



OCT 01 2013

Mr. Paul Bement
The Wine Group
2916 S Reed Ave
Sanger, CA 93657

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-120
Project # C-1132537**

Dear Mr. Bement:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The facility proposes to replace the existing distilled spirits operation in Tank 533 (listed in permit C-120-184) with an equivalent operation which will now be performed in Tanks 711 and 712 (listed in permits C-120-170 and '171).

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. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,



David Warner
Director of Permit Services

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of The Wine Group at 2916 S Reed Ave, Sanger, California. The facility proposes to replace the existing distilled spirits operation in Tank 533 (listed in permit C-120-184) with an equivalent operation which will now be performed in Tanks 711 and 712 (listed in permits C-120-170 and '171).

The District's analysis of the legal and factual basis for this proposed action, project #C-1132537, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and at any District office. There are no emission increases associated with this proposed action. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact the District at (559) 230-6000. Written comments on the proposed initial permit must be submitted by November 4, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Distilled Spirits Storage Tanks

Facility Name:	The Wine Group	Date:	September 24, 2013
Mailing Address:	2916 S Reed Ave Sanger, CA 93657	Engineer:	Stanley Tom
Contact Person:	Paul Bement	Lead Engineer:	Joven Refuerzo
Telephone:	(209) 253-5206		
Email:	paul.bement@thewinegroup.com		
Application #'s:	C-120-170-2 and '171-2		
Project #:	C-1132537		
Deemed Complete:	September 10, 2013		

I. PROPOSAL

The Wine Group requests Authority to Construct (ATC) permits to replace the existing distilled spirits operation in Tank 533 (listed in permit C-120-184) with an equivalent operation which will now be performed in Tanks 711 and 712 (listed in permits C-120-170 and '171).

Existing Tank 533 (listed in permit C-120-184) was inadvertently permitted previously under two separate In-House PTOs which separately authorized use as a wine fermentation and storage tank (permit C-120-124) and as a distilled spirits storage tank (permit C-120-184). In this project, the facility has proposed to remove distilled spirits storage capability for the tank listed in permit C-120-184 and to cancel the permit and permit C-120-124 (wine fermentation and storage) will be retained.

Tanks 711 and 712 (listed in permits C-120-170 and '171) are existing wine fermentation and storage tanks. Both permits will be modified to allow distilled spirits storage and a Specific Limiting Condition (SLC) will be added with a combined maximum throughput equal to the annual potential to emit of Tank 533 (permit C-120-184). Since the emission factor for insulated distilled spirits storage tanks is strictly a function of throughput, there will thus be no increase in potential to emit for the facility as a result of this project.

The equipment description for permits C-120-170 and '171 will be corrected in this project to reflect that the tanks are insulated and equipped with pressure/vacuum relief valves.

The Wine Group has received their Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, Section 3.29, 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. The Wine Group must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC permits issued with this project.

II. APPLICABLE RULES

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
 Rule 2410 Prevention of Significant Deterioration (11/26/12)
 Rule 2520 Federally Mandated Operating Permits (6/21/01)
 Rule 4001 New Source Performance Standards (4/14/99)
 Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)
 Rule 4101 Visible Emissions (2/17/05)
 Rule 4102 Nuisance (12/17/92)
 Rule 4694 Wine Fermentation and Storage Tanks (12/15/05)
 CH&SC 41700 Health Risk Assessment
 CH&SC 42301.6 School Notice
 Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
 California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. PROJECT LOCATION

The equipment is located at 2916 S Reed Ave in Sanger, CA.

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

IV. PROCESS DESCRIPTION

The Wine Group produces distilled alcoholic beverages which are stored and processed in the subject storage tanks. These tanks may hold spirits with ethanol contents up to 100% by volume.

V. EQUIPMENT LISTING

Pre-Project Equipment Description

Permit #	Pre-Project Equipment Description
C-120-170-2	22,612 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 711
C-120-171-2	10,620 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 712

ATC Permit Equipment Description

Permit #	ATC Permit Equipment Description
C-120-170-2	MODIFICATION OF 22,612 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 711: ADD DISTILLED SPIRITS STORAGE OPERATION, ESTABLISH SLC WITH PERMIT C-120-171, AND CORRECT EQUIPMENT DESCRIPTION TO LIST INSULATION AND PV VALVE
C-120-171-2	MODIFICATION OF 10,620 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 712: ADD DISTILLED SPIRITS STORAGE OPERATION, ESTABLISH SLC WITH PERMIT C-120-171, AND CORRECT EQUIPMENT DESCRIPTION TO LIST INSULATION AND PV VALVE

Post-Project Equipment Description

Permit #	Post-Project Equipment Description
C-120-170-2	22,612 GALLON INSULATED STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE AND DISTILLED SPIRITS STORAGE TANK 711 WITH PRESSURE/VACUUM VALVE
C-120-171-2	10,620 GALLON INSULATED STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE AND DISTILLED SPIRITS STORAGE TANK 712 WITH PRESSURE/VACUUM VALVE

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

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

VII. GENERAL CALCULATIONS

A. Assumptions

- The maximum operating schedule for this facility is 24 hours/day and 365 days/year.
- Winery tanks generally consist of two emissions units; 1) a fermentation tank emissions unit and 2) a wine storage tank emissions unit.
- Tanks listed in permit C-120-170 and '171 in this project will be classified as white wine fermentation, white wine storage, and distilled spirits storage.
- Tank listed in permit C-120-184 in this project will be classified as distilled spirits storage.

Distilled Spirits Storage

- The maximum daily and annual distilled spirits storage throughputs were provided by the applicant and the annual distilled spirits storage throughputs was determined in order to ensure that the tanks listed in permits C-120-170 and '171 stay under the existing storage VOC emission limit for the tank listed in permit C-120-184.
- The maximum daily distilled spirits storage throughput for the tank listed in permit C-120-184 = 75,000 gallons per day (per applicant)
- The maximum annual distilled spirits storage throughput for the tank listed in permit C-120-184 = 376,580 gallons (per applicant)
- The maximum daily distilled spirits storage throughput for each tank listed in permits C-120-170 and '171 = 75,000 gallons per day (per applicant)
- The combined maximum annual distilled spirits storage throughput for the tanks listed in permits C-120-170 and '171 = 376,580 gallons (per applicant)
- The maximum ethanol content of the distilled spirits stored in each tank will be set at a worst case of 100% (per applicant)
- Daily breathing losses are assumed to be negligible from the storage operations since all storage tank emission units in this project are insulated and equipped with a pressure/vacuum relief valve.

B. Emission Factors

Distilled Spirits Storage

Emissions factors are taken from District FYI-114, *VOC Emission Factors for Wine Fermentation and Storage Tanks*.

Maximum Ethanol Content (Vol %)	EF (lb-VOC/1,000 gallon of throughput)		Source
	Daily	Annual	
100	1.437	0.807	FYI-114

D. Calculations

1. Pre-Project Potential to Emit (PE1)

Distilled Spirits Storage Operations

C-120-184-1

Tank	Maximum Ethanol Content (Vol %)	Daily Throughput (gallons)	Emission Factor (lb-VOC/1000 gallon)	Daily PE1 (lb-VOC/day)
C-120-184-1	100	75,000	1.437	107.8

Tank	Maximum Ethanol Content (Vol %)	Annual Throughput (gallons)	Emission Factor (lb-VOC/1000 gallon)	Annual PE1 (lb-VOC/year)
C-120-184-1	100	376,580	0.807	304

C-120-170-2 and '171-2

These tanks will be considered “new” emission units as they are not yet classified as distilled spirit storage tanks. Since this is a new emissions unit, PE1 = 0 for all pollutants.

