San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 06 2012

David Henry
Sutter Home Winery
PO Box 248
St Helena, CA 94574

Re: Notice of Preliminary Decision - Authorities to Construct
Project Number: N-1120343

Dear Mr. Henry:

Enclosed for your review and comment is the District's analysis of Sutter Home Winery's application for Authorities to Construct for the installation of fifty-six 100,814 gallon (each) and twenty 202,000 gallon (each) white wine fermentation and wine storage tanks, at 18667 N Jacob Brack Road in Lodi, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. James Harader of Permit Services at (209) 557-6445.

Sincerely,

David Warner
Director of Permit Services

DW:JH/st

Enclosures

Seyed 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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 06 2012

Gerardo C. Rios (AIR 3)
Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Preliminary Decision - Authorities to Construct
Project Number: N-1120343

Dear Mr. Rios:

Enclosed for your review and comment is the District's analysis of Sutter Home Winery's application for Authorities to Construct for the installation of fifty-six 100,814 gallon (each) and twenty 202,000 gallon (each) white wine fermentation and wine storage tanks, at 18667 N Jacob Brack Road in Lodi, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. James Harader of Permit Services at (209) 557-6445.

Sincerely,

David Warner
Director of Permit Services

DW:JH/st

Enclosures

Seyed 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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 06 2012

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authorities to Construct
Project Number: N-1120343

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Sutter Home Winery's application for Authorities to Construct for the installation of fifty-six 100,814 gallon (each) and twenty 202,000 gallon (each) white wine fermentation and wine storage tanks, at 18667 N Jacob Brack Road in Lodi, CA.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. James Harader of Permit Services at (209) 557-6445.

Sincerely,

David Warner
Director of Permit Services

DW:JH/st

Enclosures

Seyed 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

www.valleyair.org www.healthyairliving.com

Stockton Record
Stockton Record

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authorities to Construct to Sutter Home Winery for the installation of fifty-six 100,814 gallon (each) and twenty 202,000 gallon (each) white wine fermentation and wine storage tanks, at 18667 N Jacob Brack Road in Lodi, CA.

The analysis of the regulatory basis for this proposed action, Project #N-1120343, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, .**

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

Facility Name:	Sutter Home Winery	Date:	June 13, 2012
Mailing Address:	PO Box 248 St Helena, CA 94574	Engineer:	James Harader
		Lead Engineer:	Nick Peirce
Contact Person:	David Henry		
Telephone:	(707) 302-3057		
Fax:	(707) 963-8347		
Application #(s):	N-7855-777-0 through '-852-0		
Project #:	N-1120343		
Deemed Complete:	April 19, 2012		

I. PROPOSAL

Sutter Home Winery is requesting Authority to Construct permits for the installation of fifty-six 100,814 gallon and twenty 202,000 gallon stainless steel, insulated, wine tanks (Total Volume of New Tanks: 9,685,584 gallons). These tanks will be used to ferment white wine, store red wine, or store white wine. Pursuant to the applicant, the fermentation of red wine will not be conducted in these tanks.

Sutter Home Winery currently has a specific limiting condition (SLC) of 292,950 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 292,950 lb-VOC limit. Sutter Home Winery is not proposing to increase the SLC.

This facility is a Major Source of VOC emissions; however, their initial TV permit has yet to be issued. This project triggers a Federal Major Modification under Rule 2201, and consequently, a 30-day public notice is triggered.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
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 18667 Jacob Brack Road, 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

Sutter Home Winery produces both red and white table wines, as well as other specialty wine products, from the fermentation of grapes. All tanks in the winery typically operate as two separate emissions units; 1) a fermentation operation during which the tank is vented directly to the atmosphere to release the evolved CO_2 byproduct from the fermentation reaction, and 2) a storage operation where the tank is closed to minimize contact with air and the contents is often refrigerated.

White Wine Fermentation Process Description

The proposed tanks will not be used for red wine fermentation; therefore, only white wine fermentation may take place in these tanks. During the "crush season", typically from late August to late November, white grapes are received by truck and delivered to a crusher-stemmer that crushes the grapes and removes the stems. The resultant juice, called "must", contains the grape skins, pulp and seeds. For white wines, the must is sent to screens and presses for separation of the grape skins and seeds prior to fermentation. After separation of the skins and seeds, the white must is transferred to a fermentation tank. White wine fermentation may take place in tanks without design provisions for solids separation since the skins and seeds have already been separated.

After transfer of the must to the fermentation tank, the must is inoculated with yeast which initiates the fermentation of the wine. During fermentation, the yeast metabolizes the sugar in the grape juice, converting it to ethanol and carbon dioxide and releasing heat. Although fermentation temperatures vary widely depending upon the specific quality and style of the wine, temperature is typically controlled to maintain a temperature of 45-70°F for white wine fermentation. The sugar content of the fermentation mass is measured in °Brix (weight %) and is typically 22-26° for unfermented grape juice, dropping to 4° or less for the end of fermentation. The finished ethanol concentration is approximately 10 to 14 percent by volume. Batch fermentation typically requires 1-2 weeks per batch for white wine. VOCs are emitted during the fermentation process along with the CO_2. The VOCs are primarily ethanol along with other trace fermentation byproducts.

Red/White Wine Storage Process Description

Following the completion of fermentation, white wine is transferred directly to storage tanks while red wine is first directed to the presses for separation of solids and then routed to the storage tanks. Post-fermentation operations conducted in the tanks include cold stabilization, racking, filtration, etc. that result in a number of inter-tank transfers of the wine during this period leading up to the bottling or bulk shipment of the finished product. Storage operations are conducted year-round. VOC emissions occur primarily as a result of the inter-tank wine transfers that occur during the post-fermentation operations.

V. EQUIPMENT LISTING

The applicant is proposing to install 76 new wine storage and fermentation 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 fermentation and 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.

The tanks are equipped with temperature controls to maintain tank temperatures below levels that might be damaging to the yeast cells and reduces the potential for an out-of-control fermentation reaction in the tank. Since potential VOC emissions from the tanks increase with fermentation temperature, the use of temperature controls minimizes emissions.

