San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 1 1 2016

Mr. Paul Bement
Golden State Vintners/Franzia McFarland
31795 Whisler Rd
McFarland, Ca 93250

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-882
Project # S-1151242

Dear Mr. Bement:

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. Permit units S-882-11, -112, and -113 are being modified to insulate the three storage tanks; and to allow for the storage of distilled spirits in addition to wine storage.

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. Errol Villegas, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Enclosures

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

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San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Wine and Distilled Spirits Storage

Facility Name:	Golden State Vintners/Franzia-McFarland	Date:	January 5, 2016
Mailing Address:	31795 Whisler Rd McFarland, CA 93250	Engineer: Lead Engineer:	Vanesa Gonzalez Joven Refuerzo
Contact Person:	Paul Bement		
Telephone:	(209) 253-5206		
Fax:	(209) 599-4217		
E-Mail:	paul.bement@thewinegroup.com		
Application #s:	S-882-111-2, -112-2, and -113-2		
Project #:	S-1151242		
Deemed Complete:	October 13, 2015		

I. Proposal

Golden State Vintners/Franzia-McFarland has requested an Authority to Construct (ATC) permit for the modification of three wine storage tanks S-882-111, -112, and -113. The facility is proposing to include the ability to store distilled spirits in the tank. The facility will also insulate the storage tanks to meet BACT requirements. The post project emissions will be based on a single limiting condition (SLC) for the maximum throughput of wine and distilled spirits for the three tanks involved in this project.

Golden State Vintners/Franzia-McFarland received their Title V Permit on October 31, 2012. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Golden State Vintners/Franzia-McFarland must apply to administratively amend their Title V permit.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4694	Wine Fermentation and Storage Tanks (12/15/05)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The facility is located at 31795 Whisler Rd. in McFarland, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Golden State Vintners/Franzia-McFarland produces wine and distilled spirits. Wine is first directed to the presses for separation of solids and then routed to the storage tanks. All tanks in the winery typically operate as two separate emissions units; 1) a fermentation operation during which the tank is vented directly to the atmosphere to release the evolved CO_2 byproduct from the fermentation reaction; and 2) a storage operation where the tank is closed to minimize contact with air and the contents is often refrigerated. Post-fermentation operations are conducted in the tanks including cold stabilization, racking, filtration, etc. which result in a number of inter-tank transfers of the wine during this period leading up to the bottling or bulk shipment of the finished product. Storage operations are conducted year-round. VOC emissions occur primarily as a result of the inter-tank wine transfers which occur during the post fermentation operations.

V. Equipment Listing

Pre-Project Equipment Description:

S-882-111-1: 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P2) WITH PRESSURE VACUUM VALVE

S-882-112-1: 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P3) WITH PRESSURE VACUUM VALVE

S-882-113-1: 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P4) WITH PRESSURE VACUUM VALVE

Proposed Modification:

S-882-111-2: MODIFICATION OF 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P2) WITH PRESSURE VACUUM VALVE: INSULATE TANK AND ALLOW THE ABILITY TO STORE DISTILLED SPIRITS

S-882-112-2: MODIFICATION OF 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P3) WITH PRESSURE VACUUM VALVE: INSULATE TANK AND ALLOW THE ABILITY TO STORE DISTILLED SPIRITS

S-882-113-2: MODIFICATION OF 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P4) WITH PRESSURE VACUUM VALVE: INSULATE TANK AND ALLOW THE ABILITY TO STORE DISTILLED SPIRITS

Post Project Equipment Description:

S-882-111-2: 106,314 GALLON STAINLESS STEEL WINE AND DISTILLED SPIRITS STORAGE TANK (TANK #P2) WITH INSULATION AND PRESSURE VACUUM VALVE

S-882-112-2: 106,314 GALLON STAINLESS STEEL WINE AND DISTILLED SPIRITS STORAGE TANK (TANK #P3) WITH INSULATION AND PRESSURE VACUUM VALVE

S-882-113-2: 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P4) WITH INSULATION AND PRESSURE VACUUM VALVE

VI. Emission Control Technology Evaluation

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

VII. General Calculations

A. Assumptions

- Typically, for enclosed tanks with refrigeration and/or insulation (or equivalent) and P/V valves, breathing losses from storage of wine are assumed to be negligible.
- The maximum ethanol content of wine stored is 16%. (Per Applicant)
- The average ethanol content of distilled spirits is 98% (Per Applicant).
- Maximum daily wine turnovers is 1 turnover for worst case scenario.
- Maximum annual wine storage for all three tanks is 3,264,150 gallons. (Per Applicant)
- When storing distilled spirits the maximum daily storage throughput for each tank is 2 turns per day (Per Applicant).
- Maximum annual distilled spirits storage for all three tanks is 637,884 gallons. (Per Applicant)

B. Emission Factors

Pre-Project:

Pre project emissions are based on Tanks 4.0 calculations. No emission factors were used.

Post-Project:

Emission factors are taken from District FYI-114, *VOC Emission Factors for Wine Fermentation and Storage Tanks,* for facility located in the Southern Region, as follows:

Wine Type	Vol% Ethanol	EF2 (lb-VOC/1,000 gallon of wine)		Source
		Daily	Annual	
Wine	16	0.302	0.159	FYI-114, Table 1
Distilled Spirits	98	1.409	0.786	FYI-114, Table 1

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Wine Storage:

Per Tanks 4.0 the daily emissions from each tank are 46.3 lb-volatiles/day (Appendix C). Tanks 4.0 include the emissions from water vapor and ethanol as volatiles. Therefore, per FYI 295, *Modeling of Emissions for Wine and Distilled Spirits Storage Tanks Using Tanks 4.0d*, this value was speciated for ethanol (Appendix C) and the daily emissions for each tank are 30.1 lb-VOC/day.

Per Tanks 4.0 the annual emissions from all three tanks combined is 1,314 lb-volatiles/year (Appendix C). Tanks 4.0 include the emissions from water vapor and ethanol as volatiles. Therefore, per FYI 295, *Modeling of Emissions for Wine and Distilled Spirits Storage Tanks Using Tanks 4.0d*, this value was specieated for ethanol (Appendix C) and the annual emissions for the three tanks are 569 lb-VOC/year.

2. Post Project Potential to Emit (PE2)

Wine Storage:

Since the tanks will be insulated, emissions are no longer calculated using Tanks 4.0. Emissions factors from FYI 114 will be used to calculate the emissions for the tanks.

For each tank,

Daily PE2 = EF (lb-VOC/1,000 gal) x throughput (gal/day)
= 0.302 lb-VOC/1,000 gal x 106,314 gal/turnover x 1 turnover/day
= 32.1 lb-VOC/day

The facility is proposing to limit the three tanks to 3,264,150 gallons of wine per year.

Annual PE2 = EF (lb-VOC/1,000 gal) x throughput (gal/year)
= 0.159 lb-VOC/1,000 gal x 3,264,150 gal/year
= 519 lb-VOC/year

Distilled Spirits Storage:

For each tank,

Daily PE2 = EF (lb-VOC/1,000 gal) x throughput (gal/day)
= 1.409 lb-VOC/1,000 gal x 106,314 gal/turnover x 2 turnovers/day
= 299.6 lb-VOC/day

The facility is proposing to limit the three tanks to 637,884 gallons of distilled spirits per year.

Annual PE2 = EF (lb-VOC/1,000 gal) x throughput (gal/year)
= 0.786 lb-VOC/1,000 gal x 637,884 gal/year
= 501 lb-VOC/year

Annual SLC Emissions:

The annual emissions for the three tanks involved with this project is,

PE2 = PE2 Wine Storage + PE2 Distilled Spirits Storage

PE2 = 519 lb-VOC/year + 501 lb-VOC/year
= 1,020 lb-VOC/year

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

Pursuant to District Rule 2201, the 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 (AER) that have occurred at the source, and which have not been used on-site.

Facility emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE1 calculations are not necessary.

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

Since facility emissions are already above the Offset and Major Source Thresholds for VOC emissions, SSPE2 calculations are not necessary.

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes 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 the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

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

Rule 2410 Major Source Determination:

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The only polluntant addressed by this project is VOC. Since the District is nonattainment for VOC, this project will not trigger PSD requirements for the three tanks. Therefore, PSD major source applicability will not be determined at this time.

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

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

The only pollutant of concern for this project is VOC. This facility is a major source. The three tanks involved in this project do not qualify as clean emissions units or highly utilized units. Therefore, BE = HAE.

In compliance with the determining Historical Actual Emissions (HAE), the applicant has provided the annual wine throughput for 2010 through 2014 (Appendix D). The applicant

has indicated 2010 and 2011 as the two years most representative of the units operation and requested they be used to establish the HAE. The District has agreed to use 2010 and 2011 for baseline emissions calculations. The facility is proposing an SLC of throughput as a part of the modification of these units.

Throughput for Three Tanks
2010: 1,984,131 gallons/year
2011: 1,876,706 gallons/year
(avg): 1,930,419 gallons/year

Annual emissions were calculated using Tanks 4.0, based on 1,930,419 gallons/year. As previously discussed Tanks 4.0 include the emissions from water vapor and ethanol as volatiles. Therefore, per FYI 295, *Modeling of Emissions for Wine and Distilled Spirits Storage Tanks Using Tanks 4.0d*, this value was speciated for ethanol (Appendix D) and the HAE = 355 lb-VOC/year.

