San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 26 2012

Mr. Matthew Towers
O'Neill Beverages Co LLC
8418 S Lac Jac Ave
Parlier, CA 93648

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-629
Project # C-1113230

Dear Mr. Towers:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant proposes to install thirty three new wine fermentation and storage tanks.

After addressing any EPA comments made during the 45-day comment period, the Authorities to Construct will be issued to the facility with Certificates of Conformity. 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
c: Stanley Tom, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 26 2012

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

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-629
Project # C-1113230

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for O'Neill Beverages Co LLC at 8418 S Lac Jac Ave, Parlier, which has been issued a Title V permit. O'Neill Beverages Co LLC is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The applicant proposes to install thirty three new wine fermentation and storage tanks.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # ATC # C-629-494-0 through '526-0 with Certificates of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. 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
c: Stanley Tom, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 26 2012

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

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-629
Project # C-1113230

Dear Mr. Tollstrup:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant proposes to install thirty three new wine fermentation and storage tanks.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # ATC # C-629-494-0 through '526-0 with Certificates of Conformity. After demonstrating compliance with the Authorities to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 30-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. 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
c: Stanley Tom, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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

www.valleyair.org www.healthyairliving.com

Fresno Bee

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of O'Neill Beverages Co LLC for its winery at 8418 S Lac Jac Ave, Parlier, California. The applicant proposes to install thirty three new wine fermentation and storage tanks.

The District's analysis of the legal and factual basis for this proposed action, project #C-1113230, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Fermentation and Wine Storage Tanks

Facility Name:	O'Neill Beverages Co LLC	Date:	January 19, 2012
Mailing Address:	8418 S Lac Jac Ave	Engineer:	Stanley Tom
	Parlier, CA 93648	Lead Engineer:	Joven Refuerzo
Contact Person:	Matthew Towers		
Telephone:	(559) 638-3544		
Fax:	(559) 638-7148		
Application #(s):	C-629-494-0 through '526-0		
Project #:	C-1113230		
Deemed Complete:	November 10, 2011		

I. Proposal

O'Neill Beverages Co LLC has requested Authority to Construct (ATC) permits for the installation of thirty three new wine fermentation and storage tanks. These tanks will be used for red and white wine fermentation and storage.

The applicant is proposing to add the new red and white wine fermentation tanks into the existing specific limiting condition (SLC) limiting the annual wine fermentation VOC emissions from all wine fermentation tanks at their facility of 410,502 lb-VOC/year. A new SLC of 4,800 lb-VOC/year will be established for the 33 new wine storage tanks being installed in this project.

O'Neill Beverages Co LLC 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. O'Neill Beverages Co LLC must apply to administratively amend their Title V Operating Permit to include the requirements of the ATCs issued with this project.

II. Applicable Rules

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

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

III. Project Location

The facility is located at 8418 S Lac Jac Ave in Parlier, CA.

The District has verified that the equipment is located within 1,000 feet of the outer boundary of a K-12 school. However, as discussed within this document and in the health risk assessment results in Attachment I, the proposed winery fermentation and storage tanks being installed in this project do not result in an increase in Hazardous Air Pollutant (HAP) emissions. Therefore, in accordance with the California Health and Safety Code, Section 42301.6, a school notice is not required.

IV. Process Description

O'Neill Beverages Co. produces both red and white table wines, as well as other specialty wine products, from the fermentation of grapes. During the "crush season", typically from late August to late November, both red and white grapes are received by truck and delivered to a crusher-stemmer which serves to crush the grapes and remove the stems. In the case of red wines, the resultant juice (termed "must" and containing the grape skins, pulp and seeds) is pumped to red wine fermentation tanks for fermentation, a batch process. The red wine fermentation tanks are specifically designed to ferment the must in contact with the skins and to allow the separation of the skins and seeds from the wine after fermentation. In the case of white wines, the must is first sent to screens and presses for separation of grape skins and seeds prior to fermentation. After separation of the skins and seeds, the white must is transferred to a fermentation tank. White wine fermentation can be carried out in a tank without design provisions for solids separation since the skins and seeds have already been separated.

After transfer of the must (red or white) to the fermentation tank, the must is inoculated with yeast which initiates the fermentation reactions. During fermentation, the yeast metabolizes the sugar in the grape juice, converting it to ethanol and carbon dioxide and releasing heat. Although fermentation temperatures vary widely depending upon the specific quality and style of the wine, temperature is typically controlled to maintain a temperature of 45-70° F for white wine fermentation and 70-85° F for red wine fermentation. The sugar content of the fermentation mass is measured in °Brix (weight %) and is typically 22-26° for unfermented grape juice, dropping to 4° or less for the end of fermentation. Finished ethanol concentration is approximately 10 to 14 percent by volume. Batch fermentation requires 3-5 days per batch for red wine and 1-2 weeks per batch for white wine. VOC's are emitted during the fermentation process along with the CO_2. The VOC's consist primarily of ethanol along with minor fermentation byproducts.

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

V. Equipment Listing

C-629-494-0: 45,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2101) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-495-0: 45,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2102) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-496-0: 45,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2103) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-497-0: 45,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2104) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-498-0: 45,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2105) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-499-0: 45,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2106) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-500-0: 75,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2107) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-501-0: 75,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2108) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-502-0: 75,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2109) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-503-0: 75,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2110) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-504-0: 75,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2111) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-505-0: 75,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2112) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-506-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2113) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-507-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2114) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-508-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2115) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-509-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2116) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-510-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2117) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-511-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2118) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-512-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2119) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-513-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2120) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-514-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2121) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-515-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2122) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-516-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2123) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-517-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2124) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-518-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2125) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-519-0: 87,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R2126) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-520-0: 250,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0320) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-521-0: 250,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0321) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-522-0: 250,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0322) WITH PRESSURE/VACUUM VALVE AND INSULATION

C-629-523-0: 250,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0323) WITH PRESSURE/VACUUM VALVE AND INSULATION
C-629-524-0: 250,500 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0324) WITH PRESSURE/VACUUM VALVE AND INSULATION
C-629-525-0: 65,000 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0285) WITH PRESSURE/VACUUM VALVE AND INSULATION
C-629-526-0: 65,000 GALLON STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK R0286) WITH PRESSURE/VACUUM VALVE AND INSULATION

VI. Emission Control Technology Evaluation

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

The temperature of the fermentation is controlled to maintain an average fermentation temperature not exceeding 95 °F which avoids higher temperatures that might be damaging to the yeast cells and reduces the potential for an out-of-control fermentation reaction in the tank. Temperature control serves to minimize VOC emissions relative to a tank without temperature control since the potential emissions increase with fermentation temperature.

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.
- All tanks will be classified as red and white wine fermentation, red and white wine storage storage tanks.

Fermentation Operations:

- Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 pounds per year (current facility wide limit, no proposed changes by the applicant).
- Daily VOC fermentation emissions will be determined using a worst case of one tank turnover per day (proposed by the applicant).

Storage Operations:

- The maximum daily wine storage throughputs were provided by the applicant and the annual wine storage throughputs will be determined by the applicant in order to ensure that they stay under the new wine storage VOC emission limit established under this project (4,800 lb-VOC/year).
- Maximum daily wine storage throughput for tanks C-629-494-0 through '499-0 = 135,000 gallons per day (proposed by the applicant)
- Maximum daily wine storage throughput for tanks C-629-500-0 through '505-0 = 225,000 gallons per day (proposed by the applicant)
- Maximum daily wine storage throughput for tanks C-629-506-0 through '519-0 = 261,000 gallons per day (proposed by the applicant)
- Maximum daily wine storage throughput for tanks C-629-520-0 through '524-0 = 391,000 gallons per day (proposed by the applicant)
- Maximum daily wine storage throughput for tanks C-629-525-0 through '526-0 = 185,000 gallons per day (proposed by the applicant)
- The maximum ethanol content of the wine stored in each tank will be set at a worst case of 23.9% (proposed by the applicant).
- Daily breathing losses are assumed to be negligible from the storage operations since all storage tank emissions units being installed by this project are insulated and equipped with a pressure/vacuum relief valve or are being installed inside of a climate controlled building.

B. Emission Factors

The required emission factors for wine fermentation and storage operations are taken from District FYI-114, *Estimating VOC Emissions from Winery Tanks,* with storage tank emission factors interpolated from Table 1:

Red Wine Fermentation:

Daily: 3.46 lb-VOC/1000 gallons tank capacity
Annual: 6.2 lb-VOC/1000 gallons annual throughput

White Wine Fermentation:

Daily: 1.62 lb-VOC/1000 gallons tank capacity
Annual: 2.5 lb-VOC/1000 gallons annual throughput

Wine Storage @ 23.9% Ethanol:

Daily: 0.490 lb-VOC/1000 gallons daily throughput

Annual:

The annual VOC emissions from the wine storage operations in these tanks will be determined using the emission factors listed in FYI 114 and generating a curvefit equation from the known values. The curvefit equation generated from the known values in FYI 114 was determined to be as follows:

VOC Emission (lb-VOC/1000 gallons throughput) = 1.705259 x [(% ethanol content of wine stored)^1.090407]

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since this tanks are all new emissions units, the PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

Daily PE (PE2):

Fermentation Operations:

The daily VOC emissions from the fermentation of wine in each of these tanks can be determined using the emission factor listed above and the daily wine fermentation throughput based on one tank turnover (TO) per day. Since the red wine emission factors represent the worst case VOC emissions, they will be used in all of the daily potential emission calculations for the purposes of this project.

Daily VOC $PE_{Fermentation}$ (lb/day) = Tank Volume (gal) x VOC EF (lb-VOC/10^3 gal) x 1 TO (gal/day)

Tank	Tank Capacity (gallons)	VOC EF (lb-VOC/10^3 gallons)	Daily PE2 (lb-VOC/day)
C-629-494-0	45,500	3.46	157.4
C-629-495-0	45,500	3.46	157.4
C-629-496-0	45,500	3.46	157.4
C-629-497-0	45,500	3.46	157.4
C-629-498-0	45,500	3.46	157.4
C-629-499-0	45,500	3.46	157.4
C-629-500-0	75,500	3.46	261.2
C-629-501-0	75,500	3.46	261.2
C-629-502-0	75,500	3.46	261.2
C-629-503-0	75,500	3.46	261.2
C-629-504-0	75,500	3.46	261.2
C-629-505-0	75,500	3.46	261.2
C-629-506-0	87,500	3.46	302.8
C-629-507-0	87,500	3.46	302.8
C-629-508-0	87,500	3.46	302.8
C-629-509-0	87,500	3.46	302.8
C-629-510-0	87,500	3.46	302.8
C-629-511-0	87,500	3.46	302.8
C-629-512-0	87,500	3.46	302.8
C-629-513-0	87,500	3.46	302.8
C-629-514-0	87,500	3.46	302.8
C-629-515-0	87,500	3.46	302.8

C-629-516-0	87,500	3.46	302.8
C-629-517-0	87,500	3.46	302.8
C-629-518-0	87,500	3.46	302.8
C-629-519-0	87,500	3.46	302.8
C-629-520-0	250,500	3.46	866.7
C-629-521-0	250,500	3.46	866.7
C-629-522-0	250,500	3.46	866.7
C-629-523-0	250,500	3.46	866.7
C-629-524-0	250,500	3.46	866.7
C-629-525-0	65,000	3.46	224.9
C-629-526-0	65,000	3.46	224.9
Total	3,288,000		11,534.1

Wine Storage Operations:

The daily VOC emissions from the storage of wine in each of these tanks can be determined using the emission factors listed above and the daily wine storage throughput limits proposed by the applicant as a part of this project.

