MAR 19 2015

Dan Martin
E & J Gallo Winery
18000 W River Rd
Livingston, CA 95334

RE: Notice of Final Action - Authority to Construct
Facility Number: N-1237
Project Number: N-1141254

Dear Mr. Martin:

The Air Pollution Control Officer has issued the Authority to Construct permits to E & J Gallo Winery for twelve 1,720 gallon wine storage and fermentation tanks, at 18000 W River Rd, Livingston, CA. Enclosed are the Authority to Construct permits and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the Authority to Construct permits was published on May 9, 2014. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on May 6, 2014. All comments received following the District's preliminary decision on this project were considered.

Also enclosed is an invoice for the engineering evaluation fees pursuant to District Rule 3010. Please remit the amount owed, along with a copy of the attached invoice, within 60 days.

Seyed Sadreddin
Executive Director/Air Pollution Control Officer
Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Jim Swaney at (559) 230-6000.

Sincerely,

[Signature]

Arnaud Marjollet
Director of Permit Services

AM:st

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email
Facility # N-1237  
E & J GALLO WINERY  
ATTN: EHS MANAGER  
18000 W RIVER RD  
LIVINGSTON, CA 95334

AUTHORITY TO CONSTRUCT (ATC)

QUICK START GUIDE

1. **Pay Invoice.** Please pay enclosed invoice before due date.

2. **Fully Understand ATC.** Make sure you understand ALL conditions in the ATC prior to construction, modification and/or operation.

3. **Follow ATC.** You must construct, modify and/or operate your equipment as specified on the ATC. Any unspecified changes may require a new ATC.

4. **Notify District.** You must notify the District’s Compliance Department, at the telephone numbers below, upon start-up and/or operation under the ATC. Please record the date construction or modification commenced and the date the equipment began operation under the ATC. You may NOT operate your equipment until you have notified the District’s Compliance Department.

5. **Source Test.** Schedule and perform any required source testing. See http://www.valleyair.org/busind/comply/source_testing.htm for source testing resources.

6. **Maintain Records.** Maintain all records required by ATC. Records are reviewed during every inspection (or upon request) and must be retained for 5 years.

By operating in compliance, you are doing your part to improve air quality for all Valley residents.

For assistance, please contact District Compliance staff at any of the telephone numbers listed below.

Seyed Sedredin  
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)**  
1980 E. Gettysburg Avenue  
Fresno, CA 93728-0244  
Tel: (559) 230-6000  
Fax: (559) 230-6061

**Southern Region**  
34846 Flyover Court  
Bakersfield, CA 93308-8725  
Tel: 861-392-5500  
Fax: 661-392-5585

www.valleyair.org  
www.healthyairliving.com
AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-750-0
ISSUANCE DATE: 03/19/2015

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK
(TANK F701) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-751-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F702) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-I (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissuued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-752-0  
LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F703) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis,
shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed
19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4
lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank
capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not
exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be
determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual
White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District
Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and
fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated
monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility;
based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury;
the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation
operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-753-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY

MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F704) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

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4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

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

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services
San Joaquin Valley AIR POLLUTION CONTROL DISTRICT
HEALTHY AIR LIVING
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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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]

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16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS continue on next page
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility’s seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year’s start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-754-0
LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F705) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-755-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY

MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION: 1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F706) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-756-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY

MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F707) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

ISSUANCE DATE: 03/19/2015

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-8400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Harjolet, Director of Permit Services
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-8400 • Fax (209) 557-8475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-757-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F708) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. THIS IS NOT A PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-758-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

MAILING ADDRESS:
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F709) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-759-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F710) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 567-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-760-0  ISSUANCE DATE: 03/19/2015

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F711) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE.

Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-761-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F712) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be canceled 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

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95355-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

E & J Gallo Winery has requested Authority to Construct (ATC) permits for twelve (12) 1,720 gallon (or equivalent) wine fermentation and storage tanks.

E & J Gallo Winery received their Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). But the facility has not requested that this project be processed in that manner; therefore, E & J Gallo Winery will be required to submit a Title V significant modification application prior to operating under the revised provisions of the ATC permits issued with this project.

II. Applicable Rules

Rule 2201     New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410     Prevention of Significant Deterioration (6/16/11)
Rule 2520     Federally Mandated Operating Permits (6/21/01)
Rule 4001     New Source Performance Standards (4/14/99)
Rule 4002     National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 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 18000 W River Rd in Livingston, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

E & J Gallo Winery 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 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 (for red or white wine) 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 (CO₂) while releasing heat. Temperature is typically controlled by refrigeration, and is maintained at 45–65 °F for white wine fermentation and 70–95 °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 at 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. VOCs are emitted during the fermentation process along with the CO₂. The VOCs consist primarily of ethanol along with small quantities of other 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. Tanks can potentially operate in either: (1) a fermentation operation during which the tank is vented directly to the atmosphere to release the evolved CO₂ byproduct from the fermentation reaction; (2) a storage operation during which the tank is closed to minimize contact with air and refrigerated to preserve the wine; (3) or both fermentation and storage operations. Post-fermentation operations such as cold stabilization, racking, and filtration are conducted in the tanks, resulting in a number of inter-tank transfers during the period between the end of fermentation and bottling or bulk shipment. Storage operations are conducted year-round. VOC emissions occur primarily as a result of the inter-tank transfers which are necessitated by the post fermentation operations.
## V. Equipment Listing

<table>
<thead>
<tr>
<th>Permit #</th>
<th>Equipment Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-1237-750-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F701) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-751-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F702) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-752-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F703) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-753-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F704) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-754-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F705) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-755-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F706) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-756-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F707) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-757-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F708) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-758-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F709) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-759-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F710) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
<tr>
<td>N-1237-760-0</td>
<td>1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F711) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT</td>
</tr>
</tbody>
</table>
E & J Gallo Winery  
N-1237, 1141254

| N-1237-761-0  | 1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F712) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT |

As per District policy APR 1035 Flexibility in Equipment Descriptions in ATCs, some flexibility in the final specifications of the equipment is requested. The proposed tanks in this project will be built on-site and most likely will contain slight variations in the tank dimensions which lead to slightly different tank capacities than proposed. These slight tank variations should not have a significant effect on the tank emissions or tank operation. Therefore, the permit will specify the nominal tank dimensions and the source will submit to the District the measured tank capacity (known as the gauge volume) once the tank is constructed. The following condition will be listed on the permits to ensure compliance:

- The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

VI. Emission Control Technology Evaluation

VOCs (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.