7. SB 288 Major Modification

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

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

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO_x	0	50,000	No
SO_x	0	80,000	No
PM_{10}	0	30,000	No
VOC	1,020	50,000	No

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

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

Step 1

For existing emissions units, the increase in emissions is calculated as follows.

Emission Increase = PAE – BAE - UBC

Where: PAE = Projected Actual Emissions, and
BAE = Baseline Actual Emissions
UBC = Unused baseline capacity

The applicant has provided the required historical and projected operation data (see Appendix D). As calculated in Appendix D the baseline actual emissions are 355 lb-VOC/year. Assuming there is no unused baseline capacity.

Emission Increase = 1,070 lb-VOC/year – 355 lb-VOC/year
= 715 lb-VOC/year

The project's combined total emission increases are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO_x*	0	0	No
VOC*	715	0	Yes
PM_{10}	0	30,000	No
$PM_{2.5}$	0	20,000	No
SO_x	0	80,000	No

*If there is any emission increases in NO_x or VOC, this project is a Federal Major Modification and no further analysis is required.

Since there is an increase in VOC emissions, this project constitutes a Federal Major Modification, and no further analysis is required.

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

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Total PE from New and Modified Units	0	0.5	0	0	0	0
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	N	N	N	N	N	N

As shown in the table above, the potential to emit for the project, by itself, does not exceed any PSD major source threshold. Therefore Rule 2410 is not applicable and no further analysis is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix I.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

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

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

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

As previously discussed the facility is proposing to store distilled spirits in the storage tank. Storing distilled spirits is considered a change in operation and is a separate emission unit. As seen in Section VII.C.2 above, the applicant is proposing to store distilled spirits with a PE greater than 2 lb/day for VOC. Therefore, BACT is triggered for VOC.

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

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

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

The existing wine storage operation is being modified by adding insulation to the tank. Therefore for wine storage,

AIPE = PE2 – HAPE

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)
PE2 = Post-Project Potential to Emit, (lb/day)
HAPE = Historically Adjusted Potential to Emit, (lb/day)

HAPE = PE1 x (EF2/EF1)

Where,

PE1 = The emissions unit's PE prior to modification or relocation, (lb/day)
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

AIPE = PE2 – (PE1 * (EF2 / EF1))

AIPE = 32.1 – (30.1 * (1.0/1.0))
= 32.1 – 30.1 * 1
= 2.0 lb/day

As demonstrated above, the AIPE is not greater than 2.0 lb/day for VOC emissions. Therefore BACT is not triggered.

2. BACT Guideline

BACT Guideline 5.4.15, applies to Distilled Spirits Storage Tanks. (See **Appendix E)**

3. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis (see **Appendix F**), BACT has been satisfied with the following:

VOC: Insulation, pressure vacuum relief valve set within 10% of the maximum allowable working pressure of the tank, and "gas-tight" tank operation

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201. The facility concedes they are above the offset threshold for VOC.

2. Quantity of Offsets Required

Offsets are required for VOC emissions.

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

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

Where,
PE2 = Post Project Potential to Emit, (lb/year)
BE = Baseline Emissions, (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 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 = HAE

For the tanks, BE is equal to the Historical Actual Emissions (HAE). HAE was calculated in Tanks 4.0 using the average annual throughput of 2010 and 2011 for the three tanks. HAE = 355 lb-VOC/year.

Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = ([SLC PE2 –HAE] + ICCE) x DOR

SLC PE2 (VOC) = 1,020 lb/year
HAE (VOC)= 355 lb/year
ICCE = 0 lb/year

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

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

Offsets Required (lb/year) = ([1,020 – 355] + 0) x 1.5
= 665 x 1.5
= 998 lb VOC/year

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

Quarterly offsets required (lb/qtr) = (998 lb VOC/year) ÷ (4 quarters/year)
= 249.5 lb/qtr

The applicant has stated that the facility plans to use ERC certificate S-4147-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #S-4147-2	250	250	249	249

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

Proposed Rule 2201 (offset) Conditions:

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 250 lb, 2nd quarter - 250 lb, 3rd quarter - 249 lb, and fourth quarter - 249 lb. These amounts include the applicable offset ratio specified in

Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-4147-2 (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]

C. Public Notification

1. Applicability

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

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

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

As demonstrated in Sections VII.C.8, this project is a Federal Major Modification. Therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project. Therefore public noticing is not required for this project for PE > 100 lb/day.

c. Offset Threshold

As previously discussed this facility was already above the offset threshold prior to this project. There were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. In this case the SSIPE can be calculated by the change of emissions from the tanks.

SSIPE = ∑PE2 for three tanks – ∑PE1 of three tanks
= 1,292 lb-VOC/year - 569 lb-VOC/year
= 733 lb-VOC/year

The SSIPE is less than 20,000 lb-VOC/year. Therefore, noticing for exceeding SSIPE of 20,000 lb/year is not triggered.

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modifications is required for this project.

2. Public Notice Action

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

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

- 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 and 4649]

- The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rule 2201]

- The ethanol content of wine stored in this tank shall not exceed 16 percent by volume. [District Rule 2201]

- The ethanol content of distilled spirits stored in this tank shall not exceed 98 percent by volume. [District Rule 2201]

- The maximum wine storage throughput for tanks S-882-111, -112, and -113 shall not exceed 3,264,150 gallons per year. [District Rule 2201]

- The maximum distilled spirits storage throughput in this tank shall not exceed 212,628 gallons per day. [District Rule 2201]

- The maximum distilled spirits storage throughput for tanks S-882-111, -112, and -113 shall not exceed 637,884 gallons per year. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition(s) are listed on the permit to operate:

- Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume, the percent ethanol in the batch, and the volume of wine or spirits transferred, shall be maintained. [District Rule 2201]

- Annual throughput records of the volume of wine and volume of spirits transferred shall be maintained in 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 Rule 1070]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to **Appendix H** of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_X, CO, and SO_X. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_X, CO, or SO_X.

The proposed location is in a non-attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this facility is an existing major source and this project does constitute a Title I modification, therefore this requirement is applicable. Golden State Vintners/Franzia McFarland compliance certification is included in **Appendix G**.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to allow storage of distilled spirits in existing wine storage tanks.

Since the project will use existing tanks to be used for storage at this location, 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 on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII. C. 9. above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

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

This project is a Title I modification as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act. Therefore this project does not meet the definition of a minor modification and is a significant modification.

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

Rule 4001 New Source Performance Standards (NSPS)

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

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

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

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). Based on past inspections of the facility continued compliance is expected.

Rule 4102 Nuisance

Rule 4102 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, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

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

A prioritization was not performed since it was determined by the technical services department that no hazardous air pollutants were present (Appendix H). No further analysis was required.

District Rule 4694 Wine Fermentation and Storage Tanks

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

Section 5.1 requires the winery operator achieve Required Annual Emissions Reductions (RAER) equal to at least 35% of the winery's Baseline Fermentation Emissions (BFE). Since the proposed tanks will be used for storage only, this section is not applicable; therefore, no further discussion is required.

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

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

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

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

- The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694]

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

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

Every three years, Section 6.1 and 6.2 require facilities with fermentation operations to submit a Three-Year Compliance Plan and a Three-Year Compliance Plan Verification respectively. The proposed tanks in this project are for wine storage only, and since these sections are not applicable to wine storage operations, no further discussion is required.

Section 6.4.1 requires that records be kept for each fermentation batch. These tanks are not fermenters; therefore this section does not apply.

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

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

Section 6.4.3 requires that all monitoring be performed for any CERs as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained. Since this requirement is for operators mitigation fermentation emission and the proposed tanks are only for wine storage operations, this section is not applicable to wine tanks in this project. Therefore, no further discussion is required.

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

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

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

Greenhouse Gas (GHG) Significance Determination

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

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC S-882-111-2, -112-2, and -113-2 subject to the permit conditions on the attached draft ATC in **Appendix A**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-882-111-2	3020-05-E	106,314 gallon	$258.00
S-882-112-2	3020-05-E	106,314 gallon	$258.00
S-882-113-2	3020-05-E	106,314 gallon	$258.00

Appendixes

A: Draft ATCs
B: Current PTOs
C: Pre-Project Emissions Using Tanks 4.0
D: Historical Actual Emissions
E: BACT Guideline
F: BACT Analysis
G: Compliance Certification
H: HRA Summary
I: Quarterly Net Emissions Change
J: Statewide Compliance Certification

APPENDIX A
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-882-111-2 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: GOLDEN STATE VINTNERS/FRANZIA-MCFARLAND
MAILING ADDRESS: ATTN: A/P 2846
PO BOX 90
TRACY, CA 95378-0090

LOCATION: 31795 WHISLER RD
MCFARLAND, CA 93250

EQUIPMENT DESCRIPTION:
MODIFICATION OF 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P2) WITH PRESSURE VACUUM VALVE: INSULATE TANK AND ALLOW THE ABILITY TO STORE DISTILLED SPIRITS

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 - 250 lb, 2nd quarter - 250 lb, 3rd quarter - 249 lb, and fourth quarter - 249 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC Certificate Number S-4147-2 (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

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 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

Arnaud Marjollet, Director of Permit Services
S-882-111-2 : Nov 20 2015 10:02AM – GONZALEV : Joint Inspection NOT Required