2. Post-Project Potential to Emit (PE2)

Distilled Spirits Storage Operations

C-120-184-1

As explained in the Proposal Section, the facility has proposed to remove distilled spirits storage capability from this tank and to cancel the permit. The wine fermentation and storage for this tank will be retained and permitted in permit C-120-124.

Therefore, PE2 = 0 for all pollutants.

C-120-170-2 and '171-2

Tank	Maximum Ethanol Content (Vol %)	Daily Throughput (gallons)	Emission Factor (lb-VOC/1000 gallon)	Daily PE2 (lb-VOC/day)
C-120-170-2	100	75,000	1.437	107.8
C-120-171-2	100	75,000	1.437	107.8

The facility has proposed to limit the annual potential to emit for permits C-120-170 and '171 to the annual potential to emit of permit C-120-184 (which is being canceled in this project) such that there is no increase in annual emissions for this project. The facility has proposed a combined limit for the tanks listed in permits C-120-170 and '171.

Tank	Maximum Ethanol Content (Vol %)	Annual Throughput (gallons)	Emission Factor (lb-VOC/1000 gallon)	Annual PE2 (lb-VOC/year)
C-120-170-2	100	376,580	0.807	304
C-120-171-2				

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

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

This project only concerns VOC emissions. This facility acknowledges that its VOC emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE1 calculations are not necessary.

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

Pursuant to District Rule 2201, the 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.

This project only concerns VOC emissions. This facility acknowledges that its VOC emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE2 calculations are not necessary.

5. Major Source Determination

Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

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

Rule 2410 Major Source Determination

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

PSD Major Source Determination (tons/year)							
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀	CO _{2e}
Estimated Facility PE before Project Increase	0.6	30.6*	0.2	2.1	0.5	0.5	20,632
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)	N	N	N	N	N	N	N

* Taken from project C-1053459

GHG Calculations

The following table summarizes the combustion equipment at the facility.

Permit	Equipment	Rating
C-120-3-7	Boiler	40.26 MMBtu/hr

Basis and Assumptions

- Emission factors and global warming potentials (GWP) are taken from EPA 40 CFR Part 98, Subpart A, Tables C-1 and C-2:

Natural Gas

CO ₂	53.02 kg/MMBtu (116.89 lb/MMBtu)
CH ₄	1.0×10^{-3} kg/MMBtu (0.0022 lb/MMBtu)
N ₂ O	1.0×10^{-4} kg/MMBtu (0.00022 lb/MMBtu)

GWP for CH₄ = 21 lb-CO₂(eq) per lb-CH₄
GWP for N₂O = 310 lb-CO₂(eq) per lb-N₂O

Calculations

$$\begin{aligned} \text{CO}_2 \text{ Emissions} &= 40.26 \text{ MMBtu/hr} \times 8,760 \text{ hr/year} \times 116.89 \text{ lb/MMBtu} \\ &= 41,224,484.66 \text{ lb-CO}_2(\text{eq})/\text{year} \end{aligned}$$

$$\begin{aligned} \text{CH}_4 \text{ Emissions} &= 40.26 \text{ MMBtu/hr} \times 8,760 \text{ hr/year} \times 0.0022 \text{ lb/MMBtu} \times \\ &21 \text{ lb-CO}_2(\text{eq}) \text{ per lb-CH}_4 \\ &= 16,293.705 \text{ lb-CO}_2(\text{eq})/\text{year} \end{aligned}$$

$$\begin{aligned} \text{N}_2\text{O Emissions} &= 40.26 \text{ MMBtu/hr} \times 8,760 \text{ hr/year} \times 0.00022 \text{ lb/MMBtu} \times \\ &310 \text{ lb-CO}_2(\text{eq}) \text{ per lb-N}_2\text{O} \\ &= 24,052.61 \text{ lb-CO}_2(\text{eq})/\text{year} \end{aligned}$$

$$\text{Total} = 41,224,484.66 + 16,293.705 + 24,052.61 = 41,264,830.98 \text{ lb-CO}_2(\text{eq})/\text{year}$$

$$\begin{aligned} \text{Total} &= 41,264,830.98 \text{ lb-CO}_2(\text{eq})/\text{year} \div 2,000 \text{ lb/ton} \\ &= \mathbf{20,632 \text{ short tons-CO}_2(\text{eq})/\text{year}} \end{aligned}$$

As shown above, the facility is not an existing major source for PSD for at least one pollutant. Therefore the facility is not an existing major source for PSD.

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = 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 District Rule 2201.

The permit units in this project only emit VOC and therefore the BE determination is only required for this pollutant, as discussed in the following sections:

a. BE VOC

C-120-184-1

Existing Distilled Spirits Storage Tank

Clean Emissions Unit, Located at a Major Source

Pursuant to Rule 2201, Section 3.12, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with 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.

Existing distilled spirits storage tank listed in permit C-120-184-1 is equipped with a pressure vacuum relief valve and insulation or equivalent which meet the District's current achieved-in-practice BACT in BACT Guideline 5.4.15 for distilled spirits storage tanks. Therefore, the distilled spirits storage tank listed in permit C-120-184-1 is a Clean Emissions Unit pursuant to District Rule 2201.

BE = PE1 = 304 lb-VOC/year

C-120-170-2 and '171-2

New Distilled Spirits Storage Tank

Since this operation is considered a new emissions unit, BE = 0 for all pollutants.

7. SB 288 Major Modification

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

The distilled spirits storage tank emission units associated with this project are all new emission units. Post project, the distilled spirits storage emission units will be limited to 304 lb-VOC/yr by an SLC. Therefore,

$$PE2_{(\text{Distilled Spirits Storage})} = 304 \text{ lb-VOC/year}$$

The emissions units within this project have a total potential to emit for VOC which is not greater than SB 288 Major Modification thresholds (see table below). Therefore, SB 288 Major Modification calculation is not required.

SB288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO _x	0	50,000	No
SO _x	0	80,000	No
PM ₁₀	0	30,000	No
VOC	304	50,000	No

8. Federal Major Modification

District Rule 2201, Section 3.17 states that SB 288 major modifications are also federal major modifications unless they qualify for a "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a federal major modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

Significance Threshold (lb/year)	
Pollutant	Threshold (lb/year)
VOC	0
NO _x	0
PM ₁₀	30,000
SO _x	80,000

The Net Emissions Increases (NEI) for purposes of determination of a “Less-Than-Significant Emissions Increase” exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Since this project consists of both existing and new emissions units, the “hybrid test” specified in 40 CFR(a)(2)(ii)(F) is applicable and requires that the NEI determination be based on the sum of the individual NEI determinations for existing emissions units (NEI_E) and new emissions units (NEI_N) pursuant to 40 CFR(a)(2)(ii)(C) and (D) respectively. In addition, pursuant to 40 CFR (a)(1)(vi)(A)(2), creditable contemporaneous emissions increases (NEI_C) must also be included in the determination of the NEI. Therefore,

$$NEI = NEI_E + NEI_N + NEI_C$$

Net Emission Increase for Existing Units (NEI_E)

Per 40 CFR 51.165 (a)(1)(xxviii) and 40 CFR 51.165 (a)(2)(ii)(C) for all existing units, if the proposed modification results in an increase in design capacity or potential to emit, or impacts the ability of the emission unit to operate at a higher utilization rate, then the emission increase is calculated as follows:

$$NEI_E = PAE - BAE$$

where,

PAE = Projected Actual Emissions which are the post-project projected actual emissions of the existing units in this project pursuant to 40 CFR 51.165 (a)(1)(xxviii).