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

Storage

- The proposed tanks will be used for red and white wine fermentation and storage
- Typically, for enclosed tanks with refrigeration and/or insulation (or equivalent) and P/V valves, breathing losses from storage of wine are assumed to be negligible.
- Maximum daily liquid storage temperature = 81.0 °F (per FYI-295)
- Maximum annual liquid storage temperature = 63.3 °F (per FYI-295)
- Storage tank daily maximum ethanol content of stored wine is 23.9% (per applicant)
- Storage tank annual average ethanol content of stored wine is 21% (per applicant)
- Maximum daily storage throughput = 1,720 gallons/day (per tank, per applicant)
- Maximum annual storage throughput = 19,585 gallons/year (per tank, per applicant)
Fermentation

- Daily VOC fermentation emissions will be determined using a worst case of one tank turnover per day (per applicant)
- Post-project wine fermentation annual throughput (per tank) = 15,000 gallons per year
- Fermentation emissions will be based upon the worst case red wine emission factors

B. Emission Factors

Storage

Tanks 4.0 will be used to calculate the emissions from the storage tanks.

Fermentation

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

<table>
<thead>
<tr>
<th>Wine Type</th>
<th>EF (lb-VOC/1,000 gallon of wine)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daily</td>
<td>Annual</td>
</tr>
<tr>
<td>White</td>
<td>1.62</td>
<td>2.5</td>
</tr>
<tr>
<td>Red</td>
<td>3.46</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Since all the fermentation tanks can ferment either white or red wine, worst case emissions factors of red wine will be used to calculate the maximum daily and annual potential emissions.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Storage

Since these are new emissions units, PE1 = 0 (all pollutants) for the storage operation in these tanks.

Fermentation

Since these are new emissions units, PE1 = 0 (all pollutants) for the fermentation operation in these tanks.
2. Post Project Potential to Emit (PE2)

Storage

Two Tanks 4.0 runs (see Attachment A) have been performed. One run uses a throughput of 1,720 gallons/day to calculate the daily post-project potential to emit by dividing the month of February emissions by the number of days in the month. The other run uses a throughput of 19,585 gallons/year to calculate the annual post-project potential to emit.

<table>
<thead>
<tr>
<th>Permit Unit</th>
<th>Daily PE2 (lb-VOC/day)</th>
<th>Annual PE2 (lb-VOC/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-1237-750-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-751-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-752-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-753-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-754-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-755-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-756-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-757-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-758-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-759-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-760-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>N-1237-761-0</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.4</strong></td>
<td><strong>48</strong></td>
</tr>
</tbody>
</table>

Fermentation

For either red or white wine, the fermentation process takes longer than a day (3 to 5 days for red wine and 10 to 14 days for white wine). Therefore, a maximum of one turnover per day will be used to determine the potential daily emissions.

The potential daily and annual VOC emissions are determined using the red or white wine emissions factor, tank capacity, turnover rate, and the annual throughput as follows:

\[
\text{Daily PE2} = \text{EF}_{\text{red}} \, (\text{lb-VOC}/1,000 \, \text{gal}) \times \text{tank capacity (gal/tank)} \times \text{turnover rate (# tank/day)} \\
\text{Annual PE2} = \text{EF}_{\text{red}} \, (\text{lb-VOC}/1,000 \, \text{gal}) \times \text{annual throughput (gal/year)}
\]
### Post-Project Potential to Emit (Fermentation)

<table>
<thead>
<tr>
<th>Permit Unit</th>
<th>Daily EF</th>
<th>Annual EF</th>
<th>Tank Capacity</th>
<th>Turnover Rate</th>
<th>Annual Throughput</th>
<th>Daily PE2</th>
<th>Annual PE2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(lb-VOC/1,000 gal)</td>
<td>(gallon)</td>
<td>(tank/day)</td>
<td>(gal/year)</td>
<td>(lb/day)</td>
<td>(lb/year)</td>
<td></td>
</tr>
<tr>
<td>N-1237-750-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-1237-751-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
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<td>15,000</td>
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<td></td>
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<tr>
<td>N-1237-754-0</td>
<td>3.46</td>
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<td>15,000</td>
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<td>93</td>
<td></td>
<td></td>
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<tr>
<td>N-1237-755-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>3.46</td>
<td>1,720</td>
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<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-1237-757-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-1237-758-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-1237-759-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-1237-760-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N-1237-761-0</td>
<td>3.46</td>
<td>1,720</td>
<td>15,000</td>
<td>6.0</td>
<td>93</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td>72.0</td>
<td><strong>1,116</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Total Post-Project Potential to Emit (Storage + Fermentation)

<table>
<thead>
<tr>
<th>Permit Unit</th>
<th>Daily PE2 (lb-VOC/day)</th>
<th>Annual PE2 (lb-VOC/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Storage</td>
<td>Fermentation</td>
</tr>
<tr>
<td>N-1237-750-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-751-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-752-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-753-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-754-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-755-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-756-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-757-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-758-0</td>
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<td>6.0</td>
</tr>
<tr>
<td>N-1237-759-0</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>N-1237-760-0</td>
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<td>6.0</td>
</tr>
<tr>
<td>N-1237-761-0</td>
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<td>6.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,164</td>
<td></td>
</tr>
</tbody>
</table>

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

Pursuant to District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.
This project only concerns VOC emissions. This facility acknowledges that its VOC emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE1 calculations are not necessary.

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

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

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

5. Major Source Determination

Rule 2201 Major Source Determination

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

Rule 2410 Major Source Determination

As determined in Section VII.D.4 of this document, this facility is an existing Rule 2201 major source for VOC emissions. The following table summarizes the potential VOC emissions from a previous permitting action for this stationary source before the proposed project.

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Proposed Permitting Actions</th>
<th>PE (lb-VOC/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-1072605</td>
<td>Applying for In-house PTOs for existing wine storage and fermentation tanks</td>
<td>470,985</td>
</tr>
<tr>
<td>N-1110129</td>
<td>Install 2 wine fermentation tanks</td>
<td>8,432</td>
</tr>
<tr>
<td>N-1110722</td>
<td>Convert 7 existing grape juice tanks to wine fermentation tanks</td>
<td>15,680</td>
</tr>
<tr>
<td>N-1113344</td>
<td>Install 104 wine storage and fermentation tanks</td>
<td>94,430</td>
</tr>
<tr>
<td>N-1113395</td>
<td>Install 3 wine storage and fermentation tanks</td>
<td>10,173</td>
</tr>
<tr>
<td>N-1113047</td>
<td>Install 2 distilled spirit tanks</td>
<td>188</td>
</tr>
<tr>
<td>N-1113864</td>
<td>Install an ethanol evaporator system</td>
<td>7,719</td>
</tr>
<tr>
<td>N-1131615</td>
<td>Install 8 wine storage tanks and 24 wine fermentation tanks</td>
<td>85,064</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>692,671</strong></td>
</tr>
</tbody>
</table>
As indicated above, the SSPE for VOC emissions before the proposed project is calculated to be 692,671 pounds per year, equivalent to 346.3 tons per year.

