San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

AUG 2 1 2012

Ms. Christine Ryan
E & J Gallo Winery - Brandy
200 Yosemite Boulevard
Modesto, CA 95353

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
       District Facility # N-7478
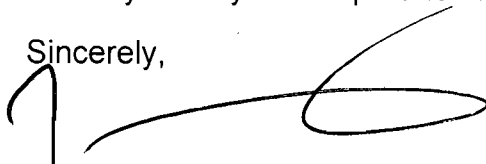   Project # N-1121902

Dear Ms. Ryan:

Enclosed for your review is the District's analysis of an application for Authority to
Construct for the facility identified above. The applicant is requesting that a
Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be
issued with this project. This project is to modify the existing storage tank #352
to increase the ethanol content of the spirits from 60% to 99.9% and change the
tank operating temperature.

After addressing any EPA comments made during the 45-day comment period,
the Authority to Construct will be issued to the facility with a Certificate of
Conformity. Prior to operating with modifications authorized by the Authority to
Construct, the facility must submit an application to modify the Title V permit as
an administrative amendment, in accordance with District Rule 2520, Section
11.5.

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

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW:WMS/st

Enclosures

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

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

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

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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

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AUG 21 2012

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

Re: **Proposed ATC / Certificate of Conformity (Significant Mod)**
    District Facility # N-7478
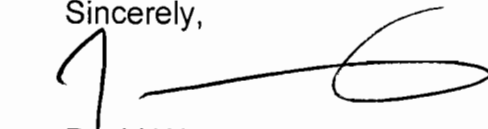   **Project # N-1121902**

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct for E & J Gallo Winery - Brandy located at 200 Yosemite Boulevard in Modesto, which has been issued a Title V permit. E & J Gallo Winery - Brandy is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. This project is to modify the existing storage tank #352 to increase the ethanol content of the spirits from 60% to 99.9% and change the tank operating temperature.

Enclosed is the engineering evaluation of this application and proposed Authority to Construct # N-7478-3-3 with Certificate of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW:WMS/st

Enclosures

AUG 2 1 2012

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

Re: **Proposed ATC / Certificate of Conformity (Significant Mod)**
        District Facility # N-7478
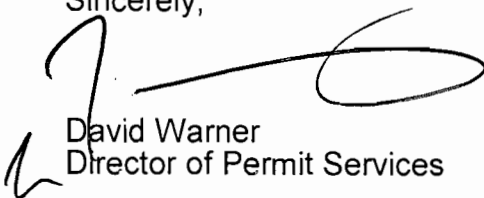   **Project # N-1121902**

Dear Mr. Tollstrup:

Enclosed for your review is the District's analysis of an application for Authority to
Construct for the facility identified above. The applicant is requesting that a
Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be
issued with this project. This project is to modify the existing storage tank #352
to increase the ethanol content of the spirits from 60% to 99.9% and change the
tank operating temperature.

Enclosed is the engineering evaluation of this application and proposed Authority
to Construct # N-7478-3-3 with Certificate of Conformity. After demonstrating
compliance with the Authority to Construct, the conditions will be incorporated
into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 30-day comment
period that begins on the date you receive this letter. If you have any questions,
please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW:WMS/st

Enclosures

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Executive Director/Air Pollution Control Officer

Northern Region	Central Region (Main Office)	Southern Region
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Modesto Bee

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of E & J Gallo Winery - Brandy for its winery located at 200 Yosemite Boulevard in Modesto, California. This project is to modify the existing storage tank #352 to increase the ethanol content of the spirits from 60% to 99.9% and change the tank operating temperature.

The District's analysis of the legal and factual basis for this proposed action, project #N-1121902, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. 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 by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Rupi Gill, Permit Services Manager, at (209) 557-6400. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 4800 ENTERPRISE WAY, MODESTO, CA 95356-8718.

San Joaquin Valley Air Pollution Control District
Authority to Construct

Modification to the existing distilled spirits storage tank

I. PROPOSAL

E & J Gallo Winery - Brandy is requesting Authority to Construct (ATC) for the modification of the existing storage tank #352 to increase the maximum ethanol content of distilled spirits from 60% to 99.9%, and change the storage tank operating temperature to "non-temperature controlled insulated tank" according to District's Policy, FYI – 295, *Modeling of Emissions for Wine and Distilled Spirits Storage Tanks Using Tanks 4.0d*. No change to the daily and annual throughputs is proposed.

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 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

This tank is internally used for the Brandy Bottling operation. See detail process description in engineering evaluation N-1074407.