5. 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 and 4694] Federally Enforceable Through Title V Permit
6. 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 and 4694] Federally Enforceable Through Title V Permit
7. The ethanol content of wine stored in this tank shall not exceed 16 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The ethanol content of distilled spirits stored in this tank shall not exceed 98 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The maximum wine storage throughput for tanks S-882-111, -112, and -113 shall not exceed 3,264,150 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The maximum distilled spirits storage throughput in this tank shall not exceed 212,628 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The maximum distilled spirits storage throughput for tanks S-882-111, -112, and -113 shall not exceed 637,884 gallons per year. [District Rule] Federally Enforceable Through Title V Permit
12. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694] Federally Enforceable Through Title V Permit
13. The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694] Federally Enforceable Through Title V Permit
14. Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, and the volume of wine or spirits transferred, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Annual throughput records of the volume of wine and volume of spirits transferred shall be maintained in gallons per 12 month rolling period, calculated monthly. [District Rule 2201] Federally Enforceable Through Title V Permit
16. 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

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-882-112-2 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: GOLDEN STATE VINTNERS/FRANZIA-MCFARLAND
MAILING ADDRESS: ATTN: A/P 2846
PO BOX 90
TRACY, CA 95378-0090

LOCATION: 31795 WHISLER RD
MCFARLAND, CA 93250

EQUIPMENT DESCRIPTION:
MODIFICATION OF 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P3) WITH PRESSURE VACUUM VALVE: INSULATE TANK AND ALLOW THE ABILITY TO STORE DISTILLED SPIRITS

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 - 250 lb, 2nd quarter - 250 lb, 3rd quarter - 249 lb, and fourth quarter - 249 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC Certificate Number S-4147-2 (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

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services
S-882-112-2 : Nov 20 2015 10:02AM -- GONZALEV : Joint Inspection NOT Required

5. 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 and 4694] Federally Enforceable Through Title V Permit
6. 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 and 4694] Federally Enforceable Through Title V Permit
7. The ethanol content of wine stored in this tank shall not exceed 16 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The ethanol content of distilled spirits stored in this tank shall not exceed 98 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The maximum wine storage throughput for tanks S-882-111, -112, and -113 shall not exceed 3,264,150 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The maximum distilled spirits storage throughput in this tank shall not exceed 212,628 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The maximum distilled spirits storage throughput for tanks S-882-111, -112, and -113 shall not exceed 637,884 gallons per year. [District Rule] Federally Enforceable Through Title V Permit
12. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694] Federally Enforceable Through Title V Permit
13. The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694] Federally Enforceable Through Title V Permit
14. Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, and the volume of wine or spirits transferred, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Annual throughput records of the volume of wine and volume of spirits transferred shall be maintained in gallons per 12 month rolling period, calculated monthly. [District Rule 2201] Federally Enforceable Through Title V Permit
16. 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

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-882-113-2 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: GOLDEN STATE VINTNERS/FRANZIA-MCFARLAND
MAILING ADDRESS: ATTN: A/P 2846
PO BOX 90
TRACY, CA 95378-0090

LOCATION: 31795 WHISLER RD
MCFARLAND, CA 93250

EQUIPMENT DESCRIPTION:
MODIFICATION OF 106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P4) WITH PRESSURE VACUUM VALVE: INSULATE TANK AND ALLOW THE ABILITY TO STORE DISTILLED SPIRITS

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 - 250 lb, 2nd quarter - 250 lb, 3rd quarter - 249 lb, and fourth quarter - 249 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC Certificate Number S-4147-2 (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

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services
S-882-113-2 Nov 20 2015 10:02AM – GONZALEV : Joint Inspection NOT Required

5. 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 and 4694] Federally Enforceable Through Title V Permit
6. 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 and 4694] Federally Enforceable Through Title V Permit
7. The ethanol content of wine stored in this tank shall not exceed 16 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The ethanol content of distilled spirits stored in this tank shall not exceed 98 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The maximum wine storage throughput for tanks S-882-111, -112, and -113 shall not exceed 3,264,150 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The maximum distilled spirits storage throughput in this tank shall not exceed 212,628 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The maximum distilled spirits storage throughput for tanks S-882-111, -112, and -113 shall not exceed 637,884 gallons per year. [District Rule] Federally Enforceable Through Title V Permit
12. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694] Federally Enforceable Through Title V Permit
13. The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694] Federally Enforceable Through Title V Permit
14. Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, and the volume of wine or spirits transferred, shall be maintained. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Annual throughput records of the volume of wine and volume of spirits transferred shall be maintained in gallons per 12 month rolling period, calculated monthly. [District Rule 2201] Federally Enforceable Through Title V Permit
16. 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

APPENDIX B
Current PTOs

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-882-111-1 **EXPIRATION DATE:** 01/31/2017

EQUIPMENT DESCRIPTION:
106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P2) WITH PRESSURE VACUUM VALVE

PERMIT UNIT REQUIREMENTS

1. The wine 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 4694] Federally Enforceable Through Title V Permit
2. The pressure-vacuum relief valve shall be installed and operated in accordance with the manufacturer's instructions. [District Rule 4694] Federally Enforceable Through Title V Permit
3. The pressure-vacuum relief valve and wine 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 4694] Federally Enforceable Through Title V Permit
4. The temperature of each batch of wine placed, stored, or held in the tank shall not exceed 75 degrees F after 60 days following completion of fermentation. [District Rule 4694] Federally Enforceable Through Title V Permit
5. The maximum temperature of each batch of wine placed, stored, or held in the tank shall be recorded weekly. [District Rule 4694] Federally Enforceable Through Title V Permit
6. Records of filling and emptying operations shall be kept for this tank including the date of the operation, a unique identifier for each batch and the volume of wine transferred. [District Rule 4694] Federally Enforceable Through Title V Permit
7. The wine batch identifier and volume stored in the tank shall be recorded weekly. [District Rule 4694] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-882-112-1 **EXPIRATION DATE:** 01/31/2017

EQUIPMENT DESCRIPTION:
106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P3) WITH PRESSURE VACUUM VALVE

PERMIT UNIT REQUIREMENTS

1. The wine 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 4694] Federally Enforceable Through Title V Permit
2. The pressure-vacuum relief valve shall be installed and operated in accordance with the manufacturer's instructions. [District Rule 4694] Federally Enforceable Through Title V Permit
3. The pressure-vacuum relief valve and wine 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 4694] Federally Enforceable Through Title V Permit
4. The temperature of each batch of wine placed, stored, or held in the tank shall not exceed 75 degrees F after 60 days following completion of fermentation. [District Rule 4694] Federally Enforceable Through Title V Permit
5. The maximum temperature of each batch of wine placed, stored, or held in the tank shall be recorded weekly. [District Rule 4694] Federally Enforceable Through Title V Permit
6. Records of filling and emptying operations shall be kept for this tank including the date of the operation, a unique identifier for each batch and the volume of wine transferred. [District Rule 4694] Federally Enforceable Through Title V Permit
7. The wine batch identifier and volume stored in the tank shall be recorded weekly. [District Rule 4694] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: S-882-113-1 **EXPIRATION DATE:** 01/31/2017

EQUIPMENT DESCRIPTION:
106,314 GALLON STAINLESS STEEL WINE STORAGE TANK (TANK #P4) WITH PRESSURE VACUUM VALVE

PERMIT UNIT REQUIREMENTS

1. The wine 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 4694] Federally Enforceable Through Title V Permit
2. The pressure-vacuum relief valve shall be installed and operated in accordance with the manufacturer's instructions. [District Rule 4694] Federally Enforceable Through Title V Permit
3. The pressure-vacuum relief valve and wine 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 4694] Federally Enforceable Through Title V Permit
4. The temperature of each batch of wine placed, stored, or held in the tank shall not exceed 75 degrees F after 60 days following completion of fermentation. [District Rule 4694] Federally Enforceable Through Title V Permit
5. The maximum temperature of each batch of wine placed, stored, or held in the tank shall be recorded weekly. [District Rule 4694] Federally Enforceable Through Title V Permit
6. Records of filling and emptying operations shall be kept for this tank including the date of the operation, a unique identifier for each batch and the volume of wine transferred. [District Rule 4694] Federally Enforceable Through Title V Permit
7. The wine batch identifier and volume stored in the tank shall be recorded weekly. [District Rule 4694] Federally Enforceable Through Title V Permit

APPENDIX C
Pre-Project Emissions Using Tanks 4.0

Per FYI 295 - Speciate the Tanks 4.0 Emissions Estimates to Determine the VOC (ethanol) Emissions:

The annual emission estimate provided by the Tanks 4.0 model working + breathing loss) represents the combined loss of ethanol and water from the tank. To calculate the ethanol portion of the emissions, it is first necessary to determine the molar fraction of ethanol (y_a) in the vapor emissions from the tank. This can be calculated from the average molecular weight (AMW) of the vapor as given on the previously printed chemical data report (the AMW is also listed on page 2 of the detailed emissions report). Per the definition of AMW for a binary mixture:

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

Solving for the molar fraction of ethanol,

$$y_a = \frac{AMW - MW_w}{MW_a - MW_w}$$

Where,

MW_a = Molecular weight of ethanol = 46.02 lb/mole
MW_w = Molecular weight of water = 18.02/lb/mole

The ethanol emissions may then be calculated,

$$PE_{annual} = \frac{\text{Annual Tank Loss}}{AMW} \times y_a \times MW_a$$

$$PE_{daily} = \frac{\text{July Tank Loss}}{31 \text{ days} \times AMW} \times y_a \times MW_a$$

Daily PE1 per Tank

Per Tanks 4.0,
AMW = 27.469 lb/mole
$PE1_{\text{Month July}}$ = 1,435.59 lb-VOC/month

y_a = (27.47 – 18.02)/(46.02 - 18.02)
= 0.338

$$PE1_{Daily} = \frac{\text{July Tank Loss}}{31 \text{ days} \times AMW} \times y_a \times MW_a$$
= [1,435.59 lb-VOC/month ÷ (27.469 lb/mole x 31 day/month)] x 0.388 x 46.02 lb/mole
= 30.1 lb-VOC/day