VII. CALCULATIONS

A. Assumptions

- VOC is the only pollutant emitted by the tanks.
- The annual wine storage throughput will be equal to eight times the tank storage capacity. (per District practice)
- There will be a maximum of six fermentation cycles per year for each tank. (per applicant)
- Other assumptions will be stated as they are made for this project.

B. Emission Factors (EF)

1. Pre-Project Emission Factors (EF1)

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

2. Post-Project Emission Factors (EF2)

The following emission factors are applicable for these red and white wine 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)" and based on a maximum ethanol content of 23.9% by weight (proposed by applicant, rounded to 24% for purpose of determining emissions).

Type	Operation	EF2 (lb-VOC/1,000 gal of wine)		Source
		Daily	Annual	
White	Fermentation	1.62	2.5	District FYI -114
	Storage	0.366	0.235	
Red	Fermentation	N/A	N/A	
	Storage	0.366	0.235	

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post-Project Potential to Emit (PE2)

Maximum Daily VOC emissions from fermentation of white wine are calculated using the following formula:

Daily $VOC_{Fermentation}$ = Tank Capacity (gal) x $EF_{Ferment, Daily}$ (lb-VOC/1000gal)

Annual VOC emissions from fermentation are calculated as follows:

Annual $VOC_{Fermentation}$ = Tank Capacity (gal) x Fermentation Cycles/year x $EF_{Ferment,annual}$ (lb-VOC/1000 gal)

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

Daily $VOC_{Storage}$ = Tank Capacity (gal) x 5 turnovers/day
x $EF_{Storage, Daily}$ (lb-VOC/1000 gal)

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

Annual $VOC_{Storage}$ = Tank Capacity (gal) x 8 turnovers/year
x $EF_{Storage, Annual}$ (lb-VOC/1000 gal)

Permit Unit	Capacity (gallons)	Fermentation Emissions (lb/day)	Fermentation Emissions (lb/year)	Storage Emissions (lb/day)	Storage Emissions (lb/year)
N-7855-777-0	100,814	163.3	1,512	184.5	190
N-7855-778-0	100,814	163.3	1,512	184.5	190
N-7855-779-0	100,814	163.3	1,512	184.5	190
N-7855-780-0	100,814	163.3	1,512	184.5	190
N-7855-781-0	100,814	163.3	1,512	184.5	190
N-7855-782-0	100,814	163.3	1,512	184.5	190
N-7855-783-0	100,814	163.3	1,512	184.5	190
N-7855-784-0	100,814	163.3	1,512	184.5	190
N-7855-785-0	100,814	163.3	1,512	184.5	190
N-7855-786-0	100,814	163.3	1,512	184.5	190
N-7855-787-0	100,814	163.3	1,512	184.5	190
N-7855-788-0	100,814	163.3	1,512	184.5	190
N-7855-789-0	100,814	163.3	1,512	184.5	190
N-7855-790-0	100,814	163.3	1,512	184.5	190
N-7855-791-0	100,814	163.3	1,512	184.5	190
N-7855-792-0	100,814	163.3	1,512	184.5	190
N-7855-793-0	100,814	163.3	1,512	184.5	190
N-7855-794-0	100,814	163.3	1,512	184.5	190
N-7855-795-0	100,814	163.3	1,512	184.5	190
N-7855-796-0	100,814	163.3	1,512	184.5	190
N-7855-797-0	100,814	163.3	1,512	184.5	190
N-7855-798-0	100,814	163.3	1,512	184.5	190
N-7855-799-0	100,814	163.3	1,512	184.5	190
N-7855-800-0	100,814	163.3	1,512	184.5	190
N-7855-801-0	100,814	163.3	1,512	184.5	190
N-7855-802-0	100,814	163.3	1,512	184.5	190
N-7855-803-0	100,814	163.3	1,512	184.5	190
N-7855-804-0	100,814	163.3	1,512	184.5	190
N-7855-805-0	100,814	163.3	1,512	184.5	190
N-7855-806-0	100,814	163.3	1,512	184.5	190
N-7855-807-0	100,814	163.3	1,512	184.5	190
N-7855-808-0	100,814	163.3	1,512	184.5	190
N-7855-809-0	100,814	163.3	1,512	184.5	190

Continued on Next Page

Continued from Previous Page					
Permit Unit	**Capacity (gallons)**	**Fermentation Emissions (lb/day)**	**Fermentation Emissions (lb/year)**	**Storage Emissions (lb/day)**	**Storage Emissions (lb/year)**
N-7855-810-0	100,814	163.3	1,512	184.5	190
N-7855-811-0	100,814	163.3	1,512	184.5	190
N-7855-812-0	100,814	163.3	1,512	184.5	190
N-7855-813-0	100,814	163.3	1,512	184.5	190
N-7855-814-0	100,814	163.3	1,512	184.5	190
N-7855-815-0	100,814	163.3	1,512	184.5	190
N-7855-816-0	100,814	163.3	1,512	184.5	190
N-7855-817-0	100,814	163.3	1,512	184.5	190
N-7855-818-0	100,814	163.3	1,512	184.5	190
N-7855-819-0	100,814	163.3	1,512	184.5	190
N-7855-820-0	100,814	163.3	1,512	184.5	190
N-7855-821-0	100,814	163.3	1,512	184.5	190
N-7855-822-0	100,814	163.3	1,512	184.5	190
N-7855-823-0	100,814	163.3	1,512	184.5	190
N-7855-824-0	100,814	163.3	1,512	184.5	190
N-7855-825-0	100,814	163.3	1,512	184.5	190
N-7855-826-0	100,814	163.3	1,512	184.5	190
N-7855-827-0	100,814	163.3	1,512	184.5	190
N-7855-828-0	100,814	163.3	1,512	184.5	190
N-7855-829-0	100,814	163.3	1,512	184.5	190
N-7855-830-0	100,814	163.3	1,512	184.5	190
N-7855-831-0	100,814	163.3	1,512	184.5	190
N-7855-832-0	100,814	163.3	1,512	184.5	190
N-7855-833-0	202,000	327.2	3,030	369.7	380
N-7855-834-0	202,000	327.2	3,030	369.7	380
N-7855-835-0	202,000	327.2	3,030	369.7	380
N-7855-836-0	202,000	327.2	3,030	369.7	380
N-7855-837-0	202,000	327.2	3,030	369.7	380
N-7855-838-0	202,000	327.2	3,030	369.7	380
N-7855-839-0	202,000	327.2	3,030	369.7	380
N-7855-840-0	202,000	327.2	3,030	369.7	380
N-7855-841-0	202,000	327.2	3,030	369.7	380
N-7855-842-0	202,000	327.2	3,030	369.7	380
N-7855-843-0	202,000	327.2	3,030	369.7	380
N-7855-844-0	202,000	327.2	3,030	369.7	380
N-7855-845-0	202,000	327.2	3,030	369.7	380
N-7855-846-0	202,000	327.2	3,030	369.7	380
N-7855-847-0	202,000	327.2	3,030	369.7	380
N-7855-848-0	202,000	327.2	3,030	369.7	380
N-7855-849-0	202,000	327.2	3,030	369.7	380
N-7855-850-0	202,000	327.2	3,030	369.7	380
N-7855-851-0	202,000	327.2	3,030	369.7	380
N-7855-852-0	202,000	327.2	3,030	369.7	380