V.   EQUIPMENT LISTING

Pre-Project Equipment Description

350,000 GALLON INSULATED STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #352 WITH PRESSURE/VACUUM VALVE

Post-Project Equipment Description

350,000 GALLON STAINLESS STEEL DISTILLED SPIRITS STORAGE TANK #352 WITH INSULATION AND EQUIPPED WITH PRESSURE/VACUUM VALVE

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). This tank is 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. This tank is 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 is 99.9% volume (per applicant).
- Maximum average annual ethanol content is 99.9% volume (per applicant).
- Daily and annual throughputs are 200,000 gallons and 6,000,000 gallons respectively (per current permit).
- The emissions will be determined by modeling the tank with EPA's Tanks 4.0.d 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)

Pre-Project Emissions Factor (EF1) & Post-Project Emissions Factor (EF2)

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

C. Potential to Emit (PE)

1. Daily and Annual PE

Pre-Project Potential Emissions (PE1)

PE1 is taken from engineering evaluation N-1074407 and summarized below.

Permit	Daily PE1 (lb-VOC/day)	Annual PE1 (lb-VOC/year)
N-7478-3-1	53.5	3,978

Post-Project Potential Emissions (PE2)

The applicant proposed to increase the maximum daily and maximum average annual ethanol content of distilled spirits to 99.9%, and change the storage tank operating temperature to non-temperature controlled insulated tank.

EPA's Tanks 4.0.d 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 64.2°F respectively for Northern Region per FYI-295. See chemical database information and the Tanks 4.0.d program reports in Appendix IV 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.d's report, the annual emission is:

Annual PE (ethanol and water emissions) = 4,938 lb/year

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

ya = $[AMW - MW_w] \div [MW_a - MW_w]$
= [45.92 − 18.02] ÷ [46.02 − 18.02]
= 0.9964

Annual PE (ethanol)   = {[Annual PE (ethanol and water)/AMW] x ya x MW_a}
= {[4,938/45.92] x 0.9964 x 46.02}
= 4,931 lb-ethanol/year (lb-VOC/year)

Daily Emissions:

Per Tanks 4.0.d's reports, the monthly emission (July) is:

Monthly PE (ethanol and water emissions) = 7,566 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)   = 7,566 lb/month ÷ 31 day/month
= 244.1 lb/day

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

Daily PE (ethanol) = {[Daily PE (ethanol and water)/AMW] x ya x MW$_a$}
= {[244.1/45.92] x 0.9964 x 46.02}
= 243.8 lb-ethanol/day (lb-VOC/day)

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

Permit	Daily PE2 (lb-VOC/day)	Annual PE2 (lb-VOC/year)
ATC N-7478-3-3	243.8	4,931

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 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-7478-3-3	238	238	238	239

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. AIPE shall be calculated with using the equations listed in this Rule Section 4.3 and 4.4 as follow:

AIPE = PE2 – HAPE

Where,
AIPE = Adjusted Increase in Permitted Emissions, pounds per day
PE2 = the emissions units post project Potential to Emit, pounds per day
HAPE = the emissions unit's Historically Adjusted Potential to Emit, pounds per day

HAPE = PE1 x (EF2/EF1)

Where,
PE1 = the emissions unit's Potential to Emit prior to modification or relocation
EF2 = the emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1.
EF1 = the emissions unit's permitted emission factor for the pollutant before the modification or relocation.
Then,

AIPE = PE2 – [PE1 x (EF2/EF1)]

$$AIPE_{VOC} = 243.8 - [53.5 \times (1)] = 190.3 \text{ lb-VOC/day}$$

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. The total potential VOC emissions from emissions units under facility N-7478 and facility N-3386 are taken from engineering evaluation N-1113046.

Permit Number	Pollutants (lb/yr) VOC
SSPE1 (N-3386 & N-7478)	253,618
Major Source Threshold Level	20,000
Major Source?	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/yr) VOC
SSPE1 (N-3386 & N-7478)	253,618
Subtract - PTO N-7478-3-1	(3,978)
Add - ATC N-7478-3-3	4,931
SSPE2	254,571
Major Source Threshold Level	20,000
Major Source?	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)
	VOC
SSPE2	254,571
SSPE1	253,618
SSIPE	953

4. Major Source Determination

Pursuant to District Rule 2201, Section 3.24, a major source is a stationary source a Post-Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the Major Source threshold values (excluding ERCs banked onsite that have not been used onsite).

This facility is an existing Major Source of VOC emissions and will remain a Major Source of VOC emissions as a result of this project.

