



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



AUG 23 2017

Mr. Craig Rous
Bear Creek Winery
11900 N Furry Rd
Lodi, CA 95240

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # N-96
Project # N-1170278

Dear Mr. Rous:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. This project is for the installation of eight wine storage tanks.

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

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

Thank you for your cooperation in this matter.

Sincerely,


Arnaud Marjollet
Director of Permit Services

Enclosures

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

Sayed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

**San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review**

Facility Name: Bear Creek Winery	Date: August 8, 2017
Mailing Address: 11900 N Furry Road Lodi, CA 95240	Engineer: James Harader
	Lead Engineer: Nick Peirce
Contact Person: Craig Rous	
Telephone: (209) 368-3113	
Fax: (209) 368-3083	
Application #(s): N-96-397-0 through '404-0	
Project #: N-1170278	
Deemed Complete: April 13, 2017	

I. PROPOSAL

Bear Creek Winery is requesting Authority to Construct permits for the installation of eight 26,000 gallon stainless steel, insulated, wine tanks (Total Volume of New Tanks: 208,000 gallons). These tanks will only be used for the storage of wine. There are two groups of tanks in this proposal, and the distance between the two groups of tanks is greater than 200 feet.

Tank Group #1: N-96-397 and '398
Tank Group #2: N-96-399 through '404

Bear Creek Winery currently has a specific limiting condition (SLC) of 242,165 pounds of volatile organic compound (VOC) emissions per year for the fermentation and storage operations located at this facility. These added tanks will be included with the units that are subject to the 242,165 lb-VOC limit. In other words, Bear Creek Winery is not proposing to increase the SLC limit for VOC emissions.

Bear Creek Winery has received a Title V Permit. 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. Bear Creek Winery must apply to administratively amend their Title V permit.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (2/18/16)
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 (02/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4694 Wine Fermentation and Storage Tanks (12/15/05)
California Health & Safety Code 41700 (Public Nuisance)
California Health & Safety Code 42301.6 (School Notice)
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. PROJECT LOCATION

The facility is located at 11900 N Furry Road in Lodi, California. The District has determined that this location is not within 1,000 feet of any K-12 school. Therefore, noticing for California Health & Safety Code 42301.6 is not required.

IV. PROCESS DESCRIPTION

Bear Creek Winery operates a wine fermentation and storage facility. During the 'crush season', which typically lasts from August through November, both red and white grapes are received by truck and delivered to a crusher-stemmer that crushes the grapes and removes the stems. For red wines, the resultant juice, called "must", is pumped to red wine fermentation tanks for fermentation, a batch process. The red wine fermentation tanks are specifically designed to ferment the must and to allow the separation of the skins and seeds from the wine after fermentation. For white wines, the must is sent to screens and presses for separation of grape skins and seeds prior to entering the fermentation tank. Since the skins and seed have been separated, white wine fermentation is carried out in a tank that doesn't include design provisions for solids separation.

After transfer of the must (red or white) to the fermentation tank, the must is inoculated with yeast. This initiates the fermentation reactions. The yeast metabolizes the sugars in the must, converting the sugars to ethanol and carbon dioxide (CO₂). This process is an exothermic process, thus temperature must be controlled throughout the process. Refrigeration is used to maintain a temperature of 45-65°F for white wine fermentation and 70-95°F for red wine fermentation. The sugar content of the fermenting wine is measured in °Brix (weight %) and is typically 22-26° for unfermented wine, dropping to 4° or less by the end of fermentation process. For the wines produced in the proposed tanks, the final ethanol concentration will be no greater than 20.0%. Batch fermentation requires 5 days per batch of red wine and 1-2 weeks per batch of white wine. VOCs are emitted during the fermentation process, along with CO₂. The VOCs are comprised primarily of ethanol along with some trace fermentation byproducts.

For white wine, the wine is directly transferred into storage tanks after completion of the fermentation process. For red wine, the grape skins are separated from the wine and sent to a press. The press crushes residual wine from grape skins. Both red and white wines are stored in refrigerated tanks year-round for bottling. Further VOC emissions occur as a result of the storage tank operation.

The proposed tanks will only be used for the storage of wine.

V. EQUIPMENT LISTING

The applicant is proposing to install eight new wine storage tanks. All of the proposed tanks are equipped with pressure/vacuum valves and tank insulation. Please refer to the Draft Authority to Construct permits in Appendix I for the tank equipment descriptions.

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

VOCs, primarily ethanol, are emitted from wine storage tanks as a result of both working losses (which occur when the liquid level in the tank changes) and breathing losses (expansion and contraction effects due to temperature variations). The proposed pressure/vacuum relief valve limits emissions of VOC's. Additionally, when wine storage tanks are insulated or located in a climate controlled building, breathing losses are considered to be negligible.

VII. GENERAL CALCULATIONS

A. Assumptions

- VOC is the only pollutant emitted by the tanks.
- The maximum ethanol content of stored wine is limited to 20%.
- The daily throughput of each of the storage tanks is limited to 5 turns per day. A 100% fill factor is assumed for wine storage. (per District practice)
- The annual throughput of each of the storage tanks is limited to 8 turns per year. A 100% fill factor is assumed for wine storage.
- Other assumptions will be stated as they are made.

B. Emission Factors (EF)

1. Pre-Project Emission Factors (EF1)

The proposed wine storage tanks are new tanks; therefore, pre-project emission factors are not required.

2. Post-Project Emission Factors (EF2)

The following emission factors are applicable to wine storage tanks. These are based on the emission factors listed in District FYI-114, "VOC Emission Factors for Wine Fermentation and Storage Tanks (Revised 8/10/11, included in Appendix II)" and based on a maximum ethanol content of 20% by weight (proposed by applicant).

Type	Operation	EF2 (lb-VOC/1,000 gal of wine)		Source
		Daily	Annual	
Red/ White	Storage	0.303	0.175	District FYI -114 (See Appendix II)

C. Calculations

1. Pre-Project Potential to Emit (PE1)

The applicant is proposing to install new wine storage tanks. Therefore, PE1 is equal to zero for each tank.

2. Post-Project Potential to Emit (PE2)

Maximum daily emissions from the storage of white or red wine is equal to the following:

$$\text{Daily VOC}_{\text{Storage}} = \text{Tank Capacity (gal)} \times 5 \text{ turnovers/day} \\ \times \text{EF}_{\text{Storage, Daily}} \text{ (lb-VOC/1000 gal)}$$

Annual VOC emissions from the storage of white or red wine is equal to the following:

$$\text{Annual VOC}_{\text{Storage}} = \text{Tank Capacity (gal)} \times 25 \text{ turnovers/year} \\ \times \text{EF}_{\text{Storage, Annual}} \text{ (lb-VOC/1000 gal)}$$

Permit Unit	Capacity (gallons)	Storage Emissions (lb/day)	Storage Emissions (lb/year)
N-96-397-0	26,000	39.4	114
N-96-398-0	26,000	39.4	114
N-96-399-0	26,000	39.4	114
N-96-400-0	26,000	39.4	114
N-96-401-0	26,000	39.4	114
N-96-402-0	26,000	39.4	114
N-96-403-0	26,000	39.4	114
N-96-404-0	26,000	39.4	114
Total	208,000	315.2	912

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

Pursuant to Section 4.9 of District Rule 2201, SSPE1 is the Potential to Emit from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions (AERs) that have occurred at the source, and which have not been used on-site.

This project only involves units that emit VOC's. Therefore, SSPE1 will only be determined for VOC emissions.

Pre-Project Stationary Source Potential to Emit (SSPE1)	
Permit Numbers	PE1 VOC (lb/yr)
N-96-4-2 through N-96-388-0	242,165
SSPE1	242,165

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

Pursuant to Section 4.10 of District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

The facility is proposing to include the new units into their existing specific limiting condition (SLC) for VOC emissions from the wine tanks. SSPE2 is shown in the following table.

Post-Project Stationary Source Potential to Emit (SSPE2)	
Permit Numbers	PE2 VOC (lb/yr)
N-96-4-2 through N-96-404-0	242,165
SSPE2	242,165

5. Major Source Determination

Rule 2201 Major Source Determination

The following table demonstrates that this facility is an existing Major Source for VOC emissions and will continue to be a Major Source.