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_0 (lb/yr)**
N-7855-226 through N-7855-776	292,950 (SLC)
SSPE1	**292,950**

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 SLC for VOC emissions. SSPE2 is shown in the table below.

Post-Project Stationary Source Potential to Emit (SSPE2)	
Permit Numbers	**PE1 VOC_0 (lb/yr)**
N-7855-226 through N-7855-852	292,950 (SLC)
SSPE2	**292,950**

5. 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	292,500	292,500	20,000 lb/year	Yes	No

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. It was determined in District Project N-1110296 that tanks N-7855-226 through N-7855-700-0 are clean. Furthermore, tanks N-7855-701 through N-7855-776 triggered BACT in the previous project and are also considered to be clean. Thus,

$BE_{SLC} = PE1_{SLC}$

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 – Historical Actual Emissions)

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

Winery tanks do not operate independently of one another. Therefore, potential emissions from a collection of tanks is not equal to the sum of the maximum potential to emit from each tank, which was calculated earlier. The potential to emit for the tanks was calculated and summarized in Appendix V, Federal Major Modification calculations. Based on those calculations, the collective PE2 for these tanks is:

$\sum$PE2 = Project Fermentation Emissions + Project Storage Emissions
$\sum$PE2 = 58,125 lb-VOC/year + 43,710 lb-VOC/year
$\sum$PE2 = 101,835 lb-VOC/year

$\sum$HAE = 0 lb-VOC/year

Thus,

NEI = 101,835 lb-VOC/year – 0 lb-VOC/year
NEI = 101,835 lb-VOC/year

Since the NEI is greater than the SB288 Modification threshold of 50,000 lb-VOC/year, this project triggers an SB288 Modification. Thus, BACT is triggered for VOC emissions for all emission units in this project and a public notice is required.

8. Federal Major Modification

Federal Major Modification calculations are included in Appendix V. As shown in Appendix V, the net emission increase is greater than 0. Therefore, this project triggers a Federal Major Modification. As a result, BACT is triggered for VOC emissions for all emission units in this project and a public notice is required.

9. 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 VI.

VIII. COMPLIANCE

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 both an SB288 and 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 II of this document, BACT has been satisfied with the following:

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

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

- *When used for wine storage, 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]*

- *When this tank is used for wine storage, 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]*

Wine Fermentation Tanks:

BACT Guideline 5.4.14 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: Open tank vented to the atmosphere with the average fermentation temperature not exceeding 95 °F.

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

- *The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201]*

- *For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and any fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [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	292,950	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,

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

PE2 = Post-Project Potential to Emit (lb/yr)
BE = Baseline Emissions (lb/yr)
ICCE = Increase in Cargo Carrier emissions (lb/yr)

There is no increase in Cargo Carrier emissions from this project. 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 292,950 pounds per year. Therefore,

$EOQ = PE2_{SLC} - PE1_{SLC}$
$= 292,950$ lb-VOC/yr $- 292,950$ lb-VOC/yr
$= 0$ lb-VOC/yr

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

C. Public Notification

1. Applicability

Public noticing is required for:

a. Any new Major Source, which is a new facility that is also a Major Source,
b. Major Modifications,
c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
d. Any project which results in the offset thresholds being surpassed, and/or
e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

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.

b. Major Modification

As demonstrated earlier, this project triggers both an SB288 Major Modification and a Federal Major Modification. Therefore, a public notice is required for these purposes.

c. New Units with PE > 100 lb/day

Each of the winery tanks has a PE greater than 100 lb/day for VOC emissions. Therefore, a public notice is triggered.

d. 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	292,950	292,950	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.

e. 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	292,950	292,950	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.

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 VOC emission rate for fermentation operations in this tank shall not exceed 1.62 lb/day per 1000 gallons of tank capacity. [District Rule 2201]*
- *The ethanol content of wine stored in this tank shall not exceed 23.9 percent by volume. [District Rule 2201]*

- *When this tank is used for wine storage, the daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated in the equipment description. [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.

For each batch of must fermented, the operation is required to keep records of the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information is required to be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine.

In addition, separate annual records each of total red wine and total 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, is required to be maintained.

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

Sutter Home Winery has submitted a compliance certification. See appendix IV.

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 project will be installed at an existing winery with more than 450 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 76 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 is typically performed for 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's; therefore, an Ambient Air Quality Analysis is not required for this project.

Rule 2520 Federally Mandated Operating Permits

This facility is a major source for VOC emissions. The facility has submitted a complete TV application; however, the Initial TV permit has yet to be issued. The facility plans to include these units in the initial TV permitting process. Further analysis is not required to demonstrate compliance with District Rule 2520 requirements.

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

Compliance is expected with this Rule.

Rule 4694 Wine Fermentation and Storage Tanks

The purpose of this rule is to reduce emissions of volatile organic compounds (VOC) from the fermentation and bulk storage of wine, or achieve equivalent reductions from alternative emission sources. This rule is applicable to all facilities with fermentation emissions in excess of 10 tons-VOC/year. The storage tank provisions of 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 requires the winery operator achieve Required Annual Emissions Reductions (RAER) equal to at least 35% of the winery's Baseline Fermentation Emissions (BFE). Per the definition of RAER in Section 3.25 of the Rule, the RAER may be achieved by any combination of Fermentation Emission Reductions (FER), Certified Emission Reductions (CER) or District Obtained Emission Reductions (DOER) as established in the facility's District-approved Rule 4694 Compliance Plan, due every three years on December 1st beginning in 2006. The facility has submitted the required plan to the District and is currently satisfying the required emission reductions in the form of Certified Emission Reductions.