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

<table>
<thead>
<tr>
<th>PSD Major Source Determination (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility PE before Project Increase</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
</tr>
<tr>
<td>PSD Major Source?</td>
</tr>
</tbody>
</table>

As shown above, the facility is an existing major source for PSD for VOC. Therefore, the facility is an existing Major Source for PSD.

6. **Baseline Emissions (BE)**

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

Pursuant to District Rule 2201, BE = Pre-project Potential to Emit for:

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

otherwise,

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

**Storage**

Since these are new emission units, BE = PE1 = 0 for all pollutants for each unit.

**Fermentation**

Since these are new emission units, BE = PE1 = 0 for all pollutants for each unit.
7. SB 288 Major Modification

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

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Project PE (lb/year)</th>
<th>Threshold (lb/year)</th>
<th>SB 288 Major Modification Calculation Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>Storage 48</td>
<td>50,000</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Fermentation 1,116</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total 1,164</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

8. Federal Major Modification

District Rule 2201 states that 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.
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,

\[ NEI_N = PE2_N - BAE \]

The fermentation and storage tanks are new units; therefore BAE for these units is zero and,

\[ NEI_N = PE2_N \]

where PE2_N is the Post Project Potential to Emit for the new emissions units.

\[ PE2_N = PE2 \text{ (storage)} + PE2 \text{ (fermentation)} \]
\[ PE2_N = 48 \text{ lb-VOC/year} + 1,116 \text{ lb-VOC/year} \]
\[ = 1,164 \text{ lb-VOC/year} \]

\[ NEI_N = PE2_N = 1,164 \text{ lb-VOC/year} \]

The NEI for this project is thus calculated as follows:

\[ NEI = NEI_N \]
\[ NEI = 1,164 \text{ lb-VOC/year} \]

The NEI for this project will be 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.

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

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Threshold (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>0</td>
</tr>
</tbody>
</table>

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.
- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

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

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

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

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

I. Project Location Relative to Class 1 Area

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be a existing major source for PSD. Because the project is not located within 10 km of a Class 1 area — modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Significance of Project Emission Increase Determination

   a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

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

CO₂ Emissions from Fermentation

Basis

- Project total annual fermentation emissions = 1,116 lb-VOC/year
- Assume all wine produced is white wine (worst case)
- The VOC emission factor is 2.5 lb-VOC per 1,000 gallons of white wine fermented.
• Maximum practical ethanol content for wine fermentation is 15 volume percent (higher concentrations have a negative impact on yeast reproduction with death of the yeast occurring at around 18 vol %)
• Molecular weight of ethanol and CO2 are 46 and 44 lb/mole respectively.
• The fermentation reaction produces one mole of carbon dioxide for each mole of ethanol produced.
• Liquid density for ethanol is 6.61 lb/gal at 60 deg F.

Calculation

Maximum Annual Wine Production Based on 100% White Wine = 
\[\frac{1,116 \text{ lb-VOC}}{\text{year}} + \frac{2.5 \text{ lb-VOC}}{1000 \text{ gallons}}\]

Maximum Annual Wine Production Based on 100% White Wine = 446,400 gallons per year

Maximum Annual Ethanol Production = \[\frac{446,400 \text{ gal}}{\text{year}} \times \frac{15\% \text{ ethanol}}{} \times \frac{6.61 \text{ lb-ethanol}}{\text{gallon}}\] = 442,606 lb-ethanol per year

Maximum Annual CO2 Production = \[\frac{442,606 \text{ lb}}{\text{year}} \times \frac{1 \text{ mole CO2}}{46 \text{ lb ethanol}} \times \frac{1 \text{ mole CO2}}{1 \text{ mole ethanol}} \times \frac{44 \text{ lb CO2}}{1 \text{ mole CO2}}\] = 423,362 lb-CO2 per year

Maximum Annual CO2 Production = 212 ton-CO2 per year
As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

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

\[
\text{QNEC} = \text{PE2 - PE1}, \text{ where:}
\]

\[
\begin{align*}
\text{QNEC} &= \text{Quarterly Net Emissions Change for each emissions unit, lb/qtr.} \\
\text{PE2} &= \text{Post Project Potential to Emit for each emissions unit, lb/qtr.} \\
\text{PE1} &= \text{Pre-Project Potential to Emit for each emissions unit, lb/qtr.}
\end{align*}
\]

<table>
<thead>
<tr>
<th>Quarterly NEC [QNEC]</th>
<th>PE2 (lb/qtr)</th>
<th>PE1 (lb/qtr)</th>
<th>QNEC (lb/qtr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VOC</td>
<td>291</td>
<td>0</td>
<td>291</td>
</tr>
</tbody>
</table>

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 an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

Fermentation

The applicant is proposing to install 12 new wine fermentation and storage tanks. The storage tanks each have a PE less than 2 lb/day for VOC. The fermentation tanks each have a PE greater than 2 lb/day for VOC. Thus BACT is triggered for VOC for these emissions units for the fermentation operation.

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. SB 288/Federal Major Modification

As discussed in VII.C.7 and VII.C.8 above, this project constitutes a SB 288 and Federal Major Modification for VOC emissions. Therefore BACT is triggered for VOC for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

BACT Guideline 5.4.14 applies to the wine fermentation tanks. [Wine Fermentation Tank] (Appendix B)

BACT Guideline 5.4.13 applies to the wine storage tanks. [Wine Storage Tank] (Appendix C)
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 B and C), 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: 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

**B. Offsets**

1. Offset Applicability

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 thresholds; therefore offset calculations will be required for this project.

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) = (\(\sum[PE2 - BE]\) + ICCE) x DOR, for all new or modified emissions units in the project,
Where,

- $PE2 = \text{Post Project Potential to Emit, (lb/year)}$
- $BE = \text{Baseline Emissions, (lb/year)}$
- $ICCE = \text{Increase in Cargo Carrier Emissions, (lb/year)}$
- $DOR = \text{Distance Offset Ratio, determined pursuant to Rule 2201}$

$BE = \text{Pre-project Potential to Emit for:}$
- 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,

$BE = \text{Historic Actual Emissions (HAE)}$

There are no increases in cargo carrier emissions due to this project.