Daily VOC $PE_{Storage}$ = EF (lb-VOC/1,000 lb gallons) x Throughput (gallons/day)

Tank	Maximum Ethanol Content (%)	Throughput (gallons)	VOC EF (lb-VOC/10^3 gallons)	Daily PE2 (lb-VOC/day)
C-629-494-0	23.9	135,000	0.49	66.2
C-629-495-0	23.9	135,000	0.49	66.2
C-629-496-0	23.9	135,000	0.49	66.2
C-629-497-0	23.9	135,000	0.49	66.2
C-629-498-0	23.9	135,000	0.49	66.2
C-629-499-0	23.9	135,000	0.49	66.2
C-629-500-0	23.9	225,000	0.49	110.3
C-629-501-0	23.9	225,000	0.49	110.3
C-629-502-0	23.9	225,000	0.49	110.3
C-629-503-0	23.9	225,000	0.49	110.3
C-629-504-0	23.9	225,000	0.49	110.3
C-629-505-0	23.9	225,000	0.49	110.3
C-629-506-0	23.9	261,000	0.49	127.9
C-629-507-0	23.9	261,000	0.49	127.9
C-629-508-0	23.9	261,000	0.49	127.9
C-629-509-0	23.9	261,000	0.49	127.9
C-629-510-0	23.9	261,000	0.49	127.9
C-629-511-0	23.9	261,000	0.49	127.9
C-629-512-0	23.9	261,000	0.49	127.9
C-629-513-0	23.9	261,000	0.49	127.9
C-629-514-0	23.9	261,000	0.49	127.9
C-629-515-0	23.9	261,000	0.49	127.9

C-629-516-0	23.9	261,000	0.49	127.9
C-629-517-0	23.9	261,000	0.49	127.9
C-629-518-0	23.9	261,000	0.49	127.9
C-629-519-0	23.9	261,000	0.49	127.9
C-629-520-0	23.9	391,000	0.49	191.6
C-629-521-0	23.9	391,000	0.49	191.6
C-629-522-0	23.9	391,000	0.49	191.6
C-629-523-0	23.9	391,000	0.49	191.6
C-629-524-0	23.9	391,000	0.49	191.6
C-629-525-0	23.9	185,000	0.49	90.7
C-629-526-0	23.9	185,000	0.49	90.7
Total		8,139,000		3989.0

Annual PE (APE2):

Fermentation Operations:

The applicant is proposing to include these new fermentation tanks in the existing specific limiting condition (SLC) with all the other fermentation tanks at this facility. Therefore:

$$PE2_{\text{fermentation (existing + new tanks)}} = PE1_{\text{fermentation (existing tanks)}} = 410{,}502 \text{ lb-VOC/yr}$$

Storage Operations:

The applicant is proposing to establish a combined annual VOC limit for all of the wine storage operations for the new tanks included within this project. They are proposing that the combined annual total VOC emissions from all the new storage tanks be equal to 4,800 lb/year. Therefore, the post project annual VOC emissions will be set equal to the value listed below.

Annual Storage VOC $PE_{\text{C-629-494-0 through '526-0}}$ = 4,800 lb/year

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

Pursuant to Section 4.9 of 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 Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

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

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.

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 Section 3.7 of 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 Section 3.22 of 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:

Clean Emissions Unit, Located at a Major Source

Existing Fermentation Tanks Included in VOC SLC:

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.

All of the fermentation tanks at this facility meet the District's current achieved-in-practice BACT for fermentation tanks. Therefore all fermentation tank emissions units are Clean Emissions Units pursuant to District Rule 2201 and, for the combined fermentation emissions of all of the existing tanks in the VOC SLC:

$\Sigma BE_{fermentation} = \Sigma PE1_{fermentation}$ = 410,502 lb-VOC/year

New Fermentation and Storage Tanks:

Since these tanks are new emission units, 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.*"

As discussed in Section VII.C.5 above, the facility is an existing Major Source for VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. Post project, the new fermentation units will be part of the overall fermentation tank SLC which has an existing emission limit of 410,502 lb-VOC per year. Since this project does not propose a change in the SLC emission limit, post project fermentation emissions from all tanks at this facility will be limited to 410,502 lb-VOC per year. However, since the new fermentation tanks add physical capacity to the winery but do not operate independently, fermentation PE for the new tanks may be taken to be $(PE2\text{-}PE1)_{all\ tanks}$ which is the change in Potential to Emit for fermentation from all tanks at the winery (in the absence of an SLC emission limit) resulting from the presence of the new tanks in the post project facility configuration.

Calculation of the Annual Potential to Emit ($PE2_N$) for New Tanks

A. Assumptions

- Maximum ethanol content of stored wine is 23.9%.
- Grape crushing capacity at this facility is 10,368 tons per day based on information provided by the applicant for this project.

- Pressing capacity at this facility is 14,740 tons per day based on information provided by the applicant for this project.
- The total pre-project tank volume that can potentially be used for red wine fermentation is 35,184,947 gallons.
- The total pre-project tank volume that can potentially be used for white wine fermentation is 35,184,947 gallons.
- The total post-project tank volume that can potentially be used for red wine fermentation is 38,472,947 gallons.
- The total post-project tank volume that can potentially be used for white wine fermentation is 38,472,947 gallons.
- Annual potential emissions for fermentation operations will be calculated as a combined value reflecting potential emissions from the winery's total wine production capacity.

B. Emission Factors

The required emission factors for fermentation and storage operations are taken from District FYI-114, *Estimating VOC Emissions from Winery Tanks*:

Annual emissions from red wine fermentation: E_{fr} 6.2 lb-VOC/1000 gallons annual throughput

Annual emissions from white wine fermentation: E_{fw} = 2.5 lb-VOC/1000 gallons annual throughput

C. Calculations

Tanks operating in a winery are not truly independent emissions units, with the result that the theoretical "stand-alone" annual potential to emit for individual tanks cannot be defined (their theoretical annual fermentation/storage capacity, and thus their potential annual emissions, must be established with consideration of all the other associated tanks in the facility). $PE2_N$ is therefore determined as the difference between the post project and the pre project potential emission from the wine production operation based on the collective physical capacity of the processing equipment at the facility.

1. Annual emission potentials for fermentation operations from existing tanks

The potential emissions from the fermentation operation at this facility, based on the physical capacity of the existing processing equipment, $PE1_{E(fermentation)}$, is determined in the following sequence of calculations:

a. Potential fermentation emissions from white wine production are first determined:

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

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

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

where,
C = grape crushing capacity = 10,368 tons/day
D_w = days in a white wine crush season = 120 days
M = amount of grape juice produced per ton of grapes crushed = 200 gallons
P = pressing capacity = 14,740 tons per day
W_{FW} = White fermentation period = 10 days
R_{TW} = Total winery retention time for white wine, 40 + 10 = 50 days
V_{FW} = total volume of white wine fermenters = 35,184,947 gallons
V_T = Total Winery Cooperage = 35,184,947 gallons

Potential white wine fermentation emissions are then determined by applying the white fermentation emission factor stated in FYI-114:

$PE_{whitefermentation} = E_{fw} \times W_W$

E_{fw} = white wine emission factor = 2.5 lb-VOC/1000 gal

Performing the above calculations yields

W1 = 248.832 MG/year (million gals/year)
W2 = 353.760 MG/year
W3 = 422.219 MG/year
W4 = 84.444 MG/year

Selecting W_W = W4 = 84.444 MG/year and applying the emission factor for white wine fermentation yields:

$PE_{whitefermentation}$ = 211,110 lb-VOC/year

b. Potential fermentation emissions from red wine production are then calculated:

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

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

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

C = grape crushing capacity= 10,368 tons/day
D_r = days in a red wine crush season = 120 days
F = Fill factor for red wine fermentation = 80%
M = amount of grape juice produced per ton of grapes crushed = 200 gallons
P = pressing capacity = 14,740 tons per day
R_{FR} = Red fermentation period = 5 days
R_{TS} = Total winery retention time for red wine, 40 + 5 = 45 days
V_{FR} = total volume of red wine fermenters = 35,184,947 gallons
V_T = Total Winery Cooperage = 35,184,947 gallons

Potential red wine fermentation emissions are then determined by applying the red fermentation emission factor stated above.

$PE_{redfermentation} = E_{fr} \times W/1,000$

E_{fr} = red wine emission factor = 6.2 lb-VOC/1000 gal (District Rule 4694)

Performing the above calculations yields

W1 = 248.832 MG/year (million gals/year)
W2 = 353.760 MG/year
W3 = 675.551 MG/year
W4 = 93.827 MG/year

Selecting W_R = W4 = 93.827 MG/year and applying the emission factor for red wine fermentation yields:

$PE_{redfermentation}$ = 581,724 lb-VOC/year

c. The facility's emission potentials for fermentation operations is then taken to be the greater of either the white or red emissions potentials determined above.

$PE1_{E(fermentation)}$ = greater of $PE_{whitefermentation}$ and $PE_{redfermentation}$
$PE1_{E(fermentation)} = PE_{redfermentation}$

$PE1_{E(fermentation)}$ = 581,724 lb-VOC/year

2. Annual potential emissions for fermentation operations from existing plus new tanks

a. Potential fermentation emissions from white wine production are first determined:

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

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

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

where,
C = grape crushing capacity = 10,368 tons/day
D_w = days in a white wine crush season = 120 days
M = amount of grape juice produced per ton of grapes crushed = 200 gallons
P = pressing capacity = 14,740 tons per day
W_{FW} = White fermentation period = 10 days
R_{TW} = Total winery retention time for white wine, 40 + 10 = 50 days
V_{FW} = total volume of white wine fermenters = 38,472,947 gallons
V_T = Total Winery Cooperage = 38,472,947 gallons

Potential white wine fermentation emissions are then determined by applying the white fermentation emission factor stated in FYI-114:

$PE_{whitefermentation} = E_{fw} \times W_W$

E_{fw} = white wine emission factor = 2.5 lb-VOC/1000 gal

Performing the above calculations yields

W1 = 248.832 MG/year (million gals/year)
W2 = 353.760 MG/year
W3 = 461.675 MG/year
W4 = 92.335 MG/year

Selecting W_W = W4 = 92.335 MG/year and applying the emission factor for white wine fermentation yields:

$PE_{whitefermentation}$ = 230,838 lb-VOC/year

b. Potential fermentation ernissions from red wine production are then calculated:

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

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

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

C = grape crushing capacity= 10,368 tons/day
D_r = days in a red wine crush season = 120 days
F = Fill factor for red wine fermentation = 80%
M = amount of grape juice produced per ton of grapes crushed = 200 gallons
P = pressing capacity = 14,740 tons per day
R_{FR} = Red fermentation period = 5 days
R_{TS} = Total winery retention time for red wine, 40 + 5 = 45 days
V_{FR} = total volume of red wine fermenters = 38,472,947 gallons
V_T = Total Winery Cooperage = 38,472,947 gallons

Potential red wine fermentation emissions are then determined by applying the red fermentation emission factor stated above.