BAE = Baseline Actual Emissions which are the actual emissions created by the project during the baseline period. The BAE are calculated pursuant to 40 CFR 51.165 (a)(1)(xxxv)(A) through (D).

There are no existing units in this project. Therefore, NEI_E = 0.

Net Emission Increase for New Units (NEI_N)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions units in this project,

$$NEI_N = PE2_N - BAE$$

BAE = 0 for the new unit; therefore, $NEI_N = PE2_N$

Net Emissions Increase for New Units (NEI_N)			
Permit Unit	PE2 _N (lb-VOC/year)	BAE (lb-VOC/year)	NEI _N (lb-VOC/year)
C-120-170-2	304	0	304
C-120-171-2			

Creditable Contemporaneous Net Emissions Increase (NEI_C)

This project will cancel and replace the tank listed in permit C-120-184-1. The resulting emission reduction associated with canceling the permit will be a creditable contemporaneous emission decrease associated with this project.

$$NEI_C = PAE - BAE$$

Projected Actual Emissions

As the tank listed in permit C-120-184-1 is being canceled in this project, PAE = 0.

Baseline Actual Emissions

The baseline period is the two years immediately prior to the submission of a complete application. The following historical distilled spirits throughput for the tank listed in permit C-120-184 was provided by the facility.

Baseline Actual Emissions (Permit C-120-184-1)			
Year	Process Rate (gallons/year)	Emission Factor (lb/1000 gal)	VOC Emissions (lb/year)
2011	0	0.807	0
2012	0	0.807	0
Annual Average			0

Creditable Contemporaneous Net Emissions Increase (NEI_C) is calculated as follows:

$$NEI_C = PAE - BAE$$

Creditable Contemporaneous Net Emissions Increase (NEI_C)			
Permit Unit	PAE (lb-VOC/year)	BAE (lb-VOC/year)	NEI _N (lb-VOC/year)
C-120-184-1	0	0	0

Net Emission Increase

The NEI for this project is thus calculated as follows:

$$NEI = NEI_E + NEI_N + NEI_C$$

Net Emissions Increase (NEI)				
Pollutant	NEI _E (lb/year)	NEI _N (lb/year)	NEI _C (lb/year)	NEI (lb/year)
VOC	0	304	0	304

The NEI for this project will be greater than the Federal Major Modification threshold for VOC. Therefore, this project does not qualify for a “Less-Than-Significant Emissions Increase” exclusion and is thus determined to be a Federal Major Modification for VOC.

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
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

I. Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold, and if total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

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

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)							
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀	CO _{2e}
Total PE from New and Modified Units	0	0.15	0	0	0	0	0
PSD Significant Emission Increase Thresholds	250	250	250	250	250	250	100,000
PSD Significant Emission Increase?	N	N	N	N	N	N	N

As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 due to a significant emission increase 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. The QNEC shall be calculated as follows:

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

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

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

C-120-170-2 and '171-2

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	76	0	76

VIII. COMPLIANCE

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a SB288 Major Modification or a Federal Major Modification.

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

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

Distilled Spirits Storage Operations

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to add distilled spirits storage capability to two tanks, each with a PE greater than 2 lb/day for VOC emissions. Therefore, BACT is triggered for VOC emissions from each of the distilled spirits storage tanks.

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

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

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

As discussed in Section I above, there are no modified emissions units associated with this project; therefore BACT is not triggered.

d. SB288/Federal Major Modification

As discussed in Section VII.C.7 and VII.C.8 above, this project constitutes a Federal Major Modification for VOC emissions; therefore BACT is triggered for VOC for the distilled spirits storage tanks in this project.

2. BACT Guideline

Distilled Spirits Storage Operations

BACT Guideline 5.4.15, 4th quarter 2013, applies to distilled spirits storage tanks. The facility is proposing to add distilled spirits storage capability to two tanks. Therefore, BACT Guideline 5.4.15 is applicable to the distilled spirits storage tanks (BACT Guideline 5.4.15 included in Attachment B).

3. Top-Down BACT Analysis

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

Distilled Spirits Storage Operations

Pursuant to the attached Top-Down BACT Analysis (see Attachment B), BACT is 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

Each of the distilled spirits storage tanks operated at this facility is equipped with insulation or operated inside of an enclosed building, is equipped with a PVRV set to within 10% of the maximum allowable working pressure of the tank; and operates in a gas-tight condition. Therefore, the proposed distilled spirits storage tanks meet the BACT requirements for this class and category of operation.

The following conditions will be included on the permits to ensure continued compliance with the BACT requirements:

- When used for wine storage or distilled spirits 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]

B. Offsets

1. Offset Applicability

Pursuant to Rule 2201, 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 of Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Offset Determination (lb/year)	
	VOC
SSPE2	> 20,000
Offset Threshold	20,000
Offsets triggered?	Yes

2. Quantity of Offsets Required

As discussed above, the facility is an existing Major Source for VOC and the SSPE2 is greater than the offset threshold; therefore offset calculations will be required for this project.

VOC Emissions

Per Rule 2201, the quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

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

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

$$\text{Offsets Required (lb/year)} = ([PE2 - BE]_{C-120-170-2} + [PE2 - BE]_{C-120-171-2} + [PE2 - BE]_{C-120-184-1} + ICCE) \times DOR$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([304 - 0] + [0 - 304] + 0) \times DOR \\ &= 0 \text{ lb-VOC/year} \end{aligned}$$

As demonstrated in the calculation above, the amount of offsets is zero; therefore, offsets will not be required for this project.

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications

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

As demonstrated in VII.C.7 and VII.C.8, this project does constitute Federal Major Modification for VOC; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds			
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?
NO _x	0.0	100 lb/day	No
SO _x	0.0	100 lb/day	No
PM ₁₀	0.0	100 lb/day	No
CO	0.0	100 lb/day	No
VOC	107.8	100 lb/day	Yes

Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	< 20,000	< 20,000	20,000 lb/year	No
SO _x	< 54,750	< 54,750	54,750 lb/year	No
PM ₁₀	< 29,200	< 29,200	29,200 lb/year	No
CO	< 200,000	< 200,000	200,000 lb/year	No
VOC	> 20,000	> 20,000	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	Project PE2 (lb/year)	Project PE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	0	0	0	20,000 lb/year	No
SO _x	0	0	0	20,000 lb/year	No
PM ₁₀	0	0	0	20,000 lb/year	No
CO	0	0	0	20,000 lb/year	No
VOC	304	304	0	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

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

D. Daily Emission Limits (DELs)

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

- The maximum distilled spirits storage throughput in this tank shall not exceed 75,000 gallons per day. [District Rule 2201]
- The daily VOC emissions rate for distilled spirits storage shall not exceed 1.437 pounds per 1,000 gallons. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. All records shall be retained on site for a period of at least five years and made available to District inspection upon request. The following conditions will be included on the permits to ensure continued compliance with the recordkeeping requirements:

- Records shall be retained on-site for a minimum of five years and made available for District inspection upon request. [District Rule 1070]
- Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, and the volume of distilled spirits transferred, shall be maintained. [District Rule 2201]

4. Reporting

No reporting is required to demonstrate compliance with District Rule 2201.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. However, since this project involves only VOC and no ambient air quality standard exists for VOC, an AAQA is not required for this project.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this source is undergoing a Federal Major Modification, therefore this requirement is applicable. Included in Attachment C is the facility's compliance certification.