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:

- *When used for wine storage, 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]*

- *When this tank is used for wine storage, 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. Section 6.3 requires that an Annual Compliance Plan Demonstration be submitted to the District no later than February 1 of each year to show compliance with the applicable requirements of the Rule. Section 6.4 requires that records required by this rule be maintained, retained on-site for a minimum of five years, and made available to the APCO upon request. Section 6.4.3 requires that all monitoring be performed for any Certified Emission Reductions as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained. The following conditions will be included on each Authority to Construct permit:

- *A Three-Year Compliance Plan that demonstrates compliance with the requirements of Section 5.1 of District Rule 4694 for each year of the applicable compliance period shall be submitted to the District by no later than December 1, 2012, and every three years thereafter on or before December 1. [District Rule 4694]*

- *A Three-Year Compliance Plan Verification that demonstrates that the Three-Year Compliance Plan elements are in effect shall be submitted to the District by no later than July 1, 2013, and every three years thereafter on or before July 1. [District Rule 4694]*

- *An Annual Compliance Plan Demonstration that shows compliance with the applicable requirements of this rule shall be submitted to the District by no later than March 1, 2012, and every year thereafter on or before March 1. [District Rule 4694]*

- *Operators using CER to mitigate fermentation emissions shall perform all monitoring and recordkeeping, as established in their approved Three-Year Compliance Plan, and shall maintain all records necessary to demonstrate compliance. [District Rule 4694]*

- *Operators using District Obtained Emission Reductions (DOER) shall submit payment of DOER and administrative fees to the District no later than March 1, of the first year in the applicable compliance period. [District Rule 4694]*

Section 6.4.1 requires that records be kept for each fermentation batch. The following condition will be included on each Authority to Construct permit:

- *For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694]*

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:

- *When this tank is used for wine storage, 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]*

- *When this tank is used for wine storage, 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]*

Section 6.4.3 requires that all monitoring be performed for any Certified Emission Reductions as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained. The following condition on each permit ensures compliance:

- *Operators using CER to mitigate fermentation emissions shall perform all monitoring and recordkeeping, as established in their approved Three-Year Compliance Plan, and shall maintain all records necessary to demonstrate compliance. [District Rule 4694]*

Compliance is expected with this Rule.

California Environmental Quality Act (CEQA)

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

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

The County of San Joaquin is the public agency having principal responsibility for approving the project. As such, the County of San Joaquin served as the Lead Agency (CCR §15367). In approving the project, the Lead Agency prepared and adopted a Mitigated 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. Furthermore, the District has conducted an engineering evaluation of the project, this document, which demonstrates that the Stationary Source emissions from the project would be below the District's thresholds of significance for criteria pollutants. Thus, the District finds that through a combination of project design elements, compliance with applicable District rules and regulations, and compliance with District permit conditions, project specific stationary source emissions will have a less than significant impact on air quality. The District does not have the authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

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-7855-777-0 to '-832-0	3020-05-E	101,814 gal	None
N-7855-833-0 to '-852-0	3020-05-E	202,000 gal	None

APPENDICES

Appendix I: Draft ATC Permits
Appendix II: BACT Guideline 5.4.13 and Top-Down BACT Analysis
Appendix III: BACT Guideline 5.4.14 and Top-Down BACT Analysis
Appendix IV: Compliance Certification
Appendix V: Federal Major Modification Calculations
Appendix VI: Quarterly Net Emissions Change Calculations

Appendix I
Draft ATC Permits

Note: The permit conditions for all 75 draft ATC's are identical. The only difference is the tank capacity in the equipment description. Since the permit conditions are identical, only one ATC has been included in this section.

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-7855-777-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: SUTTER HOME WINERY
MAILING ADDRESS: P O BOX 248
ST HELENA, CA 94574-0248

LOCATION: 18667 N JACOB BRACK RD
LODI, CA 95242

EQUIPMENT DESCRIPTION:
100,814 GALLON WHITE WINE FERMENTATION TANK AND WINE STORAGE TANK (TANK 1600) 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. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. The VOC emissions rate for fermentation operations in this tank shall not exceed 1.62 lb/day per 1000 gallons of tank capacity. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The ethanol content of wine stored in this tank shall not exceed 23.9 percent by volume. [District Rule 2201] Federally Enforceable Through Title V Permit
6. When this tank is used for wine storage, the daily tank throughput, in gallons, shall not exceed five times the maximum nominal tank capacity stated on the equipment description. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Annual emissions from all wine fermentation and storage tanks, calculated on a twelve month rolling basis, shall not exceed the following limit: VOC -292,950 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
N-7855-777-0: Sep 6 2012 8:27AM – HARADERJ : Joint Inspection NOT Required

8. Combined annual VOC emissions from all wine storage operations 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] Federally Enforceable Through Title V Permit

9. 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 = -4.5139E-5, b = 0.01088 and c = 0. [District Rule 2201] Federally Enforceable Through Title V Permit

10. Total annual VOC emissions from wine fermentation operations shall be determined by the following formula: Total annual VOC emissions = (Total Annual Red Wine Production-gal) x (6.2 lb-VOC/1000 gal) + (Total Annual White Wine Production-gal) x (2.5 lb-VOC/1000 gal). [District Rule 2201] Federally Enforceable Through Title V Permit

11. When used for wine storage, 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] Federally Enforceable Through Title V Permit

12. When used for wine storage, the pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

13. 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] Federally Enforceable Through Title V Permit

14. The average fermentation temperature of each batch of must fermented in this tank shall not exceed 95 degrees Fahrenheit, calculated as the average of all temperature measurements for the batch taken at least every 12 hours over the course of the fermentation. [District Rule 2201] Federally Enforceable Through Title V Permit

15. For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

16. When used for wine storage, 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] Federally Enforceable Through Title V Permit

17. When used for wine storage, the operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694] Federally Enforceable Through Title V Permit