Annual PE1 SLC

Per Tanks 4.0,
AMW = 27.469 lb/mole
$PE1_{\text{Annual}}$ = 1,313.68 lb-VOC/year

y_a = (27.47 – 18.02)/(46.02 - 18.02)
= 0.338

$$PE1_{Annual} = \frac{\text{Annual Tank Loss}}{\text{AMW}} \times y_a \times MW_a$$

= (1,313.68 lb-VOC/day ÷ 30.47 lb/mole) x 0.338 x 46.02 lb/mole
= 569 lb-VOC/day

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

Identification

User Identification:	S-882-111, -112, and -113 pre-project, Daily per tank
City:	
State:	
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	44.00
Diameter (ft):	21.00
Liquid Height (ft) :	44.00
Avg. Liquid Height (ft):	43.00
Volume (gallons):	106,314.00
Turnovers:	31.00
Net Throughput(gal/yr):	3,295,734.00
Is Tank Heated (y/n):	N

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):	-0.30
Pressure Settings (psig)	0.30

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

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 16.0 % Vol Alcohol	Jul	77.01	68.80	85.22	65.42	0.6654	0.4982	0.8785	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							1.4905					
Vapor Space Volume (cu ft):							346.3606					
Vapor Density (lb/cu ft):							0.0032					
Vapor Space Expansion Factor:							0.0453					
Vented Vapor Saturation Factor:							0.9659					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							346.3606					
Tank Diameter (ft):							21.0000					
Vapor Space Outage (ft):							1.0000					
Tank Shell Height (ft):							44.0000					
Average Liquid Height (ft):							43.0000					
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):							10.5000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0032					
Vapor Molecular Weight (lb/lb-mole):							27.4679					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.6654					
Daily Avg. Liquid Surface Temp. (deg. R):							536.6832					
Daily Average Ambient Temp. (deg. F)							84.0500					
Ideal Gas Constant R (psia cuft / (lb-mol-deg R))							10.731					
Liquid Bulk Temperature (deg. R):							525.0900					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof)							0.1700					
Daily Total Solar Insulation Factor (Btu/sqft day):							2,528.6419					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0453					
Daily Vapor Temperature Range (deg. R):							32.8443					
Daily Vapor Pressure Range (psia):							0.3803					
Breather Vent Press. Setting Range(psia):							0.6000					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.6654					
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.4962					
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.8785					
Daily Avg. Liquid Surface Temp. (deg R):							536.6832					
Daily Min. Liquid Surface Temp. (deg R):							528.4721					
Daily Max. Liquid Surface Temp. (deg R):							544.8942					
Daily Ambient Temp. Range (deg. R):							28.9000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9659					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.6654					
Vapor Space Outage (ft):							1.0000					
Working Losses (lb):							1,434.1041					
Vapor Molecular Weight (lb/lb-mole):							27.4679					
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.6654					
Net Throughput (gal/mo.):							3,295,734.0000					
Annual Turnovers:							31.0000					
Turnover Factor:							1.0000					
Maximum Liquid Volume (gal):							106,314.0000					
Maximum Liquid Height (ft):							44.0000					
Tank Diameter (ft):							21.0000					
Working Loss Product Factor:							1.0000					
Total Losses (lb):							1,435.5946					

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

Emissions Report for: July

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 16.0 % Vol Alcohol	1,434.10	1.49	1,435.59

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

Identification

User Identification:	S-882-111, -112, and -113 pre-project, SCC for 3 tanks
City:	
State:	
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):		44.00
Diameter (ft):		21.00
Liquid Height (ft) :		44.00
Avg. Liquid Height (ft):		43.00
Volume (gallons):		106,314.00
Turnovers:		46.09
Net Throughput(gal/yr):		4,975,000.00
Is Tank Heated (y/n):	N	

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):	-0.30
Pressure Settings (psig)	0.30

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

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 16.0 % Vol Alcohol	Jan	58.62	54.46	62.78	65.42	0.3458	0.2992	0.4045	27.4679			19.56	Option 1: VP50 = .24912 VP60 = .36125
Wine 16.0 % Vol Alcohol	Feb	61.49	56.39	66.58	65.42	0.3844	0.3208	0.4636	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Mar	63.85	57.94	69.77	65.42	0.4212	0.3381	0.5132	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Apr	66.98	60.01	73.95	65.42	0.4698	0.3614	0.6004	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	May	71.00	63.30	78.70	65.42	0.5379	0.4125	0.7010	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Jun	74.47	66.32	82.63	65.42	0.6116	0.4596	0.8040	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Jul	77.01	68.80	85.22	65.42	0.6654	0.4982	0.8785	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Aug	76.03	68.25	83.81	65.42	0.6445	0.4896	0.8380	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Sep	72.96	65.93	79.98	65.42	0.5794	0.4534	0.7283	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Oct	68.33	62.00	74.66	65.42	0.4908	0.3923	0.6154	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Nov	62.38	57.33	67.44	65.42	0.3983	0.3313	0.4770	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Dec	58.39	54.32	62.46	65.42	0.3432	0.2975	0.3994	27.4679			19.56	Option 1: VP50 = .24912 VP60 = .36125

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.1192	0.3232	0.6282	0.9664	1.2568	1.4905	1.2761	0.8246	0.5226	0.1288	0.0000
Vapor Space Volume (cu ft):	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606
Vapor Density (lb/cu ft):	0.0017	0.0019	0.0021	0.0023	0.0026	0.0029	0.0032	0.0031	0.0028	0.0024	0.0020	0.0017
Vapor Space Expansion Factor:	0.0000	0.0066	0.0149	0.0271	0.0357	0.0426	0.0453	0.0399	0.0294	0.0210	0.0065	0.0000
Vented Vapor Saturation Factor:	0.9820	0.9800	0.9782	0.9757	0.9723	0.9686	0.9659	0.9670	0.9702	0.9746	0.9793	0.9821
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606
Tank Diameter (ft):	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
Vapor Space Outage (ft):	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 Shell Height (ft):	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000
Average Liquid Height (ft):	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000
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):	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0017	0.0019	0.0021	0.0023	0.0026	0.0029	0.0032	0.0031	0.0028	0.0024	0.0020	0.0017
Vapor Molecular Weight (lb/lb-mole):	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Daily Avg. Liquid Surface Temp. (deg. R):	518.2922	521.1571	523.5218	526.6478	530.6669	534.1445	536.6832	535.7010	532.6256	527.9968	522.0547	518.0564
Daily Average Ambient Temp. (deg. F):	47.7500	53.2500	57.3500	63.0000	70.9500	78.2000	84.0500	82.5500	76.8000	67.7500	55.7500	47.4000
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):	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900
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):	727.5001	1,058.7300	1,476.2573	1,952.7969	2,340.8181	2,554.9753	2,526.6419	2,288.7858	1,882.6802	1,401.0643	908.0267	666.5843
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0066	0.0149	0.0271	0.0357	0.0426	0.0453	0.0399	0.0294	0.0210	0.0065	0.0000
Daily Vapor Temperature Range (deg. R):	16.6389	20.3756	23.6580	27.8713	30.7983	32.6097	32.8443	31.1266	28.1136	25.3171	20.2342	16.2769
Daily Vapor Pressure Range (psia):	0.1054	0.1428	0.1751	0.2390	0.2885	0.3444	0.3803	0.3464	0.2746	0.2231	0.1458	0.1019
Breather Vent Press. Setting Range(psia):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2992	0.3208	0.3381	0.3614	0.4125	0.4586	0.4982	0.4896	0.4534	0.3823	0.3313	0.2975
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4045	0.4636	0.5132	0.6004	0.7010	0.8040	0.8785	0.8380	0.7283	0.6154	0.4770	0.3994
Daily Avg. Liquid Surface Temp. (deg R):	518.2922	521.1571	523.5218	526.6478	530.6669	534.1445	536.6832	535.7010	532.6256	527.9968	522.0547	518.0564
Daily Min. Liquid Surface Temp. (deg R):	514.1325	516.0632	517.6071	519.6800	522.9673	525.9921	528.4721	527.9194	525.5973	521.6676	516.9961	513.9872
Daily Max. Liquid Surface Temp. (deg R):	522.4520	526.2510	529.4366	533.6156	536.3665	542.2970	544.8942	543.4827	539.6540	534.3261	527.1132	522.1257
Daily Ambient Temp. Range (deg. R):	18.3000	21.3000	23.1000	25.8000	27.3000	28.4000	28.9000	28.1000	26.6000	25.9000	22.1000	18.2000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9820	0.9800	0.9782	0.9757	0.9723	0.9686	0.9659	0.9670	0.9702	0.9746	0.9793	0.9821
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Vapor Space Outage (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Working Losses (lb):	76.6547	85.2069	93.3609	104.1397	119.2416	135.5706	147.4907	142.8791	128.4387	108.7913	88.3020	76.0686
Vapor Molecular Weight (lb/lb-mole):	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Net Throughput (gal/mo.):	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333	414,583.3333
Annual Turnovers:	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899	46.0899
Turnover Factor:	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176	0.8176
Maximum Liquid Volume (gal):	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000
Maximum Liquid Height (ft):	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000
Tank Diameter (ft):	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
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):	76.6547	85.3261	93.6841	104.7678	120.2080	136.8274	148.9812	144.1553	129.2633	109.3139	88.4308	76.0686