$PE_{redfermentation}$ = E_{fr} x W/1,000

E_{fr} = red wine emission factor = 6.2 lb-VOC/1000 gal (District Rule 4694)

Performing the above calculations yields

W1 = 248.832 MG/year (million gals/year)
W2 = 353.760 MG/year
W3 = 738.681 MG/year
W4 = 102.595 MG/year

Selecting W_R = W4 = 102.595 MG/year and applying the emission factor for red wine fermentation yields:

$PE_{redfermentation}$ = 636,086 lb-VOC/year

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

$PE2_{T(fermentation)}$ = greater of $PE_{whitefermentation}$ and $PE_{redfermentation}$
$PE2_{T(fermentation)} = PE_{redfermentation}$

$PE2_{T(fermentation)}$ = 636,086 lb-VOC/year

3. $PE2_N$ for New Tanks

$PE2_N$ is calculated as the difference between the post project and pre project potential emissions based on physical capacity:

Potential Emissions (lb-VOC/year) Based on Physical Capacity of Wine Processing Equipment		
	Fermentation	Total
Pre Project	581,724	581,724
Post Project	636,086	636,086
$PE2_{N(Fermentation)}$		**54,362**

$PE1_{ALLTANKS(Fermentation)}$ = 581,724 lb-VOC/year

$PE2_{ALLTANKS(Fermentation)}$ = 636,086 lb-VOC/year

$PE2_{N(Fermentation)} = (PE2\text{-}PE1)_{ALLTANKS}$ = 54,362 lb-VOC/year

The storage tank emission units associated with this project are all new emission units. Post project, the storage emission units will be limited to 4,800 lb-VOC/year by an SLC. Therefore,

$PE2_{N(Storage)}$ = 4,800 lb-VOC/year

And,

$PE2_N = PE2_{N(Fermentation)} + PE2_{N(Storage)}$

$PE2_N$ = 54,362 + 4,800 = 59,162 lb-VOC/year

Since this project only involves new emissions units,

Historical Actual Emissions = HAE = 0 lb-VOC/year

Therefore,

PE – HAE = 59,162 lb-VOC/year

The emissions units within this project have a total potential to emit for VOC which is greater than SB 288 Major Modification thresholds (see table below). Therefore, SB 288 Major Modification calculation is required.

SB 288 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	59,162	50,000	Yes

SB 288 Major Modification Calculation

No other creditable emission decreases have occurred at this facility within the last 5 years. Therefore, the Net Emission Increase (NEI) is:

NEI = PE – HAE = 59,162 lb-VOC/year

Since 59,162 > 50,000, this project is an SB 288 Major Modification for VOC emissions.

8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not federal major modifications if they meet the criteria of the "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.

Significant Threshold (lb/year)	
Pollutant	Threshold (lb/year)
VOC	0

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.

Net Emission Increase for New Units (NEI_N)

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

$NEI_N = PE2_N - BAE$

Since these are new units, BAE for these units is zero and,

$NEI_N = PE2_N$

As established under Section VII.7 above,

$PE2_N$ = 59,162 lb/year

Thus,

$NEI_N = PE2_N$ = 59,162 lb-VOC/year

Net Emission Increase for Existing Units (NEI_E)

Tanks operating in a winery are not truly independent emissions units and thus their potential annual emissions must be established with consideration of all the other associated tanks in the facility. As calculated above, $PE2_N$, is determined as the difference between the post project and pre project potential emissions from the wine production operation based on the collective physical capacity of the processing equipment at the facility. $PE2_N$ thus represents the maximum potential increase in actual emissions resulting from this project. As well, this project will not cause any other debottlenecking of the facility's operations which would have the potential for additional emissions.

The NEI for this project is greater than the Federal Major Modification threshold of 0 lb-VOC/year. 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.

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 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

The applicant is proposing to install thirty three new wine fermentation and storage tanks with a PE greater than 2 lb/day for VOC. Thus BACT is triggered for VOC for these emissions units.

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

There are no emissions units being relocated from one stationary source to another, hence BACT is not triggered under this category.

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. Major Modification

As discussed in Section VII.C.7 above, this project does constitute a Major Modification for VOC emissions; therefore BACT is triggered for VOC for the new wine tanks.

2. BACT Guideline

BACT Guideline 5.4.14, applies to the wine fermentation tanks. [Wine Fermentation Tanks] (Appendix A)

BACT Guideline 5.4.13, applies to the wine storage tanks. [Wine Storage Tanks] (Appendix A)

3. Top-Down BACT Analysis

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

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

Fermentation

VOC: Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F.

Storage

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

B. Offsets

1. Offset Applicability

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

Facility emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, offsets are triggered.

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 Sections 4.7.1 and 4.7.3, 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) = (Σ[PE2 – BE] + ICCE) x 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

Offsets Required (lb/year) = ([415,302 lb/year – 410,502] + 0) x DOR
= 4,800 lb-VOC/year x DOR

Calculating the appropriate quarterly VOC emissions to be offset without the distance offset ratio is as follows:

	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
VOC	1,200	1,200	1,200	1,200	4,800

Pursuant to Section 4.8 of District Rule 2201, the distance offset ratio for VOC emissions shall be 1.5:1 for new major sources and federal major modifications. Since this project triggers a federal major modification, the District Rule 2201 DOR will be 1.5:1.

Using an offset distance ratio of 1.5:1, the amount of VOC ERC's that needs to be withdrawn is:

Offsets Required = 4,800 lb-VOC/year x 1.5
Offsets Required = 7,200 lb-VOC/year

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

	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
VOC	1,800	1,800	1,800	1,800	7,200

The applicant has stated that the facility plans to use ERC Certificates S-3471-1, S-3473-1, S-3691-1, and S-3571-1 to offset the increases in VOC emissions associated with this project. The above certificates have available quarterly VOC credits as follows:

Proposed ERC Certificates					
	1st Quarter (lb/qtr)	2nd Quarter (lb/qtr)	3rd Quarter (lb/qtr)	4th Quarter (lb/qtr)	Total (lb/year)
ERC # S-3471-1	3	3	3	3	12
ERC # S-3473-1	13	13	13	13	52
ERC # S-3691-1	125	125	125	125	500
ERC # S-3571-1	3,500	3,500	3,500	3,500	14,000
Total	3,641	3,641	3,641	3,641	14,564

Therefore, as seen above, the facility has sufficient credits to fully offset the quarterly amount of VOC emissions required for this project.

The following conditions will ensure compliance with the offset requirements of this rule:

- Prior to operating any piece of equipment under Authorities to Construct C-629-494-0 through '526-0, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter – 1,200 lb; 2nd quarter – 1,200 lb; 3rd quarter – 1,200 lb; and 4th quarter – 1,200 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201]
- ERC certificate numbers (or any splits from these certificates) S-3471-1, S-3473-1, S-3691-1, S-3571-1 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201]

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, this project is a SB 288 and Federal Major Modification for VOC; therefore, public noticing for SB 288 and Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. The applicant is proposing to install new wine fermentation and wine storage tanks with a PE greater than 100 lb/day. Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
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 perrnitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	∑PE2 (lb/year)	∑PE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
VOC	415,302	410,502	4,800	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 VOC emissions in excess of 100 lb/day and SB 288 and Federal Major Modification for VOC. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and US Environmental Protection Agency (US EPA) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

C-629-494-0 through '499-0:

- Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201]
- The maximum wine storage throughput in this tank shall not exceed 135,000 gallons per day. [District Rule 2201]

C-629-500-0 through '505-0:

- Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201]
- The maximum wine storage throughput in this tank shall not exceed 225,000 gallons per day. [District Rule 2201]

C-629-506-0 through '519-0:

- Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201]
- The maximum wine storage throughput in this tank shall not exceed 261,000 gallons per day. [District Rule 2201]

C-629-520-0 through '524-0:

- Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201]
- The maximum wine storage throughput in this tank shall not exceed 391,000 gallons per day. [District Rule 2201]

C-629-525-0 through '526-0:

- Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201]
- The maximum wine storage throughput in this tank shall not exceed 185,000 gallons per day. [District Rule 2201]

In addition, in order to enforce the applicant's proposed annual VOC limit for all wine fermentation and storage operations at this facility, the following conditions will be included on each of the wine storage tank ATCs within this project:

- The VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of fermentation throughput. [District Rule 2201]
- The VOC emissions for storage operations in this tank shall not exceed 0.49 lb/day per 1000 gallons of wine throughput. [District Rule 2201]
- Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 lb per year. [District Rule 2201]
- Total annual VOC emissions from wine fermentation operations shall be determined by the following formula: Total annual VOC emissions = (Total Annual Red Wine Production-gal) x (6.2 lb-VOC/1000 gal) + (Total Annual White Wine Production-gal) x (2.5 lb-VOC/1000 gal). [District Rule 2201]
- Combined annual VOC emissions from all storage operations under permit units C-629-494 through C-629-526 shall not exceed 4,800 pounds per year. [District Rule 2201]
- The annual VOC wine storage emission factor for each wine ethanol content shall be calculated using the following equation: EF = 1.705259 * P^1.090407; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. [District Rule 2201]
- Combined annual VOC emissions from wine storage operations under permit units C-629-494 through C-629-526 shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rule 2201]

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 offsets, public notification and daily emission limit requirements of Rule 2201. Recordkeeping is also required for winery tanks pursuant to District Rule 4694, *Wine Fermentation and Storage Tanks*. The following conditions will be placed on the permits:

- For each batch of must fermented in this tank, the operator shall record the fermentation completion date, the total gallons of must fermented, the average fermentation temperature and the uncontrolled fermentation emissions and fermentation emission reductions (calculated per the emission factors given in District Rule 4694). The information shall be recorded by the tank Permit to Operate number and by wine type, stated as either red wine or white wine. [District Rule 4694]
- Separate annual records each of total red wine and total white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury, shall be kept. [District Rules 2201 and 4694]
- When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201]
- When this tank is used for wine storage, the operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694]
- The permittee shall maintain records of the combined annual VOC emissions for permit units C-629-494 through C-629-526. [District Rule 2201]
- All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 2201 and 4694]

4. Reporting

No reporting is required to demonstrate compliance with 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 Appendix B 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 only a minimal increase in the winery's total tank volume and 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 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 Appendix C); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permit is issued.

Rule 4001 New Source Performance Standards (NSPS)

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

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

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

Rule 4102 Nuisance

Rule 4102 states that no air contaminant shall be released into the atmosphere which causes a public nuisance. Public nuisance conditions are not expected as a result of the proposed operations provided the equipment is well maintained. Therefore, the following condition will be listed on each permit to ensure compliance:

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

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – 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.