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.

This tank is insulated, equipped with pressure vacuum valve set within 10% of the maximum allowable working pressure, and operated with "gas-tight" tank operation, which meets the requirements for achieved-in-practice BACT. Therefore, BE = PE1 = 3,978 lb-VOC/year.

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. However, as indicated in Section VII.C.1 of this document, the potential to emit of the equipment currently under consideration will not exceed the VOC Major Source Threshold, 50,000 lb/year listed on Table 3-5 of Rule 2201 by itself. Therefore, the proposed project cannot trigger an SB 288 Major Source Modification.

7.   Federal Major Modification

Federal Major Modification is to determine the following:

a.   Pursuant to Rule 2201, section 4.2.3.5, if a Rule-compliance project qualifies for District Rule 2201's Best Available Control Technology (BACT) and offset exemptions;

b.   Pursuant to Rule 2201, section 4.15.1, if an Alternate Siting analysis must be performed; and if the applicant must provide certification that all California stationary sources owned, operated, or controlled by the applicant that are subject to emission limits are in compliance with those limits or are on a schedule for compliance with all applicable emission limits and standards; and

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

This facility is an existing Major Source for VOC emissions. In order to determine whether a Federal Major Modification can be triggered, the Net Emissions Increase (NEI) is calculated and is compared with the 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. Therefore,

$$NEI = (PAE - BAE)$$
$$= (4,931 - 3,978)$$
$$= 953 \text{ lb-VOC/year}$$

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

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 an SB 288 Major Modification or Federal Major Modification per section 4.1.3.

As shown in section VII.C.3, AIPE of VOC emission exceeds 2.0 lb/day. In addition, as shown in section VII.D.7, this project constitutes a Federal Major Modification. Therefore, BACT is triggered and required for this project.

BACT Guideline 5.4.15 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[1], 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 III of this document.

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 the ATC to ensure compliance with the BACT requirements:

• *This tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate*

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

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 follow:

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 = [Σ (PE2 – BE)] x 1.5

Emission offset required = [4,931 – 3,978] x 1.5 lb-VOC/yr = 1,430 lb-VOC/yr

As shown above, offset are required for this project. The applicant has proposed to utilize ERC certificate S-3733-1 to offset the increase of VOC emissions in this project. The available credit on this certificate is listed in the table below:

ERC S-3714-1	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
VOC	79,675	79,675	79,675	79,671

The required quarterly offset for this project are:

Total Offset	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
VOC	357	357	358	358

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

ERC S-3733-1:

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
Available Offset	79,675	79,675	79,675	79,671
Total Reserved	(52,380)	(52,381)	(52,390)	(52,396)
Minus Offset required for this project	(357)	(357)	(358)	(358)
Remaining Offset	26,938	26,937	26,927	26,917

Therefore, the ERC certificate S-3733-1 has sufficient credits to fully offset the increase of VOC emissions in this project.

To ensure the emission credits from ERC Certificate S-3733-1 utilize for offset the increase of VOC emissions in this project, the following conditions will be listed on the ATC:

- *ERC certificate S-3733-1 (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 - 238 lb, 2nd quarter - 238 lb, 3rd quarter - 238 lb, and 4th quarter - 239 lb. Offsets shall be provided at an offset ratio 1.5 to 1. [District Rule 2201]*

3. Public Notification

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

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

This project triggers a Federal Major Modification. 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 § 3.15 to restrict a unit's maximum daily emissions. Therefore, the following conditions will be listed on the permit:

- *The daily VOC emissions for distilled spirits storage shall not exceed 243.8 pounds. [District Rule 2201]*

- *The daily distilled spirits storage throughput of this tank shall not exceed 200,000 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 maintained the following records: a) the maximum ethanol concentration in volume percent of the distilled spirits stored, b) the daily throughput, and c) the cumulative annual throughput. [District Rule 2201]*

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

6.   Ambient Air Quality Analysis

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

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

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

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

<u>Per section 4.15.1, Alternative Siting Analysis:</u>

Since the current project involves no increase in the winery's total tank volume and no change to any other facets of the operation, modifying the proposed emission unit 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.

<u>Per section 4.15.2, Compliance Certification:</u>

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 V of this document.

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

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 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 NSR Rule]*

- *{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 V 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 prior to operating under the ATC. Therefore, compliance with the requirements of this Rule is expected.

District Rule 4001 New Source Performance Standards (NSPS)

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

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

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

District Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than 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]*

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.

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. This existing tank is 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 recording 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.