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 16.0 % Vol Alcohol	1,306.14	7.54	1,313.68

APPENDIX D
Historical Actual Emissions

Per FYI 295 - Speciate the Tanks 4.0 Emissions Estimates to Determine the VOC (ethanol) Emissions:

The annual emission estimate provided by the Tanks 4.0 model working + breathing loss) represents the combined loss of ethanol and water from the tank. To calculate the ethanol portion of the emissions, it is first necessary to determine the molar fraction of ethanol (y_a) in the vapor emissions from the tank. This can be calculated from the average molecular weight (AMW) of the vapor as given on the previously printed chemical data report (the AMW is also listed on page 2 of the detailed emissions report). Per the definition of AMW for a binary mixture:

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

Solving for the molar fraction of ethanol,

$$y_a = \frac{AMW - MW_w}{MW_a - MW_w}$$

Where,

MW_a = Molecular weight of ethanol = 46.02 lb/mole
MW_w = Molecular weight of water = 18.02/lb/mole

The ethanol emissions may then be calculated,

$$PE_{annual} = \frac{\text{Annual Tank Loss}}{AMW} \times y_a \times MW_a$$

$$PE_{daily} = \frac{\text{July Tank Loss}}{31 \text{ days} \times AMW} \times y_a \times MW_a$$

Historical Actual Emissions (HAE)

Per Tanks 4.0,
AMW = 27.469 lb/mole
PE_{Annual} = 627.4 lb-VOC/year

$y_a = (27.47 - 18.02)/(46.02 - 18.02)$
$= 0.338$

$$HAE_{annual} = \frac{\text{Annual Tank Loss}}{AMW} \times y_a \times MW_a$$

= (627.4 lb-VOC/year ÷ 27.469 lb/mole) x 0.338 x 46.02 lb/mole
= 355 lb-VOC/year

Vanesa Gonzalez

From: Paul Bement <Paul.Bement@thewinegroup.com>
Sent: Monday, October 5, 2015 11:05 AM
To: Vanesa Gonzalez
Cc: Joven Refuerzo
Subject: RE: Historical Wine Throughput for Tanks P2-P4. Project S-1151242

Hello Vanesa,

Below is the historical wine storage throughput for tanks P2-P4.

	2010	2011	2012	2013	2014	2015
P-2	129,717	481,575	450,298	312,904	436,306	315,843
P-3	894,504	751,849	561,063	630,190	533,081	312,133
P-4	959,910	643,282	540,903	666,664	401,973	206,044

As discussed last week, since these tanks were not previously limited in usage, the facility would like to request that any future throughput limits be written as the sum total of P2-P4 (SLC rather than individual limits).

Additionally, the facility would like the apply the remaining quantity of ERC S-4147-1 (after subtracting the 752# for P2-P4 high proof usage) to increase the annual wine storage throughput limit that the District is imposing on tanks P2-P4.

Please call if you have any questions or require additional information.

Thank you,
Paul Bement
Environmental Engineer
The Wine Group
Office (209) 253-5206
Cell (425) 941-8872

From: Vanesa Gonzalez [mailto:Vanesa.Gonzalez@valleyair.org]
Sent: Tuesday, September 29, 2015 4:14 PM
To: Paul Bement <Paul.Bement@thewinegroup.com>
Cc: Joven Refuerzo <joven.refuerzo@valleyair.org>
Subject: Golden State Vinters McFarland

Paul,

I've calculated the annual emissions for the three tanks holding distilled spirits at 501 lb-VOC. With a distance offset ratio of 1.5 you're looking at 752 lb-VOC/year. If you can give me the number of the ERC certificate you plan to use for the offsets this issue should be taken care of.

I also need to establish emissions for the tank when storing wine. Can I have the maximum daily and annual throughput for wine storage. Can you also give me the maximum alcohol content of the wine?

Thanks,

Vanesa Gonzalez

Air Quality Engineer
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue | Fresno, CA 93726
PH: (559) 230-5916| Fax (559) 230-6061

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

Identification

User Identification:	S-882-111, -112, and -113 pre-project, HAE (Average 2010 and 2011)
City:	
State:	
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	

Tank Dimensions

Shell Height (ft):	44.00
Diameter (ft):	21.00
Liquid Height (ft) :	44.00
Avg. Liquid Height (ft):	43.00
Volume (gallons):	106,314.00
Turnovers:	18.16
Net Throughput(gal/yr):	1,930,418.00
Is Tank Heated (y/n):	N

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):	-0.30
Pressure Settings (psig)	0.30

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

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 16.0 % Vol Alcohol	Jan	58.62	54.46	62.78	65.42	0.3458	0.2992	0.4045	27.4679			19.56	Option 1: VP50 = .24912 VP60 = .36125
Wine 16.0 % Vol Alcohol	Feb	61.49	56.39	66.58	65.42	0.3844	0.3208	0.4636	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Mar	63.85	57.94	69.77	65.42	0.4212	0.3381	0.5132	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Apr	66.98	60.01	73.95	65.42	0.4698	0.3614	0.6004	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	May	71.00	63.30	78.70	65.42	0.5379	0.4125	0.7010	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Jun	74.47	66.32	82.63	65.42	0.6116	0.4596	0.8040	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Jul	77.01	68.80	85.22	65.42	0.6654	0.4982	0.8785	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Aug	76.03	68.25	83.81	65.42	0.6445	0.4896	0.8380	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Sep	72.96	65.93	79.98	65.42	0.5794	0.4534	0.7283	27.4679			19.56	Option 1: VP70 = .5168 VP80 = .72862
Wine 16.0 % Vol Alcohol	Oct	68.33	62.00	74.66	65.42	0.4908	0.3923	0.6154	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Nov	62.38	57.33	67.44	65.42	0.3983	0.3313	0.4770	27.4679			19.56	Option 1: VP60 = .36125 VP70 = .5168
Wine 16.0 % Vol Alcohol	Dec	58.39	54.32	62.46	65.42	0.3432	0.2975	0.3994	27.4679			19.56	Option 1: VP50 = .24912 VP60 = .36125

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	0.0000	0.1192	0.3232	0.6282	0.9664	1.2568	1.4905	1.2761	0.8246	0.5226	0.1288	0.0000
Vapor Space Volume (cu ft):	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606
Vapor Density (lb/cu ft):	0.0017	0.0019	0.0021	0.0023	0.0026	0.0029	0.0032	0.0031	0.0028	0.0024	0.0020	0.0017
Vapor Space Expansion Factor:	0.0000	0.0066	0.0149	0.0271	0.0357	0.0426	0.0453	0.0399	0.0294	0.0210	0.0065	0.0000
Vented Vapor Saturation Factor:	0.9820	0.9800	0.9782	0.9757	0.9723	0.9686	0.9659	0.9670	0.9702	0.9746	0.9793	0.9821
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606	346.3606
Tank Diameter (ft):	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
Vapor Space Outage (ft):	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 Shell Height (ft):	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000
Average Liquid Height (ft):	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000	43.0000
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):	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000	10.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0017	0.0019	0.0021	0.0023	0.0026	0.0029	0.0032	0.0031	0.0028	0.0024	0.0020	0.0017
Vapor Molecular Weight (lb/lb-mole):	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Daily Avg. Liquid Surface Temp. (deg. R):	518.2922	521.1571	523.5218	526.6478	530.6669	534.1445	536.6832	535.7010	532.6256	527.9968	522.0547	518.0564
Daily Average Ambient Temp. (deg. F):	47.7500	53.2500	57.3500	63.0000	70.9500	78.2000	84.0500	82.5500	76.8000	67.7500	55.7500	47.4000
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):	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900	525.0900
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):	727.5001	1,058.7300	1,476.2573	1,952.7969	2,340.8181	2,554.9753	2,528.6419	2,288.7858	1,882.6802	1,401.0643	908.0267	666.5843
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0000	0.0066	0.0149	0.0271	0.0357	0.0426	0.0453	0.0399	0.0294	0.0210	0.0065	0.0000
Daily Vapor Temperature Range (deg. R):	16.6389	20.3756	23.6590	27.8713	30.7983	32.6097	32.8443	31.1266	28.1136	25.3171	20.2342	16.2769
Daily Vapor Pressure Range (psia):	0.1054	0.1428	0.1751	0.2390	0.2885	0.3444	0.3803	0.3484	0.2748	0.2231	0.1458	0.1019
Breather Vent Press. Setting Range(psia):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2992	0.3208	0.3381	0.3614	0.4125	0.4596	0.4982	0.4896	0.4534	0.3923	0.3313	0.2975
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4045	0.4636	0.5132	0.6004	0.7010	0.8040	0.8785	0.8380	0.7283	0.6154	0.4770	0.3994
Daily Avg. Liquid Surface Temp. (deg R):	518.2922	521.1571	523.5218	526.6478	530.6669	534.1445	536.6832	535.7010	532.6256	527.9968	522.0547	518.0564
Daily Min. Liquid Surface Temp. (deg R):	514.1325	516.0632	517.6071	519.6800	522.9673	525.9921	528.4721	527.9194	525.5973	521.6676	516.9961	513.9872
Daily Max. Liquid Surface Temp. (deg R):	522.4520	526.2510	529.4366	533.6156	538.3665	542.2970	544.8942	543.4827	539.6540	534.3261	527.1132	522.1257
Daily Ambient Temp. Range (deg. R):	18.3000	21.3000	23.1000	25.8000	27.3000	28.4000	28.9000	28.1000	26.6000	25.9000	22.1000	18.2000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9820	0.9800	0.9782	0.9757	0.9723	0.9686	0.9659	0.9670	0.9702	0.9746	0.9793	0.9821
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Vapor Space Outage (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Working Losses (lb):	36.3809	40.4398	44.3097	49.4254	56.5929	64.3427	70.0001	67.8114	60.9579	51.6331	41.9087	36.1027