H. Alternative Siting Analysis

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification.

In addition to winery tanks, the operation of a winery requires a large number support equipment, services and structures such as raw material receiving stations, crushers, piping, filtering and refrigeration units, warehouses, laboratories, bottling and shipping facilities, and administration buildings.

Since the current project involves no change to any other facets of the operation, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures and facilities on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

The prevention of significant deterioration (PSD) program is a construction permitting program for new major stationary sources and major modifications to existing major stationary sources located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant.

As demonstrated above, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a “permit amendment that does not qualify as a minor permit modification or administrative amendment.”

Section 3.20.5 states that a minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project is a Title I modification (i.e. Federal Major Modification), the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

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

Rule 4001 New Source Performance Standards

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

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAP's)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to distilled spirits 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. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected. Compliance with the requirements of this rule is ensured by the following condition, currently located on the facility wide permit for this facility:

- 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 a HAP as defined by Section 44321 of the California Health and Safety Code. Therefore, there are no increases in HAP emissions associated with any emission units in this project, therefore a health risk assessment is not necessary and no further risk analysis is required.

Rule 4623 Storage of Organic Liquids

The purpose of this rule is to limit volatile organic compound (VOC) emissions from the storage of organic liquids. This rule applies to any tank with a capacity of 1,100 gallons or greater in which any organic liquid is placed, held, or stored.

However, Section 4.1.4 provides an exemption for tanks used to store fermentation products, byproducts or spirits. The tanks in this project are storage tanks used to store distilled spirits.

Therefore, the requirements of this rule are not applicable to this project.

Rule 4694 Wine Fermentation and Storage Tanks

The purpose of this rule is to reduce emissions of volatile organic compounds (VOC) from the fermentation and bulk storage of wine, or achieve equivalent reductions from alternative emission sources. This rule is applicable to any winery fermenting wine and/or storing wine in bulk containers.

This project adds the ability of the tanks in this project to store distilled spirits. The requirements of this rule are not applicable to distilled spirits. The following existing Rule 4694 conditions will remain on the permits.

- When used for wine storage or distilled spirits 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]
- 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 Rule 4694]

- Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, the volume of wine transferred, and the volume of distilled spirits transferred, shall be maintained. [District Rule 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 Rule 4694]
- All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070 and 4694]

Therefore, continued compliance with the requirements of this rule is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

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

IX. RECOMMENDATION

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct permits C-120-170-2 and '171-2 subject to the permit conditions on the attached draft Authority to Construct permits in Attachment E.

X. BILLING INFORMATION

Permit Number	Fee Schedule	Fee Description	Annual Fee
C-120-170-2	3020-05-C	22,612 gallons	\$135
C-120-171-2	3020-05-C	10,620 gallons	\$135

Attachments

- A: Current Permits to Operate
- B: BACT Guideline 5.4.15 and Distilled Spirits Storage Tanks Top Down BACT Analysis
- C: Compliance Certification
- D: Certificate of Conformity
- E: Draft ATC Permits

Attachment A

Current Permits to Operate

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-120-170-1

EXPIRATION DATE: 06/30/2015

EQUIPMENT DESCRIPTION:

22,612 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 711

PERMIT UNIT REQUIREMENTS

1. This tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rule 4694, 5.2.1]
2. The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rule 4694, 5.2.1]
3. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694, 5.2.2]
4. 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 Rule 4694, 6.4.2]
5. 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, 6.4.2]
6. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 4694, 6.4]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-120-171-1

EXPIRATION DATE: 06/30/2015

EQUIPMENT DESCRIPTION:

10,620 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 712

PERMIT UNIT REQUIREMENTS

1. This tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rule 4694, 5.2.1]
2. The pressure-vacuum relief valve and storage tank shall remain in a gas-tight condition, except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21. [District Rule 4694, 5.2.1]
3. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rule 4694, 5.2.2]
4. 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 Rule 4694, 6.4.2]
5. 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, 6.4.2]
6. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 4694, 6.4]

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

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-120-184-1

EXPIRATION DATE: 06/30/2015

EQUIPMENT DESCRIPTION:

37,658 GALLON DISTILLED SPIRITS STORAGE TANK (TANK 533) WITH INSULATION

PERMIT UNIT REQUIREMENTS

See facility-wide requirements for permit conditions applicable to this permit unit.

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

Attachment B

**BACT Guideline 5.4.15 Top Down BACT Analysis for Distilled Spirits
Storage Tanks**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.4.15*

Last Update 11/2/2011

Distilled Spirits Storage Tank

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Insulation or Equivalent**, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation	1) Capture of VOCs and thermal or catalytic oxidation or equivalent (98% control); 2) Capture of VOCs and carbon adsorption or equivalent (95% control); 3) Capture of VOCs and adsorption or equivalent (90% control); 4) Refrigerated Storage (70% control)	

** Tank may be insulated or stored indoors (in a completely enclosed building except for vents, doors and other essential openings) to limit exposure to diurnal temperature variations.

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

***This is a Summary Page for this Class of Source**

Top Down BACT Analysis for Distilled Spirits Storage VOC Emissions for Permit Units C-120-170-2 and '171-2

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.15, 4th quarter 2013, identifies achieved in practice BACT for distilled spirits storage tanks as follows:

- 1) Insulation or Equivalent**, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation.

***Tanks may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure to diurnal temperature variations.*

The SJVUAPCD BACT Clearinghouse guideline 5.4.15, 4th quarter 2013, identifies technologically feasible BACT for distilled spirits storage tanks as follows:

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

Step 4 - Cost Effectiveness Analysis

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

Tank Configuration

Spirits are produced as the overhead product from a continuous distillation column. The overhead condenser on the tower (evaporative condenser) condenses and subcools the product to 80 °F for rundown to the product collection tanks.