District Rule 4694 Wine Fermentation and Storage Tanks

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

Section 5.1 requires the winery operator achieve Required Annual Emissions Reductions (RAER) equal to at least 35% of the winery's Baseline Fermentation Emissions (BFE). Per the definition of RAER in Section 3.25 of the Rule, the RAER may be achieved by any combination of Fermentation Emission Reductions (FER), Certified Emission Reductions (CER) or District Obtained Emission Reductions (DOER) as established in the facility's District-approved Rule 4694 Compliance Plan, due every three years on December 1st beginning in 2006. The facility has submitted the required plan to the District and is currently satisfying the required emission reductions in the form of Certified Emission Reductions.

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

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

Therefore, the following conditions will be placed on the permit for each storage tank with capacity greater than 5,000 gallons and not constructed of concrete or wood to ensure compliance with the requirements of Section 5.2.1:

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

Section 5.2.2 requires that the temperature of the stored wine be maintained at or below 75 ^{o}F.

The following condition will be placed on the permit for each storage tank with capacity greater than 5,000 gallons and not constructed of concrete or wood to ensure compliance with the requirements of Section 5.2.2:

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

Every three years, Section 6.1 and 6.2 require the facility to submit a Three-Year Compliance Plan and a Three-Year Compliance Plan Verification respectively. Section 6.3 requires that an Annual Compliance Plan Demonstration be submitted to the District no later than February 1 of each year to show compliance with the applicable requirements of the Rule. Section 6.4 requires that records required by this rule be maintained, retained on-site for a minimum of five years, and made available to the APCO upon request. Section 6.4.3 requires that all monitoring be performed for

any Certified Emission Reductions as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained. The following conditions on the facility-wide permit (C-629-0-1) ensure compliance:

- A Three-Year Compliance Plan that demonstrates compliance with the requirements of Section 5.1 of District Rule 4694 for each year of the applicable compliance period shall be submitted to the District by no later than December 1, 2006, and every three years thereafter on or before December 1. [District Rule 4694]
- A Three-Year Compliance Plan Verification that demonstrates that the Three-Year Compliance Plan elements are in effect shall be submitted to the District by no later than July 1, 2007, and every three years thereafter on or before July 1. [District Rule 4694]
- An Annual Compliance Plan Demonstration that shows compliance with the applicable requirements of this rule shall be submitted to the District by no later than February 1, 2008, and every year thereafter on or before February 1. [District Rule 4694]
- Operators using CER to mitigate fermentation emissions shall perform all monitoring and recordkeeping, as established in their approved Three-Year Compliance Plan, and shall maintain all records necessary to demonstrate compliance. [District Rule 4694]
- The operator shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, or report. Support information includes copies of all reports required by the permit and, for continuous monitoring instrumentation, all calibration and maintenance records and all original strip-chart recordings [District Rule 2520, 9.4.2]

Section 6.4.1 requires that records be kept for each fermentation batch. The following condition will be placed on the ATC for each fermentation tank to ensure compliance:

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

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

- When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rule 4694]
- When this tank is used for wine storage, the operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine.[District Rule 4694]

Section 6.4.3 requires that all monitoring be performed for any Certified Emission Reductions as identified in the facility's Three-Year Compliance Plan and that the records of all monitoring be maintained. The following condition on the facility-wide permit (C-629-0-1) ensures compliance:

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

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is located within 1,000 feet of the following school:

School Name: Riverview Elementary School
Address: 8662 S. Lac Jac Avenue
Parlier, CA 93648

However, as discussed within this document and in the health risk assessment results in Attachment I, the proposed winery fermentation and storage tanks being installed in this project do not result in an increase in Hazardous Air Pollutant (HAP) emissions. Therefore, in accordance with the California Health and Safety Code, Section 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; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The County of Fresno (County) is the public agency having principal responsibility for approving the Project. As such, the County served as the Lead Agency for the project. Consistent with CEQA Guidelines §15070, a Mitigated Negative Declaration was prepared and certified by the County.

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

The District's engineering evaluation of the project (this document) demonstrates that compliance with District rules and permit conditions would reduce Stationary Source emissions from the project to levels below the District's thresholds of significance for criteria pollutants. Thus, the District concludes that through a combination of project design elements and permit conditions, project specific stationary source emissions will be reduced and mitigated to less than significant levels. The District has determined that no additional findings are required (CEQA Guidelines §15096(h)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct C-629-494-0 through '526-0 subject to the permit conditions on the attached draft Authorities to Construct in Appendix D.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-629-494-0	3020-05-C	45,500 gallons	$135.00
C-629-495-0	3020-05-C	45,500 gallons	$135.00
C-629-496-0	3020-05-C	45,500 gallons	$135.00
C-629-497-0	3020-05-C	45,500 gallons	$135.00
C-629-498-0	3020-05-C	45,500 gallons	$135.00
C-629-499-0	3020-05-C	45,500 gallons	$135.00
C-629-500-0	3020-05-D	75,500 gallons	$185.00
C-629-501-0	3020-05-D	75,500 gallons	$185.00
C-629-502-0	3020-05-D	75,500 gallons	$185.00
C-629-503-0	3020-05-D	75,500 gallons	$185.00
C-629-504-0	3020-05-D	75,500 gallons	$185.00
C-629-505-0	3020-05-D	75,500 gallons	$185.00
C-629-506-0	3020-05-D	87,500 gallons	$185.00
C-629-507-0	3020-05-D	87,500 gallons	$185.00
C-629-508-0	3020-05-D	87,500 gallons	$185.00
C-629-509-0	3020-05-D	87,500 gallons	$185.00

C-629-510-0	3020-05-D	87,500 gallons	$185.00
C-629-511-0	3020-05-D	87,500 gallons	$185.00
C-629-512-0	3020-05-D	87,500 gallons	$185.00
C-629-513-0	3020-05-D	87,500 gallons	$185.00
C-629-514-0	3020-05-D	87,500 gallons	$185.00
C-629-515-0	3020-05-D	87,500 gallons	$185.00
C-629-516-0	3020-05-D	87,500 gallons	$185.00
C-629-517-0	3020-05-D	87,500 gallons	$185.00
C-629-518-0	3020-05-D	87,500 gallons	$185.00
C-629-519-0	3020-05-D	87,500 gallons	$185.00
C-629-520-0	3020-05-E	250,500 gallons	$246.00
C-629-521-0	3020-05-E	250,500 gallons	$246.00
C-629-522-0	3020-05-E	250,500 gallons	$246.00
C-629-523-0	3020-05-E	250,500 gallons	$246.00
C-629-524-0	3020-05-E	250,500 gallons	$246.00
C-629-525-0	3020-05-D	65,000 gallons	$185.00
C-629-526-0	3020-05-D	65,000 gallons	$185.00

XI. Appendices

A: BACT Guidelines 5.4.13 and 5.4.14 and Top Down BACT Analyses
B: Compliance Certification
C: Certificate of Conformity
D: Draft ATCs

Appendix A

BACT Guidelines 5.4.13 and 5.4.14 and Top Down BACT Analyses

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.4.14*

Last Update 10/6/2009

Wine Fermentation Tank

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

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is 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 VOC Emissions:

Wine Fermentation

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.14, 4th quarter 2011, identifies achieved in practice BACT for wine fermentation tanks as follows:

1) Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F

The SJVUAPCD BACT Clearinghouse guideline 5.4.14, 4th quarter 2011, identifies technologically feasible BACT for wine fermentation tanks as follows:

1) Capture of VOCs and thermal oxidation or equivalent (88% control)
2) Capture of VOCs and carbon adsorption or equivalent (86% control)
3) Capture of VOCs and absorption or equivalent (81% control)
4) Capture of VOCs and condensation or equivalent (70% control)

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Rank by Control Effectiveness		
Rank	Control	Overall Capture and Control Efficiency[1]
1	Capture of VOCs and thermal or catalytic oxidation or equivalent	88%
2	Capture of VOCs and carbon adsorption or equivalent	86%
3	Capture of VOCs and absorption or equivalent	81%
4	Capture of VOCs and condensation or equivalent	70%
5	Ternperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F	0%

Step 4 - Cost Effectiveness Analysis

A cost-effective analysis is performed for each control technology which is more effective than meeting the requirements of District Rule 4694 plus temperature-controlled open top tank with maximum average fermentation temperature of 95 deg F (achieved-in-practice BACT), as proposed by the applicant.

[1] Relative to "industry standard".

Maximum Vapor Flow Rate

Per the Eichleay Engineers "Fermenter VOC Emissions Control Cost Estimate" report prepared for The Wine Institute dated June 30, 2005, the following is the fermenter vapor rate assuming a simple stoichiometric kinetic model for sugar fermentation and ethanol-water vapor-liquid equilibrium. Note this assumes a beginning sugar concentration of 20 grams/100 mL and ending concentration of 2 grams/100 mL.

Fermenter Vent Calculation Results		
Fermentation Temperature (°F)	Fermentation Cycle (hours)	Peak Vapor Rate (scfm/1000 gal wine)
75	57	5.06
80	37	7.18
85	25	9.75

The fermentation tanks in this project can reach up to 95 °F per BACT Guideline 5.4.14 Achieved in Practice option. Therefore, the peak vapor rate at a fermentation temperature of 85 °F will be utilized as a conservative assumption.

Daily Fermentation throughput = 3,288,000 gallons/day

Daily Peak Vapor Rate = 3,288,000 gal/day x 9.75 scfm/1000 gal = 32,058 scfm per day

Collection System Capital Investment (based on ductwork)

A common feature of all thermal or catalytic oxidation/carbon adsorption/absorption or condensation options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. The analysis below indicates that these options are not cost effective by showing that just the annualized direct cost for the ductwork of the collection system and supporting structural steel and foundations and the control devices themselves is too large, when considered at the District's cost effectiveness threshold for VOC BACT, to justify the capital investment required by these options.

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 thirty three 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 2293 feet (based on a thirty three tank layout, 10 feet spacing between tanks, 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 thirty three tanks.

6" Stainless Steel Duct: 1507.5 linear feet
12" Stainless Steel Duct: 785.5 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

Installed costs = ($61.30 linear foot x 1507.5 feet) + ($143.80 linear foot x 785.5 feet) = $205,365

Adjusting from 2005 dollars to 2011 dollars (multiply by 1.165, 2.75% inflation/yr).

Installed costs = $205,365 x 1.165 = $239,250

Duct Valve Allowance

One of the major concerns of a manifold duct system is microorganisms spoiling the wine, and transferring from one tank to another. It is possible to completely ruin a tank of white wine if a few hundred gallons of red wine were back fed through the duct. It is necessary to design into the system a positive disconnect of the ducting system when the tanks are not being filled. There are a number of ways this can be done. In this case, an automatic butterfly valve with a physical spool to disconnect the tank from the duct will be utilized.

Unit installed cost for 6 inch butterfly valve = $2,125/valve
Unit installed cost one foot removable spool = $500/tank

Installed costs = ($2,125/valve x 33 tanks) + ($500/tank x 33 tanks) = $86,625

Clean-In-Place (CIP) System

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

An allowance of $200,000 for a CIP system is included in the evaluation. Per applicant, this value is consistent with typical bottling systems.