**Storage**

Offsets Required (lb/year) = $\sum [PE2 - BE] \times DOR$

<table>
<thead>
<tr>
<th>Permit Unit</th>
<th>Annual PE2 (lb-VOC/year)</th>
<th>Annual BE (lb-VOC/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-1237-750-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-751-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-752-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-753-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-754-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-755-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-756-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-757-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-758-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-759-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-760-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>N-1237-761-0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

Each Tank

Offsets Required (lb/year) = $\{PE2 - BE\}_{Storage} \times DOR$

$= [4 - 0] \text{ lb-VOC/year} \times DOR$

$= 4 \text{ lb-VOC/year} \times DOR$
Calculating the appropriate quarterly emissions to be offset is as follows:

<table>
<thead>
<tr>
<th>Quarterly Offset Requirement – Storage (Each Tank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollutant</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>VOC</td>
</tr>
</tbody>
</table>

Fermentation

These fermentation tanks are subject to the fermentation emission reduction requirements of Rule 4694 and are considered to be controlled sources subject to a 35% reduction in emissions. The facility is currently performing an annual demonstration that sufficient Certified Emission Reductions (CER) are provided to meet the requirements of Rule 4694 Section 5.1. The CERs are achieved by controlling the emissions from brandy tanks and barrels at a brandy plant in Modesto via an air handling system and combustion in an RTO (regenerative thermal oxidizer). Both the Fresno location and Livingston location have CERs assigned to each facility (generated from the control of the brandy plant) to cover the uncontrolled fermentation emissions at each facility. The annual compliance emissions report demonstrates the amount of CERs assigned to each facility is at least 35% of the uncontrolled fermentation emissions at each facility. As these tanks are subject to Rule 4694 and the facility is mitigating 35% of the uncontrolled fermentation emissions each year, requiring offsets for 100% of the fermentation emissions in this project would be requiring double mitigation. Therefore, the offsets required for the fermentation emissions in this project will be reduced by 35% and calculated as follows:

Offsets Required (lb/year) = \[\sum \left[ PE2 - BE \right] \times \left( 1 - 0.35 \right) \times DOR \]

<table>
<thead>
<tr>
<th>Offsets Required – Fermentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit Unit</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>N-1237-750-0</td>
</tr>
<tr>
<td>N-1237-751-0</td>
</tr>
<tr>
<td>N-1237-752-0</td>
</tr>
<tr>
<td>N-1237-753-0</td>
</tr>
<tr>
<td>N-1237-754-0</td>
</tr>
<tr>
<td>N-1237-755-0</td>
</tr>
<tr>
<td>N-1237-756-0</td>
</tr>
<tr>
<td>N-1237-757-0</td>
</tr>
<tr>
<td>N-1237-758-0</td>
</tr>
<tr>
<td>N-1237-759-0</td>
</tr>
<tr>
<td>N-1237-760-0</td>
</tr>
<tr>
<td>N-1237-761-0</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Each Tank

Offsets Required (lb/year) = \([\text{PE2} - \text{BE}]_{\text{Fermentation}} \times \text{DOR}\)  
= [60 - 0] lb-VOC/year x DOR  
= 60 lb-VOC/year x DOR

Per Rule 2201 Section 4.5.2 states for emission offset requirements "For Stationary Sources with a quarterly Potential to Emit which remain constant throughout the year, the amount shall be calculated in pounds per year. For Stationary Sources with quarterly Potential to Emit that is not constant throughout the year, and for Seasonal Sources the amount shall be calculated in pounds per quarter". Fermentation operations occur during the crush season between August and November in the third and fourth quarter of each calendar year. Therefore, emission offset requirements for the fermentation operation will be equally distributed and assessed in the third and fourth quarter.

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>1st Qtr (lb/qtr)</th>
<th>2nd Qtr (lb/qtr)</th>
<th>3rd Qtr (lb/qtr)</th>
<th>4th Qtr (lb/qtr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Total

For each tank, the amount of offsets required is as follows:

Offsets Required (lb/year) = \([\text{PE2} - \text{BE}]_{\text{Storage}} + [\text{PE2} - \text{BE}]_{\text{Fermentation}} \) x DOR  
= \([4 - 0] + [60 - 0]\) lb-VOC/year x DOR  
= 64 lb-VOC/year x DOR

As explained above, emission offset requirements for the fermentation operation will be equally distributed and assessed in the third and fourth quarter. Calculating the appropriate quarterly emissions to be offset is as follows:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>1st Qtr (lb/qtr)</th>
<th>2nd Qtr (lb/qtr)</th>
<th>3rd Qtr (lb/qtr)</th>
<th>4th Qtr (lb/qtr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>1</td>
<td>1</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

For all 12 tanks, the amount of offsets required is as follows:

Offsets Required (lb/year) = \([\text{PE2} - \text{BE}]_{\text{Storage}} + [\text{PE2} - \text{BE}]_{\text{Fermentation}} \) x 12 tanks x DOR  
= \([4 - 0] + [60 - 0]\) lb-VOC/year x 12 tanks x DOR  
= 768 lb-VOC/year x DOR
The project is a Federal Major Modification and therefore the offset ratio for VOC is 1.5:1.

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

\[
\text{Offsets Required (lb/year)} = 768 \text{ lb-VOC/ year } \times 1.5 \\
= 1,152 \text{ lb-VOC/year}
\]

As explained above, emission offset requirements for the fermentation operation will be equally distributed and assessed in the third and fourth quarter. Calculating the appropriate quarterly emissions to be offset is as follows:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>1st Qtr (lb/qtr)</th>
<th>2nd Qtr (lb/qtr)</th>
<th>3rd Qtr (lb/qtr)</th>
<th>4th Qtr (lb/qtr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>18</td>
<td>18</td>
<td>558</td>
<td>558</td>
</tr>
</tbody>
</table>

ERC Certificates

The applicant has stated that the facility plans to use ERC certificates S-4160-1, C-1172-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 to offset the increases in emissions associated with this project. The above certificate has available quarterly credits as follows:

<table>
<thead>
<tr>
<th>Proposed VOC ERC Certificates</th>
<th>1st Qtr (lb/qtr)</th>
<th>2nd Qtr (lb/qtr)</th>
<th>3rd Qtr (lb/qtr)</th>
<th>4th Qtr (lb/qtr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-4160-1</td>
<td>14,961</td>
<td>14,960</td>
<td>14,937</td>
<td>14,845</td>
</tr>
<tr>
<td>C-1229-1</td>
<td>8,075</td>
<td>8,075</td>
<td>8,041</td>
<td>8,040</td>
</tr>
<tr>
<td>S-3805-1</td>
<td>18,000</td>
<td>18,000</td>
<td>18,000</td>
<td>18,000</td>
</tr>
<tr>
<td>S-4126-1</td>
<td>9,931</td>
<td>9,924</td>
<td>9,917</td>
<td>9,917</td>
</tr>
<tr>
<td>S-4232-1</td>
<td>2,507</td>
<td>2,451</td>
<td>2,496</td>
<td>2,488</td>
</tr>
<tr>
<td>S-4230-1</td>
<td>40,553</td>
<td>40,537</td>
<td>40,520</td>
<td>40,504</td>
</tr>
<tr>
<td>Total</td>
<td>94,027</td>
<td>93,947</td>
<td>93,911</td>
<td>93,794</td>
</tr>
</tbody>
</table>

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

Proposed Rule 2201 (offset) Conditions

- ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 1 lb, 2nd quarter – 1 lb, 3rd quarter – 31 lb, and 4th quarter – 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

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

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

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

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

b. PE > 100 lb/day

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>PE2 (lb/day)</th>
<th>Public Notice Threshold</th>
<th>Public Notice Triggered?</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>0.2 + 6.0 = 6.2</td>
<td>100 lb/day</td>
<td>No</td>
</tr>
</tbody>
</table>

Therefore, public noticing for PE > 100 lb/day purposes is not 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.