Vapor Molecular Weight (lb/lb-mole):	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679	27.4679
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3458	0.3844	0.4212	0.4698	0.5379	0.6116	0.6654	0.6445	0.5794	0.4908	0.3983	0.3432
Net Throughput (gal/mo.):	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667	160,868.1667
Annual Turnovers:	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577	18.1577
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):	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000	106,314.0000
Maximum Liquid Height (ft):	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000
Tank Diameter (ft):	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000	21.0000
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):	36.3809	40.5590	44.6329	50.0536	57.5593	65.5995	71.4906	69.0875	61.7825	52.1557	42.0375	36.1027

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

S-882-111, -112, and -113 pre-project - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Wine 16.0 % Vol Alcohol	619.91	7.54	627.44

APPENDIX E
BACT Guideline

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**

APPENDIX F
BACT Analysis

Top Down BACT Analysis for Wine Storage VOC Emissions

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.15, identifies achieved in practice BACT for distilled spirits storage tanks as follows:

1) Insulation or Equivalent**, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; and "gas-tight" tank operation
   ***Tanks made of heat-conducting materials such as stainless steel may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure to diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete and wood (except for fittings) are considered self-insulating.*

The SJVUAPCD BACT Clearinghouse guideline 5.4.15 identifies technologically feasible BACT for distilled spirits storage tanks as follows:

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank by Control Effectiveness		
Rank	Control	Overall Capture and Control Efficiency
1	Capture of VOCs and thermal or catalytic oxidation or equivalent	98%
2	Capture of VOCs and carbon adsorption or equivalent	95%
3	Capture of VOCs and absorption or equivalent	90%
4	Capture of VOCs and condensation or equivalent	70%
5	Insulation or Equivalent, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation;	Baseline (Achieved-in-Practice)

Step 4 - Cost Effectiveness Analysis

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

Collection System Capital Investment (based on ductwork)

- The costs for the ductwork and the required clean-in-place system are based on information from the 2005 Eichleay Study. The 2005 Eichleay Study was used in development of District Rule 4694 *Wine Fermentation and Storage Tanks* and includes substantial information on the costs and details of the potential application of VOC controls to wineries and addresses many of the technical issues of the general site specific factors for wineries.
- The collection system consists of stainless steel place ductwork (stainless steel is required due to food grade product status) with isolation valving, connecting the 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.
- One of the major concerns of a manifold duct system is microorganisms spoiling the product, 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.

Capital Cost Ductwork

For three 106,314 gallon tanks:

Connection from tank to main duct = [3 tanks x (50 feet from tank to main duct)] x $61.00/foot
= $9,150

Connection from last tank to control device = 50 feet x $61.00/foot
= $3,050

Main duct = (21 feet diameter + 9 feet between tanks + 21 feet diameter + 9 feet between tanks + 21 feet diameter/2) x $61.00/foot
= $4,300

Unit installed cost for 6 inch butterfly valve = $2,125/valve x 3 valves
= $6,375

Unit installed cost one foot removable spool = $500/tank x 3 tanks
= $1,500

Knockout drum = $46,300

Duct support allowance = $5,000/tank x 3 tanks = $15,000

Total = $9,150 + $3,050 + $4,300 + $6,375 + $1,500 + $46,300 + $15,000 = $85,675

Ductwork	
Cost Description	Cost ($)
Duct Estimate from Eichleay Study 2005 Data	$86,675
Adjusting factor from 2005 dollars to 2015 dollars (2.75% inflation/year)	1.28
Inflation adjusted duct cost	$107,683
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Ductwork) See Above	$107,683
Instrumentation 10%	$10,768
Sales Tax 3%	$3,230
Freight 5%	$5,384
Purchased equipment cost	**$127,065**
Foundations & supports 8%	$10,165
Handling & erection 14%	$17,789
Electrical 4%	$5,083
Piping 2%	$2,541
Painting 1%	$1,271
Insulation 1%	$1,271
Direct installation costs	**$38,120**
Total Direct Costs	**$165,185**
Indirect Costs (IC)	
Engineering 10%	$12,707
Construction and field expenses 5%	$6,353
Contractor fees 10%	$12,707
Start-up 2%	$2,541
Performance test 1%	$1,271
Contingencies 3%	$3,812
Total Indirect Costs	**$39,391**
Total Capital Investment (TCI) (DC + IC)	**$204,576**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,
Annualized Capital Investment for Ductwork = $204,576 x 0.163 = $33,345

Capital Cost Clean-In-Place (CIP) System

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

Clean-In-Place (CIP) System	
Cost Description	Cost ($)
Current cost of CIP system	$20,000
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (CIP System) See Above	$20,000
Instrumentation 10%	$2,000
Sales Tax 3.3125%	$ 663
Freight 5%	$1,000
Purchased equipment cost	**$23,663**
Foundations & supports 8%	$1,893
Handling & erection 14%	$3,313
Electrical 4%	$ 947
Piping 2%	$ 473
Painting 1%	$ 237
Insulation 1%	$ 237
Direct installation costs	**$7,100**
Total Direct Costs	**$30,763**
Indirect Costs (IC)	
Engineering 10%	$2,366
Construction and field expenses 5%	$1,183
Contractor fees 10%	$2,366
Start-up 2%	$ 473
Performance test 1%	$ 237
Contingencies 3%	$ 710
Total Indirect Costs	**$7,335**
Total Capital Investment (TCI) (DC + IC)	**$38,098**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Annualized Capital Investment for one CIP System = $38,098 x 0.163 = $6,210

Option 1 - Capture of VOCs and thermal or catalytic oxidation or equivalent (98%)

Capital Investment for Control Device

The total capital investment cost and installation costs including freight for a Regenerative Thermal Oxidizer (RTO) used in this evaluation are based on the cost information provided by Adwest Technologies, Inc on September 24, 2014 for an RTO handling 537 scfm, which was the smallest system they could provide. The potential flow rate from the tanks proposed in this project is calculated as follows:

For the storage operation, the maximum vent rate from a tank is equal to the maximum liquid fill rate. The facility currently has one pump capable of 100 gal/min (13.4 cfm). Since pumps

are not permitted equipment, a worst case scenario will be assumed that the facility will purchase a pump for each tank as a result of this project; therefore, the total simultaneous rate from all tanks = 40 cfm.

The 106 cfm flow rate is equivalent to approximately 7.4% of 537 scfm.

Generally, when estimating costs from a known value, the rule of six-tenths is used to account for economy of scale. However, since the control device required for this project is smaller than the control device in the base project, the cost for the control device in this project will be scaled linearly. Scaling linearly results in lower capital cost and lower cost effectiveness. Therefore, the capital and installation costs provided in the cost estimate will be adjusted by a factor of 0.074 for purposes of this analysis.

Thermal or Catalytic Oxidation	
Cost Description	Cost ($)
Size adjusted Regenerative Thermal Oxidizer cost [145,500 x (0.074)]	$10,730
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Regenerative Thermal Oxidizer System) See Above	$10,730
Freight and Startup [22,900 x (0.74)]	$4,580
Sales Tax 3.3125%	$ 355
Purchased equipment cost	**$15,665**
Foundations & supports 8%	$1,253
Handling & erection 14%	$2,193
Electrical 4%	$ 627
Piping 2%	$ 313
Painting 1%	$ 157
Insulation 1%	$ 157
Direct installation costs	**$4,700**
Total Direct Costs	**$20,365**
Indirect Costs (IC)	
Engineering 10%	$1,567
Construction and field expenses 5%	$ 783
Contractor fees 10%	$1,567
Start-up (included above)	-
Performance test 1%	$ 157
Contingencies 3%	$ 470
Total Indirect Costs	**$4,544**
Total Capital Investment (TCI) (DC + IC)	**$24,909**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor
Annualized Capital Investment for thermal oxidizer = $24,909 x 0.163 = $4,060

Operation and Maintenance Costs

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

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

heat of combustion -dHc = 20,276 Btu/lb
Daily VOC emissions rate = 299.6 lb/day
Blower flow rate = 40 scfm
= 57,600 ft^3/day

-dh(c) = 299.6 lb/day x 20,276 Btu/lb / 57,600 ft^3/day
= 105.5 Btu/ft^3

Fuel Flow Requirement

$$Q(fuel) = \frac{Pw*Qw*\{Cp*[1.1Tf-Tw-0.1Tr]-[-dh(c)]\}}{P(ef) * [-dh(m) - 1.1\ Cp * (Tf - Tr)]}$$

Where
Pw = 0.0739 lb/ft^3
Cp = 0.255 Btu/lb-°F
Qw = 106 scfm
-dh(m) = 21,502 Btu/lb for methane
Tr = 77°F assume ambient conditions
P(ef) = 0.0408 lb/ft^3 m, methane at 77°F, 1 atm
Tf = 1600°F
Tw = 1150°F
-dh(c) = 39.8 Btu/lb

$$Q = \frac{0.0739*40*\{0.255*[1.1*1,600 - 1,150 - 0.1*77] - 105.5\}}{0.0408*[21,502 - 1.1*0.255*(1,600 - 77)]}$$
= 142.1 ÷ 859.8 = 0.2 ft^3/min