Pollutant	SSPE1 (lb/yr)	SSPE2 (lb/yr)	Major Source Threshold	Existing Major Source?	New Major Source?
VOC	242,165	242,165	20,000 lb/year	Yes	No

Rule 2410 Major Source Determination

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

PSD Major Source Determination (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Estimated Facility PE before Project Increase	0.0	121.1	0.0	0.0	0.0	0.0
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	N	N	N	N	N

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

6. Baseline Emissions (BE)

The baseline emission (BE) calculations are performed pollutant by pollutant to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold.

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22.

Clean Unit Determination for Existing Tanks under SLC

This facility is a Major Source for VOC emissions. A unit is considered clean if that unit is equipped with an emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application. For a facility with an SLC, all units in the SLC must be clean in order for emission units under the SLC to be considered clean. The only units permitted at this facility are wine fermentation and wine storage tanks.

Pursuant to District BACT Guidelines 5.4.13 and 5.4.14, achieved-in-practice BACT for wine tanks is as follows:

Wine Storage: Insulation or equivalent, use of a pressure vacuum relief valve, gas-tight tank operation, and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation

Wine Fermentation: Temperature-controlled open top tank with maximum average fermentation temperature of 95 degrees F

All of the existing wine storage and fermentation tanks are operating with controls that meet the above achieved-in-practice requirements; therefore, all of the units in the SLC are clean. Since all of the units are clean,

$$BE_{SLC} = PE1_{SLC}$$

7. SB288 Modification

Pursuant to the 2/8/11 version of the District's Draft Major Modification Policy, calculations for determining whether an SB288 modification is triggered are performed as follows for new units:

$$NEI = \sum (PE2 - \text{Historical Actual Emissions})$$

For new units, each unit's potential to emit is equal to the post project potential to emit for the unit, while the historical actual emissions are equal to zero.

$$\begin{aligned}\sum PE2 &= \text{Project Storage Emissions} \\ \sum PE2 &= 912 \text{ lb-VOC/year}\end{aligned}$$

$$\sum HAE = 0 \text{ lb-VOC/year}$$

Thus,

$$\begin{aligned}NEI &= 912 \text{ lb-VOC/year} - 0 \text{ lb-VOC/year} \\ NEI &= 912 \text{ lb-VOC/year}\end{aligned}$$

Since the NEI is less than the SB288 Modification threshold of 50,000 lb-VOC/year, this project does not trigger an SB288 Modification.

8. Federal Major Modification

As shown in the previous section, this project will result in a net emission increase for VOC emissions that is greater than zero; therefore, this project triggers a Federal Major Modification for VOC emissions. As a result, BACT is triggered for VOC emissions for all emission units in this project and a public notice is required.

Federal Offset Quantities:

The Federal offset quantity is only calculated for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit times the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC.

VOC		Federal Offset Ratio	
Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	1.5 Emissions Change (lb/yr)
N-96-397-0	0	114	114
N-96-398-0	0	114	114
N-96-391-0	0	114	114
N-96-392-0	0	114	114
N-96-393-0	0	114	114
N-96-394-0	0	114	114
N-96-395-0	0	114	114
N-96-396-0	0	114	114
Net Emission Change (lb/year):			912
Federal Offset Quantity: (NEC * 1.5)			1,368

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

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO

- PM
- PM10
- Greenhouses gases (GHG): CO2, N2O, CH4, HFCs, PFCs, and SF6

As determined in Section VII.D.4 of this document, this facility is not an existing PSD Major Source. Therefore, the project potential to emit from the new units is compared to the PSD major source thresholds to determine if the project is subject to the requirements of Rule 2410.

The facility has a SLC of 121.1 tons-VOC/year for wine fermentation and storage operations. The facility is not proposing any changes to this limit with the addition of the eight new tanks under this project. Thus, the project does not result in an increase in VOC emissions.

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

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

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

10. Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. QNEC calculations are included in Appendix VIII.

VIII. COMPLIANCE DETERMINATION

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

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

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

These units only emit VOC's. Thus, BACT can only be triggered for VOC emissions. Daily emissions for each new unit is greater than 2.0 lb-VOC/day. Furthermore, this project triggers a Federal Major Modification. Thus, BACT is triggered for VOC emissions for each winery tank.

Wine Storage Tanks

BACT Guideline 5.4.13 is applicable to wine storage tanks. Pursuant to the "Top-Down BACT Analysis" in Appendix III of this document, BACT has been satisfied with the following:

VOC: Insulated tank, pressure/vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas tight" tank operation and continuous storage temperature not exceeding 75°F, achieved within 60 days of completion of fermentation.

The following conditions will be included on the Authority to Construct permits:

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

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

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post-project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

Pollutant	SSPE2 (lb/yr)	Offset Thresholds (lb/yr)	Offsets Triggered?
VOC	242,165	20,000	Yes

2. Quantity of Offsets Required

This facility's total VOCs are above the offset threshold of 20,000 pounds per year. Therefore, offset calculations are required for this project.

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

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

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

BE = Baseline Emissions (lb/yr)

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

There are no cargo carrier units associated with this facility. Additionally, this facility is subject to an SLC for VOC emissions. Thus,

$$EOQ = \Sigma(PE2_{SLC} - BE_{SLC})$$

The existing tanks, when operated in wine storage or fermentation mode, are Clean Emission Units since they meet the achieved-in-practice BACT requirements for wine storage and fermentation process. Thus, BE is set equal to PE1 for each tank.

$$EOQ = \Sigma(PE2_{SLC} - PE1_{SLC})$$

Both pre-project and post-project VOC emissions from the facility's fermentation and storage operations are limited to 242,165 pounds per year. Therefore,

$$\begin{aligned} EOQ &= PE2_{SLC} - PE1_{SLC} \\ &= 242,165 \text{ lb-VOC/yr} - 242,165 \text{ lb-VOC/yr} \\ &= 0 \text{ lb-VOC/yr} \end{aligned}$$

Therefore, the quantity of offsets required for this project is equal to zero.

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,
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
- e. Any project which results in a Title V significant permit modification

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

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, this facility is already a Major Source of VOC emissions. Therefore, this is not a New Major Source.

As demonstrated earlier, this project triggers a Federal Major Modification. Therefore, a public notice is required for these purposes.

b. PE > 100 lb/day

None of the winery tanks has a PE greater than 100 lb/day for VOC emissions. Therefore, a public notice is not triggered for this purpose.

c. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Offset Threshold Surpassed?
VOC	242,165	242,165	20,000 lb/year	No

As detailed in the previous table, 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 Stationary Source Increase in Permitted Emissions (SSIPe) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPe is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPe = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPe is compared to the SSIPe Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPe] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPe (lb/year)	SSIPe Public Notice Threshold	Public Notice Required?
VOC	246,125	246,125	0	20,000 lb/year	No

As demonstrated in the table above, a public notice is not required for SSIPe greater than 20,000 lb/year.

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 demonstrated above, a public notice is required. Therefore, a public notice will be completed prior to issuing these Authority to Construct permits.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, 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:

The following conditions will be placed on each Authority to Construct permit:

- *The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]*
- *The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughput, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]*
- *Annual emissions from all wine fermentation and storage tanks, calculated on a 12-month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]*

E. Compliance Assurance

1. Source Testing

Since, winery tank emissions are based on generally accepted emission factors, source testing is not required to demonstrate compliance.

2. Monitoring

Monitoring is not required to demonstrate compliance with Rule 2201 requirements.

3. Recordkeeping

For each storage tank, the facility will be required to keep daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, is required to be maintained along with records of the total gallons of wine contained in a tank and the maximum temperature of the stored wine. These records are required to be retained on-site for a period of at least five years and made available for District inspection upon request.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Compliance Certification

Bear Creek Winery has submitted a compliance certification. See appendix V.

G. Alternative Siting Analysis

Section 4.15.1 of this rule requires sources for which an analysis of alternative sites, sizes, and production processes is required under Section 173 of the Federal Clean Air Act, the applicant shall prepare an analysis functionally equivalent to the requirements of Division 13, Section 21000 et. seq. of the Public Resources Code.