Product Tanks, 33,232 gallon total capacity:

Qty	2
Capacity	One 22,612 gallon tank and One 10,620 gallon tank
Size	13' dia x 24' tall and 10' dia x 20' tall
Spec	Vertical fixed roof (dome), pressure/vacuum valve, insulated, temperature control

Maximum Vapor Flow Rate

Determination of the maximum vapor flow rate from the collection of tanks is calculated by the maximum product transfer rate. The maximum design flowrate to transfer liquid spirits using air diaphragm pumps would be 50 GPM.

$$75,000 \text{ gallons/day} \times \text{min}/50 \text{ gallons} \times 1 \text{ hr}/60 \text{ min} = 25 \text{ hours}$$

Assuming a 25 hour fill rate,

$$\begin{aligned} \text{Moles of air displaced} &= 75,000 \text{ gallons} \times \text{ft}^3/7.48 \text{ gallons} \times 0.07544 \text{ lb-air/ft}^3 \times \text{lb-mol}/28.58 \text{ lb} \\ &= 26.47 \text{ lb-mol air} \end{aligned}$$

$$\text{Total Daily Spirits emissions} = (26.47 + 26.47) \text{ lb} = 52.9 \text{ lb}$$

$$\text{Moles of spirits} = 52.9 \text{ lb} \times \text{lb-mol}/46.07 \text{ lb} = 1.15 \text{ lb-mol}$$

$$\text{Total moles} = 1.15 + (26.47 \times 1 \text{ tank} + 26.47 \times 1 \text{ tanks}) \text{ lb-mol} = 54.1 \text{ lb-mol}$$

$$\begin{aligned} V &= nRT/P = 54.1 \text{ lb-mol} \times 0.7302 \text{ lb-mol}^\circ\text{R/atm ft}^3 \times 520^\circ\text{R} / 1 \text{ atm} \\ &= 20,537.8 \text{ ft}^3 \end{aligned}$$

$$\text{Vapor Flow Rate} = 20,537.8 \text{ ft}^3 \div 25 \text{ hours} \times 1 \text{ hour}/60 \text{ min} = 13.7 \text{ scfm}$$

Uncontrolled Emission Calculation

Assumptions:

- Product tanks = One 22,612 gallon and one 10,620 gallon tank (total volume 33,232 gallons), equipped with pressure/vacuum valve, insulated, temperature control
- It is assumed that the spirits are filled and cool to ambient temperature relatively quickly. Breathing losses are considered negligible since the tanks are insulated

Emission Factors:

FYI 114 will be used to calculate the storage emissions from the new tanks.

Calculation:

The new distilled spirit tanks will be used for storage. The uncontrolled emissions are 304 lb-VOC/year.

Uncontrolled Emissions = 304 lb-VOC/year

Collection System Capital Investment (based on ductwork)

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

Collection system to consist of:

- The collection system consists of stainless steel place ductwork (stainless steel is required due to food grade product status) with isolation valving, connecting the eight tanks to a common manifold system which ducts the combined vent to the common control device. The cost of dampers and isolation valving, installed in the ductwork, will be included in the cost estimate.
- A minimum duct size is established at six inches diameter at each tank to provide adequate strength for spanning between supports. The main header is twelve inches diameter to handle the potential for simultaneous venting.
- minimum estimated length (based on a two tank layout, 10 feet spacing between tank and header, and control device located within 100 feet of tank array)

Capital Cost Ductwork

An estimate of straight line duct lengths required was prepared based on a winery layout of one 22,612 gallon and one 10,620 gallon tanks.

6" Stainless Steel Duct: 109.5 linear feet
12" Stainless Steel Duct: 106.5 linear feet

A direct cost estimate for 12 inch diameter stainless steel ductwork, installed in a San Joaquin Valley winery, was taken from Fermenter VOC Emission Control Cost Estimate, prepared by Eichleay Engineering for the Wine Institute in conjunction with development of District Rule 4694. The estimate is based on 2nd quarter 2005 dollars, and includes fittings, miscellaneous duct supports and other materials plus field labor costs required to install the ductwork, but

does not include other associated indirect costs such as construction management, engineering, owner's cost, contingency, etc.

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

Duct installed costs = (\$61.30 linear foot x 109.5 feet) + (\$143.80 linear foot x 106.5 feet) = \$22,027

Unit installed cost for 6 inch butterfly valve = \$2,125/valve x 2 valves = \$4,250

Unit installed cost one foot removable spool = \$500/tank x 2 tanks = \$1,000

Total = \$22,027 + \$4,250 + \$1,000 = \$27,277

Ductwork	
Cost Description	Cost (\$)
Duct Estimate from Eichleay Study 2005 Data	\$27,277
Adjusting factor from 2005 dollars to 2013 dollars (2.75% inflation/year)	1.22
Inflation adjusted duct cost	\$33,278
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Ductwork) See Above	\$33,278
Instrumentation 10%	\$3,328
Sales Tax 3%	\$ 998
Freight 5%	\$1,664
Purchased equipment cost	\$39,268
Foundations & supports 8%	\$3,141
Handling & erection 14%	\$5,498
Electrical 4%	\$1,571
Piping 2%	\$ 785
Painting 1%	\$ 393
Insulation 1%	\$ 393
Direct installation costs	\$11,781
Total Direct Costs	\$51,049
Indirect Costs (IC)	
Engineering 10%	\$3,927
Construction and field expenses 5%	\$1,963
Contractor fees 10%	\$3,927
Start-up 2%	\$ 785
Performance test 1%	\$ 393
Contingencies 3%	\$1,178
Total Indirect Costs	\$12,173
Total Capital Investment (TCI) (DC + IC)	\$63,222

Clean-In-Place (CIP) System

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

An allowance of \$200,000 for a CIP system at a vapor flow rate of 184 scfm was determined in project C-1110475.

Clean-In-Place (CIP) System	
Cost Description	Cost (\$)
CIP system	\$200,000
Size adjusted CIP system (200,000 x (13.7/184) ^{0.6} six-tenths rule)	\$42,089
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (CIP System) See Above	\$42,089
Instrumentation 10%	\$4,209
Sales Tax 3%	\$1,263
Freight 5%	\$2,104
Purchased equipment cost	\$49,665
Foundations & supports 8%	\$3,973
Handling & erection 14%	\$6,953
Electrical 4%	\$1,987
Piping 2%	\$ 993
Painting 1%	\$ 497
Insulation 1%	\$ 497
Direct installation costs	\$14,900
Total Direct Costs	\$64,565
Indirect Costs (IC)	
Engineering 10%	\$4,967
Construction and field expenses 5%	\$2,483
Contractor fees 10%	\$4,967
Start-up 2%	\$ 993
Performance test 1%	\$ 497
Contingencies 3%	\$1,490
Total Indirect Costs	\$15,397
Total Capital Investment (TCI) (DC + IC)	\$79,962

Annualized Capital Costs

$$\begin{aligned}\text{Total capital costs} &= \text{Ductwork} + \text{CIP System} \\ &= \$63,222 + \$79,962 \\ &= \$143,184\end{aligned}$$

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,

$$\text{Annualized Capital Investment} = \$143,184 \times 0.163 = \$23,303$$

Option 2 – Refrigerated Storage at 40 °F

Design Basis

- A common refrigeration system will be installed for the two tanks.
- The refrigeration system will be a packaged single-stage vapor-compression system.
- Minimum refrigeration capacity will allow cooling the eight tanks from 75 °F to 40 °F once the product enters the tanks. As shown above the filling rate for these tanks is 50 gpm.