18. The permittee shall maintain the following records: Red wine and white wine produced by fermentation at this facility, based on the values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), US Department of Treasury, the volume and the ethanol concentration of each wine movement; and the calculated rolling VOC emission rate (lb-VOC per 12 month rolling period, calculated monthly). [District Rule 2201] Federally Enforceable Through Title V Permit

19. 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201] Federally Enforceable Through Title V Permit

21. 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 2201 and 4694] Federally Enforceable Through Title V Permit

Appendix II
BACT Guideline 5.4.13 and Top-Down BACT Analysis

Per » B A C T » Bact Guideline.asp?category Level1=5&category Level2=4&category Level3=13&last Update=10 » 6 :

Back

Best Available Control Technology (BACT) Guideline 5.4.13
Last Update: 10/6/2009

Wine Storage Tank

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)	

***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 ot diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete and wood (except for fittings) are considered self-insulating.*

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

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

Top-Down BACT Analysis for VOCs from Wine Storage Operations

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 2nd quarter 2012, 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

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)

Step 4 - Cost Effectiveness Analysis

The cost-effectiveness analysis will be performed based on the following items:

- Since the most cost effective approach will be achieved by installing a common control device for multiple tanks, the analysis will be based on this approach.

- The cost-effectiveness analysis will be based on a hypothetical "industry-typical" storage tank operation consisting of a battery of twelve storage tanks each with a capacity of 200,000 gallons each. Total annual throughput for the hypothetical tank battery is 19.2 million gallons per year (200,000 gallons x 12 tanks x 8 turnovers/year). Based on economies of scale, it is obvious that any control found to not be cost-effective at this level of throughput would be even less cost-effective at lower capacities.

Industry Standard

During the development of District Rule 4694, it was determined that use of pressure/vacuum valves and some level of refrigeration on wine storage tanks is a standard operation for large wineries in the San Joaquin Valley. Additionally, all storage tanks are insulated. This was directly confirmed with four large wineries: Mission Bell (Madera), Gallo-Livingston, Bronco, and Robert Mondavi. Based on this, the wine storage tank VOC control requirements of District Rule 4694 and tank insulation are also determined to be "industry standard". The emission factor for "industry standard" operation is determined based on Table 1 of the District's FYI-114, Estimating Emissions from Wine Storage Tanks for an insulated storage tank.

EF (industry standard) = 0.235 lb-VOC/1000 gal of wine throughput (23.9% alcohol vol.)

Uncontrolled emissions for Twelve-Tank Battery

= (19.2 × 10^6 gal/year) × (0.235 lb-VOC/1000 gal)
= 4,512 lb/year

Capture of VOCs with Thermal or Catalytic Oxidation/ Carbon Adsorption/Absorption or Condensation

A common feature of all of these options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. The analysis below indicates that these options are not cost effective by showing that just the annualized direct cost for the ductwork of the collection system and supporting structural steel and foundations alone is too large, when considered at the District's cost effectiveness threshold for VOC BACT, to justify the capital investment required by these options. This approach ignores additional major costs for the actual control device and its installation and for equipment sterilization systems for ductwork and control device, instrumentation and control systems for isolation of individual tanks in the battery, site specific factors due to limited plot space (known to be a significant factor at all wineries), and operating and maintenance costs for each system. Should all these additional cost factors be included, the calculated cost effectiveness would be substantially higher than indicated the table in this section.

Emission Reductions

Thermal or catalytic oxidation technology is capable of reducing 98% of VOC emissions while the remaining options under consideration have lesser control efficiencies. Showing that all of the options under consideration are not cost effective at a 98% reduction level based on capital investment requirements of ductwork and steel alone is adequate since options other than thermal/catalytic oxidation would be even less cost effective at their actual (lower) reduction levels.

= 4,512 lb-VOC/year × 0.98
= 4,422 lb-VOC/year
= 2.2 tons-VOC/year

Capital Investment for Installation of a VOC Collection System

Design and Estimate Basis:

- The basis and approach for the capital cost estimate for ductwork and support steel is summarized in the following table.

- The collection system consists of stainless steel plate ductwork (stainless steel is required due to cleanliness and sterilization requirements for wine quality considerations and due to the food grade product status) with isolation valving, connecting twelve 200,000 gallon tanks to a common manifold system which ducts the combined vent to the common control device. The cost of dampers and isolation valving, installed in the ductwork, will not be included in the cost estimate.

- A minimum duct size is established at 6 inches diameter at each tank to ensure minimal backpressure of the tank during filling operations and to provide adequate strength for spanning between supports. The main header is 12" diameter to handle the potential for simultaneously venting all tanks based on a potential fill rate of 1000 gpm for each tank (typical) and a duct velocity of 2000 feet per minute.

- The ductwork is designed with features to facilitate clean-in-place (CIP) operation to allow for periodic sterilization procedures as required for food grade products. The CIP system includes strategically placed spray nozzles on the ductwork for injecting sterilizing solutions into the system. Cost impacts to install CIP systems to clean the ducting are not included in the cost estimate.

- The ductwork is supported on a structural steel pipe rack mounted on drilled concrete piers, running through the new tank battery. Ducting elevations are established to allow continuous free draining to the separator located at the control device.

- Unit Installed Costs for Ductwork: A direct cost estimate for 12" diameter stainless steel ductwork, installed in a San Joaquin Valley winery, was taken from a study prepared by Eichleay Engineering for the Wine Institute in conjunction with development of District Rule 4694.[1] The estimate is based on 2nd quarter 2005 dollars, and includes fittings, miscellaneous duct supports and other materials plus field labor costs required to install the ductwork, but does not include other associated indirect costs such as construction management, engineering, owner's cost, contingency, etc. BACT Attachment 1 presents the development of unit installed costs for stainless steel ducting based on the costs derived from the Eichleay estimate.

- A linear foot of ducting required was extracted from the Eichleay Estimate for a similar system at Gallo-Livingston (See BACT Attachment 1 in project C1090293).

[1] Eichley Engineers of California, Fermenter VOC Emissions Control Cost Estimate (Revision 1), Eichleay Project Numbers 30892 and 30913, June 30, 2005

- Costs for structural steel supports and foundations were extracted from the Eichleay Estimate for a similar system at Gallo-Livingston (See BACT Attachment 1 in project C1090293).