Fuel Costs

The cost for natural gas shall be based upon the average price of natural gas sold to "Commercial Consumers" in California for the years 2011, 2012, 2013 and 2014.[1]

2014 = $9.05/thousand ft^3 total monthly average
2013 = $7.81/thousand ft^3 total monthly average
2012 = $7.05/thousand ft^3 total monthly average
2011 = $8.29/thousand ft^3 total monthly average
Average for three years = $8.05/thousand ft^3 total monthly average

[1] Energy Information Administration/Natural Gas; Average Price of Natural Gas Sold to Commercial Consumers by State, 2011 – 2015: http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SCA_a.htm

Fuel Cost = 0.2 cfm x 60 min/day x 365 day/year x \$8.05 /1000 ft^3
= \$35/year

Electricity Requirement

$$\text{Power}_{fan} = \frac{1.17*10^{-4}\ Qw*\ \Delta P}{\in}$$

Where

ΔP = Pressure drop Across system = 10 in. H_2O
$\in$ = Efficiency for fan and motor = 0.6
Qw = 40 scfm

$$\text{Power}_{fan} = \frac{1.17*10^{-4}\ *40\ cfm*1.5*\ 10\ in.\ H_2O}{0.60*0.90}$$

= 0.13 kW

Electricity Costs

Average cost of electricity to commercial users in California [2]:

2014 = \$0.1567
2013 = \$0.1420
2012 = \$0.1341
2011 = \$0.1305
AVG = \$0.1409

Electricity Cost = 0.13 kW x 1 hour/day x 365 days/year x \$0.1409/kWh = \$7/year

Total Operating and Maintenance Costs

Annual Costs (Based on: EPA Air Pollution Control Cost Manual, Sixth Edition (January 2002), Section 3.2: VOC Destruction Controls, Chapter 2: Incinerators (September 2000), Table 2.10 - Annual Costs for Thermal and Catalytic Incinerators Example Problem. United States Environmental Protection Agency Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina 27711. EPA/452/B-02-001)[3]

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[2] Energy Information Administration/Electric Power; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, 2011 – 2012: http://www.eia.gov/electricity/data/browser/#/topic/7?agg=0,1&geo=g&endsec=vg&linechart=ELEC.PRICE.US-ALL.A~ELEC.PRICE.US-RES.A~ELEC.PRICE.US-COM.A~ELEC.PRICE.US-IND.A&columnchart=ELEC.PRICE.US-ALL.A~ELEC.PRICE.US-RES.A~ELEC.PRICE.US-COM.A~ELEC.PRICE.US-IND.A&map=ELEC.PRICE.US-COM.A&freq=A&start=2001&end=2014&ctype=map&ltype=pin&rtype=s&pin=&rse=0&maptype=0

[3] http://epa.gov/ttn/catc/dir1/cs3-2ch2.pdf

Annual Costs			
Direct Annual Cost (DC)			
Operating Labor			
Operator	0.5 hr/shift	$18.5/hr x 0.5 hr/shift x 1.5 shift/day x 365 day/yr	$5,064
Supervisor	15% of		$760
Maintenance			
Labor	0.5 h/shift	$18.50/hr x 0.5 hr/shift x 1.5 shift/day x 365	$5,064
Maintenance	100% of labor		$5,064
Utility			
Natural Gas			$35
Electricity			$7
Total DC			**$15,994**
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost	0.6 x ($5,064 + $760 + $5,064)	$6,533
Administrative	2% TCI		$812
Property Taxes	1% TCI		$406
Insurance	1% TCI		$406
Total IC			**$8,157**
Annual Cost (DC + IC)			**$24,151**

Total Annual Cost = (Ductwork + CIP Systems) + RTO + Annual Costs
= $(33,345 + 6,210) + $4,060 + $24,151
= $67,766

Annual Emission Reduction = Uncontrolled Emissions x 0.98
= 1,020 lb-VOC/year x 0.98 x ton/2,000 lb
= 0.5 tons-VOC/year

Cost Effectiveness = $67,766/year ÷ 0.5 tons-VOC/year
= $135,532/ton-VOC

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

Option 2 - Collection of VOCs and control by carbon adsorption (> 95% collection and control)

Delivery and installation of a 1,000 cfm blower package for carbon adsorption is $80-85,000 and delivery and installation of a 50cfm blower package for carbon adsorption is $20-25,000 per David Drewelow of Drewelow Remediation Equipment. Assuming $80,000 and $20,000

respectively for the above-mentioned systems, interpolating for a 40 cfm system, yields $19,368.

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

Carbon Capital Cost

Annual Emission Reduction = Storage Emissions x 0.86
= 1,020 lb-VOC/year x 0.86
= 877 lb-VOC/year

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

Carbon required = 877 lbs-VOC/year x 1/0.20
= 4,385 lb carbon

David Drewelow also provided a cost of $1.25/lb of carbon which does not include any delivery or servicing fees. Therefore, carbon capital cost = $1.25/lb x 4,385 lb carbon = $5,481

Carbon Adsorption	
Cost Description	Cost ($)
Carbon Adsorption cost	$19,368
Water alcohol tank cost (taken from Project N-1143697)	$5,000
Carbon Adsorption + water alcohol tank cost	$24,368
Carbon Capital Cost (see above)	$5,481
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Carbon Adsorption System + Carbon) See Above	$29,849
Instrumentation 10%	$2,985
Sales Tax 3.3125%	$ 784
Freight 5%	$1,492
Purchased equipment cost	**$35,110**
Foundations & supports 8%	$2,809
Handling & erection 14%	$4,915
Electrical 4%	$1,404
Piping 2%	$ 702
Painting 1%	$ 351
Insulation 1%	$ 351
Direct installation costs	**$10,532**
Total Direct Costs	**$45,642**

Indirect Costs (IC)	
Engineering 10%	$3,511
Construction and field expenses 5%	$1,756
Contractor fees 10%	$3,511
Start-up 2%	$ 702
Performance test 1%	$ 351
Contingencies 3%	$1,053
Total Indirect Costs	**$10,884**
Total Capital Investment (TCI) (DC + IC)	**$56,526**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $56,526 x 0.163 = $10,500

Total Annual Cost = Carbon Adsorption System + Ductwork + CIP System
= $9,214 + $33,345 + $6,210
= $48,769

Annual Emission Reduction = Uncontrolled Emissions x 0.86
= 1,020 lb-VOC/year x 0.86 x ton/2,000 lb
= 0.44 tons-VOC/year

Cost Effectiveness = $48,769/year ÷ 0.44 tons-VOC/year
= $110,838/ton-VOC

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

Option 3 - Collection of VOCs and control by absorption (> 90% collection & control)

The total capital investment costs and operating costs for an absorption system used in this evaluation are based on the information given in District project N-1133659. The scrubber under project N-1133659 was evaluated for the control of 84,864 pounds of VOC emissions. The potential VOC emissions from this project are 1,020 pounds, equivalent to approximately 1.2% of the emissions evaluated for control under project N-1133659.

Generally, when estimating costs from a known value, the rule of six-tenths is used to account for economy of scale. However, since the control device required for this project is smaller than the control device in the base project, the cost for the control device in this project will be scaled linearly. Scaling linearly results in lower capital cost and lower cost effectiveness.

Therefore, the capital and installation costs provided in the cost estimate will be adjusted by a factor of 0.012 for purposes of this analysis.

Capital Cost for each Water Scrubber unit is as follows: Reactor and Portable Pumping Skids are $60,000 and $7,500 respectively. The total capital cost for all units is $1,215,000 controlling 84,864 lbs-VOC. Therefore, the total capital cost for an equivalent system for this project is estimated to be $14,580.

Scrubber	
Cost Description	Cost ($)
Refrigerated Scrubber System	$14,580
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Scrubber System) See Above	$14,580
Instrumentation ($2,000 per unit, assume 1 unit)	$2,000
Sales Tax 3.3125%	$ 483
Freight (included)	-
Purchased equipment cost	**$17,063**
Foundations & supports (not required)	-
Handling & erection 2%	$ 341
Electrical 1%	$ 171
Piping 1%	$ 171
Painting (not required)	-
Insulation (not required)	-
PLC & Programming	$0[4]
Recovered Ethanol Storage Tank (installed)	$5,000
Direct installation costs	**$5,683**
Total Direct Costs (TDC)	**$22,746**
Indirect Costs (IC)	
Engineering (5% of TDC)	$1,137
Construction and field expenses (2% of TDC)	$ 455
Permits (Building Department) (Allowance)	$10,000
Contractor fees (2% of TDC)	$ 455
Start-up (1% of TDC)	$ 227
Source Testing (1 unit x $15,000/unit)	$15,000
Owner's Cost (Allowance)	$5,556[5]
Total Indirect Costs	**$32,830**
Subtotal Capital Investment (SCI)	**$55,576**
Project Contingency (20% of SCI)	$11,115
Total Capital Investment (TCI) (DC + IC)	**$66,691**

[4] The facility has not requested PLC and Programming.
[5] From project N-1133659 for 18 units, Owner's Cost = $100,000 (or $5,556/unit)

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Annualized Capital Investment = $66,691 x 0.163 = $10,870

Wastewater Disposal Costs

The water scrubber will generate ethanol-laden wastewater containing 0.46 tons (918 lbs) of ethanol annually (1,020 lb/year (uncontrolled emissions) x 0.90 ÷ 2000). Assuming a 10% solution, approximately 1,386 gallons of waste water (918 lb-ethanol x 1 gal/6.62 lb ÷ 0.10) will be generated annually. Based on information from NohBell Corporation, an allowance of $0.08 per gallon is applied for disposal costs.