This existing tank is used for store and supply distilled spirits for bottling purpose 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 (including 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.

This existing stainless steel tank is used to store and supply high proof distilled spirits for 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 Authority to Construct N-7478-3-2 subject to the permit conditions listed on the attached draft Authority to Construct in Appendix I.

X. BILLING INFORMATION

Annual Permit Fees				
Permit Number	Previous Fee Schedule	Fee Schedule	Fee Description	Annual Fee
N-7478-3-2	3020-05-E	3020-05-E (100,000 or Greater but less than 500,000 gallon)	350,000 gallons	$ 246

APPENDICES

Appendix I: *Draft Authority to Construct (ATC)*
Appendix II: *Current Permit to Operate (PTO)*
Appendix III: *BACT Guideline & Top-Down BACT Analysis*
Appendix IV: *EPA's Tanks 4.0.d Reports*
Appendix V: *Compliance Certification*

Appendix I

Draft Authority to Construct (ATC)

AUTHORITY TO CONSTRUCT

PERMIT NO: N-7478-3-3

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY - BRANDY
MAILING ADDRESS: PO BOX 1130
MODESTO, CA 95353

LOCATION: 200 YOSEMITE AVE
MODESTO, CA 95353

EQUIPMENT DESCRIPTION:
MODIFICATION OF 350,000 GALLON INSULATED STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS
STORAGE TANK #352 WITH PRESSURE/VACUUM VALVE: INCREASE THE ETHANOL CONCENTRATION FROM 60%
TO 99.9% AND CHANGE THE STORAGE TANK OPERATING TEMPERATURE TO AMBIENT TEMPERATURE.

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 - 238 lb, 2nd quarter - 238 lb, 3rd quarter - 238 lb, and 4th quarter - 239 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-3733-1 (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

DRAFT

DAVID WARNER, Director of Permit Services
N-7478-3-3 : Aug 14 2012 4:10PM -- 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 243.8 pounds. [District Rule 2201] Federally Enforceable Through Title V Permit

10. The daily distilled spirits storage throughput of this tank shall not exceed 200,000 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 annual distilled spirits storage throughput of this tank shall not exceed 6,000,000 gallons. [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 throughout, and c) the cumulative annual throughput. [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

Appendix II

Current Permit to Operate (PTO)

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: N-7478-3-1

EQUIPMENT DESCRIPTION:
350,000 GALLON INSULATED STAINLESS STEEL ENCLOSED TOP DISTILLED SPIRITS STORAGE TANK #352 WITH PRESSURE/VACUUM VALVE

PERMIT UNIT REQUIREMENTS

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

2. The storage tank shall be equipped and operated with a pressure-vacuum relief valve, set to operate within 10% of the maximum allowable working pressure of the tank and permanently labeled with the operating pressure settings. [District Rule 2201] Federally Enforceable Through Title V Permit

3. The pressure-vacuum relief valve shall be installed and operated in accordance with the manufacturer's instructions. [District Rule 2201] Federally Enforceable Through Title V Permit

4. 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

5. Ethanol content of distilled spirits in this tank shall not exceed 60 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit

6. Tank throughput shall not exceed either of the following limits: 200,000 gallons in any one day or 6,000,000 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Daily records shall be kept, recording the total volume of distilled spirits in the storage tank and the ethanol content of the distilled spirits in volume percent. [District Rule 2201] Federally Enforceable Through Title V Permit

8. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 2201] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

Facility Name: E & J GALLO WINERY - BRANDY
Location: 200 YOSEMITE AVE,MODESTO, CA 95353
N-7478-3-1 : Jul 15 2012 10:40AM – BOW

Appendix III

BACT Guideline & Top-Down BACT Analysis

Air Net

■ Home

Search

◀ ● Advanced Search

G   H

Administration ▶

Compliance
Emission Reduction
IT Services
OPS
Outreach & Com.
Permit Services
Personnel
Strategies & Incent.

Labor Info. System ▶
Specialty Programs ▶
MS Office ▶
EDMS ▶

Phone Lists
New Office Docs
Office Docs 2010 ▶
Reserve a Room
Healthy Air Living
Service Projects

Per » B A C T » Bact Guideline.asp?category Level1=5&category Level2=4&category Level3=15&last Update=11 » 2 :

Back

Best Available Control Technology (BACT) Guideline 5.4.15
Last Update: 11/2/2011

Distilled Spirits Storage Tank

Pollutant	Achieved in Practice or 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 requried 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. For background information, see Permit Specific BACT Determinations on Details Page.

