
     = $103,369/year

Annual Emission Reduction = Uncontrolled Emissions x 0.70
     = 1,346 lb-VOC/year x 0.70
     = 942 lb-VOC/year
     = 0.47 tons-VOC/year

Cost of Reductions = $103,369/year ÷ 0.47 tons-VOC/year
     = $219,934/ton-VOC

The cost of VOC reductions, considering the equipment cost alone, is greater than the threshold limit of $17,500/ton. Therefore, the refrigeration control system is not cost-effective for this installation.

Step 5 - Select BACT

Insulated tank (or equivalent), and Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank, and "gas-tight" tank operation would be the BACT for this operation.

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[10] Cost is estimated using EPA's document EPA/452/B-02-001, Section 3.1, Chapter 2, Section 2.4, equation 2.26 on Page 2-18 for single stage refrigeration unit. This equation is valid up to a 174 tons refrigeration capacity. Cost (1990 dollars) = $e^{[9.26 - 0.007 \times 40 + 0.627 \ln(174)]}$ = $201,739

Appendix V

EPA's Tanks 4.0.9d Reports

TANKS 4.0
Chemical Data Report

Chemical Name Category	CAS	Molecular Weight Liquid	Vapor	Density*	Vapor Pressure (psia) at Temperature (degrees F)							Constants for Antione's Equation Line 1: degrees C Line 2: degrees K			REID (psia)	ASTM Slope
					40	50	60	70	80	90	100	A	B	C		
Wine 99.9 % Vol Alcohol Organic Liquids		45.90	45.92	6.63	0.32	0.45	0.64	0.90	1.25	1.70	2.30					

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

Identification
User Identification:	E&J Gallo - N7478-33-0 Tank#12 Daily (5/28/13)
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	15,000 gallon, SS & insulated tank, installed outdoor

Tank Dimensions
Shell Height (ft):	21.50
Diameter (ft):	11.00
Liquid Height (ft) :	21.50
Avg. Liquid Height (ft):	21.50
Volume (gallons):	15,284.00
Turnovers:	58.89
Net Throughput(gal/yr):	900,000.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00

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

Meterological 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

E&J Gallo - N7478-33-0 Tank#12 Daily (5/28/13) - 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 99.9 % Vol Alcohol	Jul	77.30	77.30	77.30	77.30	1.1534	1.1534	1.1534	45.9158			45.90	Option 1: VP70 = .90202 VP80 = 1.24636

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

E&J Gallo - N7478-33-0 Tank#12 Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							0.0000					
Vapor Space Volume (cu ft):							0.0465					
Vapor Density (lb/cu ft):							0.0092					
Vapor Space Expansion Factor:							0.0000					
Vented Vapor Saturation Factor:							1.0000					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							0.0465					
Tank Diameter (ft):							11.0000					
Vapor Space Outage (ft):							0.0005					
Tank Shell Height (ft):							21.5000					
Average Liquid Height (ft):							21.4995					
Roof Outage (ft):							0.0000					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0000					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0000					
Shell Radius (ft):							5.5000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0092					
Vapor Molecular Weight (lb/lb-mole):							45.9158					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.1534					
Daily Avg. Liquid Surface Temp. (deg. R):							536.9700					
Daily Average Ambient Temp. (deg. F):							77.6500					
Ideal Gas Constant R												
(psia cuft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							536.9700					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							2,688.0000					
Vapor Space Expansion Factor												
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):							1.1534					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							1.1534					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							1.1534					
Daily Avg. Liquid Surface Temp. (deg R):							536.9700					
Daily Min. Liquid Surface Temp. (deg R):							536.9700					
Daily Max. Liquid Surface Temp. (deg R):							536.9700					
Daily Ambient Temp. Range (deg. R):							33.5000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							1.0000					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.1534					

Vapor Space Outage (ft):   0.0005

Working Losses (lb):   767.2962
  Vapor Molecular Weight (lb/lb-mole):   45.9158
  Vapor Pressure at Daily Average Liquid
    Surface Temperature (psia):   1.1534
  Net Throughput (gal/mo.):   900,000.0000
  Annual Turnovers: 58.8851
  Turnover Factor: 0.6761
  Maximum Liquid Volume (gal):   15,284.0000
  Maximum Liquid Height (ft):   21.4995
  Tank Diameter (ft):   11.0000
  Working Loss Product Factor: 1.0000

Total Losses (lb):   767.2962

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

Emissions Report for: July

E&J Gallo - N7478-33-0 Tank#12 Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	767.30	0.00	767.30

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

Identification
User Identification:	E&J Gallo - N7478-33-0 Tank #12 - Annual (5/28/13)
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	15,000 gallon, SS & insulated tank, installed outdoor