Installed costs = $200,000

Total costs = Ductwork + Duct Valve + CIP System
= $239,250 + $86,625 + $200,000
= $525,875

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $525,875 x 0.163 = $85,584

Capture of VOCs and condensation

Design Basis

- A common refrigeration system will be installed for all thirty three tanks.
- The refrigeration system will be a packaged single-stage vapor-compression system.
- Minimum refrigeration capacity will allow cooling each of the thirty three tanks from 75 °F to 40 °F in 24 hours.

Based on a specific heat capacity of 1.0 Btu/lb-°F and cooling each tank from 75 °F top 40 °F in 24 hours, the capacity required for the refrigeration system would be:

Refrigeration Capacity = 3,288,000 gal/day x 8.34 lb/gal x 1.0 Btu/lb-°F x (75 °F – 40 °F) x (day/24 hours) x (1 ton-hr refrigeration/12,000 Btu)

Refrigeration Capacity = 3,332.5 tons

Capital Cost

The EPA Air Pollution Control Manual, Section 3, Chapter 2, Table 2.5, provides costs for single stage vapor compression systems at a condensation temperature of 40 °F. Conservatively, using the purchase price for a 1,306 ton unit yields:

Refrigeration System Cost = $1,027,200 (1990 Cost)

Adjusting from 1990 dollars to 2011 dollars (multiply by 1.58, 2.75% inflation/yr).

Refrigeration System Cost capital cost = $1,027,200 x 1.58 = $1,620,408

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $1,620,408 x 0.163 = $263,714

To compare the cost and size of a 1,306 ton condenser to the subject 3,332.5 ton condenser, the six-tenths rule of thumb is used.

$$Annualized\,Costs\ 3{,}332.5\,ton = Annualized\ Costs\ 1306\,ton \times \left(\frac{3{,}332.5\,ton}{1306\,ton}\right)^{0.6}$$

Annualized Costs 3,332.5 ton = $263,714 x (3,332.5 ÷ 1306)$^{0.6}$
= $462,625/year

Total Annual Cost = $85,584 + $462,625 = $548,209

Annual Emission Reduction = Uncontrolled Emissions x 0.70
= 54,362 lb-VOC/year x 0.70
= 38,053 lb-VOC/year
= 19.03 tons-VOC/year

Cost Effectiveness = $548,209/year ÷ 19.03 tons-VOC/year
= $28,808/ton-VOC

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.

Collection of VOCs and control by absorption

One scrubber will be required sized at the maximum vapor flow rate of 32,058 scfm.

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

Adjusting from 2003 dollars to 2011 dollars (multiply by 1.22, 2.75% inflation/yr).

Water scrubber (750 cfm) capital cost = $108,500 x 1.22 = $132,370

$$Capital\ Cost\ 32{,}058\,cfm = Capital\ Cost\ 750\,cfm \times \left(\frac{32{,}058\,cfm}{750\,cfm}\right)^{0.6}$$

Capital Cost 32,058 cfm = $132,370 x (32,058 ÷ 750)$^{0.6}$
= $1,259,838

The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).

Water Scrubber – Cost Estimate	
Cost Description	Cost ($)
Direct Costs (DC)	
Base Equipment Costs (Water Scrubber)	1,259,838
Instrumentation	0.10 x 1,259,838 = 125,934
Sales Tax	0.03 x 1,259,838 = 37,795
Freight	0.05 x 1,259,838 = 62,992
Purchased equipment cost	**1,486,559**
Foundations & supports	0.08 x 1,486,559 = 118,925
Handling & erection	0.14 x 1,486,559 = 208,118
Electrical	0.04 x 1,486,559 = 59,462
Piping	0.02 x 1,486,559 = 29,731
Painting	0.01 x 1,486,559 = 14,866
Insulation	0.01 x 1,486,559 = 14,866
Direct installation costs	**445,968**
Total Direct Costs	**1,932,527**

Indirect Costs (IC)	
Engineering	0.10 x 1,486,559 = 148,656
Construction and field expenses	0.05 x 1,486,559 = 74,328
Contractor fees	0.10 x 1,486,559 = 148,656
Start-up	0.02 x 1,486,559 = 29,731
Performance test	0.01 x 1,486,559 = 14,866
Contingencies	0.03 x 1,486,559 = 44,597
Total Indirect Costs	**460,834**
Total Capital Cost (DC + IC)	**2,393,361**

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $2,393,361 x 0.163 = $389,508

Additionally, the water scrubber will generate ethanol-laden wastewater containing 24.463 tons-ethanol annually. Assuming a 2% solution, approximately 369,532 gallons of waste water (24.463 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.

Annual disposal costs = 369,532 gallons x $0.25/gallon = $92,383

Total Annual Cost = $85,584 + $389,508 + $92,383 = $567,475

Annual Emission Reduction = Uncontrolled Emissions x 0.90
= 54,362 lb-VOC/year x 0.90
= 48,926 lb-VOC/year
= 24.463 tons-VOC/year

Cost Effectiveness = $567,475/year ÷ 24.463 tons-VOC/year
= $23,197/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required water scrubber, wastewater disposal costs, and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC.

Collection of VOCs and control by carbon adsorption

Annual Emission Reduction = Uncontrolled Emissions x 0.86
= 54,362 lb-VOC/year x 0.86
= 46,751 lb-VOC/year
= 23.376 tons-VOC/year

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

Carbon required = 23.376 tons-VOC/year x 2000 lb/ton x 1/0.20
= 233,757 lb carbon

Carbon capital cost = $1.00/lb = $1.00/lb x 233,757 lb carbon = $233,757

The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).

Carbon Adsorption – Cost Estimate	
Cost Description	Cost ($)
Direct Costs (DC)	
Base Equipment Costs (Carbon Material)	233,757
Instrumentation	0.10 x 233,757 = 23,376
Sales Tax	0.03 x 233,757 = 7,013
Freight	0.05 x 233,757 = 11,688
Purchased equipment cost	**275,834**
Foundations & supports	0.08 x 275,834 = 22,067
Handling & erection	0.14 x 275,834 = 38,617
Electrical	0.04 x 275,834 = 11,033
Piping	0.02 x 275,834 = 5,517
Painting	0.01 x 275,834 = 2,758
Insulation	0.01 x 275,834 = 2,758
Direct installation costs	**82,750**
Total Direct Costs	**358,584**

Indirect Costs (IC)	
Engineering	0.10 x 275,834 = 27,583
Construction and field expenses	0.05 x 275,834 = 13,792
Contractor fees	0.10 x 275,834 = 27,583
Start-up	0.02 x 275,834 = 5,517
Performance test	0.01 x 275,834 = 2,758
Contingencies	0.03 x 275,834 = 8,275
Total Indirect Costs	**85,508**
Total Capital Cost (DC + IC)	**444,092**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $444,092 x 0.163 = $72,274

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 233,757 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 30 times per year (233,757 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:

Service Cost = Occurrence (service/year) x Cost ($/service)
Service Cost = 30 services/year x $8,720 /service = $261,600/year

Total Annual Cost = $85,584 + $72,274 + $261,600 = $419,458/year

Cost Effectiveness = $419,458/year ÷ 23.376 tons-VOC/year
= $17,944/ton-VOC

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.

Collection of VOCs and control by thermal or catalytic oxidation

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

$C_2H_5OH + 3O_2 \rightarrow 3H_2O + 2CO_2$

One thermal oxidizer will be required sized at the maximum vapor flow rate of 32,058 scfm.

Regenerative thermal oxidizer (5,700 cfm) capital cost = $279,000 (2005 dollars)

Adjusting from 2005 dollars to 2011 dollars (multiply by 1.165, 2.75% inflation/yr).

Regenerative thermal oxidizer (5,700 cfm) capital cost = $279,000 x 1.165 = $325,035

$$Capital\ Cost\ 32{,}058\,cfm = Capital\ Cost\ 5700\,cfm \times \left(\frac{32{,}058\,cfm}{5700\,cfm}\right)^{0.6}$$

Capital Cost 32,058 cfm = $325,035 x (32,058 ÷ 5700)$^{0.6}$
= $916,151

Operation and Maintenance Costs

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

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

heat of combustion -dHc = 20276 Btu/lb
Daily VOC emissions rate = 11,534.1 lb/day
Blower flow rate = 32.058 scfm
= 46,163,520 ft^3/day

-dh(c) = 11,534.1 lb/day x 20276 Btu/lb / 46,163,520 ft^3/day
= 5.067 Btu/ft^3

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:

$$-dh(c) = 5.067 \text{ Btu/ft}^3 / 0.0739 \text{ lb/ft}^3$$
$$= 68.567 \text{ Btu/lb}$$

Fuel Flow Requirement

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

Where

Pw	=	0.0739 lb/ft^3
Cp	=	0.255 Btu/lb-°F
Qw	=	32,058 scfm
-dh(m)	=	21,502 Btu/lb for methane
Tr	=	77°F assume ambient conditions
P(ef)	=	0.0408 lb/ft^3 m, methane at 77°F, 1 atm
Tf	=	1600°F
Tw	=	1150°F
-dh(c)	=	68.567 Btu/lb

$$Q = \frac{0.0739*32{,}058*\{0.255*[1.1*1600-1150-0.1*77]-68.567\}}{0.0408*[21502 - 1.1*0.255*(1600 - 77)]}$$

$$= 201418.5/859.9 = 234.23 \text{ ft}^3/\text{min}$$

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 2007 and 2008.[2]

2007 = $10.20/thousand ft^3 total monthly average
2008 = $11.72/thousand ft^3 total monthly average
Average for two years = $10.96/thousand ft^3 total monthly average

Assumptions:
1 therm = 100,000 Btus
1,000 ft^3 = 10 therms
Average Rate = $1.96/therm = $0.0110/ft^3

Fuel Cost = 234.23 cfm x 1440 min/day x 365 day/yr x $0.0110/ft^3
= $1,354,252/yr

[2] Energy Information Administration/Natural Gas Monthly October 2009; Average Price of Natural Gas Sold to Commercial Consumers by State, 2007 - 2008

Electricity Requirement

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

Where

ΔP = Pressure drop Across system = 4 in. H_2O
$\in$ = Efficiency for fan and motor = 0.6
Qw = 32,058 scfm

$$\text{Power}_{fan} = \frac{1.17*10^{-4}*32{,}058\ cfm*\ 4\ in.\ H_2O}{0.60}$$

$$= 25.0\ kW$$

Average cost of electricity to commercial users in California [3]:
2008 = $0.1302
2009 = $0.1385
AVG = $0.1344

Electricity Cost = 25.0 kW x 24 hr/day x 365 days/yr x $0.1344/kWh = $29,440/yr

The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).