<table>
<thead>
<tr>
<th>Offset Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollutant</td>
</tr>
<tr>
<td>VOC</td>
</tr>
</tbody>
</table>

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

d. SSPE > 20,000 lb/year

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

| Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice |
|-----------------------------|------------------|-----------------|-------------------|-------------------|
| Pollutant       | ΣPE2 (lb/year) | ΣPE1 (lb/year) | SSIPE (lb/year) | SSIPE Public Notice Threshold | Public Notice Required? |
| VOC            | 1,164          | 0               | 1,164            | 20,000 lb/year       | No                   |

As demonstrated above, the SSIPE for VOC is not greater 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 Federal Major Modification for VOC. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB), 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 ATC permits for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit’s maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.
For all wine storage tank emissions units affected by this project, the DEL is stated in the form of a daily limit on tank throughput and a maximum ethanol content for wine stored in the tank.

**Proposed Rule 2201 (DEL) Conditions**

For the proposed wine fermentation and storage tank emission units in this project, the DEL is enforced with the following conditions:

- The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]
- The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb/day per 1000 gallons of tank capacity. [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 listed on the permits to ensure compliance:

- The operator shall record, on a weekly basis, the total gallons of wine contained in the tank and the maximum temperature of the stored wine. [District Rule 4694, 6.4.2]
- 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]
- 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]
• The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine ethanol content and throughput rate for storage operations and VOC emission rate for fermentation operations (ethanol percentage by volume, gallons and lb-VOC per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

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

• Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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 an SB 288 Major Modification and a Federal Major Modification, therefore this requirement is applicable. Included in Appendix D 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 2410 Prevention of Significant Deterioration**

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

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

**Rule 2520 Federally Mandated Operating Permits**

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

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

As discussed above, the facility has not applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with a significant modification, 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 or 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 or 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:

- 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.

The following condition listed on the facility-wide permit ensures compliance:

- A Three-Year Compliance Plan that demonstrates compliance with the requirements of Section 5.1 of District Rule 4694 (12/15/05) 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]
Section 5.2 places specific restrictions on wine storage tanks with 5,000 gallons or more in capacity when such tanks are not constructed of wood or concrete. Section 5.2.1 requires these tanks to be equipped and operated with a pressure-vacuum relief valve meeting all of the following requirements:

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

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

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

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

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

Every three years, Section 6.1 and 6.2 require 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 6.4.3 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 listed on the facility-wide permit ensure compliance:

- A Three-Year Compliance Plan that demonstrates compliance with the requirements of Section 5.1 of District Rule 4694 (12/15/05) 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, 6.2]
- 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]

Section 6.4.1 requires that records be kept for each fermentation batch. The following condition will be listed on the permits 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. The following conditions will be listed on the permit for each storage tank to ensure compliance with the requirements of Section 6.4.2:

- When this tank is used for storage, the operator shall determine and 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 listed on the facility-wide permit ensures compliance:

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

Section 6.4 requires that records required by this rule be maintained, retained on-site for a minimum of five years, and made available to the APCO upon request. The following conditions will be listed on all permits to ensure compliance:
• All records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rules 1070, 2201 and 4694]

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

**California Health & Safety Code 42301.6 (School Notice)**

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

**California Environmental Quality ACT (CEQA)**

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

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

**Greenhouse Gas (GHG) Significance Determination**

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

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO2e/year (equivalent to 253.5 short tons-CO2e/year) are considered to be zero for District permitting purposes and are exempt from further environmental review. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

**District CEQA Findings**

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

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct permits N-1237-750-0 through 761-0 subject to the permit conditions on the attached draft Authority to Construct permits in Appendix E.

X. Billing Information

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Fee Schedule</th>
<th>Fee Description</th>
<th>Annual Fee</th>
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<tbody>
<tr>
<td>N-1237-750-0</td>
<td>3020-05-A</td>
<td>1,720 gallons</td>
<td>$75</td>
</tr>
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<td>N-1237-761-0</td>
<td>3020-05-A</td>
<td>1,720 gallons</td>
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XI. Appendices

A: Tanks 4.0 Calculations
B: BACT Guideline 5.4.14 and Top Down BACT Analysis
C: BACT Guideline 5.4.13 and Top Down BACT Analysis
D: Compliance Certification
E: Draft Authority to Construct Permits
F: Comments and Responses
Appendix A

Tanks 4.0 Calculations
**Identification**
- User Identification: N-1237-750-0 Daily
- City: Livingston
- State: California
- Company: E & J Gallo Winery
- Type of Tank: Vertical Fixed Roof Tank
- Description: A total of 12 tanks. The emission model run is for one tank only. The tanks are 1,720 gallons each, insulated, and constructed from stainless steel.

**Tank Dimensions**
- Shell Height (ft): 7.00
- Diameter (ft): 6.50
- Liquid Height (ft): 7.00
- Avg. Liquid Height (ft): 6.50
- Volume (gallons): 1,737.59
- Turnovers: 365.00
- Net Throughput (gallons/yr): 634,221.11

**Paint Characteristics**
- Shell Color/Shade: White/White
- Shell Condition: Good
- Roof Color/Shade: White/White
- Roof Condition: Good

**Roof Characteristics**
- Type: Cone
- Height (ft): 0.00
- Slope (ft/ft) (Cone Roof): 0.00

**Breather Vent Settings**
- Vacuum Settings (psig): 0.00
- Pressure Settings (psig): 0.00

**Meteorological Data used in Emissions Calculations:** Stockton, California (Avg Atmospheric Pressure = 14.72 psia)
## Liquid Contents of Storage Tank

**N-1237-750-0 Daily - Vertical Fixed Roof Tank**  
Livingston, California

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
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<td>81.00</td>
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<td>20.45 Option 1: VP70 = 58508 VP80 = 81869</td>
</tr>
</tbody>
</table>
### N-1237-750-0 Daily - Vertical Fixed Roof Tank
Livingston, California