Tank Dimensions
Shell Height (ft):	21.50
Diameter (ft):	11.00
Liquid Height (ft) :	21.50
Avg. Liquid Height (ft):	21.50
Volume (gallons):	15,284.00
Turnovers:	58.89
Net Throughput(gal/yr):	900,000.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00

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

Meterological 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

E&J Gallo - N7478-33-0 Tank #12 - Annual (5/28/13) - 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 99.9 % Vol Alcohol	Jan	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Feb	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Mar	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Apr	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	May	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jun	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jul	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Aug	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Sep	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Oct	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Nov	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Dec	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202

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

E&J Gallo - N7478-33-0 Tank #12 - Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Space Volume (cu ft):	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465
Vapor Density (lb/cu ft):	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vented Vapor Saturation Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465
Tank Diameter (ft):	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000
Vapor Space Outage (ft):	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Tank Shell Height (ft):	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000
Average Liquid Height (ft):	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Shell Radius (ft):	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Vapor Molecular Weight (lb/lb-mole):	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Daily Avg. Liquid Surface Temp. (deg. R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Average Ambient Temp. (deg. F):	45.0000	50.5000	54.0500	59.3000	66.7000	73.3000	77.6500	76.8000	72.7000	64.5500	53.0500	44.9500
Ideal Gas Constant R												
(psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg, R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	· 0.1700
Daily Total Solar Insulation												
Factor (Btu/sqft day):	597.0000	939.0000	1,458.0000	2,004.0000	2,435.0000	2,684.0000	2,688.0000	2,368.0000	1,907.0000	1,315.0000	782.0000	538.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Pressure Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Press. Setting Range(psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Daily Avg. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Min. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Max. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Ambient Temp. Range (deg, R):	16.0000	20.4000	22.9000	27.2000	29.8000	31.6000	33.5000	32.2000	30.4000	27.5000	20.7000	15.7000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859

Vapor Space Outage (ft):	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Working Losses (lb):	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260
Vapor Molecular Weight (lb/lb-mole):	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Net Throughput (gal/mo.):	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000
Annual Turnovers:	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851
Turnover Factor:	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761
Maximum Liquid Volume (gal):	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000
Maximum Liquid Height (ft):	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995
Tank Diameter (ft):	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260

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

E&J Gallo - N7478-33-0 Tank #12 - Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	456.31	0.00	456.31

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

Identification
User Identification:	E&J Gallo - N7478-34-0 Tank#13 - Daily (5/28/13)
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	15,000 gallon, SS & insulated tank, installed outdoor

Tank Dimensions
Shell Height (ft):	21.50
Diameter (ft):	11.00
Liquid Height (ft) :	21.50
Avg. Liquid Height (ft):	21.50
Volume (gallons):	15,284.00
Turnovers:	58.89
Net Throughput(gal/yr):	900,000.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00

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

Meterological 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

E&J Gallo - N7478-34-0 Tank#13 - Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Wine 99.9 % Vol Alcohol	Jul	77.30	77.30	77.30	77.30	1.1534	1.1534	1.1534	45.9158			45.90	Option 1: VP70 = .90202 VP80 = 1.24636

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

E&J Gallo - N7478-34-0 Tank#13 - Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							0.0000					
Vapor Space Volume (cu ft):							0.0465					
Vapor Density (lb/cu ft):							0.0092					
Vapor Space Expansion Factor:							0.0000					
Vented Vapor Saturation Factor:							1.0000					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							0.0465					
Tank Diameter (ft):							11.0000					
Vapor Space Outage (ft):							0.0005					
Tank Shell Height (ft):							21.5000					
Average Liquid Height (ft):							21.4995					
Roof Outage (ft):							0.0000					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0000					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0000					
Shell Radius (ft):							5.5000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0092					
Vapor Molecular Weight (lb/lb-mole):							45.9158					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.1534					
Daily Avg. Liquid Surface Temp. (deg. R):							536.9700					
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):							536.9700					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							2,688.0000					
Vapor Space Expansion Factor												
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):							1.1534					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							1.1534					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							1.1534					
Daily Avg. Liquid Surface Temp. (deg R):							536.9700					
Daily Min. Liquid Surface Temp. (deg R):							536.9700					
Daily Max. Liquid Surface Temp. (deg R):							536.9700					
Daily Ambient Temp. Range (deg. R):							33.5000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							1.0000					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.1534					

Vapor Space Outage (ft):   0.0005

Working Losses (lb):   767.2962
  Vapor Molecular Weight (lb/lb-mole):   45.9158
  Vapor Pressure at Daily Average Liquid
    Surface Temperature (psia):   1.1534
  Net Throughput (gal/mo.):   900,000.0000
  Annual Turnovers: 58.8851
  Turnover Factor: 0.6761
  Maximum Liquid Volume (gal):   15,284.0000
  Maximum Liquid Height (ft):   21.4995
  Tank Diameter (ft):   11.0000
  Working Loss Product Factor: 1.0000