[3] Energy Information Administration/Electric Power Monthly November 2009; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, 2007 - 2009

Thermal and Catalytic Incinerator – Cost Estimate	
Cost Description	Cost ($)
Direct Costs (DC)	
Base Equipment Costs (Incinerator)	916,151
Instrumentation	0.10 x 916,151 = 91,615
Sales Tax	0.03 x 916,151 = 27,485
Freight	0.05 x 916,151 = 45,808
Purchased equipment cost	**1,081,059**
Foundations & supports	0.08 x 1,081,059 = 86,485
Handling & erection	0.14 x 1,081,059 = 151,348
Electrical	0.04 x 1,081,059 = 43,242
Piping	0.02 x 1,081,059 = 21,621
Painting	0.01 x 1,081,059 = 10,811
Insulation	0.01 x 1,081,059 = 10,811
Direct installation costs	**324,318**
Total Direct Costs	**1,405,377**
Indirect Costs (IC)	
Engineering	0.10 x 1,081,059 = 108,106
Construction and field expenses	0.05 x 1,081,059 = 54,053
Contractor fees	0.10 x 1,081,059 = 108,106
Start-up	0.02 x 1,081,059 = 21,621
Performance test	0.01 x 1,081,059 = 10,811
Contingencies	0.03 x 1,081,059 = 32,432
Total Indirect Costs	**335,129**
Total Capital Cost (DC + IC)	**1,740,506**

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $1,740,506 x 0.163 = $283,259

Total Annual Cost			
Operator	0.5 h/shift	$25.92/h	$4,730
Supervisor	15% of operator		$710
Maintenance			
Labor	0.5 h/shift	$28.52	$5,205
Material	100% of labor		$5,205
Utility			
Natural Gas			$1,354,252
Electricity			$29,440
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost		$6,387
Administrative Charge	2% TCI		$5,665
Property Taxes	1% TCI		$2,833
Insurance	1% TCI		$2,833
Total Annual Cost			**$1,417,260**

Total Annual Costs = $85,584 + $283,259 + $1,417,260 = $1,786,103/year

Annual Emission Reduction = Uncontrolled Emissions x 0.88
= 54,362 lb-VOC/year x 0.88
= 47,839 lb-VOC/year
= 23.9195 tons-VOC/year

Cost Effectiveness = $1,786,103/year ÷ 23.9195 tons-VOC/year
= $74,671/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required thermal oxidizer, utilities, and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC.

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, temperature-controlled open top tank with maximum average fermentation temperature of 95 deg F. These BACT requirements will be placed on the ATCs as enforceable conditions.

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 5.4.13*

Last Update 10/6/2009

Wine Storage Tank

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

**Tanks made of heat-conducting materials such as stainless steel may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure ot diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete and wood (except for fittings) are considered self-insulating.

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

Wine Storage

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 4th quarter 2011, identifies achieved in practice BACT for wine storage tanks as follows:

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

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 4th quarter 2011, identifies technologically feasible BACT for wine storage tanks as follows:

5) Capture of VOCs and thermal or catalytic oxidation or equivalent (98% control)
6) Capture of VOCs and carbon adsorption or equivalent (95% control)
7) Capture of VOCs and absorption or equivalent (90% control)
8) Capture of VOCs and condensation or equivalent (70% control)

***Tanks made of heat-conducting materials such as stainless steel may be insulated or stored indoors (in a completely enclosed building, except for vents, doors and other essential openings) to limit exposure to diurnal temperature variations. Tanks made entirely of non-conducting materials such as concrete and wood (except for fittings) are considered self-insulating.*

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[4]
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	0%

[4] Relative to "industry standard".

Step 4 - Cost Effectiveness Analysis

A cost-effective analysis is performed for each control technology which is more effective than meeting the requirements of District Rule 4694 plus tank insulation (achieved-in-practice BACT), as proposed by the applicant.

Maximum Vapor Flow Rate

The following calculation only examines working losses from the tanks and is therefore conservative. The daily emission rates are based on one turnover per day for each tank. The means each tank is filled for 12 hours and emptied for 12 hours. This fill rate is conservative as shown in the calculation below. Typical pumps utilized are rated at 20 hp.

Flow rate from a 50 hp pump:

Motor efficiency 90%
Pump Efficiency 60%
Differential pressure at pump = 10 psi (assume psi dynamic losses in piping plus 5 psi for static head difference on average)
Brake horsepower for a centrifugal pump may be calculated by the following equation.

$$BHP = \frac{\text{Differential Pressure (psi)} \times \text{gallons per minute}}{1{,}713 \times \text{Efficiency}}$$

BHP for a 20 hp motor = 20 hp x 90% = 18 bhp

Solving for the flow in gallons per minute (GPM),

GPM = (18 x 1,713 x 60%)/(10) = 1,850 gpm

250,500 gallons x min/1,850 gallons x 1 hr/60 min = 2.26 hours

Therefore, assuming a 12 hour fill rate is conservative.

Moles of air displaced = 250,500 gallons x ft^3/7.48 gallons x 0.07544 lb-air/ft^3 x lb/mol/28.58 lb
= 88.4 lb-mol air

Tanks Wine emissions = 191.6 lb

Moles Wine = 191.6 lb x lb-mol/26.9559 lb = 7.1 lb-mol

Total moles = (88.4 + 7.1) lb-mol = 95.5 lb-mol

V = nRT/P = 95.5 lb-mol x 0.7302 lb-mol °R/atm ft^3 x 520 °R / 1 atm
= 36,261.7 ft^3

Vapor Flow Rate = 36,261.7 ft^3 ÷ 12 hours x 1 hour/60 min = 50.4 scfm

If a control device is sized at this value it would be undersized. The flow rate for filling one tank is 250,500 gallon ÷ 12 hours = 20,875 gph. In a group of 33 tanks it is likely that one tank will not be filled at 50.4 scfm, but about eight tanks (25% of the total) could be filled at a more typical rate of 25,000 gph. Eight tanks filling at 25,000 gph each would be a total fill rate of 200,000 gph. Therefore, a control device should be sized approximately nine times 50.4 scfm or 453.6 scfm.

Collection System Capital Investment (based on ductwork)

A common feature of all thermal or catalytic oxidation/carbon adsorption/absorption or condensation options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. The analysis below indicates that these options are not cost effective by showing that just the annualized direct cost for the ductwork of the collection system and supporting structural steel and foundations and the control devices themselves is too large, when considered at the District's cost effectiveness threshold for VOC BACT, to justify the capital investment required by these options.

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 thirty three 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 2293 feet (based on a thirty three tank layout, 10 feet spacing between tanks, 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 thirty three tanks.

6" Stainless Steel Duct:	1507.5 linear feet
12" Stainless Steel Duct:	785.5 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

Installed costs = ($61.30 linear foot x 1507.5 feet) + ($143.80 linear foot x 785.5 feet) = $205,365

Adjusting from 2005 dollars to 2011 dollars (multiply by 1.165, 2.75% inflation/yr).

Installed costs = $205,365 x 1.165 = $239,250

Duct Valve Allowance

One of the major concerns of a manifold duct system is microorganisms spoiling the wine, and transferring from one tank to another. It is possible to completely ruin a tank of white wine if a few hundred gallons of red wine were back fed through the duct. It is necessary to design into the system a positive disconnect of the ducting system when the tanks are not being filled. There are a number of ways this can be done. In this case, an automatic butterfly valve with a physical spool to disconnect the tank from the duct will be utilized.

Unit installed cost for 6 inch butterfly valve = $2,125/valve
Unit installed cost one foot removable spool = $500/tank

Installed costs = ($2,125/valve x 33 tanks) + ($500/tank x 33 tanks) = $86,625

Clean-In-Place (CIP) System

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

An allowance of $200,000 for a CIP system is included in the evaluation. Per applicant, this value is consistent with typical bottling systems.

Installed costs = $200,000

Total costs = Ductwork + Duct Valve + CIP System
= $239,250 + $86,625 + $200,000
= $525,875

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $525,875 x 0.163 = $85,584

Capture of VOCs and condensation

Design Basis

- A common refrigeration system will be installed for all thirty three tanks.
- The refrigeration system will be a packaged single-stage vapor-compression system.
- Minimum refrigeration capacity will allow cooling each of the thirty three tanks from 75 °F to 40 °F in 24 hours.

Based on a specific heat capacity of 1.0 Btu/lb-°F and cooling each tank from 75 °F top 40 °F in 24 hours, the capacity required for the refrigeration system would be:

Refrigeration Capacity = 8,139,000 gal/day x 8.34 lb/gal x 1.0 Btu/lb-°F x (75 °F – 40 °F) x (day/24 hours) x (1 ton-hr refrigeration/12,000 Btu)

Refrigeration Capacity = 8,249 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:

Refrigeration System Cost = $140,000

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $140,000 x 0.163 = $22,820

To compare the cost and size of a 100 ton condenser to the subject 8,249 ton condenser, the six-tenths rule of thumb is used.

$$Annualized\ Costs\ 8{,}249\,ton = Annualized\ Costs\ 100\,ton \times \left(\frac{8{,}249\,ton}{100\,ton}\right)^{0.6}$$

Annualized Costs 8,249 ton = \$22,820 x $(8{,}249 \div 100)^{0.6}$
= \$322,223/year

Total Annual Cost = \$85,584 + \$322,223 = \$407,807

Annual Emission Reduction = Uncontrolled Emissions x 0.70
= 4,800 lb-VOC/year x 0.70
= 3,360 lb-VOC/year
= 1.68 tons-VOC/year

Cost Effectiveness = \$407,807/year ÷ 1.68 tons-VOC/year
= \$242,742/ton-VOC

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.

Collection of VOCs and control by absorption

One scrubber will be required sized at the maximum vapor flow rate of 453.6 scfm.

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

Adjusting from 2003 dollars to 2011 dollars (multiply by 1.22, 2.75% inflation/yr).

Water scrubber (750 cfm) capital cost = \$108,500 x 1.22 = \$132,370

$$Capital\ Cost\ 453.6\,cfm = Capital\ Cost\ 750\,cfm \times \left(\frac{453.6\,cfm}{750\,cfm}\right)^{0.6}$$

Capital Cost 453.6 cfm = \$132,370 x $(453.6 \div 750)^{0.6}$
= \$102,032

The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).

Water Scrubber – Cost Estimate	
Cost Description	Cost ($)
Direct Costs (DC)	
Base Equipment Costs (Water Scrubber)	102,032
Instrumentation	0.10 x 102,032 = 10,203
Sales Tax	0.03 x 102,032 = 3,061
Freight	0.05 x 102,032 = 5,102
Purchased equipment cost	**120,398**
Foundations & supports	0.08 x 120,398 = 9,632
Handling & erection	0.14 x 120,398 = 16,856
Electrical	0.04 x 120,398 = 4,816
Piping	0.02 x 120,398 = 2,408
Painting	0.01 x 120,398 = 1,204
Insulation	0.01 x 120,398 = 1,204
Direct installation costs	**36,120**
Total Direct Costs	**156,518**
Indirect Costs (IC)	
Engineering	0.10 x 120,398 = 12,040
Construction and field expenses	0.05 x 120,398 = 6,020
Contractor fees	0.10 x 120,398 = 12,040
Start-up	0.02 x 120,398 = 2,408
Performance test	0.01 x 120,398 = 1,204
Contingencies	0.03 x 120,398 = 3,612
Total Indirect Costs	**37,324**
Total Capital Cost (DC + IC)	**193,842**

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $193,842 x 0.163 = $31,547

Additionally, the water scrubber will generate ethanol-laden wastewater containing 2.16 tons-ethanol annually. Assuming a 2% solution, approximately 32,628 gallons of waste water (2.16 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.