This proposed wine storage will be installed at an existing winery with more than 350 existing wine processing tanks, located in a rural area of San Joaquin County. The area is a long-established grape-growing and processing region and a number of wineries are present in the immediate area. The existing facility is vertically integrated to receive bulk truck shipments of grapes, crush and press the grapes, ferment the juice to wine, and perform post fermentation processing to produce finished wine. To support these various operations the facility features a large amount of support equipment, services and structures such as raw material receiving stations, crushers, pumps and piping, filtering and refrigeration units, electric and natural gas utilities, warehouses, laboratories, shipping facilities and administration buildings.

The applicant proposes to install eight new winery tanks. The existing plant infrastructure and processing equipment including the crushing and pressing equipment are adequately sized to support operation of the proposed post project tank population. Installation of the project at an alternate site would not be practical or feasible based on:

- Since wine tanks operate synergistically in post-fermentation processing and blending, the potential production capacity of the new tanks could not be fully met by installing the new tanks at an alternate location.
- Use of an alternate project site would require installation of a complete new plant infrastructure and supporting processes and equipment to support the independent operation, thus duplicating the infrastructure already present at the existing plant. Construction of the project at an alternate site would be expected to produce a significantly greater environmental impact due to both 1) a much larger initial construction project and 2) incrementally larger on-going emissions and other impacts due to operation of redundant infrastructure and support systems as well as emissions associated with product transportation required to achieve some degree of integration with the existing facility.

H. Ambient Air Quality Analysis

An Ambient Air Quality Analysis may be triggered by projects that trigger a public notice; however, there is no Ambient Air Quality Standard for VOC emissions. This project only involves units that emit VOC; therefore, an Ambient Air Quality Analysis is not required for this project.

District Rule 2410 Prevention of Significant Deterioration

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

As demonstrated in Section VII.D.9 of this document, the proposed project is not subject to the requirements of Rule 2410; therefore no further discussion is required.

Rule 2520 Federally Mandated Operating Permits

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

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

Rule 4001 New Source Performance Standards (NSPS)

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

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

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

Rule 4102 Nuisance

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

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

California Health & Safety Code 41700 - Health Risk Assessment

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

Ethanol (VOC) and CO₂ are not hazardous air pollutants (HAP) as defined in Section 44321 of the California Health and Safety Code. Therefore, health risk assessment is not required.

Compliance is expected with this Rule.

Rule 4694 Wine Fermentation and Storage Tanks

The purpose of this rule is to reduce emissions of volatile organic compounds (VOC) from the fermentation and bulk storage of wine, or achieve equivalent reductions from alternative emission sources. This rule is applicable to all facilities with fermentation emissions in excess of 10 tons-VOC/year. The storage tank provisions of Section 5.2 of this rule apply only to tanks with capacity in excess of 5,000 gallons and that are not constructed out of concrete or wood.

Section 5.1 is applicable to wine fermentation tanks. This project doesn't include wine fermentation tanks; therefore, Section 5.1 is not applicable to this project.

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.

All of the proposed tanks are larger than 5,000 gallons and constructed out of stainless steel. Thus, the following conditions will be included on each Authority to Construct permit:

- *This tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694]*
- *The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21 [District Rules 2201 and 4694]*

Section 5.2.2 requires that the temperature of the stored wine be maintained at or below 75° F.

The following condition will be included on each Authority to Construct permit:

- *The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. 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 Rules 2201 and 4694]*

Section 6.1 and 6.2 require the facility to submit a Three-Year Compliance Plan and a Three-Year Compliance Plan Verification respectively. The three year compliance plan and plan verification is to show compliance with requirements for wine fermentation tanks. This project doesn't include wine fermentation tanks; therefore the requirements of Section 6.1 and 6.2 are not applicable to this project.

Section 6.4.1 requires that records be kept for each fermentation batch. These tanks don't include fermentation; therefore, Section 6.4.1 is not applicable to these tanks.

Section 6.4.2 requires that weekly records be kept of wine volume and temperature in each storage tank. Therefore, the following conditions will be included on each Authority to Construct permit:

- *Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 2201 and 4694]*
- *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 Rules 2201 and 4694]*

Compliance is expected with this Rule.

California Environmental Quality Act (CEQA)

District CEQA Findings

The County of San Joaquin (County) is the public agency having principal responsibility for approving the project. As such, the County served as the Lead Agency (CCR §15367). In approving the project, the Lead Agency prepared and adopted a Negative Declaration. The Lead agency filed a Notice of Determination, stating that the environmental document was adopted pursuant to the provisions of CEQA and concluding that the project would not have a significant effect on the environment.

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CCR §15381). As a Responsible Agency the District complies with CEQA by considering the environmental document prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CCR §15096).

The District has considered the Lead Agency's environmental document and finds that it adequately characterizes the project's potential impact on air quality. In addition, all feasible and cost-effective control measures to reduce potential impacts on air quality resulting from project related stationary source emissions have been applied to the project as part of BACT. Furthermore, the District has conducted an engineering evaluation of the project, this document, which demonstrates that Stationary Source emissions from the project would be reduced. Thus, the District finds that through a combination of project design elements, compliance with applicable District rules and regulations, and compliance with District air permit conditions, project specific stationary source emissions would be reduced to lessen the impacts on air quality. The District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or letter of credit may be required. The decision to require an indemnity agreement and/or letter of credit are based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. RECOMMENDATION

Compliance with all applicable regulations is expected. Therefore, issuance of the ATCs is recommended upon addressing comments from the public, EPA, CARB, and the applicant.

X. BILLING INFORMATION

There is no change to the annual permit fees for the existing tanks. The new tanks billing information is summarized below.

Permit Number	Fee Schedule	Fee Description	Previous Fee Schedule
N-96-397-0 through N-96-404-0	3020-05-B	26,000 gallons	None

APPENDICES

- Appendix I: Draft Authority to Construct permits
- Appendix II: FYI 114
- Appendix III: BACT Guideline 5.4.13 and Top-Down BACT Analysis
- Appendix IV: Comparison Spreadsheet Ducting/Piping Costs
- Appendix V: Compliance Certification
- Appendix VI: Quarterly Net Emissions Change Calculations

Appendix I
Draft Authority to Construct Permits

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-96-397-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY
MAILING ADDRESS: 11900 N FURRY RD
LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #668) WITH
PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(e). [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. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

N-96-397-0 Aug 6 2017 8:30AM - MARJOLLE - JUD: Inspection NOT Required

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-96-398-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY

MAILING ADDRESS: 11900 N FURRY RD
LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #669) WITH
PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-96-398-0 Aug 19 2016 11:39AM - L-ARADENJ - JUD Inspection NOT Required

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #679) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity of 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. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-8400 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

Arnaud Mariolle, Director of Permit Services

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-96-400-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY

MAILING ADDRESS: 11900 N FURRY RD
LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #680) WITH
PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 567-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N-96-400-0 Aug 9 2017 8:18AM - HAPADERJ Joint Inspection NOT Required

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-96-401-0

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY

MAILING ADDRESS: 11900 N FURRY RD
LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #681) WITH
PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

N-96-401-0 Aug 8 2017 9:39AM - HAHADENJ - Joint Inspection NOT Required

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-96-402-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY

MAILING ADDRESS: 11900 N FURRY RD
LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #682) WITH
PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

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

Sayed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

N 96-402-0 Aug 8 2017 4:09AM - PARADES / 1 26th Inspection NOT Req. Mail

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-96-403-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY
MAILING ADDRESS: 11900 N FURRY RD

LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #683) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

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

Sayed Sadredin, Executive Director, APCO

Arnaud Marjollet, Director of Permit Services

APC-403-0 1-18-2010 EX-100-1100000000 Joint Inspection NOT Required

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

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: N-96-404-0

LEGAL OWNER OR OPERATOR: BEAR CREEK WINERY

MAILING ADDRESS: 11900 N FURRY RD
LODI, CA 95240

LOCATION: 11900 N FURRY RD
LODI, CA 95240

EQUIPMENT DESCRIPTION:

26,000 GALLON NOMINAL STAINLESS STEEL WHITE/RED WINE STORAGE TANK (TANK #684) WITH
PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The nominal tank dimensions are 12.16 feet in diameter and 30.0 feet in height with a proposed volume of 26,000 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
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 Rules 2201 and 4694]
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 Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE

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

Sayed Sadredin, Executive Director, APCO

Arnaud Marjolle, Director of Permit Services

N 96-404-0 Aug 9 2017 11:41AM - JARADERJ Joint Inspection NOT Required

7. 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 Rules 2201 and 4694]
8. The ethanol content of wine stored in this tank shall not exceed 20.0 percent by volume. [District Rule 2201]
9. The daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description and the annual tank throughputs, in gallons, shall not exceed 25 times the maximum nominal tank capacity stated in the equipment description. [District Rule 2201]
10. 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]
11. Daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
12. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed 242,165 lb-VOC. [District Rule 2201]
13. Records of total annual fermentation and total annual storage emissions, including calculation methods and parameters used, shall be maintained. [District Rules 1070 and 2201]
14. Total annual VOC emissions from wine storage operations shall be determined as the sum of the product of the volume of wine transferred in each wine movement and the batch-specific wine storage VOC emission factor calculated using the equation specified within this permit. [District Rule 2201]
15. The batch-specific wine storage VOC emission factor (EF), in pounds of VOC per 1,000 gallons of wine throughput, shall be calculated using the following equation: $EF = 1.705259 * P^{1.090407}$, where P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
16. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume and the ethanol concentration of each wine movement; and the calculated 12 month rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rules 1070 and 2201]
17. If the emissions calculated for any rolling 12-month period exceed the annual emissions limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the annual emissions limit for that rolling 12-month period will be deemed to have occurred so long as the calendar year emissions are below the annual emissions limitation. [District Rule 2201]
18. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]
19. 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]

DRAFT

Appendix II
FYI 114

**SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT**

DATE: March 8, 2007 (Revised 09/14/09) (Revised 8/10/11) (Revised 6/13/12)
TO: Permit Services Staff
FROM: Dennis Roberts
SUBJECT: VOC Emission Factors for Wine Fermentation and Storage Tanks

Winery tank operations generally consist of two separate emissions units; 1) fermentation and 2) storage of wine and spirits. Any particular tank may be permitted to perform one or both of these operations. The emissions from each emission unit are appropriately combined to yield the Potential to Emit for the tank (permit unit).

Emissions from fermentation operations are estimated using emission factors which have been developed based on a recognized fermentation model and are presented herein. For wine storage operations, emissions can be determined in general by modeling the storage tank operation using the EPA's Tanks 4.0 software (modeling procedures and an ethanol/water data base have been established as described in FYI-295 (*Modeling Emissions from Wine Storage Tanks*)). However, the majority of wine storage tanks located in the District are insulated storage tanks which do not have a requirement for refrigeration (ambient storage temperature). For this classification of tank the storage emission factor, as calculated by the Tanks 4.0 model, is a function of ethanol content only. For this case the tabular emission factors presented herein are applicable (note that storage tanks which are un-insulated and/or which have NSR limits on the tank operating temperature should be estimated by the emissions modeling per FYI-295).

Wine Storage Tanks

Wine storage tanks perform two functions in the winery:

- Facilitation of post-fermentation processing operations such as racking, filtration, malolactic fermentation and bottling. In this role, the typical storage tank is filled and emptied several times per year with the wine being transferred from tank to tank. Many of these operations occur prior to chilling of the wine. Emissions from such operations are "working losses" which occur as a result of the displacement of the vapor space of the tank into the atmosphere during the filling operations. For insulated tanks (or tanks installed in a climate-controlled building), working losses are a function only of the ethanol content, the ambient temperature and the tank throughput.
- Static storage of wine between processing operations up to the final operation of bottling. In this operation, a common objective is to avoid oxidation of the wine by both minimizing the wine temperature and the exposure of the wine to air. In such cases, the wine may be maintained at a temperature below ambient, often in the range of 35-40 °F, however, since the tank cannot be always maintained at this temperature due to processing considerations, the lower temperatures are not an NSR condition on the permit. Also, the tanks are typically maintained at as high a liquid level as possible to minimize contact with oxygen. Emissions from static storage are

"breathing losses" which are the result of diurnal heating and cooling caused by the effect of daily variations in atmospheric conditions on the contents of the tank. For a well-insulated tank, equipped with a pressure/vacuum relief valve per the requirements of District Rule 4694, breathing losses are considered to be negligible since the insulation serves to maintain a relatively uniform temperature inside the tank while the pressure/vacuum valve serves to contain small internal variations, preventing escape of vapor to the atmosphere.

Table 1 presents emission factors for wine and spirits storage in ambient temperature tanks (non-refrigerated), equipped with insulation and/or located in a climate-controlled building. The tabular values have been developed using the District's emissions modeling procedure for wine and spirits tanks (see FYI-295). As shown, different emission factors are presented for tanks located in the three different regions of the District based upon higher ambient temperatures in the southern part of the Central Valley. All factors represent working losses only since breathing losses are considered negligible as discussed above. Emission factors for concentrations not listed in Table 1 may be interpolated from the table.

Table 1: Emission Factors for Wine and Spirits Storage Tanks by Region in the San Joaquin Valley
 lb-VOC per 1,000 gallons of throughput

Applicability:	1. Vertical Fixed-Roof tank, insulated or located in climate-controlled building 2. Ambient temperature storage					
	Southern Region		Central Region		Northern Region	
Vol %	Annual	Daily	Annual	Daily	Annual	Daily
2	0.016	0.029	0.015	0.027	0.014	0.024
4	0.033	0.062	0.032	0.057	0.030	0.051
6	0.052	0.099	0.050	0.092	0.047	0.081
8	0.074	0.141	0.071	0.130	0.067	0.116
10	0.098	0.187	0.094	0.173	0.088	0.154
12	0.125	0.239	0.120	0.221	0.112	0.196
14	0.143	0.273	0.137	0.252	0.128	0.223
16	0.159	0.302	0.153	0.280	0.143	0.248
18	0.176	0.334	0.169	0.310	0.159	0.275
20	0.195	0.368	0.187	0.341	0.175	0.303
22	0.215	0.404	0.207	0.375	0.194	0.333
24	0.237	0.443	0.227	0.412	0.213	0.366
26	0.251	0.470	0.242	0.436	0.227	0.388
28	0.264	0.494	0.254	0.458	0.238	0.408
30	0.278	0.518	0.267	0.481	0.251	0.428
32	0.293	0.544	0.281	0.506	0.264	0.450
34	0.308	0.572	0.296	0.531	0.278	0.473
36	0.324	0.600	0.312	0.559	0.293	0.498
38	0.335	0.620	0.323	0.577	0.303	0.514
40	0.347	0.640	0.334	0.595	0.313	0.530
42	0.358	0.660	0.345	0.614	0.324	0.546
44	0.371	0.681	0.357	0.634	0.335	0.565
46	0.384	0.703	0.370	0.655	0.348	0.584
48	0.396	0.724	0.381	0.674	0.359	0.602
50	0.405	0.738	0.390	0.688	0.367	0.615
52	0.415	0.754	0.400	0.703	0.376	0.628
54	0.425	0.770	0.410	0.718	0.386	0.642
56	0.436	0.788	0.420	0.734	0.396	0.657
58	0.447	0.805	0.431	0.751	0.406	0.673
60	0.455	0.818	0.438	0.764	0.413	0.684
62	0.462	0.832	0.446	0.777	0.420	0.695
64	0.471	0.847	0.454	0.790	0.427	0.708
66	0.479	0.863	0.462	0.805	0.435	0.721
68	0.489	0.879	0.471	0.820	0.443	0.735
70	0.497	0.896	0.479	0.836	0.451	0.748
72	0.507	0.914	0.488	0.853	0.460	0.763
74	0.517	0.933	0.498	0.871	0.468	0.779
76	0.527	0.954	0.508	0.890	0.478	0.796
78	0.539	0.976	0.519	0.910	0.489	0.814
80	0.552	1.000	0.531	0.932	0.500	0.833
82	0.566	1.026	0.545	0.955	0.513	0.855
84	0.581	1.052	0.559	0.981	0.526	0.877
86	0.598	1.083	0.576	1.010	0.542	0.903
88	0.617	1.120	0.595	1.044	0.559	0.934
90	0.639	1.161	0.616	1.082	0.579	0.967
92	0.663	1.206	0.639	1.124	0.601	1.004
94	0.694	1.261	0.669	1.175	0.629	1.050
96	0.742	1.339	0.715	1.249	0.673	1.118
98	0.786	1.409	0.757	1.315	0.714	1.179
100	0.838	1.534	0.807	1.437	0.762	1.278