Top-Down BACT Analysis for VOC emissions

The following VOC emission control technologies are listed in the BACT guideline 5.4.15, 3rd quarter of 2012 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:

Capacity: 350,000 gallon:
Size: 38' diameter x 40' tall (each)
Specification: 304L SS, Vertical fixed roof (cone), pressure/vacuum valve, and insulated

Maximum Vapor Flow Rate:

Determination of the maximum vapor flow rate from this tank is calculated by the maximum product transfer rate. The applicant stated that the maximum flow rate to transfer liquid spirits using positive displacement type pumps would be 115 GPM.

350,000 gallons x min/115 gallons x 1 hr/60 min = 50.72 hours

Moles of air displaced = 350,000 gallons/tank x ft^3/7.48 gallons x 0.07544 lb-air/ft^3 x lb-mol air/28.58 lb-air
$$= 123.5 \text{ lb-mol air/tank}$$

Tanks 4.0.d Daily Spirits Emissions = (7,566 lb-VOC/month)/(31 days) = 244.1 lb-VOC/tank

Moles of spirits = 244.1 lb-VOC/tank x lb-mol/46.07 lb = 5.3 lb-mol/tank

Total moles = (123.5 + 5.3) lb-mol/tank = 128.8 lb-mol

V = nRT/P
   = [128.8 lb-mol x 0.7302 lb-mol °R/atm ft^3 x 520 °R] /1 atm
   = 48,906 ft^3

Vapor Flow Rate = 48,906 ft^3 ÷ 50.72 hours x 1 hour/60 min = 16.1 scfm

Uncontrolled Emissions:

As shown in section VII.C.2 of this document, the uncontrolled VOC emission is 4,931 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 this existing 350,000 gallon tank to a common manifold system which ducts the 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 the tank to provide adequate strength for spanning between supports. The main header is twelve inches diameter to handle the potential for simultaneous venting with other tanks.
- A minimum estimated length 119 feet including the header line in the middle of the tank of 19 feet and control device located within 100 feet of tank.

Capital Cost Ductwork

6" Stainless Steel Duct: 19 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.

Unit installed cost for 6 inch Stainless Steel ducting: $61.30/linear foot [2]
Unit installed cost for 12 inch Stainless Steel ducting: $143.80/linear foot [2]

Installed costs = ($61.30 linear foot x 19 feet) + ($143.80 linear foot x 100 feet) = $15,545

Adjusting from 2005 dollars to 2012 dollars (multiply by 1.24, 2.75% inflation/yr)[3].

___

[2] The cost information is taken from engineering evaluation N-1113407.
[3] Inflation multiplier (IM) = $(1 + i)^n$, where I is the inflation rate of 2.75%, and n is the number of year of 8. IM = $(1 + 0.0275)^8 = 1.24$

Installed costs = $15,545 x 1.24 = $19,276

Duct Valve Allowance

One of the major concerns of a manifold duct system is microorganisms spoiling the spirits, 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 tank is 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) + ($500/tank x 1 tank) = $2,625

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.

An allowance of $200,000 for a CIP system is included in the evaluation. This value is consistent with the data used in engineering evaluation N-1113407.

Installed costs = $200,000

Total costs   = Ductwork + Duct Valve + CIP System
             = $19,276 + $2,625 + $200,000
             = $221,901

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 = $221,901 x 0.163 = **$36,170**

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 2012 dollars (multiply by 1.085, 2.75% inflation/yr):

RTO (50 cfm) capital cost = $37,700 x 1.085 = $40,905

Cost Item	Cost, $
Direct Costs	
Purchased equipment costs:	
RTO cost, A	40,905
Sales tax, Modesto, 0.07375 x (A)	3,017
Freight, 0.05 x (A)	2,045
Purchased equipment cost, B	$45,967
Direct installation costs:	
Foundations & supports, 0.08 x (B)	3,677
Handling & erection, 0.14 x (B)	6,435
Electrical, 0.04 x (B)	1,839
Piping, 0.02 x (B)	919
Insulation for duct work, 0.01 x (B)	460
Painting, 0.01 x (B)	460
Direct installation costs	$13,790
Site preparation	--
Buildings	--
Total Direct Costs	$59,757
Indirect Costs (Installation)	
Engineering, 0.1 x (B)	4,597
Construction & field expenses, 0.05 x (B)	2,298
Contractor fees, 0.1 x (B)	4,597
Start-up, 0.02 x (B)	919
Performance test, 0.01 x (B) [4]	--
Contingencies, 0.03 x (B)	1,379
Total Indirect Costs	$13,790
Total Capital Investment	$73,547