#### Vapor Space Volume:
- Vapor Space Volume: 540.6700
- Tank Diameter (ft): 6.5000
- Vapor Space Outage (ft): 0.5000
- Tank Shell Height (ft): 7.0000
- Average Liquid Height (ft): 6.5000
- Roof Outage (ft): 3.2500
- Gas Constant R: 0.8500
- Liquid Buil Temperature (deg R): 540.6700
- Tank Unit Solar Absorption (Shell): 0.1700
- Daily Solar Insulation Factor (Btu/ft²/day): 597.0000

#### Vapor Space Expansion Factor:
- Vapor Space Expansion Factor: 0.0000
- Daily Vapor Pressure Range (psia): 0.0000
- Vapor Pressure at Daily Average Liquid Surface Temperature (psia): 0.8500
- Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): 0.8500

#### Standing Losses (b):
- Standing Losses: 16.5915
- Vapor Density (bbl/lb): 0.2044
- Vapor Space Expansion Factor: 0.0000
- Breather Vent Press. Setting (psia): 0.0000
- Vapor Pressure at Daily Average Liquid Surface Temperature (psia): 0.8500
- Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): 0.8500

#### Daily Ambient Temp. Range (deg R):
- Daily Ambient Temp. Range: 16.5915
- Daily Maximum Liquid Surface Temp. (deg R): 540.6700
- Daily Minimum Liquid Surface Temp. (deg R): 540.6700
- Daily Average Atmospheric Temp. (deg R): 540.6700
- Daily Average Ambient Temp. (deg R): 45.0000
- Daily Average Buil Temperature (deg R): 540.6700
- Daily Average Liquid Surface Temp. (deg R): 540.6700
- Daily Average Atmospheric Temp. (deg R): 10.7310
- Daily Average Buil Temperature (deg R): 540.6700

#### Detail Calculations (AP-42)

<table>
<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
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<tbody>
<tr>
<td>Standing Losses (b)</td>
<td>0.0000</td>
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<td>0.0000</td>
<td>0.0000</td>
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<td>Vapor Density (bbl/lb)</td>
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<td>0.2044</td>
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<tr>
<td>Breather Vent Press. Setting (psia)</td>
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<td>Vapor Space Outage (ft)</td>
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<tr>
<td>Net Throughput (gal/day)</td>
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<td>52.8517594</td>
<td>52.8517594</td>
<td>52.8517594</td>
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<td>Turnover Factor:</td>
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<tr>
<td>Maximum Liquid Height (ft):</td>
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<tr>
<td>Total Losses (lb)</td>
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<td>= 0.2884 lb/day</td>
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\[
\frac{0.2884}{30.3355} \times \frac{30.3355 - 18.02}{46.02 - 18.02} = 0.2 \text{ lb/day}
\]
TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

N-1237-750-0 Daily - Vertical Fixed Roof Tank
Livingston, California

<table>
<thead>
<tr>
<th>Components</th>
<th>Working Loss</th>
<th>Breathing Loss</th>
<th>Total Emissions</th>
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<tbody>
<tr>
<td>Wine 23.9 % Vol Alcohol</td>
<td>96.90</td>
<td>0.00</td>
<td>96.90</td>
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TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

<table>
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<tr>
<th>Identification</th>
<th>N-1237-750-0 Annual</th>
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</thead>
<tbody>
<tr>
<td>User Identification:</td>
<td>Livingston</td>
</tr>
<tr>
<td>City</td>
<td>Livingston</td>
</tr>
<tr>
<td>State</td>
<td>California</td>
</tr>
<tr>
<td>Company</td>
<td>E &amp; J Gallo Winery</td>
</tr>
<tr>
<td>Type of Tank:</td>
<td>Vertical Fixed Roof Tank</td>
</tr>
</tbody>
</table>

A total of 12 tanks. The emission model run is for one tank only. The tanks are 1,720 gallons each, insulated, and constructed from stainless steel.

<table>
<thead>
<tr>
<th>Tank Dimensions</th>
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<tbody>
<tr>
<td>Shell Height (ft)</td>
<td>7.00</td>
</tr>
<tr>
<td>Diameter (ft)</td>
<td>6.50</td>
</tr>
<tr>
<td>Liquid Height (ft)</td>
<td>7.00</td>
</tr>
<tr>
<td>Avg. Liquid Height (ft)</td>
<td>6.50</td>
</tr>
<tr>
<td>Volume (gallons)</td>
<td>1,737.59</td>
</tr>
<tr>
<td>Turnovers</td>
<td>11.27</td>
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<tr>
<td>Net Throughput(gallyr):</td>
<td>19,585.02</td>
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<td>Is Tank Heated (y/n):</td>
<td>Y</td>
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<table>
<thead>
<tr>
<th>Paint Characteristics</th>
<th>White/White</th>
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<tbody>
<tr>
<td>Shell Color/Shade</td>
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</tr>
<tr>
<td>Shell Condition</td>
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</tr>
<tr>
<td>Roof Color/Shade</td>
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</tr>
<tr>
<td>Roof Condition</td>
<td>Good</td>
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<table>
<thead>
<tr>
<th>Roof Characteristics</th>
<th>Cone</th>
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<tbody>
<tr>
<td>Height (ft)</td>
<td>0.00</td>
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<tr>
<td>Slope (ft/ft) (Cone Roof):</td>
<td>0.00</td>
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</table>

<table>
<thead>
<tr>
<th>Breather Vent Settings</th>
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</thead>
<tbody>
<tr>
<td>Vacuum Settings (psig)</td>
<td>0.00</td>
</tr>
<tr>
<td>Pressure Settings (psig)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Meterological Data used in Emissions Calculations: Stockton, California (Avg Atmospheric Pressure = 14.72 psia)
# Emissions Report - Detail Format

## Liquid Contents of Storage Tank

### N-1237-750-0 Annual - Vertical Fixed Roof Tank

Livingston, California

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>Jan 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
<td>VP60 = 39305 VP70 = .55917</td>
</tr>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>Feb 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
<td>VP60 = 39305 VP70 = .55917</td>
</tr>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>Mar 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
<td>VP60 = 39305 VP70 = .55917</td>
</tr>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>Apr 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
<td>VP60 = 39305 VP70 = .55917</td>
</tr>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>May 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
<td>VP60 = 39305 VP70 = .55917</td>
</tr>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>Jun 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
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<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>Jul 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
<td>Option 1:</td>
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<td>Wine 21.0 % Vol Alcohol</td>
<td>Aug 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
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<tr>
<td>Wine 21.0 % Vol Alcohol</td>
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<td>63.30</td>
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<td>29 2474</td>
<td>20.11</td>
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<tr>
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<td>Oct 63.30 63.30 63.30 63.30</td>
<td>63.30</td>
<td>0.4479 0.4479 0.4479</td>
<td>29 2474</td>
<td>20.11</td>
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<td>29 2474</td>
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<td>Dec 63.30 63.30 63.30 63.30</td>
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<td>Option 1:</td>
<td>VP60 = 39305 VP70 = .55917</td>
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**TANKS 4.0 Report**