Based on a specific heat capacity of 1.0 Btu/lb-°F and cooling one tank from 75 °F to 40 °F, the capacity required for the refrigeration system would be:

$$\begin{aligned}\text{Refrigeration Capacity} &= 50 \text{ gal/min} \times 2 \text{ tanks} \times 8.34 \text{ lb/gal} \times 1.0 \text{ Btu/lb-}^\circ\text{F} \times (75^\circ\text{F} - 40^\circ\text{F}) \\ &\quad \times 60 \text{ min/hr} \times 1 \text{ ton-hr refrigeration/12,000 Btu}\end{aligned}$$

$$\text{Refrigeration Capacity} = 145.95 \text{ tons}$$

Capital Cost

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

$$\text{Refrigeration System Cost} = \$140,000$$

To compare the cost and size of a 100 ton condenser to the subject 145.95 ton condenser, the six-tenths rule of thumb is used.

$$\text{Capital Cost } 145.95 \text{ ton} = \text{Capital Cost } 100 \text{ ton} \times \left(\frac{145.95 \text{ ton}}{100 \text{ ton}} \right)^{0.6}$$

$$\begin{aligned}\text{Capital Cost } 145.95 \text{ ton} &= \$140,000 \times (145.95 \div 100)^{0.6} \\ &= \$175,651\end{aligned}$$

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,

$$\text{Annualized Capital Investment} = \$175,651 \times 0.163 = \$28,586$$

Total Annual Cost

$$\begin{aligned}\text{Total Annual Cost} &= \text{Condenser System} + \text{Ductwork} + \text{CIP System} \\ &= \$28,586 + \$23,303 = \$51,889\end{aligned}$$

Emission Reductions

$$\begin{aligned}\text{Annual Emission Reduction} &= \text{Uncontrolled Emissions} \times 0.70 \\ &= 304 \text{ lb-VOC/year} \times 0.70 \\ &= 212.8 \text{ lb-VOC/year} \\ &= 0.1064 \text{ tons-VOC/year}\end{aligned}$$

Cost Effectiveness

$$\begin{aligned}\text{Cost Effectiveness} &= \$51,889/\text{year} \div 0.1064 \text{ tons-VOC/year} \\ &= \$487,679/\text{ton-VOC}\end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the required condenser and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Option 3 – Collection of VOCs and control by absorption

One scrubber will be required sized at the maximum vapor flow rate of 13.7 scfm.

Water scrubber (750 cfm) capital cost = \$108,500 (per 2003 budgetary pricing obtained by Sonoma Technologies)

Scrubber	
Cost Description	Cost (\$)
Scrubber System	\$108,500
Adjusting factor from 2003 dollars to 2013 dollars (2.75% inflation/year)	1.275
Inflation adjusted scrubber cost	\$138,338
Size adjusted scrubber cost (138,338 x (13.7/750) ^{0.6} six-tenths rule)	\$12,530
10,000 gallon scrubber water collection tank	\$20,000
Explosion proof electrical system	\$10,000
Total Scrubber System Cost	\$42,530
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Scrubber System) See Above	\$42,530
Instrumentation 10%	\$4,253
Sales Tax 3%	\$1,276
Freight 5%	\$2,127
Purchased equipment cost	\$50,186
Foundations & supports 8%	\$4,015
Handling & erection 14%	\$7,026
Electrical 4%	\$2,007
Piping 2%	\$1,004
Painting 1%	\$ 502
Insulation 1%	\$ 502
Direct installation costs	\$15,056
Total Direct Costs	\$65,242
Indirect Costs (IC)	
Engineering 10%	\$5,019
Construction and field expenses 5%	\$2,509
Contractor fees 10%	\$5,019
Start-up 2%	\$1,004
Performance test 1%	\$ 502
Contingencies 3%	\$1,506
Total Indirect Costs	\$15,559
Total Capital Investment (TCI) (DC + IC)	\$80,801

Annualized Capital Costs

Annualized Capital Investment = Total Capital Cost 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,

$$\text{Annualized Capital Investment} = \$80,801 \times 0.163 = \$13,150$$

Wastewater Disposal Costs

Additionally, the water scrubber will generate ethanol-laden wastewater containing 0.1368 tons-ethanol annually. Assuming a 2% solution, approximately 2,066 gallons of waste water (0.1368 ton-ethanol/year x 2000 lb/ton x gal/6.62 lb ÷ 0.02) will be generated annually. Per estimate in Sonoma Technologies study, an allowance of \$0.25 per gallon is applied for disposal costs

$$\text{Annual disposal costs} = 2,066 \text{ gallons} \times \$0.25/\text{gallon} = \$517$$

Total Annual Cost

$$\begin{aligned} \text{Total Annual Cost} &= \text{Scrubber System} + \text{Ductwork} + \text{CIP System} + \text{Wastewater Disposal Costs} \\ &= \$13,150 + \$23,303 + \$517 = \$36,970 \end{aligned}$$

Emission Reductions

$$\begin{aligned} \text{Annual Emission Reduction} &= \text{Uncontrolled Emissions} \times 0.90 \\ &= 304 \text{ lb-VOC/year} \times 0.90 \\ &= 273.6 \text{ lb-VOC/year} \\ &= 0.1368 \text{ tons-VOC/year} \end{aligned}$$

Cost Effectiveness

$$\begin{aligned} \text{Cost Effectiveness} &= \$36,970/\text{year} \div 0.1368 \text{ tons-VOC/year} \\ &= \$270,249/\text{ton-VOC} \end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the required water scrubber and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Option 4 – Collection of VOCs and control by carbon adsorption

Emission Reductions

Annual Emission Reduction = Uncontrolled Emissions x 0.95
 = 304 lb-VOC/year x 0.95
 = 288.8 lb-VOC/year
 = 0.1444 tons-VOC/year

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

Carbon required = 0.1444 tons-VOC/year x 2000 lb/ton x 1/0.20
 = 1,444 lb carbon

Carbon capital cost = \$1.00/lb = \$1.00/lb x 1,444 lb carbon = \$1,444

Carbon Adsorption System	
Cost Description	Cost (\$)
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Carbon Material) See Above	\$1,444
Instrumentation 10%	\$ 144
Sales Tax 3%	\$ 43
Freight 5%	\$ 72
Purchased equipment cost	\$1,703
Foundations & supports 8%	\$ 136
Handling & erection 14%	\$ 238
Electrical 4%	\$ 68
Piping 2%	\$ 34
Painting 1%	\$ 17
Insulation 1%	\$ 17
Direct installation costs	\$ 510
Total Direct Costs	\$2,213
Indirect Costs (IC)	
Engineering 10%	\$ 170
Construction and field expenses 5%	\$ 85
Contractor fees 10%	\$ 170
Start-up 2%	\$ 34
Performance test 1%	\$ 17
Contingencies 3%	\$ 51
Total Indirect Costs	\$13,331
Total Capital Investment (TCI) (DC + IC)	\$15,544

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,

$$\text{Annualized Capital Investment} = \$15,544 \times 0.163 = \$2,530$$

Operation and Maintenance Cost

The operation and maintenance cost for this carbon adsorption system will only include the cost of the service to remove and replace the saturated carbon canisters.

A representative from United States Filter Corporation stated that carbon adsorption systems are able to control about 20% of their weight in VOC's. As shown above, the annual carbon requirement would be 1,444 pounds. A typical recommended system consists of 2-8,000 pound canisters connected in series. In order to ensure no breakthrough, a service would be required every time the primary system becomes saturated. Therefore, a service would be required one time per year (1,444 lb/yr/8,000 lb/canister).

Pursuant to the cost estimate received from United States Filter Corporation, the cost of the service to remove and replace a saturated carbon canister is \$8,720 per unit. This cost would include removal and replacement of the spent unit, packaging of the unit, shipping of the unit to the reactivation facility and reactivation of the unit.