---

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

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 = $73,547 x 0.163 = $11,988

Total Annual Cost = $36,170 + $11,988 = $48,158

Annual Emission Reduction = Uncontrolled Emissions x 0.98
$\qquad$ = 4,931 lb-VOC/year x 0.98
$\qquad$ = 4,832 lb-VOC/year
$\qquad$ = 2.42 tons-VOC/year

Cost Effectiveness = $48,158/year ÷ 2.42 tons-VOC/year
$\qquad$ = $19,900/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)

Per engineering evaluation N-1100320 (July 19, 2011), Kurt Keefer of EAS Corp, (916) 967-9007, provided a budget price of $40,000 for a single stage "Duall CAS-3000" carbon adsorption system capable of handling 3,200 cfm. The quoted price does not include sales tax, freight expenses, operational and maintenance costs, site preparation, etc.

Adjusting from 2011 dollars to 2012 dollars (multiply by 1.0275, 2.75% inflation/yr):

Carbon system capital cost = $40,000 x 1.0275 = $41,100

Mr. Keefer informed that the cost of installing and disposing carbon ranges anywhere from $2/lb to $10/lb.

Cost Item	Cost, $
Direct Costs	
Purchased equipment costs	
Carbon system cost, A	41,100
Sales tax, Modesto, 0.07375 x (A)	3,031
Freight, 0.05 x (A)	2,055
Purchased equipment cost, B	$46,186

Direct installation costs	
Foundations & supports, 0.08 x (B)	3,695
Handling & erection, 0.14 x (B)	6,466
Electrical, 0.04 x (B)	1,847
Piping, 0.02 x (B)	924
Insulation for duct work, 0.01 x (B)	462
Painting, 0.01 x (B)	462
Direct installation costs	$13,856
Site preparation	--
Buildings	--
Total Direct Costs	$60,042
Indirect Costs (Installation)	
Engineering, 0.1 x (B)	4,619
Construction & field expenses, 0.05 x (B)	2,309
Contractor fees, 0.1 x (B)	4,619
Start-up, 0.02 x (B)	924
Performance test, 0.01 x (B)	--
Contingencies, 0.03 x (B)	1,386
Total Indirect Costs	$13,857
Total Capital Investment	$73,899

$$\text{Capital Costs } 16.1\,\text{cfm} = \text{Capital Costs } 3{,}200\,\text{cfm} \times \left(\frac{16.1\,\text{cfm}}{3{,}200\,\text{cfm}}\right)^{0.6}$$

Capital Costs 16.1 cfm = $73,899 x (16.1 ÷ 3,200)$^{0.6}$
= $3,088/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 = $3,088 x 0.163 = $503

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 23,422 lb/year (0.95 × 4,931 lb-VOC/yr ÷ 0.2 lb-carbon/lb-VOC adsorbed). Therefore, the total carbon replacement and disposal costs would be:

= $2/lb-carbon × 23,422 lb-carbon/year = $46,844/year

Total Annual Cost = $36,170 + $503 + $46,844 = $83,517

Annual Emission Reduction = Uncontrolled Emissions x 0.95
　　　　　　　　　　　　　 = 4,931 lb-VOC/year x 0.95
　　　　　　　　　　　　　 = 4,684 lb-VOC/year
　　　　　　　　　　　　　 = 2.34 tons-VOC/year

Cost Effectiveness = $83,517/year ÷ 2.34 tons-VOC/year
　　　　　　　　　　 = $35,691/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)

Per engineering evaluation N-1100320 (July 19, 2011), Kurt Keefer of EAS Corp, (916) 967-9007, provided a budget price of $29,800 for a single stage "Duall Once Through Water Scrubber" system capable of handling 3,200 cfm. 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 16.1 scfm.