For purposes of calculating actual annual emissions, the annual data in Table 1 have been curve-fitted based on an equation of the form $E_f = ap^2 + bp + c$, where p = vol% ethanol (e.g., 20% = 0.20). The constants for the equation are as follows:

Constants for Emission Factor Correlation			
$E_f = ap^2 + bp + c$			
p = volume percentage ethanol			
Southern Region			
Concentration Range	a	b	c
0 to 24%	-0.45139	1.0958	0
>24 to 66%	-0.47357	1.0088	0.019486
>66% to 92%	1.5279	-1.7467	0.97149
>92% to 100%	6.7857	-10.819	4.8713
Central Region			
Concentration Range	a	b	c
0 to 24%	-0.45139	1.0542	0
>24 to 66%	-0.45117	0.96968	0.018554
>66% to 92%	1.5254	-1.7662	0.96812
>92% to 100%	6.4286	-10.223	4.6016
Northern Region			
Concentration Range	a	b	c
0 to 24%	-0.38194	0.97917	0
>24 to 66%	-0.42159	0.91316	0.016237
>66% to 92%	1.3799	-1.5774	0.87906
>92% to 100%	6.6071	-10.651	4.8061

The mathematical correlation for concentrations up to 24% provides a slightly conservative estimate of the emission factor relative to the data in Table 1 based on smoothing the impact of the linear interpolation process employed in development of the ethanol/water data base used for modeling wine tank emissions in EPA Tanks 4.0. Mathematical correlations for concentrations greater than 24% are based on a least square analysis of the data in Table 1.

Use of Table I and correlations to estimate emissions insulated wine storage tank subject to ambient temperature is demonstrated by the following examples:

Example 1 (wine storage tank with daily and annual throughput limits and maximum ethanol content) – estimate the potential to emit for an insulated 100,000 gallon nominal capacity steel storage tank to store wine with maximum concentration of 14 vol% ethanol. Maximum daily throughput is one tank turn or 100,000 gallons/day. Maximum annual throughput will be 600,000 gallons per year. The tank will be installed in a facility located in the Southern Region.

For a storage tank located in the Southern Region and handling up to 14% ethanol, the annual emission factor is 0.143 lb-VOC/1000 gallons throughput and the daily emission factor is 0.273 lb-VOC/1000 gallons throughput.

$$\text{Daily PE} = 100,000 \text{ gallons/day} \times 0.273 \text{ lb-VOC/1000 gallons} = 27.3 \text{ lb-VOC/day}$$

$$\text{Annual PE} = 600,000 \text{ gallons/year} \times 0.143 \text{ lb-VOC/1000 gallons} = 86 \text{ lb-VOC/year}$$

DEL conditions for this example would be:

- *Ethanol content of wine in this tank shall not exceed 14.0 percent by volume. [District Rule 2201]*
- *Tank throughput shall not exceed either of the following limits: 100,000 gallons in any one day or 600,000 gallons per year. [District Rule 2201]*

Example 2 (wine and spirits storage tank subject to a daily throughput limit and an SLC limit on annual emissions) – estimate the potential to emit for an insulated 100,000 gallon nominal capacity steel storage tank to store spirits with maximum concentration of 80 vol% ethanol. Maximum allowed annual emissions for the tanks in the SLC are 10,000 lb/year. Maximum daily throughput is one tank turn or 100,000 gallons/day. The tank will be installed in a facility located in the Northern Region.

For a storage tank located in the Northern Region and handling up to 80% ethanol, the daily emission factor is 0.833 lb-VOC/1000 gallons throughput. Since the annual emissions are constrained by the SLC, an annual emission factor is not needed for the PE calculation but will be placed on the permit for purposes of demonstrating annual compliance on an ongoing basis. Since the ethanol concentration can vary from 0% to 80%, three separate correlation equations are required to cover the potential range:

$$\text{For concentration } p = 0 - 24\%: \quad E_f = ap^2 + bp + c$$

$$a = -0.38194$$

$$b = 0.97917$$

$$c = 0$$

$$\text{For concentration } p = 24\% < p < 66\%: \quad E_f = ap^2 + bp + c$$

$$a = -0.42159$$

$$b = 0.91316$$

$$c = 0.016237$$

$$\text{For concentration } p = 66\% < p < 80\%: \quad E_f = ap^2 + bp + c$$

$$a = 1.3799$$

$$b = -1.5774$$

$$c = 0.87906$$

Daily PE = 100,000 gallons/day x 0.833 lb-VOC/1000 gallons = 83.3 lb-VOC/day

DEL conditions for this example would be:

- *Ethanol content of wine or spirits in this tank shall not exceed 80.0 percent by volume. [District Rule 2201]*
- *Tank throughput shall not exceed 100,000 gallons in any one day. [District Rule 2201]*
- *Combined annual VOC emissions from all wine storage operations under permit units X-XXXX-XXX through X-XXXX-XXX shall not exceed 10,000 pounds per year. [District Rule 2201]*
- *Combined annual VOC emissions from wine storage operations under permit units X-XXXX-XXX through X-XXXX-XXX shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rule 2201]*
- *The annual VOC wine storage emission factor for each wine or spirits ethanol content shall be calculated using the following equation: $EF = a * P^2 + b * P + c$; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. For concentrations up to and including 24 volume %, $a = -0.38194$, $b = 0.97917$ and $c = 0$. For concentrations greater than 24 volume % up to and including 66 volume%, $a = -0.42159$, $b = 0.91316$ and $c = 0.016237$. For concentrations greater than 66 volume % up to and including 80 volume %, $a = 1.3799$, $b = -1.5774$ and $c = 0.87906$. [District Rule 2201]*

Wine Fermentation Tanks

During the wine fermentation process, sugar in the grape juice reacts with yeast to form alcohol (ethanol) and carbon dioxide (CO₂) gas. Ethanol is emitted into the atmosphere through evaporation. According to Williams and Boulton¹, the only important mechanism for ethanol loss is equilibrium evaporation into the escaping CO₂ stream. The physical entrainment of ethanol droplets in the CO₂ gas is insignificant in modern enclosed fermentation vessels. These researchers' model indicates that as fermentation temperature increases, ethanol loss increases exponentially. Since red wines are fermented at significantly higher temperatures than white wine, a different emission factor is required for each case.

Annual Fermentation Emission Factors

The California Air Resources Board (CARB) has established annual emission factors for fermentation of both red and white wines, based on the computer model developed by Williams and Boulton. The emission factors were developed for purposes of emission

¹ L.A. Williams and R. Boulton, Modeling and Prediction of Evaporative Ethanol Loss During Wine Fermentation, American Journal of Enology and Viticulture, 32:234-242, (1983).

inventory estimation and represent a typical wine fermentation operation based on average fermentation temperatures and average initial sugar concentrations (°Brix) and are presented in Emissions Inventory Procedural Manual, Section 5.1, Air Resources Board, 1997. These factors have been adopted by the District in Rule 4694, *Wine Fermentation and Storage Tanks*. The established factors are as follows:

Red Wine Fermentation: 6.2 lb-VOC/1000 gallons fermented per year
(78 °F fermentation temperature, 21.8 °Brix)

White Wine Fermentation: 2.5 lb-VOC/1000 gallons fermented per year
(58 °F fermentation temperature, 20.4 °Brix)

Daily Fermentation Emission Factors

The District has developed factors for daily Potential to Emit using the previously-referenced research by Williams and Boulton (see Appendix A). To ensure the factors represent true Potential to Emit, the daily emission factors were developed based on typical maximum fermentation temperatures and starting sugar concentrations rather than average values:

Red Wine Fermentation: 3.46 lb-VOC/1000 gallons tank capacity per day
(85 °F fermentation temperature, 22.5 °Brix)

White Wine Fermentation: 1.62 lb-VOC/1000 gallons tank capacity per day
(70 °F fermentation temperature, 22.5 °Brix)

Example 3 (fermentation tank) - estimate the daily and annual potential to emit for a 200,000 gallon nominal capacity fermentation tank to exclusively ferment red wine. Maximum fermentation throughput will be 900,000 gallons red wine per year. The tank will not be used for storage.