Annual disposal costs = 32,628 gallons x $0.25/gallon = $8,157

Total Annual Cost = $85,584 + $31,547 + $8,157 = $125,288

Annual Emission Reduction = Uncontrolled Emissions x 0.90
= 4,800 lb-VOC/year x 0.90
= 4,320 lb-VOC/year
= 2.16 tons-VOC/year

Cost Effectiveness = $125,288/year ÷ 2.16 tons-VOC/year
= $58,004/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required water scrubber, wastewater disposal costs, and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC.

Collection of VOCs and control by carbon adsorption

Annual Emission Reduction = Uncontrolled Emissions x 0.95
= 4,800 lb-VOC/year x 0.95
= 4,560 lb-VOC/year
= 2.28 tons-VOC/year

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

Carbon required = 2.28 tons-VOC/year x 2000 lb/ton x 1/0.20
= 22,800 lb carbon

Carbon capital cost = $1.00/lb = $1.00/lb x 22,800 lb carbon = $22,800

The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).

Carbon Adsorption – Cost Estimate	
Cost Description	Cost ($)
Direct Costs (DC)	
Base Equipment Costs (Carbon Material)	22,800
Instrumentation	0.10 x 22,800 = 2,280
Sales Tax	0.03 x 22,800 = 684
Freight	0.05 x 22,800 = 1,140
Purchased equipment cost	**26,904**
Foundations & supports	0.08 x 26,904 = 2152
Handling & erection	0.14 x 26,904 = 3767
Electrical	0.04 x 26,904 = 1076
Piping	0.02 x 26,904 = 538
Painting	0.01 x 26,904 = 269
Insulation	0.01 x 26,904 = 269
Direct installation costs	**8,071**
Total Direct Costs	**34,975**
Indirect Costs (IC)	
Engineering	0.10 x 26,904 = 2,690
Construction and field expenses	0.05 x 26,904 = 1,345
Contractor fees	0.10 x 26,904 = 2,690
Start-up	0.02 x 26,904 = 538
Performance test	0.01 x 26,904 = 269
Contingencies	0.03 x 26,904 = 807
Total Indirect Costs	**8,339**
Total Capital Cost (DC + IC)	**43,314**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $43,314 x 0.163 = $7,049

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 22,800 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 three times per year (22,800 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:

Service Cost = Occurrence (service/year) x Cost ($/service)
Service Cost = 3 services/year x $8,720 /service = $26,160/year

Total Annual Cost = $85,584 + $7,049 + $26,160 = $118,793/year

Cost Effectiveness = $118,793/year ÷ 2.28 tons-VOC/year
= $52,102/ton-VOC

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.

Collection of VOCs and control by thermal or catalytic oxidation

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

$C_2H_5OH + 3O_2 \rightarrow 3H_2O + 2CO_2$

One thermal oxidizer will be required sized at the maximum vapor flow rate of 453.6 scfm.

Regenerative thermal oxidizer (5,700 cfm) capital cost = $279,000 (2005 dollars)

Adjusting from 2005 dollars to 2011 dollars (multiply by 1.165, 2.75% inflation/yr).

Regenerative thermal oxidizer (5,700 cfm) capital cost = $279,000 x 1.165 = $325,035

$$Capital\ Cost\ 453.6\,cfm = Capital\ Cost\ 5700\,cfm \times \left(\frac{453.6\,cfm}{5700\,cfm}\right)^{0.6}$$

Capital Cost 453.6 cfm = $325,035 x $(453.6 \div 5700)^{0.6}$
= $71,188

Operation and Maintenance Costs

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

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

heat of combustion -dHc = 20276 Btu/lb
Daily VOC emissions rate = 4800 lb/year ÷ 365 = 13.15 lb/day
Blower flow rate = 453.6 scfm
= 653,184 ft^3/day

-dh(c) = 13.15 lb/day x 20276 Btu/lb / 653,184 ft^3/day
= 0.408 Btu/ft^3

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:

-dh(c) = 0.408 Btu/ft^3 / 0.0739 lb/ft^3
= 5.52 Btu/lb

Fuel Flow Requirement

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

Where
- Pw = 0.0739 lb/ft^3
- Cp = 0.255 Btu/lb-°F
- Qw = 453.6 scfm
- -dh(m) = 21,502 Btu/lb for methane
- Tr = 77°F assume ambient conditions
- P(ef) = 0.0408 lb/ft^3 m, methane at 77°F, 1 atm
- Tf = 1600°F
- Tw = 1150°F
- -dh(c) = 5.52 Btu/lb

$$Q = \frac{0.0739*453.6*\{0.255*[1.1*1600-1150-0.1*77]-5.52\}}{0.0408*[21502 - 1.1*0.255*(1600 - 77)]}$$

$$= 4963.34/859.9 = 5.77\ ft^3/min$$

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 2007 and 2008.[5]

2007 = $10.20/thousand ft^3 total monthly average
2008 = $11.72/thousand ft^3 total monthly average
Average for two years = $10.96/thousand ft^3 total monthly average

Assumptions:
- 1 therm = 100,000 Btus
- 1,000 ft^3 = 10 therms
- Average Rate = $1.96/therm = $0.0110/ft^3

Fuel Cost = 5.77 cfm x 1440 min/day x 365 day/yr x $0.0110/ft^3
= $33,371/yr

[5] Energy Information Administration/Natural Gas Monthly October 2009; Average Price of Natural Gas Sold to Commercial Consumers by State, 2007 - 2008

Electricity Requirement

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

Where

ΔP = Pressure drop Across system = 4 in. H_2O
ϵ = Efficiency for fan and motor = 0.6
Qw = 453.6 scfm

$$\text{Power}_{fan} = \frac{1.17*10^{-4}\ *453.6\ cfm*\ 4\ in.\ H_2O}{0.60}$$

$$= 0.354\ kW$$

Average cost of electricity to commercial users in California [6]:

2008 = $0.1302
2009 = $0.1385
AVG = $0.1344

Electricity Cost = 0.354 kW x 24 hr/day x 365 days/yr x $0.1344/kWh = $417/yr

The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).

[6] Energy Information Administration/Electric Power Monthly November 2009; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, 2007 - 2009

Thermal and Catalytic Incinerator – Cost Estimate	
Cost Description	Cost ($)
Direct Costs (DC)	
Base Equipment Costs (Incinerator)	71,188
Instrumentation	0.10 x 71,188 = 7,119
Sales Tax	0.03 x 71,188 = 2,136
Freight	0.05 x 71,188 = 3,559
Purchased equipment cost	**84,002**
Foundations & supports	0.08 x 84,002 = 6,720
Handling & erection	0.14 x 84,002 = 11,760
Electrical	0.04 x 84,002 = 3,360
Piping	0.02 x 84,002 = 1,680
Painting	0.01 x 84,002 = 840
Insulation	0.01 x 84,002 = 840
Direct installation costs	**25,200**
Total Direct Costs	**109,202**
Indirect Costs (IC)	
Engineering	0.10 x 84,002 = 8,400
Construction and field expenses	0.05 x 84,002 = 4,200
Contractor fees	0.10 x 84,002 = 8,400
Start-up	0.02 x 84,002 = 1,680
Performance test	0.01 x 84,002 = 840
Contingencies	0.03 x 84,002 = 2,520
Total Indirect Costs	**26,040**
Total Capital Cost (DC + IC)	**135,242**

Annualized Capital Investment = Total Capital Cost x Amortization Factor

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

Therefore,

Annualized Capital Investment = $135,242 x 0.163 = $22,010

Total Annual Cost			
Operator	0.5 h/shift	$25.92/h	$4,730
Supervisor	15% of operator		$710
Maintenance			
Labor	0.5 h/shift	$28.52	$5,205
Material	100% of labor		$5,205
Utility			
Natural Gas			$33,371
Electricity			$417
Indirect Annual Cost (IC)			
Overhead	60% of Labor Cost		$6,387
Administrative Charge	2% TCI		$440
Property Taxes	1% TCI		$220
Insurance	1% TCI		$220
Total Annual Cost			**$56,905**

Total Annual Costs = $85,584 + $22,010 + $56,905 = $164,499/year

Annual Emission Reduction = Uncontrolled Emissions x 0.98
= 4,800 lb-VOC/year x 0.98
= 4,704 lb-VOC/year
= 2.352 tons-VOC/year

Cost Effectiveness = $164,499/year ÷ 2.352 tons-VOC/year
= $69,940/ton-VOC

The analysis demonstrates that the annualized purchase cost of the required thermal oxidizer, utilities, and collection system ductwork equipment alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC.

Step 5 - Select BACT

All identified feasible options with control efficiencies higher than the option proposed by the facility have been shown to not be cost effective. The facility has proposed Option 1, insulated tank, pressure/vacuum valve set within 10% of the maximum allowable working pressure of the tank, "gas tight" tank operation and achieve and maintain a continuous storage temperature not exceeding 75 °F within 60 days of completion of fermentation. These BACT requirements will be placed on the ATCs as enforceable conditions.

Appendix B

Compliance Certification

O'NEILL
VINTNERS & DISTILLERS

November 16, 2011

Via [Email and U.S. Mail, return receipt requested, or overnight mail]

Mr. Stanley Tom, P.E.
San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Ave.
Fresno, CA 93726-0244

Re: O'Neill Beverage Co., LLC – Application for Specific Limiting Condition

Dear Mr. Tom:

This letter is provided in response to your email dated November 13, 2011 concerning O'Neill Beverages Co., LLC (O'Neill) application (Application) to the San Joaquin Valley Air Pollution Control District (District) for a specific limiting condition. Other than the Parlier, California facility which is subject to the Application, neither O'Neill, nor any entity which controls, is controlled by, or is under common control with O'Neill owns or operates any "major stationary source" (as defined by the federal Clean Air Act, Title 42 United States Code, sections 7401 *et seq.*, for purposes of District Rule 2201, section 4.15.2) within the State of California.

Please feel free to contact me at (559) 638-3544 with any questions or concerns.

Sincerely,

Matthew S. Towers
Chief Operating Officer
O'Neill Vintners & Distillers

8418 South Lac Jac Avenue, Parlier, California 93648 Tel: 559.638.3544 Fax: 559.638.6272 www.oneillwint.com

Appendix C

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)

[X] SIGNIFICANT PERMIT MODIFICATION
[ ] MINOR PERMIT MODIFICATION
[ ] ADMINISTRATIVE AMENDMENT

COMPANY NAME: O'Neill Beverages Co, LLC	FACILITY ID: -
1. Type of Organization: [ ] Corporation [ ] Sole Ownership [ ] Government [X] Partnership [ ] Utility	
2. Owner's Name: Jeffrey B. O'Neill	
3. Agent to the Owner: Matthew S. Towens	

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

(MT) 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).

(MT) 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.