Total Losses (lb):   767.2962

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

Emissions Report for: July

E&J Gallo - N7478-34-0 Tank#13 - Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	767.30	0.00	767.30

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

Identification
User Identification:	E&J Gallo - N7478-34-0 Tank#13 Annual (5/28/13)
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	15,000 gallon, SS & insulated tank, installed outdoor

Tank Dimensions
Shell Height (ft):	21.50
Diameter (ft):	11.00
Liquid Height (ft) :	21.50
Avg. Liquid Height (ft):	21.50
Volume (gallons):	15,284.00
Turnovers:	58.89
Net Throughput(gal/yr):	900,000.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00

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

Meterological 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

E&J Gallo - N7478-34-0 Tank#13 Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract	Vapor Mass Fract	Mol. Weight	Basis for Vapor Pressure Calculations
Wine 99.9 % Vol Alcohol	Jan	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Feb	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Mar	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Apr	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	May	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jun	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jul	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Aug	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Sep	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Oct	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Nov	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Dec	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202

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

E&J Gallo - N7478-34-0 Tank#13 Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Space Volume (cu ft):	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465
Vapor Density (lb/cu ft):	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vented Vapor Saturation Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465
Tank Diameter (ft):	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000
Vapor Space Outage (ft):	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Tank Shell Height (ft):	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000
Average Liquid Height (ft):	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Shell Radius (ft):	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Vapor Molecular Weight (lb/lb-mole):	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Daily Avg. Liquid Surface Temp. (deg. R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Average Ambient Temp. (deg. F):	45.0000	50.5000	54.0500	59.3000	66.7000	73.3000	77.6500	76.8000	72.7000	64.5500	53.0500	44.9500
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	597.0000	939.0000	1,458.0000	2,004.0000	2,435.0000	2,684.0000	2,688.0000	2,368.0000	1,907.0000	1,315.0000	782.0000	538.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Pressure Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Press. Setting Range(psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Daily Avg. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Min. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Max. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Ambient Temp. Range (deg. R):	16.0000	20.4000	22.9000	27.2000	29.8000	31.6000	33.5000	32.2000	30.4000	27.5000	20.7000	15.7000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859

Vapor Space Outage (ft):	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Working Losses (lb):	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260
Vapor Molecular Weight (lb/lb-mole):	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Net Throughput (gal/mo.):	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000
Annual Turnovers:	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851
Turnover Factor:	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761
Maximum Liquid Volume (gal):	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000
Maximum Liquid Height (ft):	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995
Tank Diameter (ft):	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260

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

E&J Gallo - N7478-34-0 Tank#13 Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	456.31	0.00	456.31

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

Identification
User Identification:	E&J Gallo - N7478-35-0 Tank#14 Daily (5/28/13)
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	15,000 gallon, SS & insulated tank, installed outdoor

Tank Dimensions
Shell Height (ft):	21.50
Diameter (ft):	11.00
Liquid Height (ft) :	21.50
Avg. Liquid Height (ft):	21.50
Volume (gallons):	15,284.00
Turnovers:	58.89
Net Throughput(gal/yr):	900,000.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00

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

Meterological 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

E&J Gallo - N7478-35-0 Tank#14 Daily (5/28/13) - 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 99.9 % Vol Alcohol	Jul	77.30	77.30	77.30	77.30	1.1534	1.1534	1.1534	45.9158			45.90	Option 1: VP70 = .90202 VP80 = 1.24636

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

E&J Gallo - N7478-35-0 Tank#14 Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							0.0000					
Vapor Space Volume (cu ft):							0.0465					
Vapor Density (lb/cu ft):							0.0092					
Vapor Space Expansion Factor:							0.0000					
Vented Vapor Saturation Factor:							1.0000					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							0.0465					
Tank Diameter (ft):							11.0000					
Vapor Space Outage (ft):							0.0005					
Tank Shell Height (ft):							21.5000					
Average Liquid Height (ft):							21.4995					
Roof Outage (ft):							0.0000					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0000					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0000					
Shell Radius (ft):							5.5000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0092					
Vapor Molecular Weight (lb/lb-mole):							45.9158					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.1534					
Daily Avg. Liquid Surface Temp. (deg. R):							536.9700					
Daily Average Ambient Temp. (deg. F):							77.6500					
Ideal Gas Constant R												
(psia cuft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							536.9700					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							2,688.0000					
Vapor Space Expansion Factor												
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):							1.1534					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							1.1534					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							1.1534					
Daily Avg. Liquid Surface Temp. (deg R):							536.9700					
Daily Min. Liquid Surface Temp. (deg R):							536.9700					
Daily Max. Liquid Surface Temp. (deg R):							536.9700					
Daily Ambient Temp. Range (deg. R):							33.5000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							1.0000					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.1534					