- Sales tax of 8% was applied to all materials.

- Indirect costs include Engineering, Construction Expense and Contractor's Fee and Contingency. Factors for these costs are taken from Peters & Timmerhaus[2].

- Capital costs taken from the Eichleay estimate are 2005 dollars. These are escalated to 2011 based on 3% overall escalation per year.

Capital Investment for VOC Capture System:

The table on the following page summarizes the cost of the VOC capture system.

[2] Peters & Timmerhaus, Plant Design and Economics for Chemical Engineers, 2nd Edition, McGraw-Hill, 1968, p.140.

Fixed Capital Investment

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

The total capital investment is annualized over 10 years assuming 10% interest. The following formula is used to determine the annualized cost:

$$ATCI = (P)\left[\frac{(i)(1+i)^n}{(1+i)^n - 1}\right]$$

Where:

ATCI: Annualized total capital investment
P: Present value
I: Interest rate (District policy is to use 10%)
n: 10 years

$$ATCI = (\$991,970)\left[\frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10} - 1}\right] = \frac{\$161,439}{yr}$$

Cost of Reduction ($/ton) = $161,439/yr + 2.2 tons-VOC/yr
= $73,381/ton-VOC

The cost of VOC reductions considering the capture system alone is more than the threshold limit of $17,500/ton; therefore, none of the technically feasible option would be cost-effective.

Step 5 - Select BACT

The facility's proposed option of using insulated tank, pressure/vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas tight" tank operation and maintaining a continuous storage temperature of 75°F (or less) within 60 days of completion of fermentation would be the BACT for wine storage tanks.

Appendix III
BACT Guideline 5.4.14 and Top-Down BACT Analysis

Per » B A C T » Bact Guideline.asp?category Level1=5&category Level2=4&category Level3=14&last Update=10 » 6 :

Back

Best Available Control Technology (BACT) Guideline 5.4.14
Last Update: 10/6/2009

Wine Fermentation Tank

Pollutant	Achieved in Practice or In the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F	1. Capture of VOCs and Thermal Oxidation or Equivalent (88% control) 2. Capture of VOCs and Carbon Adsorption or Equivalent (86% control) 3. Capture of VOCs and Absorption or Equivalent (81% control) 4. Capture of VOCs and Condensation or Equivalent (81% control)	

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

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

Top-Down BACT Analysis for Fermentation Operations

Step 1 - Identify all control technologies

Achieved in Practice or contained in the SIP:

Temperature-controlled open top tank with maximum average fermentation temperature of 95°F.

Technologically Feasible:

1) Capture of VOCs and thermal oxidation or equivalent (88% control)
2) Capture of VOCs and carbon adsorption or equivalent (86% control)
3) Capture of VOCs and absorption or equivalent (81% control)
4) Capture of VOCs and condensation or equivalent (81% control)

Alternate Basic Equipment:

There is no alternate basic equipment listed on this guideline.

Step 2 - Eliminate technologically infeasible options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank remaining options by control effectiveness

1) Capture of VOCs and thermal oxidation or equivalent (88% control)
2) Capture of VOCs and carbon adsorption or equivalent (86% control)
3) Capture of VOCs and absorption or equivalent (81% control)
4) Capture of VOCs and condensation or equivalent (81% control)

Step 4 - Cost Effectiveness Analysis

In 2009, the District prepared a BACT analysis, under engineering evaluation C-1090293, for the fermentation process and evaluated the cost effectiveness analysis for each of the above mentioned technologies.

The fundamental capital and annual costs information of the above BACT analysis was extracted from a case study prepared by the Eichleay Engineering Inc. for the E & J Gallo Winery facility in 2005. The cost information from the Eichleay study along with the inflation rate of 3% per year were entered into the EPA Cost Model to estimate the cost effectiveness for each capture and control case, the summary sheets of these estimations are included in the following pages. According to this 2009 BACT analysis, the effectiveness costs for each control device are summarized below:

Control Device	Thermal Oxidizer	RTO	Refrigerated Cond.	Water Scrubber	Carbon Adsorption
Cost Effectiveness ($/ton of VOC)	20,700	19,100	23,300	22,800	18,500

As a conservative assumption, the District will use an inflation rate of 3% per year to the above evaluated cost values to estimate the 2011 cost effectiveness values:

Inflation multiplier (IM) = $(1 + i)^n$

Where, i = inflation rate of 3%
n = number of years

$IM_{2009-2011} = (1 + 0.03)^2 = 1.0309$

In 2011, the effectiveness costs for each control device are calculated and summarized below:

$\text{Effectiveness cost}_{2011} = \text{Effectiveness cost}_{2009} \times IM_{2009-2011}$

Control Device	Thermal Oxidizer	RTO	Refrigerated Cond.	Water Scrubber	Carbon Adsorption
Cost Effectiveness ($/ton of VOC)	21,300	19,700	24,000	23,500	19,100

The lowest evaluated value of $19,100/ton exceeds the District's current cost effectiveness threshold of $17,500/ton of VOC. Therefore, none of these technologies is cost-effective, and are not required at this time.

Step 5 - Select BACT

Temperature-controlled open top tank with maximum average fermentation temperature of 95°F would be the BACT for this process.

Appendix IV
Compliance Certification

TRINCHERO

Family Estates

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

March 14, 2012

Subject: Compliance Statement for Sutter Home Winery Lodi Facility

Dear Mr. Gill:

In accordance with Rule 2201, Section 4.15, "Additional Requirements for New Major Sources and Federal Major Modifications," Sutter Home Winery is pleased to provide this compliance statement regarding its proposed tank farm project N-1120343.

All major stationary sources in California owned or operated by Sutter Home Winery, or by any entity controlling, controlled by, or under common control with Sutter Home Winery, and which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards. These sources include the one noted on our permit application:

Sutter Home Winery – Westside Winery
18667 Jacob Brack Road
Lodi, CA 95242

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

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

Sincerely,

David S. Henry
Sr Production Administrator
Sutter Home Winery

Appendix V
Federal Major Modification Calculations

Federal Major Modification Calculations

Tanks operating in a winery are not truly independent emissions units. Therefore, the potential annual emissions must be established with consideration of all the other associated tanks in the facility. The potential to emit from the new tanks ($PE2_N$) is therefore determined as the difference between the post project and the pre project potential emissions from the wine production operation based on the collective physical capacity of the processing equipment at the facility.