Annual disposal costs = 1,386 gallons x $0.08/gallon = $111

Annual Costs

Annual Costs				
Direct Annual Cost (DC)				
Operating Labor				
Operator	0.5 hr/shift	$18.50/hr x 0.5 hr/shift x 1.5 shift/day x 365		$5,064
Supervisor	15% of operator			$760
Maintenance				
Labor	1% of TCI			$667
Wastewater Disposal				
	10% Solution = 1,386 gal		$0.08/gal	$111
Utility				
Electricity	1 unit x 2.5 hp x 0.746 kW/hp x 8,760 hr/yr = 681 kWh/yr		$0.1409/kWh	$96
Total DC				**$6,698**
Indirect Annual Cost (IC)				
Overhead	60% of Labor Cost	0.6 x ($5,064 + $760 + $667)		$6,491
Administrative	2% TCI			$1,334
Property Taxes	1% TCI			$667
Insurance	1% TCI			$667
Annual Source Test	One			$15,000
Total IC				**$24,159**
Annual Cost (DC + IC)				**$30,857**

Total Annual Cost = (Ductwork + CIP Systems) + Absorption System + Operating Costs
= $(3,345 + 6,210) + $10,870 + $30,857
= $51,282

Annual Emission Reduction = Uncontrolled Emissions x 0.90

= 1,020 lb-VOC/year x 0.90 x ton/2,000 lb
= 0.46 tons-VOC/year

Cost Effectiveness = $51,282/year ÷ 0.46 tons-VOC/year
= $111,483/ton-VOC

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

Option 4 – Capture of VOCs and condensation or equivalent (overall capture & control efficiency of 70%)

The total capital investment costs and operating costs for condensation system used in this evaluation are based on the information given in District project N-1133659. Similar assumption in option 3 discussed above applies; the capital cost given in project N-1133659 will be adjusted by a factor of 1.2% for purposes of this analysis. In addition, no value will be given for the ethanol that is recovered from the condensation system since the recovered ethanol has not been conclusively demonstrated to have a value in practice and could actually result in additional costs for disposal.

Generally, when estimating costs from a known value, the rule of six-tenths is used to account for economy of scale. However, since the control device required for this project is smaller than the control device in the base project, the cost for the control device in this project will be scaled linearly. Scaling linearly results in lower capital cost and lower cost effectiveness. Therefore, the capital and installation costs provided in the cost estimate will be adjusted by a factor of 0.012 for purposes of this analysis.

The total capital cost provided in project N-1133659 is $1,901,272 for 4 units controlling 84,864 lbs-VOC. Therefore, the total capital cost for an equivalent system for this project is estimated to be $22,815.

Condensation	
Cost Description	Cost ($)
Cost of Refrigerated Condenser system (1 PAS Unit)	$22,815
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Condenser) See Above	$22,815
Instrumentation (included)	-
Sales Tax (included)	-
Freight (included)	-
Purchased equipment cost	**$22,815**
Labor (estimated from project N-1133659)	$326
Installation Expense (estimated from project N-1133659)	$237
Subcontracts (estimated from project N-1133659)	$72
PLC/Programming	$0[6]
Direct installation costs	**$635**
Total Direct Costs (TDC)	**$23,450**
Indirect Costs (IC)	
Engineering (5% of TDC)	$412
Permits (Building Department) (Allowance)	$2,500[7]
Initial Source Testing ($15,000/unit)	$15,000
Owner's Cost (Allowance)	$5,556
Total Indirect Cost	**$23,468**
Subtotal Capital Investment (SCI)	**$46,918**
Project Contingency (20% of SCI)	$9,384
Total Capital Investment (TCI) (DC + IC + Contingency)	**$93,836**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Annualized Capital Investment = $93,836 x 0.163 = $15,295.

[6] The facility has not requested PLC and Programming.
[7] From project N-1133659 for 4 units, Permits = $10,000 (or $2,500/unit)

Annual Costs

Annual Costs				
Direct Annual Cost (DC)				
Operating Labor				
Operator	0.5 hr/shift	$18.50/hr x 0.5 hr/shift x 1.5 shift/day x 365 days/year		$5,064
Supervisor	15% of operator			$760
Maintenance				
Labor	1% of TCI			$938
Chiller (Glycol)				
	1,020 lb/year (uncontrolled storage emissions) x 0.90 ÷ 2000		$270/ton EtOH	$124
Utility				
None				$0
Total DC				**$6,126**
Indirect Annual Cost (IC)				
Overhead	60% of Labor Cost	0.6 x ($5,064 + $760 + $634)		$3,875
Administrative	2% TCI			$18
Property Taxes	1% TCI			$9
Insurance	1% TCI			$9
Annual Source Test	One			$15,000
Total IC				**$18,911**
Annual Cost (DC + IC)				**$25,037**

Total Annual Cost = (Ductwork + CIP Systems) + Condensation System + Operating Costs
= $(33,345 + 6,210) + $15,295 + $25,037
= $79,887

Annual Emission Reduction = Uncontrolled Emissions x 0.70
= 1,020 lb-VOC/year x 0.70 x ton/2,000 lb
= 0.36 tons-VOC/year

Cost Effectiveness = $79,887/year ÷ 0.36 tons-VOC/year
= $221,908/ton-VOC

The cost of VOC reductions of this control system is more than the threshold limit of $17,500/ton. Therefore, the condensation control system is not cost-effective for this installation.

Step 5 - Select BACT

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

APPENDIX G
Compliance Certification

RECEIVED
MAR 10 2015
SJVAPCD
Southern Region

HEALTHY AIR LIVING

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
[ ] MINOR PERMIT MODIFICATION
[ ] ADMINISTRATIVE AMENDMENT

COMPANY NAME: Golden State Vintners DBA Franzia McFarland	FACILITY ID: S - 882
1. Type of Organization:[X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name: The Wine Group LLC	
3. Agent to the Owner: Matthew Rogers	

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

(MR) 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).

(MR) 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.

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

(MR) Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

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

Signature of Responsible Official — Date: 3/10/2015

Matthew Rogers
Name of Responsible Official (please print)

Plant Manager
Title of Responsible Official (please print)

APPENDIX H
HRA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Vanesa Gonzalez – Permit Services
From:	Kyle Melching – Technical Services
Date:	October 28, 2015
Facility Name:	Golden State Vinters/Franzia McFarland
Location:	31795 Whisler Rd., McFarland
Application #(s):	S-882-111-2, 112-2, & 113-2
Project #:	S-1151242

A. RMR SUMMARY

RMR Summary			
Categories	**Wine Tanks (Unit 111-2, 112-2, & 113-2)**	**Project Totals**	**Facility Totals**
Prioritization Score	N/A[1]	N/A[1]	<1.0
Acute Hazard Index	N/A	N/A	N/A
Chronic Hazard Index	N/A	N/A	N/A
Maximum Individual Cancer Risk (10^{-6})	N/A	N/A	N/A
T-BACT Required?	**No**		
Special Permit Conditions?	**No**		

[1]A prioritization was not performed since it was determined that no hazardous air pollutants were present. No further analysis was required.

B. RMR REPORT

I. Project Description

Technical Services received a request on October 23, 2015, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a proposed modification to a three wine storage tanks. The modification consisted of the installation of: proposing to include the ability to store distilled spirits in the tank.

II. Analysis

After reviewing the information provided in the Risk Management Review request for the proposed wine storage tanks modification, Technical Services determined that since there are no TAC emissions associated with wine storage tank VOC's; no further analysis or prioritization was required for this project. No AAQA was completed since AAQA's only look at the NO_x, SO_x, CO, and PM_{10}

III. Conclusion

The proposed project will not contribute to the facility's risk. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

IV. Attachments

A. RMR request from the project engineer
B. Additional information from the applicant/project engineer
C. Facility Summary

APPENDIX I
Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

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

$QNEC_{SLC} = PE2_{SLC} - PE1_{SLC}$, where:

$QNEC_{SLC}$ = Quarterly Net Emissions Change for units covered by the SLC.
$PE2_{SLC}$ = PE2 for all units covered by the SLC.
$PE1_{SLC}$ = PE1 for all units covered by the SLC.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly}$ = $PE2_{annual} \div 4$ quarters/year
= 1,020 lb/year ÷ 4 qtr/year
= 255 lb VOC/qtr

$PE1_{quarterly}$ = $PE1_{annual} \div 4$ quarters/year
= 569 lb/year ÷ 4 qtr/year
= 142 lb VOC/qtr

SLC Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO_X	0	0	0
SO_X	0	0	0
PM_{10}	0	0	0
CO	0	0	0
VOC	255	142	113

APPENDIX J
Statewide Compliance Certification

11/17/2015

Mr. Errol Villegas
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726

Subject: Compliance Statement for Golden State Vintners dba Franzia-McFarland

Dear Mr. Villegas:

In accordance with Rule 2201, Section 4.15, "Additional Requirements for New Major Sources and Federal Major Modifications," **Franzia-McFarland** is pleased to provide this compliance statement regarding its proposed winery project **S-1151242**.

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

Facility #1: **Franzia-McFarland 31795 Whisler Rd., McFarland, CA 93250**

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

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

Sincerely,

Matthew Rogers
Plant Manager
Franzia McFarland
Office (661) 792-2100