Therefore, the annual service cost can be calculated as follows:

$$\begin{aligned} \text{Service Cost} &= \text{Occurrence (service/year)} \times \text{Cost (\$/service)} \\ \text{Service Cost} &= 1 \text{ service/year} \times \$8,720 \text{ /service} = \$8,720/\text{year} \end{aligned}$$

Total Annual Cost

$$\begin{aligned} \text{Total Annual Cost} &= \text{Carbon Adsorption System} + \text{Ductwork} + \text{CIP System} + \text{Operation and} \\ &\quad \text{Maintenance Costs} \\ &= \$2,530 + \$23,303 + \$8,720 \\ &= \$34,553 \end{aligned}$$

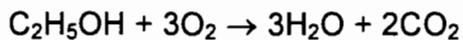
Cost Effectiveness

$$\begin{aligned} \text{Cost Effectiveness} &= \$34,553/\text{year} \div 0.1444 \text{ tons-VOC/year} \\ &= \$239,287/\text{ton-VOC} \end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the required carbon and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Option 5 – Collection of VOCs and control by thermal or catalytic oxidation

The balanced chemical equation for combustion of ethanol is shown below.



One thermal oxidizer will be required sized at the maximum vapor flow rate of 13.7 scfm.

Baker Furnace provided a quote for a 50 scfm thermal oxidizer at a capital cost of \$37,700 (2009 dollars).

Thermal Oxidizer	
Cost Description	Cost (\$)
Thermal Oxidizer System	\$37,700
Adjusting factor from 2009 dollars to 2013 dollars (2.75% inflation/year)	1.11
Inflation adjusted thermal oxidizer cost	\$41,847
Size adjusted thermal oxidizer cost (41,847 x (13.7/50) ^{0.6} six-tenths rule)	\$19,245
The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).	
Direct Costs (DC)	
Base Equipment Costs (Thermal Oxidizer System) See Above	\$19,245
Instrumentation 10%	\$1,925
Sales Tax 3%	\$ 577
Freight 5%	\$ 962
Purchased equipment cost	\$22,709
Foundations & supports 8%	\$1,817
Handling & erection 14%	\$3,179
Electrical 4%	\$ 908
Piping 2%	\$ 454
Painting 1%	\$ 227
Insulation 1%	\$ 227
Direct installation costs	\$6,812
Total Direct Costs	\$29,521
Indirect Costs (IC)	
Engineering 10%	\$2,271
Construction and field expenses 5%	\$1,135
Contractor fees 10%	\$2,271
Start-up 2%	\$ 454
Performance test 1%	\$ 227
Contingencies 3%	\$ 681
Total Indirect Costs	\$7,039
Total Capital Investment (TCI) (DC + IC)	\$36,560

Annualized Capital Costs

Annualized Capital Investment = Total Capital Cost 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,

$$\text{Annualized Capital Investment} = \$36,560 \times 0.163 = \$5,950$$

Operation and Maintenance Costs

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

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

$$\text{heat of combustion -dHc} = 20276 \text{ Btu/lb}$$

$$\text{Daily VOC emissions rate} = 304 \text{ lb/year} / 365 = 0.83 \text{ lb/day}$$

$$\begin{aligned} \text{Blower flow rate} &= 13.7 \text{ scfm} \\ &= 19,728 \text{ ft}^3/\text{day} \end{aligned}$$

$$\begin{aligned} -dh(c) &= 0.83 \text{ lb/day} \times 20276 \text{ Btu/lb} / 19,728 \text{ ft}^3/\text{day} \\ &= 0.856 \text{ Btu/ft}^3 \end{aligned}$$

Assuming the waste gas is principally air, with a molecular weight of 28.97 and a corresponding density of 0.0739 lb/scf, the heat of combustion per pound of incoming waste gas is:

$$\begin{aligned} -dh(c) &= 0.856 \text{ Btu/ft}^3 / 0.0739 \text{ lb/ft}^3 \\ &= 11.58 \text{ Btu/lb} \end{aligned}$$

Fuel Flow Requirement

$$Q(\text{fuel}) = \frac{P_w \cdot Q_w \cdot \{C_p \cdot [1.1T_f - T_w - 0.1T_r] - [-dh(c)]\}}{P(\text{ef}) \cdot [-dh(m) - 1.1 C_p \cdot (T_f - T_r)]}$$

Where	P_w	=	0.0739 lb/ft ³
	C_p	=	0.255 Btu/lb-°F
	Q_w	=	13.7 scfm
	-dh(m)	=	21,502 Btu/lb for methane
	T_r	=	77° F assume ambient conditions
	$P(\text{ef})$	=	0.0408 lb/ft ³ m, methane at 77° F, 1 atm
	T_f	=	1600° F
	T_w	=	1150° F
	-dh(c)	=	11.58 Btu/lb

$$Q = \frac{0.0739 \cdot 13.7 \cdot \{0.255 \cdot [1.1 \cdot 1600 - 1150 - 0.1 \cdot 77] - 11.58\}}{0.0408 \cdot [21502 - 1.1 \cdot 0.255 \cdot (1600 - 77)]}$$

$$= 143.77 / 859.9 = 0.167 \text{ ft}^3/\text{min}$$

Fuel Cost

The cost for natural gas shall be based upon the average price of natural gas sold to "Commercial Consumers" in California for the years 2011 and 2012.¹

2012 = \$8.28/thousand ft³ total monthly average
 2011 = \$7.13/thousand ft³ total monthly average
 Average for two years = \$7.705/thousand ft³ total monthly average

$$\text{Fuel Cost} = 0.167 \text{ cfm} \times 1440 \text{ min/day} \times 365 \text{ day/year} \times \$7.705/1000 \text{ ft}^3$$

$$= \$677/\text{year}$$

Electricity Requirement

$$\text{Power}_{\text{fan}} = \frac{1.17 \cdot 10^{-4} \cdot Q_w \cdot \Delta P}{\epsilon}$$

Where

ΔP = Pressure drop Across system = 4 in. H₂O
 ϵ = Efficiency for fan and motor = 0.6
 Q_w = 13.7 scfm

$$\text{Power}_{\text{fan}} = \frac{1.17 \cdot 10^{-4} \cdot 13.7 \text{ cfm} \cdot 4 \text{ in. H}_2\text{O}}{0.60}$$

$$= 0.0107 \text{ kW}$$

Electricity Cost

Average cost of electricity to commercial users in California²:

2012 = \$0.1023
 2011 = \$0.1012
 AVG = \$0.102

$$\text{Electricity Cost} = 0.0107 \text{ kW} \times 24 \text{ hr/day} \times 365 \text{ days/yr} \times \$0.102/\text{kWh} = \$10/\text{yr}$$

¹ Energy Information Administration/Natural Gas; Average Price of Natural Gas Sold to Commercial Consumers by State, 2011 - 2012

² Energy Information Administration/Electric Power; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, 2011 - 2012

Annual Costs

Annual Costs (Data from: Annual Costs for Thermal and Catalytic Incinerators, Table 3.10 – OAQPS Control Cost Manual, Fourth Edition)