Adjusting from 2011 dollars to 2012 dollars (multiply by 1.0275, 2.75% inflation/yr):

Carbon system capital cost = $29,800 x 1.0275 = $30,620

Cost Item	Cost, $
Direct Costs	
Purchased equipment costs	
Scrubber System cost, A	30,620
Sales tax, Modesto, 0.07375 x (A)	2,258
Freight, 0.05 x (A)	1,531
Purchased equipment cost, B	$34,409
Direct installation costs	
Foundations & supports, 0.08 x (B)	2,753
Handling & erection, 0.14 x (B)	4,817
Electrical, 0.04 x (B)	1,376

Piping, 0.02 x (B)	688
Insulation for duct work, 0.01 x (B)	344
Painting, 0.01 x (B)	344
Direct installation costs	$10,322
Site preparation	--
Buildings	--
Total Direct Costs	$44,731
Indirect Costs (Installation)	
Engineering, 0.1 x (B)	3,441
Construction & field expenses, 0.05 x (B)	1,720
Contractor fees, 0.1 x (B)	3,441
Start-up, 0.02 x (B)	688
Performance test, 0.01 x (B)	--
Contingencies, 0.03 x (B)	1,032
Total Indirect Costs	$10,322
Total Capital Investment	$55,053

$$\text{Capital Costs } 16.1\,\text{cfm} = \text{Capital Costs } 3{,}200\,\text{cfm} \times \left(\frac{16.1\,\text{cfm}}{3{,}200\,\text{cfm}}\right)^{0.6}$$

Capital Costs 16.1 cfm = $55,053 x (16.1 ÷ 3,200)$^{0.6}$
= $2,300/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 = $2,300 x 0.163 = $375

Additionally, the water scrubber will generate ethanol-laden wastewater containing 2.22 tons-ethanol annually (calculated below). Assuming a 2% solution, approximately 33,535 gallons of waste water (2.22 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[5].

Annual disposal costs = 33,535 gallons x $0.25/gallon = $8,384

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

Total Annual Cost = $36,170 + $375 + $8,384 = $44,929

Annual Emission Reduction = Uncontrolled Emissions x 0.90
                                             = 4,931 lb-VOC/year x 0.90
                                             = 4,438 lb-VOC/year
                                             = 2.22 tons-VOC/year

Cost Effectiveness = $44,929/year ÷ 2.22 tons-VOC/year
                               = $20,238/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 115 GPM.

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

Refrigeration Capacity = [115 gal/min 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)]
                                      = 116.1 tons
                                      ≈ 116 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[6]

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[6] 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

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 1.82 = $367,165

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $367,165 x 0.163 = $59,848

To compare the cost and size of a 174 ton condenser to the subject 116 ton condenser, the six-tenths rule of thumb is used.

$$\text{Annualized Costs 116 ton} = \text{Annualized Costs 174 ton} \times \left(\frac{116\,\text{ton}}{174\,\text{ton}} \right)^{0.6}$$

Annualized Costs 116 ton = $59,848 x (116 ÷ 174)$^{0.6}$
 = $46,924/year

Annual Emission Reduction = Uncontrolled Emissions x 0.70
 = 4,931 lb-VOC/year x 0.70
 = 3,452 lb-VOC/year
 = 1.73 tons-VOC/year

Cost of Reductions = $46,924/year ÷ 1.73 tons-VOC/year
 = $27,124/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.

Appendix IV

EPA's Tanks 4.0.d Reports

TANKS 4.0
Chemical Data Report

Chemical Name Category	CAS	Molecular Weight Liquid	Vapor	Density*	40	Vapor Pressure (psia) at Temperature (degrees F) 50	60	70	80	90	100	Constants for Antione's Equation Line 1: degrees C Line 2: degrees K A	B	C	REID (psia)	ASTM Slope
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, Tank#352 - Annual 7/18/12
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	350,000 gallons stainless steel, insulated & installed outdoor (ambient temp)

Tank Dimensions
Shell Height (ft):	40.00
Diameter (ft):	38.20
Liquid Height (ft) :	40.00
Avg. Liquid Height (ft):	40.00
Volume (gallons):	350,000.00
Turnovers:	17.14
Net Throughput(gal/yr):	6,000,000.00
Is Tank Heated (y/n):	Y

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

Roof Characteristics
Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

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, Tank#352 - Annual 7/18/12 - 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	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Feb	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Mar	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Apr	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	May	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jun	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Jul	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Aug	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Sep	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Oct	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Nov	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	45.9158			45.90	Option 1: VP60 = .64476 VP70 = .90202
Wine 99.9 % Vol Alcohol	Dec	64.20	64.20	64.20	64.20	0.7528	0.7528	0.7528	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, Tank#352 - Annual 7/18/12 - 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):	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461
Vapor Density (lb/cu ft):	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061
Vapor Space Expansion Factor:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vented Vapor Saturation Factor:	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461	456.0461
Tank Diameter (ft):	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000
Vapor Space Outage (ft):	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979
Tank Shell Height (ft):	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000
Average Liquid Height (ft):	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000
Roof Outage (ft):	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979
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):	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625
Shell Radius (ft):	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000	19.1000
Vapor Density												
Vapor Density (lb/cu ft):	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061
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):	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528
Daily Avg. Liquid Surface Temp. (deg. R):	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700
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):	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700
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	2,388.0000	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):	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528
Daily Avg. Liquid Surface Temp. (deg R):	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700
Daily Min. Liquid Surface Temp. (deg. R):	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700
Daily Max. Liquid Surface Temp. (deg. R):	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700	523.8700
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:	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844	0.9844
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528