Daily $PE_{\text{fermentation}}$ = 3.46 lb-VOC/day per 1000 gallons nominal tank capacity x 200 Mgal nominal

Daily $PE_{\text{fermentation}}$ = 692.1 lb/day

Daily PE = Daily $PE_{\text{fermentation}}$ = 692.1 lb/day

Annual PE = 6.2 lb-VOC per 1000 gallons fermented x 900 Mgal/year = 5,580 lb-VOC/yr

Example 5 (fermentation and storage tank) - estimate the daily and annual potential to emit for a 100,000 gallon nominal capacity fermentation tank to ferment red wine. Maximum fermentation throughput will be 450,000 gallons red wine per year. The tank will also be used for storage identical with example 1:

In this case,

Daily PE = the larger of either Daily $PE_{\text{fermentation}}$ or Daily PE_{storage}

And,

FYI-114

$$\text{Annual PE} = \text{Annual PE}_{\text{fermentation}} + \text{Annual PE}_{\text{storage}}$$

Calculating the Daily PE:

$$\text{Daily PE}_{\text{fermentation}} = 3.46 \text{ lb-VOC/day per 1000 gallons nominal tank capacity} \times 100 \text{ Mgal nominal}$$

$$\text{Daily PE}_{\text{fermentation}} = 346.0 \text{ lb-VOC/day}$$

From example 1,

$$\text{Daily PE}_{\text{storage}} = 27.3 \text{ lb-VOC/day}$$

Therefore,

$$\text{Daily PE} = 346.0 \text{ lb/day}$$

Calculating the Annual PE:

$$\text{Annual PE}_{\text{fermentation}} = 6.2 \text{ lb-VOC per 1000 gallons fermented} \times 450 \text{ Mgal/year} = 2,790 \text{ lb-VOC/yr}$$

From example 1,

$$\text{Annual PE}_{\text{storage}} = 97 \text{ lb-VOC/year}$$

Therefore,

$$\text{Annual PE} = 2,790 + 97 = 2,887 \text{ lb/year}$$

Appendix A

Daily Emission Factor for Wine Fermentation

Appendix A

The emission factor for daily PE is based on the following:

- Estimation of maximum daily fermentation emissions is based on Figure 7 from the Williams and Boulton work referenced in the body of this document.
- Maximum red wine fermentation temperature is assumed to be 85 °F.
- Maximum white wine fermentation temperature is assumed to be 70 °F.
- Maximum working capacity of a red wine fermenter is 80% of tank maximum capacity.
- Maximum working capacity of a white wine fermenter is 95% of tank maximum capacity.

Figure 7 from Williams and Boulton indicates the ethanol emission rate (mg per hour per liter of wine) versus time for various fermentation temperatures. The total emissions in mg per liter of wine for any time period is the area under the curve. Thus, for any given temperature, figure 7 can be graphically integrated over the 24 hour period during which maximum emissions occur. A copy of figure 7 is attached which indicates the integration interval for red wine (85 °F) and for white wine (70 °F). Results of integration of Figure 7 are presented in the following table:

Graphical Integration Results to Determine Daily Fermentation Emission Factor from Figure 7 of Williams and Boulton		
	Red Wine	White Wine
Maximum 24 hour Emissions (mg/liter of wine per day)	518.6	203.9
Maximum 24 hour Emissions (1b/1000 gallons of wine per day)	4.33	1.70
Maximum Batch Size (% of Tank Capacity)	80%	95%
Daily Emission Factor (lb/1000 gallons tank capacity per day)	3.46	1.62

Appendix A

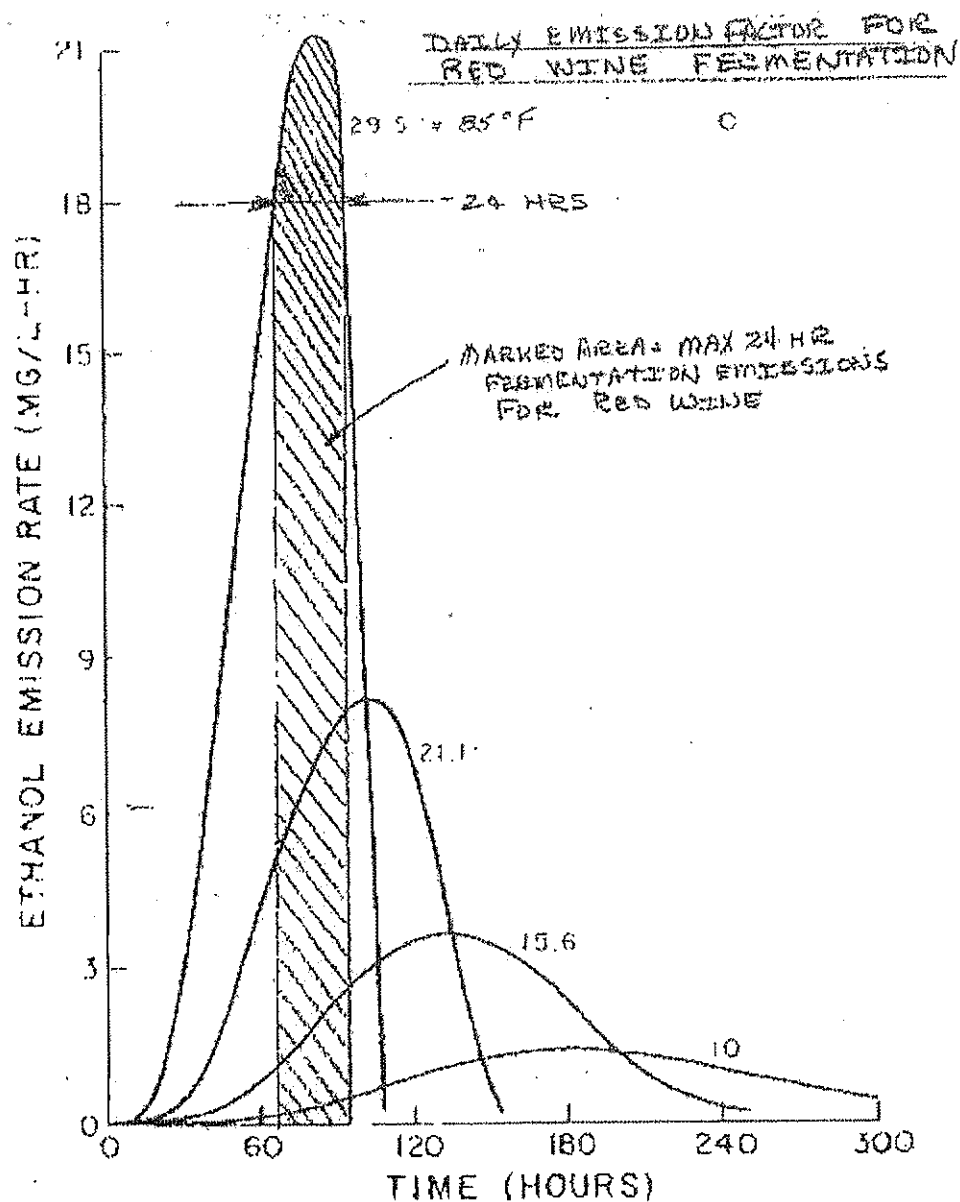


Fig. 7. The influence of fermentation temperature on a) the fermentation rate, b) the vapor phase ethanol concentration, and c) the rate of ethanol emission. (Initial sugar content of 22.5°Brix. Isothermal fermentation at indicated temperature.)