1. Potential to Emit (existing tanks)

The potential annual VOCs from fermentation and storage operations at this winery are determined as follows:

White Wine Fermentation

White wine production capacity is determined as the lesser of the production capacities of either the crushing or pressing equipment or wine fermentation tanks at the facility:

W_W = White wine production capacity (gallons per year as measured immediately after pressing) is the lesser of the following calculations:

W1 = $C \times D_w \times M$ (limited by crusher capacity)
W2 = $P \times D_w \times M$ (limited by pressing capacity)
W3 = $(V_{FW} \times D_w)/W_{FW}$ (limited by white fermenter volume)
W4 = $(V_T \times D_w)/R_{TW}$ (limited by overall tank processing)

Where,

C = grape crushing capacity
= 5,760 tons/day (Source: Project N-1110296)
D_w = days in a white wine crush season
= 120 days (Source: Project N-1110296)
M = amount of juice produced per ton of grapes crushed
= 200 gal/ton (Source: Project N-110296)
P = pressing capacity
= 5,400 tons/day (Source: Project N-1110296)
W_{FW} = white fermentation period
= 10 days (Source: Project N-1110296)
R_{TW} = total winery retention time for white wine
= 40 + 10
= 50 days (Source: Project N-1110296)
V_{FW} = total volume of white wine fermenters
= 30,758,388 gal (Source: Project N-1110296)
V_T = total winery cooperage
= 39,176,388 gal (Source: Project N-1110296)

Using the above parameters,

W1 = 138.24 MG/year
W2 = 129.60 MG/year
W3 = 369.10 MG/year
W4 = 94.02 MG/year
W_W = W4 (lesser of W1, W2, W3, W4)
= 94.02 MG/year

The potential white wine fermentation emissions would be:

$PE1_{white} = E_{fw} \times W_W$

Where:
E_{fw} = white wine emission factor annual basis
= 2.5 lb-VOC/1,000 gal (Source: District FYI-114)

$PE1_{white}$ = (2.5 lb-VOC/1,000 gal) × (94.02 × 10^6 gal/yr)
= 235,050 lb-VOC/year

White Wine Storage Emissions:

Storage emissions are calculated as follows:

$PE1_{white} = E_s \times T \times W_w$

Where,
E_s = 0.235 lb-VOC/1,000 gal, per District FYI-114 for 23.9% alcohol by volume (rounded to 24% for calculation purposes), all existing storage tanks are permitted to store up to 23.9% alcohol by volume
T = total post fermentation inter-tank transfers per batch of wine
= 8

W_w = 94.02 MG/year (determined above)

$PE1_{white}$ = (0.235 lb-VOC/1,000 gal) × (8) × (94.02 × 10^6 gal/year)
= 176,758 lb-VOC/year

Total PE for White Wine Production:

Potential emissions from 100% white wine production scenario are then determined as follows:

$PE1_{white}$ = $PE1_{white\ fermentation}$ + $PE1_{white\ storage}$
= 235,050 lb-VOC/year + 176,758 lb-VOC/year
= 411,808 lb-VOC/year

Red Wine Fermentation Emissions:

Red wine production capacity is determined as the lesser of the production capacities of either the crushing, pressing or tank capacity.

W_R = Red wine production capacity (gallons per year as measured immediately after pressing) and is the lesser of the following four calculations:

W1 = $C \times D_r \times M$ (limited by crusher capacity)
W2 = $P \times D_r \times M$ (limited by pressing capacity)
W3 = $(V_{FR} \times F \times D_r)/R_{FR}$ (limited by red fermenter volume)
W4 = $(V_T \times D_r)/R_{TS}$ (limited by overall tank processing)

Where,

C = grape crushing capacity
= 5,760 tons/day
D_r = days in a red wine crush season
= 120 days (Source: Project N-1110296)
F = Fill factor for red wine fermentation
= 80% (Source: Project N-1110296)
M = amount of juice produced per ton of grapes crushed
= 200 gal/ton
P = pressing capacity
= 5,400 tons/day
R_{FR} = red fermentation period
= 5 days (Source: Project N-1110296)
R_{TS} = total winery retention time for red wine,
= 40 + 5
= 45 days (Source: Project N-1110296)
V_{FR} = total volume of red wine fermenters
= 1,874,520 gal (Source: Project N-1110296)
V_T = total winery cooperage
= 39,176,388 gal (Source: Project N-1110296)

Using the above parameters,

W1 = 138.24 MG/year
W2 = 129.60 MG/year
W3 = 35.99 MG/year
W4 = 104.47 MG/year

W_R = W3 (lesser of W1, W2, W3, W4)
= 35.99 MG/year

The potential red wine fermentation emissions would be:

$PE1_{red} = E_{fr} \times W_R$

Where,
E_{fr} = red wine emission factor
= 6.2 lb-VOC/1,000 gal (District Rule 4694)

$PE1_{red}$ = (6.2 lb-VOC/1,000 gal) × (35.99 × 10^6 gal/yr)
= 223,138 lb-VOC/year

Red Wine Storage Emissions:

Storage emissions are calculated as follows:

$PE1_{red} = E_s \times T \times W_R$

Where:

E_s = 0.235 lb-VOC/1,000 gal, per District FYI-114 for 23.9% alcohol by volume (rounded to 24% for calculation purposes), all existing storage tanks are permitted to store up to 23.9% alcohol by volume
T = total post fermentation inter-tank transfers per batch of wine
= 8
W_R = 35.99 MG/year (determined above)

$PE1_{red}$ = (0.235 lb-VOC/1,000 gal) × (8) × (35.99 × 10^6 gal/yr)
= 67,661 lb-VOC/year

Total PE for Red Wine Production:

Potential emissions from 100% red wine production scenario are then determined as follows:

$PE1_{red}$ = $PE1_{red\ fermentation}$ + $PE1_{red\ storage}$
= 223,138 lb-VOC/year + 67,661 lb-VOC/year
= 290,799 lb-VOC/year

Summary:

The facility's emissions potential for fermentation and storage operations is then taken to be the greater of the white or red emissions potential determined above.