Vapor Space Outage (ft):	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979	0.3979
Working Losses (lb):	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979
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):	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528	0.7528
Net Throughput (gal/mo.):	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000	500,000.0000
Annual Turnovers:	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400	17.1400
Turnover Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Maximum Liquid Volume (gal):	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000	350,000.0000
Maximum Liquid Height (ft):	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000	40.0000
Tank Diameter (ft):	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000	38.2000
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):	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979	411.4979

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, Tank#352 - Annual 7/18/12 - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	4,937.97	0.00	4,937.97

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

Identification

User Identification:	E&J Gallo N7478, Tank#352 - Monthly 7/18/12
City:	Modesto
State:	California
Company:	E&J Gallo Winery - Brandy
Type of Tank:	Vertical Fixed Roof Tank
Description:	350,000 gallons stainless steel, insulated & installed outdoor (ambient temp)

Tank Dimensions

Shell Height (ft):	40.00
Diameter (ft):	38.20
Liquid Height (ft) :	40.00
Avg. Liquid Height (ft):	40.00
Volume (gallons):	350,000.00
Turnovers:	17.14
Net Throughput(gal/yr):	6,000,000.00
Is Tank Heated (y/n):	Y

Paint Characteristics

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

Roof Characteristics

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

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, Tank#352 - Monthly 7/18/12 - 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, Tank#352 - Monthly 7/18/12 - 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):							456.0461					
Vapor Density (lb/cu ft):							0.0092					
Vapor Space Expansion Factor:							0.0000					
Vented Vapor Saturation Factor:							0.9763					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							456.0461					
Tank Diameter (ft):							38.2000					
Vapor Space Outage (ft):							0.3979					
Tank Shell Height (ft):							40.0000					
Average Liquid Height (ft):							40.0000					
Roof Outage (ft):							0.3979					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.3979					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0625					
Shell Radius (ft):							19.1000					
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:							0.9763					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.1534					

Vapor Space Outage (ft):   0.3979

Working Losses (lb):   7,565.5313
  Vapor Molecular Weight (lb/lb-mole):   45.9158
  Vapor Pressure at Daily Average Liquid
    Surface Temperature (psia):   1.1534
  Net Throughput (gal/mo.):   6,000,000.0000
  Annual Turnovers: 17.1400
  Turnover Factor: 1.0000
  Maximum Liquid Volume (gal):   350,000.0000
  Maximum Liquid Height (ft):   40.0000
  Tank Diameter (ft):   36.2000
  Working Loss Product Factor: 1.0000

Total Losses (lb):   7,565.5313

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

Emissions Report for: July

E&J Gallo N7478, Tank#352 - Monthly 7/18/12 - Vertical Fixed Roof Tank
Modesto, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 99.9 % Vol Alcohol	7,565.53	0.00	7,565.53

Appendix V

Compliance Certification

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I.   TYPE OF PERMIT ACTION (Check appropriate box)
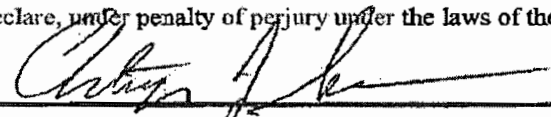
[X] SIGNIFICANT PERMIT MODIFICATION   [ ] ADMINISTRATIVE
[ ] MINOR PERMIT MODIFICATION   AMENDMENT

COMPANY NAME: E&J Gallo Winery, Modesto	FACILITY ID: N-7478

1. Type of Organization: [X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility

2. Owner's Name: E&J Gallo Winery

3. Agent to the Owner: Christine Ryan

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

Ø 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).

Ø 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.

Ø Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

Ø 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:

_____   7-10-12
Signature of Responsible Official   Date

CHRISTOPHER J. Sample
Name of Responsible Official (please print)

Sr. Director, Environmental Affairs
Title of Responsible Official (please print)

Mailing Address: Central Regional Office * 1990 E. Gettysburg Avenue * Fresno, California 93726-0244 * (559) 230-5900 * FAX (559) 230-6061
TVFORM-009
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