**Emissions Report - Detail Format**

**Detail Calculations (AP-42)**

---

### N-1237-750-0 Annual - Vertical Fixed Roof Tank

**Livingston, California**

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<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
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<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing Losses (B)</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
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<td>0.0000</td>
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</tr>
<tr>
<td>Vapor Density (lbm/gal)</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
<td>0.0023</td>
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<tr>
<td>Vapor Space Expansion Factor</td>
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**Tank Vapor Space Volume**

|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|

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**Tank Dimensions**

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<tr>
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<th>Value</th>
<th>Value</th>
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<th>Value</th>
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<tbody>
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<td>7.0000</td>
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<tr>
<td>Roof Slope (in)</td>
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**Roof Outlet (Conc Roof)**

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<th>Value</th>
<th>Value</th>
<th>Value</th>
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<th>Value</th>
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**Vapor Density**

<table>
<thead>
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<th>Vapor Density (lbm/gal)</th>
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**Ideal Gas Constant (R)**

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<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Pressure Solar Absorance (Shell) (psi)</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
</tr>
<tr>
<td>Tank Pressure Solar Absorance (Roof) (psi)</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
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<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
<td>0.1700</td>
</tr>
</tbody>
</table>

---

**Daily Ambient Temp. Range (deg R)**


---

**Emissions Report - Detail Format**

**Detail Calculations (AP-42)**

---

file:///C:/Program%20Files%20(x86)/Tanks409d/summarydisplay.htm

4/13/2014
<table>
<thead>
<tr>
<th>Vented Vapor Saturation Factor</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
<th>0.9883</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Pressure at Daily Average Liquid</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
</tr>
<tr>
<td>Surface Temperature (psia)</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
<td>0.5000</td>
</tr>
<tr>
<td>Vapor Space Outage (ft)</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
</tr>
<tr>
<td>Vapor Pressure at Daily Average Liquid</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
<td>0.4479</td>
</tr>
<tr>
<td>Surface Temperature (psia)</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
<td>1,632.0854</td>
</tr>
<tr>
<td>Annual Turnovers</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
</tr>
<tr>
<td>Maximum Liquid Volume (gal)</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
<td>1,737.5921</td>
</tr>
<tr>
<td>Maximum Liquid Height (ft)</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
<td>7.0000</td>
</tr>
<tr>
<td>Working Loss Product Factor</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
<td>0.5090</td>
</tr>
<tr>
<td>Total Losses (lb)</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
<td>0.9883</td>
</tr>
</tbody>
</table>
Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

N-1237-750-0 Annual - Vertical Fixed Roof Tank
Livingston, California

<table>
<thead>
<tr>
<th>Components</th>
<th>Working Loss</th>
<th>Breathing Loss</th>
<th>Total Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wine 21.0 % Vol Alcohol</td>
<td>6.11</td>
<td>0.00</td>
<td>6.11</td>
</tr>
</tbody>
</table>

\[
\frac{6.11}{29.2474} \times \frac{29.2474 - 18.02}{46.02 - 18.02} \times 46.02 = 4 \text{ lb/year}
\]
Appendix B

BACT Guideline 5.4.14 and Top Down BACT Analysis
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

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

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

*This is a Summary Page for this Class of Source
Top Down BACT Analysis for Wine Fermentation VOC Emissions for Permit Units N-1237-750-0 through ‘761-0

Step 1 - Identify All Possible Control Technologies

BACT guideline 5.4.14 (10/6/2009) lists both absorption (scrubber) and condensation systems as technologically feasible options for the control of VOC emission from wine fermentation operations. Since 2009, there has been substantial development of these two control technologies prompting a re-examination of the feasibility of these technologies in this project to determine if the technologies are considered Achieved in Practice. The Achieved in Practice analysis for BACT for wine fermentation tanks is included in Attachment B and is 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, 2nd quarter 2014, 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 (81% 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

<table>
<thead>
<tr>
<th>Rank</th>
<th>Control</th>
<th>Overall Capture and Control Efficiency(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Capture of VOCs and thermal or catalytic oxidation or equivalent</td>
<td>88%(**)</td>
</tr>
<tr>
<td>2</td>
<td>Capture of VOCs and carbon adsorption or equivalent</td>
<td>86%</td>
</tr>
<tr>
<td>3</td>
<td>Capture of VOCs and absorption or equivalent</td>
<td>81%</td>
</tr>
<tr>
<td>4</td>
<td>Capture of VOCs and condensation or equivalent</td>
<td>81%</td>
</tr>
<tr>
<td>5</td>
<td>Temperature-Controlled Open Top Tank with Maximum Average Fermentation Temperature of 95 deg F</td>
<td>Baseline (Achieved-in-Practice)</td>
</tr>
</tbody>
</table>

(*) Capture efficiency (90%) x removal efficiency for control device.
(**) Following recent District practice, thermal and catalytic oxidation will be ranked together.
Step 4 - Cost Effectiveness Analysis

A cost-effective analysis is performed for each control technology which is more effective than meeting the requirements of option 5 (achieved-in-practice BACT), as proposed by the facility.

Maximum Vapor Flow Rate

Based on the kinetic model provided by the facility, maximum CO2 production rate for each fermentation tank = 8.9 scfm.

Maximum Vapor Flow Rate = 8.9 scfm x 12 fermentation tanks = 106.8 scfm

The submitted kinetic model is based upon a maximum rate 46-hour red wine fermentation with a maximum tank charge of 80% of the nominal tank capacity of 1,720 gallons (1,376 gallons of must fermented). Since the planned operation of the proposed tanks (per E & J Gallo Winery) is the production of commercial premium wines with fermentation cycles of 5-8 days, the 46 hour fermentation basis with maximum fill is a very conservative upper limit of the expected flow rate.

Uncontrolled Fermentation Emissions

For purposes of cost effectiveness analysis, uncontrolled fermentation emissions will be calculated based on the uncontrolled emission factors without consideration of the 35% reduction per Rule 4694 as these are the actual uncontrolled emissions being sent to each control technology option.