PE1 = greater of $PE1_{white}$ and $PE1_{red}$
= **411,808 lb-VOC/year**

2. Potential to Emit (existing plus new tanks)

The potential annual VOCs from fermentation and storage operations at this winery are determined as follows:

White Wine Fermentation

White wine production capacity is determined as the lesser of the production capacities of either the crushing or pressing equipment or wine fermentation tanks at the facility:

W_W = White wine production capacity (gallons per year as measured immediately after pressing) is the lesser of the following three calculations:

W1 = $C \times D_w \times M$ (limited by crusher capacity)
W2 = $P \times D_w \times M$ (limited by pressing capacity)
W3 = $(V_{FW} \times D_w)/W_{FW}$ (limited by white fermenter volume)
W4 = $(V_T \times D_w)/R_{TW}$ (limited by overall tank processing)

Where,

C = grape crushing capacity
= 5,760 tons/day
D_w = days in a white wine crush season
= 120 days
M = amount of juice produced per ton of grapes crushed
= 200 gal/ton
P = pressing capacity
= 5,400 tons/day
W_{FW} = white fermentation period
= 10 days
R_{TW} = total winery retention time for white wine
= 40 + 10
= 50 days
V_{FW} = total volume of white wine fermenters
= 30,758,388 gal + 9,685,584 gal = 40,443,972 gal
V_T = total winery cooperage
= 39,176,388 + 9,685,584 =48,861,972 gal

Using the above parameters,

W1 = 138.24 MG/year
W2 = 129.60 MG/year
W3 = 485.33 MG/year
W4 = 117.27 MG/year
W_W = W4 (lesser of W1, W2, W3, W4)
= 117.27 MG/year

The potential white wine fermentation emissions would be:

$PE2_{white} = E_{fw} \times W_W$

Where:
E_{fw} = white wine emission factor
= 2.5 lb-VOC/1,000 gal (Source: District FYI-114)

$PE2_{white}$ = (2.5 lb-VOC/1,000 gal) × (117.27 × 10^6 gal/yr)
= 293,175 lb-VOC/year

White Wine Storage Emissions:

Storage emissions are calculated as follows:

$PE2_{white} = E_s \times T \times W_w$

Where,

E_s = 0.235 lb-VOC/1,000 gal, per District FYI-114 for 23.9% alcohol by volume (Rounded to 24% for calculation purposes), all existing and new storage tanks are permitted to store up to 23.9% alcohol by volume
T = total post fermentation inter-tank transfers per batch of wine
= 8

W_w = 117.27 MG/year (determined above)

$PE2_{white}$ = (0.235 lb-VOC/1,000 gal) × (8) × 117.27 × 10^6 gal/year)
= 220,468 lb-VOC/year

Total PE for White Wine Production:

Potential emissions from 100% white wine production scenario are then determined as follows:

$PE2_{white}$ = $PE2_{white\ fermentation}$ + $PE2_{white\ storage}$
= 293,175 lb-VOC/year + 220,468 lb-VOC/year
= 513,643 lb-VOC/year

Red Wine Fermentation Emissions:

Red wine production capacity is determined as the lesser of the production capacities of either the crushing, pressing or tank capacity.

W_R = Red wine production capacity (gallons per year as measured immediately after pressing) and is the lesser of the following four calculations:

$W1 = C \times D_r \times M$ (limited by crusher capacity)
$W2 = P \times D_r \times M$ (limited by pressing capacity)
$W3 = (V_{FR} \times F \times D_r)/R_{FR}$ (limited by red fermenter volume)
$W4 = (V_T \times D_r)/R_{TS}$ (limited by overall tank processing)

Where,
C = grape crushing capacity
= 5,760 tons/day
D_r = days in a red wine crush season
= 120 days
F = Fill factor for red wine fermentation
= 80%
M = amount of juice produced per ton of grapes crushed
= 200 gal/ton
P = pressing capacity
= 5,400 tons/day
R_{FR} = red fermentation period
= 5 days
R_{TS} = total winery retention time for red wine,
= 40 + 5
= 45 days
V_{FR} = total volume of red wine fermenters
= 1,874,520 gal
V_T = total winery cooperage
= 48,861,972 gal

W1 = 138.24 MG/year
W2 = 129.60 MG/year
W3 = 35.99 MG/year
W4 = 130.30 MG/year

W_R = W3 (lesser of W1, W2, W3, W4)
= 35.99 MG/year

The potential red wine fermentation emissions would be:

$PE2_{red} = E_{fr} \times W_R$

Where,
E_{fr} = red wine emission factor
= 6.2 lb-VOC/1,000 gal (District Rule 4694)

$PE2_{red}$ = (6.2 lb-VOC/1,000 gal) × (35.99×10^6 gal/yr)
= 223,138 lb-VOC/year

Red Wine Storage Emissions:

Storage emissions are calculated as follows:

$PE2_{red} = E_s \times T \times W_R$

Where:

E_s = 0.235 lb-VOC/1,000 gal, per District FYI-114 for 23.9% alcohol by volume (Rounded to 24% for calculation purposes), all existing storage tanks are permitted to store up to 23.9% alcohol by volume

T = total post fermentation inter-tank transfers per batch of wine
= 8

W_R = 96.00 MG/year (determined above)

$PE2_{red}$ = (0.235 lb-VOC/1,000 gal) × (8) × (35.99×10^6 gal/yr)
= 67,661 lb-VOC/year

Total PE for Red Wine Production:

Potential emissions from 100% red wine production scenario are then determined as follows:

$PE2_{red}$ = $PE2_{red\ fermentation} + PE2_{red\ storage}$
= 223,138 lb-VOC/year + 67,661 lb-VOC/year
= 290,799 lb-VOC/year

Summary:

The facility's emissions potential for fermentation and storage operations is then taken to be the greater of the white or red emissions potential determined above.

PE2 = greater of $PE2_{white}$ and $PE2_{red}$
= **513,643 lb-VOC/year**

3. Net Emissions Increase

Net Emissions Increase Based on Physical Capacity of Wine Processing Equipment			
Category	**Fermentation**	**Storage**	**Total**
PE2	293,175	220,468	513,643
PE1	235,050	176,758	411,808
Net Emissions Increase	58,125	43,710	101,835

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.