Appendix A

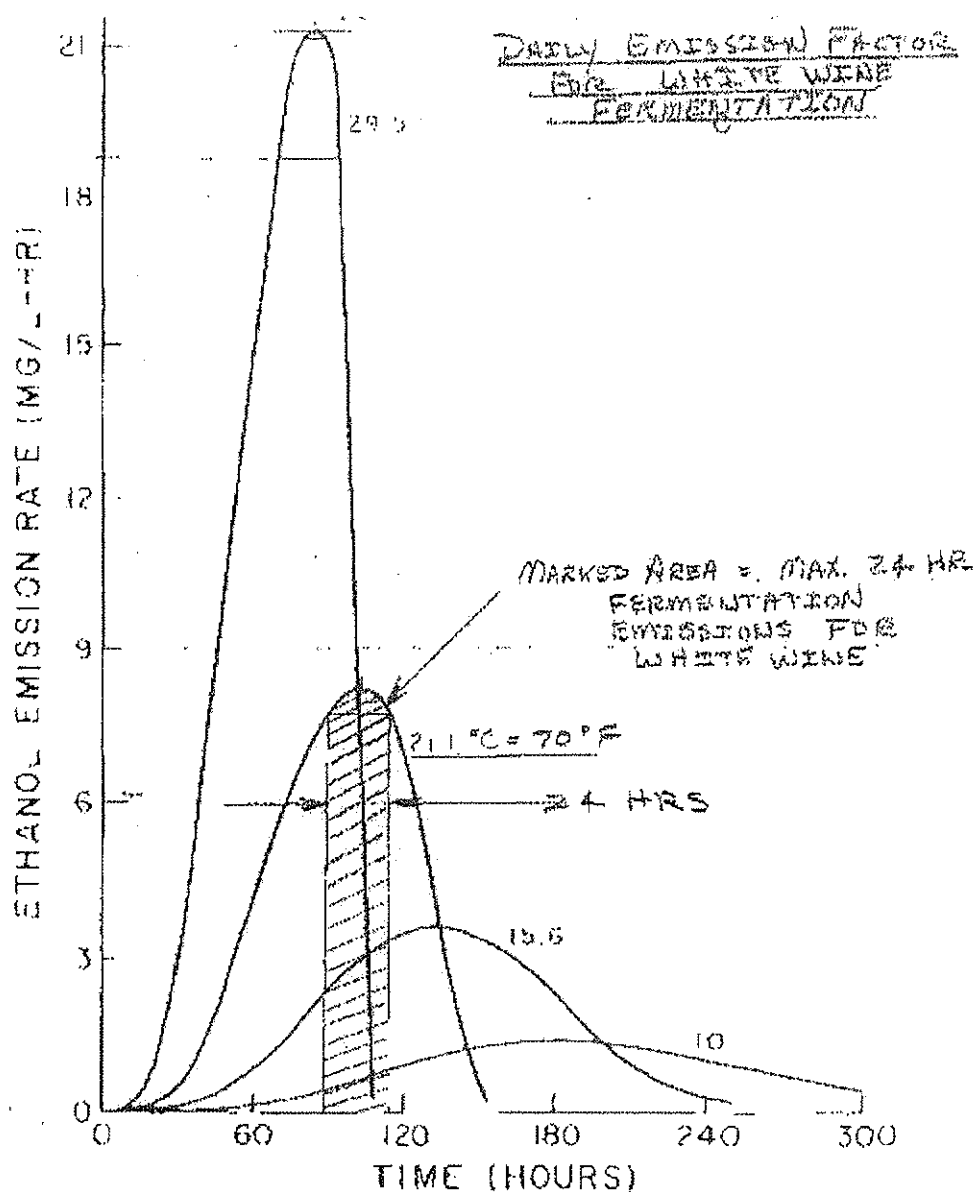


Fig. 7. The influence of fermentation temperature on: a) the fermentation rate, b) the vapor phase ethanol concentration, and c) the rate of ethanol emission. (Initial sugar content of 22.5°Brix, isothermal fermentation at indicated temperature.)

Appendix III
BACT Guideline 5.4.13 and Top-Down BACT Analysis (Storage)

Per » [B A C T » Bact Guideline.asp?category_Level1=5&category_Level2=4&category_Level3=13&last Update=9 » 26 :](#)

[Back](#)

Best Available Control Technology (BACT) Guideline 5.4.13
Last Update: 9/26/2011

Wine Storage Tank - Non-Wood Material**

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	1. Insulation or Equivalent***, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation.	1. Capture of VOCs and thermal or catalytic oxidation or equivalent (98% control) 2. Capture of VOCs and carbon adsorption or equivalent (95% control) 3. Capture of VOCs and absorption or equivalent (90% control) 4. Capture of VOCs and condensation or equivalent (70% control)	

***This guideline is applicable to a wine storage tank that is not constructed out of wooden materials. ***Tanks made of heat-conducting materials such as stainless steel may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure of diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete (except for fillings) are considered self-insulating.*

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

This is a Summary Page for this Class of Source. For background information, see Permit Specific BACT Determinations on [Details Page](#).

Top-Down BACT Analysis for Fermentation VOCs from Wine Storage Operations

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.13 identifies the following control equipment options for VOC emissions.

- 1) Insulation or Equivalent, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation.
- 2) Capture of VOCs and thermal or catalytic oxidation or equivalent (98% control)
- 3) Capture of VOCs and carbon adsorption or equivalent (95% control)
- 4) Capture of VOCs and absorption or equivalent (90% control)
- 5) Capture of VOCs and condensation or equivalent (70% control)

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; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation.	Baseline (Achieved-in-Practice)

(*) Following recent District practice, thermal and catalytic oxidation will be ranked together.

Step 4 - Cost Effectiveness Analysis

A cost effective analysis must be performed for all control options that have not been determined to be achieved in practice in the list from Step 3 above, in the order of their ranking, to determine the cost effective option with the lowest emissions.

District BACT Policy APR 1305 establishes annual cost thresholds for imposed control based upon the amount of pollutants reduced by the controls. If the cost of control is at or below the threshold, it is considered a cost effective control. If the cost exceeds the threshold, it is not cost effective and the control is not required. Per District BACT Policy, the maximum cost limit for VOC reduction is \$17,500 per ton of VOC emissions reduced.

BACT Analysis Assumptions – All Control Options

- Sales Tax: This facility is located in Lodi, CA, which has a current sales tax rate of 8.0%. However, pollution control equipment qualifies for a partial tax exemption in California. According to the following link, the tax exemption rate is 4.1875%, http://www.boe.ca.gov/sutax/manufacturing_exemptions.htm#Purchasers. Therefore, the sales tax rate used in this analysis will be set equal to 3.8125% (8.0% - 4.1875%).
- Project Contingency: For detailed estimates, the Association for the Advancement of Cost Engineering International recommends a contingency factor of 15%, while the Electric Power Research Institute recommends a contingency of 10% to 20% (<ftp://ftp.repec.org/opt/ReDIF/RePEc/sip/04-005.pdf>). Therefore, a cost contingency of 15% will be applied to the detailed estimates provided in these cost analyses. Additionally, since both the direct and indirect costs are detailed estimates and both of these categories of costs have uncertainty associated with them, the contingency will be applied to both the direct and indirect costs.

Uncontrolled Storage Emissions

Currently, industry standard is the use insulated tanks with a pressure vacuum relief valve and a continuous storage temperature not exceeding 75 degrees F. Storage emissions, using this level of control are estimated to be 0.175 lb/1000 gallons (annual average) of wine stored. The following table shows the industry standard emissions for each tank associated with this project:

Permit Unit	Capacity (gallons)	Storage Turnovers Per Year	Storage Emissions (lb/year)
N-96-397-0	26,000	25	114
N-96-398-0	26,000	25	114
N-96-399-0	26,000	25	114
N-96-400-0	26,000	25	114
N-96-401-0	26,000	25	114
N-96-402-0	26,000	25	114
N-96-403-0	26,000	25	114
N-96-404-0	26,000	25	114
Total	208,000	N/A	912

Collection System Capital Investment (based on ductwork and clean-in-place system)

A common feature of all technically feasible options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device(s).

Basis of Cost Information for Collection System:

- The costs for the ductwork and the required clean-in-place (CIP) 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 District performed a cost survey of stainless steel ducting/piping and found that the values stated in the Eichleay report including the cost of inflation (applied as stated below) were less expensive; therefore, as a conservative estimate, the District will use the cost of ducting/piping from the Eichleay report which will include ducting, fittings, bolt up, handle, and install. A summary of the ducting/piping cost survey is included in Appendix VI.
- Eichleay's cost estimate for ducting included the duct, fittings, bolt up, handle and install; therefore, the District did not allow the additional costs for foundations & supports, handling & erection, electrical, piping or painting, as allowed by the EPA Cost Manual.
- 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 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.
- The ducting/piping costs quoted in the Eichleay study are from 2005 and must be adjusted to reflect 2016 prices. An overall inflation amount of 21.93% which was taken from the United States Department of Labor, Bureau of Labor Statistics, Consumer Price Index (CPI) Inflation Calculator and applied to the ducting/piping costs to determine the current 2016 prices: http://www.bls.gov/data/inflation_calculator.htm.