Vapor Space Outage (ft):   0.0005

Working Losses (lb):   767.2962
  Vapor Molecular Weight (lb/lb-mole):   45.9158
  Vapor Pressure at Daily Average Liquid
    Surface Temperature (psia):   1.1534
  Net Throughput (gal/mo.):   900,000.0000
  Annual Turnovers: 58.8851
  Turnover Factor: 0.6761
  Maximum Liquid Volume (gal):   15,284.0000
  Maximum Liquid Height (ft):   21.4995
  Tank Diameter (ft):   11.0000
  Working Loss Product Factor: 1.0000

Total Losses (lb):   767.2962

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

Emissions Report for: July

E&J Gallo - N7478-35-0 Tank#14 Daily (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	767.30	0.00	767.30

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

Identification

User Identification:	E&J Gallo - N7478-35-0 Tank#14 Annual (5/28/13)
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	15,000 gallon, SS & insulated tank, installed outdoor

Tank Dimensions

Shell Height (ft):	21.50
Diameter (ft):	11.00
Liquid Height (ft) :	21.50
Avg. Liquid Height (ft):	21.50
Volume (gallons):	15,284.00
Turnovers:	58.89
Net Throughput(gal/yr):	900,000.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00

Breather Vent Settings

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

Meterological 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

E&J Gallo - N7478-35-0 Tank#14 Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Wine 99.9 % Vol Alcohol	Jan	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Feb	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Mar	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Apr	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	May	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1; VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jun	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1. VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jul	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1. VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Aug	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Sep	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Oct	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Nov	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Dec	61.60	61.60	61.60	61.60	0.6859	0.6859	0.6859	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202

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

E&J Gallo - N7478-35-0 Tank#14 Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Space Volume (cu ft):	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465
Vapor Density (lb/cu ft):	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vented Vapor Saturation Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465	0.0465
Tank Diameter (ft):	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000
Vapor Space Outage (ft):	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Tank Shell Height (ft):	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000	21.5000
Average Liquid Height (ft):	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Height (ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Roof Slope (ft/ft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Shell Radius (ft):	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000	5.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
Vapor Molecular Weight (lb/lb-mole):	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Daily Avg. Liquid Surface Temp. (deg. R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Average Ambient Temp. (deg. F):	45.0000	50.5000	54.0500	59.3000	66.7000	73.3000	77.6500	76.8000	72.7000	64.5500	53.0500	44.9500
Ideal Gas Constant R												
(psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation												
Factor (Btu/sqft day):	597.0000	939.0000	1,458.0000	2,004.0000	2,435.0000	2,684.0000	2,688.0000	2,368.0000	1,907.0000	1,315.0000	782.0000	538.0000
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Daily Vapor Pressure Range (psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Breather Vent Press. Setting Range(psia):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Daily Avg. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Min. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Max. Liquid Surface Temp. (deg R):	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700	521.2700
Daily Ambient Temp. Range (deg. R):	16.0000	20.4000	22.9000	27.2000	29.8000	31.6000	33.5000	32.2000	30.4000	27.5000	20.7000	15.7000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859

Vapor Space Outage (ft):	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Working Losses (lb):	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260
Vapor Molecular Weight (lb/lb-mole):	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158	45.9158
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859	0.6859
Net Throughput (gal/mo.):	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000	75,000.0000
Annual Turnovers:	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851	58.8851
Turnover Factor:	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761	0.6761
Maximum Liquid Volume (gal):	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000	15,284.0000
Maximum Liquid Height (ft):	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995	21.4995
Tank Diameter (ft):	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000	11.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260	38.0260

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

E&J Gallo - N7478-35-0 Tank#14 Annual (5/28/13) - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	456.31	0.00	456.31

Appendix VI

Compliance Certification

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I.   TYPE OF PERMIT ACTION (Check appropriate box)

[X] SIGNIFICANT PERMIT MODIFICATION   [ ] ADMINISTRATIVE
[ ] MINOR PERMIT MODIFICATION   AMENDMENT

COMPANY NAME: E&J Gallo Winery - Brandy	FACILITY ID: — 7478
1. Type of Organization:[x] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name: E&J Gallo Winery - Brandy	
3. Agent to the Owner: Adam Wenz	

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:
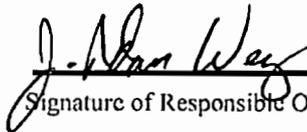
_____   3/5/2013
Signature of Responsible Official   Date

Adam Wenz
Name of Responsible Official (please print)

Director of Operations

Title of Responsible Official (please print)