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

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

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

[signature]

Signature of Responsible Official

9/20/11

Date

Matthew S. Towens

Name of Responsible Official (please print)

COO

Title of Responsible Official (please print)

Appendix D

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-629-494-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: O'NEILL BEVERAGES CO LLC
MAILING ADDRESS: 8418 S LAC JAC AVE
PARLIER, CA 93648-9708

LOCATION: 8418 S LAC JAC AVE
PARLIER, CA 93648

EQUIPMENT DESCRIPTION:
45,500 GALLON WINE FERMENTATION AND WINE AND SPIRITS STORAGE TANK (TANK # R2101) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating any piece of equipment under Authorities to Construct C-629-494-0 through '526-0, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter - 1,200 lb; 2nd quarter - 1,200 lb; 3rd quarter - 1,200 lb; and 4th quarter - 1,200 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC certificate numbers (or any splits from these certificates) S-3471-1, S-3473-1, S-3691-1, S-3571-1 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (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-629-494-0 : Dec 9 2011 9:19AM – TOMS : Joint Inspection NOT Required

6. When used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

10. Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum wine fermentation throughput in this tank shall not exceed 45,500 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum wine storage throughput in this tank shall not exceed 135,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of fermentation throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

14. The VOC emissions for storage operations in this tank shall not exceed 0.49 lb/day per 1000 gallons of wine throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Combined annual VOC emissions from all storage operations under permit units C-629-494 through C-629-526 shall not exceed 4,800 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

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

18. The annual VOC wine storage emission factor for each wine ethanol content shall be calculated using the following equation: EF = 1.705259 * P^1.090407; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Combined annual VOC emissions from wine storage operations under permit units C-629-494 through C-629-526 shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

CONDITIONS CONTINUE ON NEXT PAGE

21. Separate annual records each of total red wine and total white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury, shall be kept. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

22. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201] Federally Enforceable Through Title V Permit

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

24. The permittee shall maintain records of the combined annual VOC emissions for permit units C-629-494 through C-629-526. [District Rule 2201] Federally Enforceable Through Title V Permit

25. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-629-500-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: O'NEILL BEVERAGES CO LLC
MAILING ADDRESS: 8418 S LAC JAC AVE
PARLIER, CA 93648-9708

LOCATION: 8418 S LAC JAC AVE
PARLIER, CA 93648

EQUIPMENT DESCRIPTION:
75,500 GALLON WINE FERMENTATION AND WINE AND SPIRITS STORAGE TANK (TANK # R2107) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating any piece of equipment under Authorities to Construct C-629-494-0 through '526-0, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter - 1,200 lb; 2nd quarter - 1,200 lb; 3rd quarter - 1,200 lb; and 4th quarter - 1,200 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC certificate numbers (or any splits from these certificates) S-3471-1, S-3473-1, S-3691-1, S-3571-1 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (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-629-500-0 : Dec 9 2011 9:19AM – TOMS : Joint Inspection NOT Required

6. When used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

10. Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum wine fermentation throughput in this tank shall not exceed 75,500 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum wine storage throughput in this tank shall not exceed 225,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of fermentation throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

14. The VOC emissions for storage operations in this tank shall not exceed 0.49 lb/day per 1000 gallons of wine throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Combined annual VOC emissions from all storage operations under permit units C-629-494 through C-629-526 shall not exceed 4,800 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

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

18. The annual VOC wine storage emission factor for each wine ethanol content shall be calculated using the following equation: EF = 1.705259 * P^1.090407; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Combined annual VOC emissions from wine storage operations under permit units C-629-494 through C-629-526 shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

CONDITIONS CONTINUE ON NEXT PAGE

21. Separate annual records each of total red wine and total white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury, shall be kept. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

22. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201] Federally Enforceable Through Title V Permit

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

24. The permittee shall maintain records of the combined annual VOC emissions for permit units C-629-494 through C-629-526. [District Rule 2201] Federally Enforceable Through Title V Permit

25. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-629-506-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: O'NEILL BEVERAGES CO LLC
MAILING ADDRESS: 8418 S LAC JAC AVE
PARLIER, CA 93648-9708

LOCATION: 8418 S LAC JAC AVE
PARLIER, CA 93648

EQUIPMENT DESCRIPTION:
87,500 GALLON WINE FERMENTATION AND WINE AND SPIRITS STORAGE TANK (TANK # R2113) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating any piece of equipment under Authorities to Construct C-629-494-0 through '526-0, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter - 1,200 lb; 2nd quarter - 1,200 lb; 3rd quarter - 1,200 lb; and 4th quarter - 1,200 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC certificate numbers (or any splits from these certificates) S-3471-1, S-3473-1, S-3691-1, S-3571-1 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (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-629-506-0 : Dec 9 2011 9:19AM – TOMS : Joint Inspection NOT Required

6. When used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

10. Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum wine fermentation throughput in this tank shall not exceed 87,500 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum wine storage throughput in this tank shall not exceed 261,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of fermentation throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

14. The VOC emissions for storage operations in this tank shall not exceed 0.49 lb/day per 1000 gallons of wine throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Combined annual VOC emissions from all storage operations under permit units C-629-494 through C-629-526 shall not exceed 4,800 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

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

18. The annual VOC wine storage emission factor for each wine ethanol content shall be calculated using the following equation: EF = 1.705259 * P^1.090407; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Combined annual VOC emissions from wine storage operations under permit units C-629-494 through C-629-526 shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

CONDITIONS CONTINUE ON NEXT PAGE

21. Separate annual records each of total red wine and total white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury, shall be kept. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

22. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201] Federally Enforceable Through Title V Permit

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

24. The permittee shall maintain records of the combined annual VOC emissions for permit units C-629-494 through C-629-526. [District Rule 2201] Federally Enforceable Through Title V Permit

25. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-629-520-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: O'NEILL BEVERAGES CO LLC
MAILING ADDRESS: 8418 S LAC JAC AVE
PARLIER, CA 93648-9708

LOCATION: 8418 S LAC JAC AVE
PARLIER, CA 93648

EQUIPMENT DESCRIPTION:
250,500 GALLON WINE FERMENTATION AND WINE AND SPIRITS STORAGE TANK (TANK # R0320) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating any piece of equipment under Authorities to Construct C-629-494-0 through '526-0, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter - 1,200 lb; 2nd quarter - 1,200 lb; 3rd quarter - 1,200 lb; and 4th quarter - 1,200 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC certificate numbers (or any splits from these certificates) S-3471-1, S-3473-1, S-3691-1, S-3571-1 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (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-629-520-0 : Dec 9 2011 9:20AM – TOMS : Joint Inspection NOT Required

6. When used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

10. Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum wine fermentation throughput in this tank shall not exceed 250,500 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum wine storage throughput in this tank shall not exceed 391,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of fermentation throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

14. The VOC emissions for storage operations in this tank shall not exceed 0.49 lb/day per 1000 gallons of wine throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Combined annual VOC emissions from all storage operations under permit units C-629-494 through C-629-526 shall not exceed 4,800 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

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

18. The annual VOC wine storage emission factor for each wine ethanol content shall be calculated using the following equation: EF = 1.705259 * P^1.090407; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Combined annual VOC emissions from wine storage operations under permit units C-629-494 through C-629-526 shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

CONDITIONS CONTINUE ON NEXT PAGE

21. Separate annual records each of total red wine and total white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury, shall be kept. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

22. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201] Federally Enforceable Through Title V Permit

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

24. The permittee shall maintain records of the combined annual VOC emissions for permit units C-629-494 through C-629-526. [District Rule 2201] Federally Enforceable Through Title V Permit

25. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-629-525-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: O'NEILL BEVERAGES CO LLC
MAILING ADDRESS: 8418 S LAC JAC AVE
PARLIER, CA 93648-9708

LOCATION: 8418 S LAC JAC AVE
PARLIER, CA 93648

EQUIPMENT DESCRIPTION:
65,000 GALLON WINE FERMENTATION AND WINE AND SPIRITS STORAGE TANK (TANK # R0285) WITH PRESSURE/VACUUM VALVE AND INSULATION

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating any piece of equipment under Authorities to Construct C-629-494-0 through '526-0, permittee shall provide VOC emission reduction credits for the following quantities of emissions: 1st quarter - 1,200 lb; 2nd quarter - 1,200 lb; 3rd quarter - 1,200 lb; and 4th quarter - 1,200 lb. Offsets shall be provided at a distance ratio of 1.5 to 1. [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC certificate numbers (or any splits from these certificates) S-3471-1, S-3473-1, S-3691-1, S-3571-1 shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct (ATC) shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of the ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
5. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (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-629-525-0 : Dec 9 2011 9:20AM – TOMS : Joint Inspection NOT Required

6. When used for wine storage, this tank shall be equipped with and operated with a pressure-vacuum relief valve, which shall operate within 10% of the maximum allowable working pressure of the tank, operate in accordance with the manufacturer's instructions, and be permanently labeled with the operating pressure settings. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

8. The temperature of the wine stored in this tank shall be maintained at or below 75 degrees Fahrenheit. The temperature of the stored wine shall be determined and recorded at least once per week. For each batch of wine, the operator shall achieve the storage temperature of 75 degrees Fahrenheit or less within 60 days after completing fermentation, and shall maintain records to show when the required storage temperature of 75 degrees Fahrenheit or less was achieved. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

10. Ethanol content of the wine stored in this tank shall not exceed 23.9 percent, by volume. [District Rule 2201] Federally Enforceable Through Title V Permit

11. The maximum wine fermentation throughput in this tank shall not exceed 65,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

12. The maximum wine storage throughput in this tank shall not exceed 185,000 gallons per day. [District Rule 2201] Federally Enforceable Through Title V Permit

13. The VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of fermentation throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

14. The VOC emissions for storage operations in this tank shall not exceed 0.49 lb/day per 1000 gallons of wine throughput. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Total annual VOC emissions from all wine fermentation operations at this facility shall not exceed 410,502 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Combined annual VOC emissions from all storage operations under permit units C-629-494 through C-629-526 shall not exceed 4,800 pounds per year. [District Rule 2201] Federally Enforceable Through Title V Permit

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

18. The annual VOC wine storage emission factor for each wine ethanol content shall be calculated using the following equation: EF = 1.705259 * P^1.090407; where EF is the VOC emission factor in pounds of VOC per 1000 gallons of wine throughput; and P is the volume percent ethanol of the wine being transferred. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Combined annual VOC emissions from wine storage operations under permit units C-629-494 through C-629-526 shall be determined as the sum of the emissions for each individual wine movement based on the volume transferred in each wine movement and the batch-specific wine storage emission factor calculated using the equation(s) specified within this permit. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

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

CONDITIONS CONTINUE ON NEXT PAGE

21. Separate annual records each of total red wine and total white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury, shall be kept. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit

22. When this tank is used for wine storage, daily throughput records, including records of filling and emptying operations, the dates of such operations, a unique identifier for each batch, the volume percent ethanol in the batch, and the volume of wine transferred, shall be maintained. [District Rules 1070 and 2201] Federally Enforceable Through Title V Permit

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

24. The permittee shall maintain records of the combined annual VOC emissions for permit units C-629-494 through C-629-526. [District Rule 2201] Federally Enforceable Through Title V Permit

25. All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 2201 and 4694] Federally Enforceable Through Title V Permit