Capital Cost of Ductwork

This facility includes two groups of tanks . The capital cost for ductwork from each tank group is estimated below:

Tank Group 1:

Connection from tank to main duct = 2 tanks x 6 feet (6" duct) x \$62.17/foot = \$746
Main duct for tanks = 60' (6" duct) x \$62.17/foot = \$3,730
Unit installed cost for 6 inch butterfly valve = \$2,125/valve x 2 valves x 1 system = \$4,250
Unit installed cost one foot removable spool = \$500/tank x 2 tanks x 1 system = \$1,000
1 Knockout drum = \$46,300
Duct support allowance = \$4,000/tank x 2 tanks = \$8,000

Total for Group 1 = \$746 + \$3,730 + \$4,250 + \$1,000 + \$46,300 + \$8,000
= **\$64,026**

Tank Group 2:

Connection from tank to main duct = 6 tanks x 6 feet (6" duct) x \$62.17/foot = \$2,238
Main duct for fermenters = 130' (6" duct) x \$62.17/foot = \$8,082
Unit installed cost for 6 inch butterfly valve = \$2,125/valve x 6 valves x 1 system = \$12,750
Unit installed cost one foot removable spool = \$500/tank x 6 tanks x 1 system = \$3,000
1 Knockout drum = \$46,300
Duct support allowance = \$4,000/tank x 6 tanks = \$24,000

Total for Group 2 = \$2,238 + \$8,082 + \$12,750 + \$3,000 + \$46,300 + \$24,000
= **\$96,370**

Total Capital Cost for All Tank Groups:

The total capital cost of the ductwork for all five tank groups is summarized in the table below:

Tank Group	Total Ducting Cost Including Support Allowance
1	\$64,026
2	\$96,370
Total	\$160,396

Capital Cost of Ductwork for Wine Storage Tanks	
Cost Description	Cost (\$)
Combined Duct Estimate for all Tank Groups	\$160,396
Adjusting factor for inflation from 2005 dollars to 2015 dollars (21.93% total increase)	1.2193
Inflation adjusted duct cost	\$195,571
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs	
Base Equipment Costs (Ductwork) See Above	\$195,571
Instrumentation (not required)	-
Sales Tax - 3.8125% of base equipment	\$7,456
Freight - 5% of base equipment	\$9,779
Purchased equipment cost (PEC)	\$212,806
Foundations & supports 8% (allowance already included in cost estimate)	-
Handling & erection 14% (already included in Eichleay cost estimate)	-
Electrical 4% (not required)	-
Piping 2% (not required)	-
Painting 1% (not required)	-
Insulation 1% of PEC	\$2,128
Direct Installation Costs (DIC)	\$2,128
Total Direct Costs (DC) (PEC + DIC)	\$214,934
Indirect Costs	
Engineering - 10% of PEC	\$21,493
Construction and field expenses - 5% of PEC	\$10,747
Contractor Fees - 10% of PEC	\$21,493
Start-up - 2% of PEC	\$4,299
Performance Test - 1% of PEC	\$2,149
Total Indirect Costs (IC)	\$60,181
Total Direct and Indirect Costs (DC + IC)	\$275,115
Contingency (C) - 15% of (DC + IC)	\$41,267
Total Capital Investment (TCI) (DC + IC + C)	\$316,382

Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

$$\text{Annualized Capital Investment} = \$316,382 \times 0.163 = \$51,570/\text{year}$$

Option 1 - Collection of VOCs and control by thermal or catalytic oxidation (98% collection & control):

Emission Reductions

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Storage Emissions} \times 0.98 \\ &= 912 \text{ lb-VOC/year} \times 0.98 \\ &= 894 \text{ lb-VOC/year} \\ &= 0.45 \text{ tons-VOC/year} \end{aligned}$$

Cost Effectiveness

$$\text{Cost Effectiveness} = \text{Total Annual Cost} \div \text{Annual Emission Reductions}$$

$$\begin{aligned} \text{Cost Effectiveness} &= \$51,570/\text{year} \div 0.45 \text{ tons-VOC/year} \\ &= \$114,600/\text{ton-VOC} \end{aligned}$$

The analysis demonstrates that the cost of the collection system ductwork alone will result in a cost effectiveness which exceeds the District's Guideline, of \$17,500/ton-VOC. This analysis does not include the additional costs for the thermal/catalytic oxidizer, CIP equipment, owner's cost, costs to purchase and program a PCL system, annual costs, etc.; therefore, this analysis is very conservative and this control option is clearly not cost effective.

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

Emission Reductions

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Storage Emissions} \times 0.95 \\ &= 912 \text{ lb-VOC/year} \times 0.95 \\ &= 866 \text{ lb-VOC/year} \\ &= 0.43 \text{ tons-VOC/year} \end{aligned}$$

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

$$\begin{aligned}\text{Cost Effectiveness} &= \$51,570/\text{year} \div 0.43 \text{ tons-VOC/year} \\ &= \$119,930/\text{ton-VOC}\end{aligned}$$

The analysis demonstrates that the cost of the collection system ductwork alone will result in a cost effectiveness which exceeds the District's Guideline, of \$17,500/ton-VOC. This analysis does not include the additional costs for the carbon adsorption system, CIP equipment, owner's cost, costs to purchase and program a PCL system, annual costs, etc.; therefore, this analysis is very conservative and this control option is clearly not cost effective.

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

Emission Reductions

$$\begin{aligned}\text{Annual Emission Reduction} &= \text{Storage Emissions} \times 0.9 \\ &= 912 \text{ lb-VOC/year} \times 0.9 \\ &= 821 \text{ lb-VOC/year} \\ &= 0.41 \text{ tons-VOC/year}\end{aligned}$$

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

$$\begin{aligned}\text{Cost Effectiveness} &= \$51,570/\text{year} \div 0.41 \text{ tons-VOC/year} \\ &= \$126,220/\text{ton-VOC}\end{aligned}$$

The analysis demonstrates that the cost of the collection system ductwork alone will result in a cost effectiveness which exceeds the District's Guideline, of \$17,500/ton-VOC. This analysis does not include the additional costs for the scrubber system, CIP equipment, owner's cost, costs to purchase and program a PCL system, annual costs, etc.; therefore, this analysis is very conservative and this control option is clearly not cost effective.

Option 4 - Capture of VOCs and condensation (70% collection & control):

Emission Reductions

Annual Emission Reduction = Storage Emissions x 0.7
= 912 lb-VOC/year x 0.7
= 638 lb-VOC/year
= 0.32 tons-VOC/year

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = \$51,570/year ÷ 0.32 tons-VOC/year
= \$374,781/ton-VOC

The analysis demonstrates that the cost of the collection system ductwork alone will result in a cost effectiveness which exceeds the District's Guideline, of \$17,500/ton-VOC. This analysis does not include the additional costs for the condensation system, CIP equipment, owner's cost, costs to purchase and program a PCL system, annual costs, etc.; therefore, this analysis is very conservative and this control option is clearly not cost effective.

Option 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; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of Fermentation

The only remaining control option in step 3 above has been deemed AIP for this class and category of source and per the District BACT policy is required regardless of the cost. Therefore, a cost effectiveness analysis is not required.

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 5, which is:

Insulation or Equivalent, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation

Appendix IV
Comparison Spreadsheet Ducting/Piping Costs

All suppliers	\$20.75	\$4.13	76%
Only suppliers that have both 3" and 6"	\$20.85	\$5.28	59% (0.6033)

Appendix V
Compliance Certification

N-06
Bear Creek Winery
Compliance Certification Statement
For Federal Major Permit Modifications
Compliance with District Rule 2201, Section 4.15.2

I certify under penalty of law that all major stationary sources (Title V facilities) operated under my control in California are compliant with all applicable air emissions limitations and standards.

Craig Rous
(Signature)

Date: 11/02/15

Craig Rous
(Name)

Director of Operations
(Title)

Appendix VI
Quarterly Net Emissions Change Calculations

Quarterly Net Emissions Change Calculations

For the purposes of this project,

$$QNEC = (PE2_{SLC} - BE_{SLC}) \div 4$$

As shown in Section VII.C.5, BE is equal to PE1 for all pollutants. Therefore, the equation for QNEC reduces to:

$$QNEC = (PE2_{SLC} - PE1_{SLC}) \div 4$$

The applicant did not propose any changes to the VOC SLC for this project. Therefore, PE2_{SLC} is equal to PE1_{SLC}.

Thus, QNEC is equal to zero for each unit.