Annual Costs			
Operator	0.5 h/shift	\$25.92/h x 0.5 h x 365 days/yr	\$4,730
Supervisor	15% of operator		\$710
Maintenance			
Labor	0.5 h/shift	\$28.52 x 0.5 h x 365 days/yr	\$5,205
Material	100% of labor		\$5,205
Utility			
Natural Gas			\$677
Electricity			\$10
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost	0.6 x \$5,205	\$3,123
Administrative Charge	2% TCI		\$731
Property Taxes	1% TCI		\$366
Insurance	1% TCI		\$366
Annual Cost			\$21,123

$$\begin{aligned}
 \text{Total Annual Cost} &= \text{Thermal Oxidizer System} + \text{Ductwork} + \text{CIP System} + \text{Annual Cost} \\
 &= \$5,950 + \$23,303 + \$21,123 \\
 &= \$50,376
 \end{aligned}$$

$$\begin{aligned}
 \text{Annual Emission Reduction} &= \text{Uncontrolled Emissions} \times 0.98 \\
 &= 304 \text{ lb-VOC/year} \times 0.98 \\
 &= 297.92 \text{ lb-VOC/year} \\
 &= 0.149 \text{ tons-VOC/year}
 \end{aligned}$$

$$\begin{aligned}
 \text{Cost Effectiveness} &= \$50,376/\text{year} \div 0.149 \text{ tons-VOC/year} \\
 &= \$338,094/\text{ton-VOC}
 \end{aligned}$$

The analysis demonstrates that the annualized purchase cost of the required thermal oxidizer and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of \$17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.

Step 5 - Select BACT

All identified feasible options with control efficiencies higher than the option proposed by the facility have been shown to not be cost effective. The facility has proposed Option 1, Insulation or Equivalent, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; "gas-tight" tank operation. These BACT requirements will be placed on the ATC permits as enforceable conditions.

Attachment C

Compliance Certification

9/16/2013

Mr. Stanley Tom
San Joaquin Valley Air Pollution Control District
1990 E Gettysburg Avenue
Fresno CA 93726

Subject: Compliance Statement for Franzia-Sanger C-120

Dear Mr. Tom:

In accordance with Rule 2201, Section 4.15, "Additional Requirements for New Major Sources and Federal Major Modifications," **Franzia-Sanger** is pleased to provide this compliance statement regarding its proposed winery project **C-1132537**.

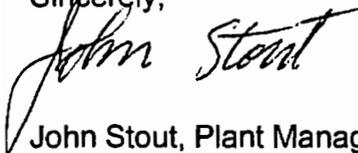
All major stationary sources in California owned or operated by **Franzia-Sanger**, or by any entity controlling, controlled by, or under common control with **Franzia-Sanger**, and which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission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

Facility #1: Franzia-Sanger 2916 S. Reed Avenue, Sanger, CA 93657

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,



John Stout, Plant Manager
Franzia - Sanger

Attachment D

Certificate of Conformity

**San Joaquin Valley
Unified Air Pollution Control District**

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

- SIGNIFICANT PERMIT MODIFICATION ADMINISTRATIVE AMENDMENT
 MINOR PERMIT MODIFICATION

COMPANY NAME: <i>The Wine Group LLC, dba Franzia Sanger</i>	FACILITY ID: <i>C-120</i>
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: <i>The Wine Group LLC</i>	
3. Agent to the Owner: <i>John Stout</i>	

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

- J.S.* Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- J.S.* Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- J.S.* Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- J.S.* Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

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

John Stout
Signature of Responsible Official

09-16-2013
Date

JOHN STOUT
Name of Responsible Official (please print)

PLANT MANAGER
Title of Responsible Official (please print)

Attachment E
Draft ATC Permits

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-120-170-2

LEGAL OWNER OR OPERATOR: THE WINE GROUP INC
MAILING ADDRESS: ATTN: A/P 1931
PO BOX 90
TRACY, CA 95378-0090

LOCATION: 2916 S REED AVE
SANGER, CA 93657

EQUIPMENT DESCRIPTION:

MODIFICATION OF 22,612 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 711: ADD DISTILLED SPIRITS STORAGE OPERATION, ESTABLISH SLC WITH PERMIT C-120-171, AND CORRECT EQUIPMENT DESCRIPTION TO LIST INSULATION AND PV VALVE

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. Upon implementation of the modification and startup of the equipment authorized by this Authority to Construct (ATC), PTO C-120-184-1 shall be cancelled. [District Rule 2201] Federally Enforceable Through Title V Permit
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. When used for wine storage or distilled spirits 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

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services

C-120-170-2: Sep 27 2013 4:19PM - TOMS : Joint Inspection NOT Required

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] Federally Enforceable Through Title V Permit
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 Rule 4694] Federally Enforceable Through Title V Permit
8. The maximum distilled spirits storage throughput in this tank shall not exceed 75,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The combined maximum distilled spirits storage throughput for the tanks listed in permits C-120-170 and '171 shall not exceed 376,580 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The daily VOC emissions rate for distilled spirits storage shall not exceed 1.437 pounds per 1,000 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The annual VOC emissions rate for distilled spirits storage shall not exceed 0.807 pounds per 1,000 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, the volume of wine transferred, and the volume of distilled spirits transferred, shall be maintained. [District Rule 2201 and 4694] Federally Enforceable Through Title V Permit
13. The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694] Federally Enforceable Through Title V Permit
14. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070 and 4694] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-120-171-2

LEGAL OWNER OR OPERATOR: THE WINE GROUP INC
MAILING ADDRESS: ATTN: A/P 1931
PO BOX 90
TRACY, CA 95378-0090

LOCATION: 2916 S REED AVE
SANGER, CA 93657

EQUIPMENT DESCRIPTION:

MODIFICATION OF 10,620 GALLON STAINLESS STEEL WHITE WINE FERMENTATION AND WINE STORAGE TANK 712: ADD DISTILLED SPIRITS STORAGE OPERATION, ESTABLISH SLC WITH PERMIT C-120-171, AND CORRECT EQUIPMENT DESCRIPTION TO LIST INSULATION AND PV VALVE

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. Upon implementation of the modification and startup of the equipment authorized by this Authority to Construct (ATC), PTO C-120-184-1 shall be cancelled. [District Rule 2201] Federally Enforceable Through Title V Permit
4. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. When used for wine storage or distilled spirits 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

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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
C-120-171-2 : Sep 27 2013 4:19PM - TOMS : Joint Inspection NOT Required

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] Federally Enforceable Through Title V Permit
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 Rule 4694] Federally Enforceable Through Title V Permit
8. The maximum distilled spirits storage throughput in this tank shall not exceed 75,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit
9. The combined maximum distilled spirits storage throughput for the tanks listed in permits C-120-170 and '171 shall not exceed 376,580 gallons per year. [District Rule 2201] Federally Enforceable Through Title V Permit
10. The daily VOC emissions rate for distilled spirits storage shall not exceed 1.437 pounds per 1,000 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The annual VOC emissions rate for distilled spirits storage shall not exceed 0.807 pounds per 1,000 gallons. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Daily throughput records, including records of filling and emptying operations, the dates of such operations, the volume percent ethanol in the batch, the volume of wine transferred, and the volume of distilled spirits transferred, shall be maintained. [District Rule 2201 and 4694] Federally Enforceable Through Title V Permit
13. The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694] Federally Enforceable Through Title V Permit
14. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070 and 4694] Federally Enforceable Through Title V Permit

DRAFT