Uncontrolled Fermentation PE = EF_{red} (lb-VOC/1000 gal) x annual throughput (gal/yr) x 12 tanks
= 6.2 lb-VOC/1000 gal x 15,000 gal/year x 12 tanks
= 93 lb-VOC/year x 12 tanks
= 1,116 lb-VOC/year

Capture of VOCs and condensation (> 81% collection & control)

Design Basis

- The District provided notice to Steven Colome, Sc.D. of EcoPAS that this project was being proposed to allow EcoPAS an opportunity to provide cost information. The District did not receive updated cost information.
- EcoPAS has provided site-specific installation costs for the proposed scope of supply (see project N-1131615 Attachment C). The District will conservatively base the cost effectiveness analysis on these costs with the exception of the following adjustments:
- Since project specific cost information was not provided, to develop an equipment cost for this project, the equipment cost from N-1131615 will be considered the base equipment cost and the equipment cost for this project will be developed by factoring the base equipment cost by the ratio of project capacity with an exponent of 0.6 \([\text{Capacity}_{\text{new}}/\text{Capacity}_{\text{base}}]^{0.6}\) where "Capacity" refers to the adjusted total nominal volume of all tanks included in the analysis.
(commonly referred to as the “6-tenths Rule,” traditionally employed to extrapolate equipment costs from one capacity to a different capacity).

- Engineering costs will be assumed to be 5% of total direct cost exclusive of city/county plan check costs. The District believes that this value reflects a typical minimum for any significant industrial project and believes that this is consistent with standard estimating and good engineering practice.

- The EcoPAS cost for Permits and Testing ($10,000) is considered adequate to cover building department costs only, including plan check and building permit fees. Due to the unsteady state operation of fermentation tanks, initial source testing is expected to be a significant technical operation with significant expense, conducted over the fermentation cycle rather than the typical three 30-minute steady state measurements. An additional cost of $15,000 per unit will be assumed for initial source testing.

- EcoPAS has estimated a cost of $98,100 to cover administrative cost and contingency for the project. The District’s analysis will consider these items separately as “Owner’s Cost” (administrative) and “Project Contingency”.

- **Owner’s Cost**: The District considers a value of $100,000 as a minimum value to cover the project management, internal engineering and operations planning required to implement a significant new process technology of this scale (see project N-1131615) in a commercial winery.

- **Project Contingency**: Good engineering practice and accepted norms of the engineering industry, when applied to a conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received with approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material take-off for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction. Based on this discussion, the District will apply a conservative project contingency of 20% to the estimated capital investment for this project.

- E & J Gallo Winery has indicated that, consistent with their current plant and corporate operating philosophy, programmable logic controls and data logging as well as integration with existing digital control systems will be required for any fermentation control system installed. The District has added an allowance of $10,000 per unit to cover the expected hardware and programming cost of this item.

- Operating labor is estimated based on 1 operator hour per day and 3 shifts per day per operating unit over a 90 day crush season and an hourly cost of $18.50 per hour.

- An allowance for annual maintenance cost was included as 1% of Total Capital Investment.

- The cost of a chiller system has been annualized and the annualized cost is estimated at $270 per ton of recovered ethanol based on approximately $85 per ton energy charge at $0.13/kWh and $100 per ton capital charge for the central chilled water facility (based on a District analysis of annualized costs for a 100 ton mechanical chiller).

- Annual source testing will be required. It is assumed that only one representative unit will require testing each year. An annual charge of $15,000 has been included.

- EcoPAS has indicated the value of the recovered ethanol is $25 per gallon as a 60 proof alcohol spirit. However, E & J Gallo Winery has indicated the highest value for this product would be $____ per gallon assuming the alcohol can be used for internal brandy production.
(which has not been demonstrated in practice to be true). This represents the facilities internal cost for distilling material alcohol and does not include additional processing. If the alcohol cannot be used internally, E & J Gallo Winery has indicated the product has no value outside the organization and would in fact incur a disposal cost resulting in a value less than $0 per gallon. E & J Gallo Winery has proposed to value the recovered alcohol at a conservative value of $111 per gallon until it can be proven in practice to have a greater value.

**Equipment Cost Refrigerated Condenser**

Pricing for the EcoPAS units will be based on pricing previously received from EcoPAS LLC for District Project N-1131615.

In project N-1131615, EcoPAS sized one condenser to handle six 56,000 gallon tanks (total volume of 336,000 gallons) with a combined flow rate of 1,731.6 scfm (288.6 scfm x 6 tanks) and a combined VOC emission rate of 21,216 lb-VOC/year (3,536 lb-VOC/year x 6 tanks). The EcoPAS condenser proposed was not actually capable of actually handling the maximum flowrate but depended instead on the operational diversity of the six connected tanks to result in an actual combined peak flow less than the maximum since all six tanks would not achieve peak design flow simultaneously. Each tank in this project has a capacity of 1,720 gallons (total volume of 20,640 gallons with a combined flow rate of 106.8 scfm (8.9 scfm x 12 tanks) and a combined VOC emission rate of 1,116 lb-VOC/year (93 lb-VOC/year x 12 tanks). The capital cost of one condenser sized for the operation in project N-1131615 will be adjusted for the operation in this project using the six-tenths rule of thumb. As a conservative assumption, for this BACT analysis one condenser will serve all the tanks in this project.

As quoted by EcoPAS, based on supply of 4 PAS units each sized to control six (6) 56,000-gallon tanks (in project N-1131615), the price per condenser is estimated at $475,318 each. The estimated price includes shipping and California sales tax.

$$\text{Equipment Cost} = \$475,318$$

In this project, as a conservative estimate one condenser will serve all twelve tanks. The vendor has indicated the equipment cost can be adjusted based upon VOC emissions sent to the control device. Using the six-tenths rule of thumb, the adjusted equipment cost is calculated as follows:

$$\text{Adjusted Equipment Cost} = \$475,318 \times (1,116 + 21,216)^{0.8}$$

$$= \$81,205$$

All other costs (direct, indirect, and annual) will be taken from project N-1131615 and scaled using the six-tenths rule of thumb, as appropriate.
<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Refrigerated Condenser system (1 PAS Unit)</td>
<td>$81,205</td>
</tr>
</tbody>
</table>

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

### Direct Costs (DC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Condenser) See Above</td>
<td>$81,205</td>
</tr>
<tr>
<td>Instrumentation (included)</td>
<td>-</td>
</tr>
<tr>
<td>Sales Tax 3% (included)</td>
<td>-</td>
</tr>
<tr>
<td>Freight (included)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td>$81,205</td>
</tr>
<tr>
<td>Labor (per EcoPAS estimate)</td>
<td>$13,941</td>
</tr>
<tr>
<td><strong>Installation Expense (per EcoPAS estimate)</strong></td>
<td>$10,110</td>
</tr>
<tr>
<td>Subcontracts (per EcoPAS estimate)</td>
<td>$3,075</td>
</tr>
<tr>
<td>PLC/Programming (Total Allowance)</td>
<td>$6,834</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td>$33,960</td>
</tr>
<tr>
<td><strong>Total Direct Costs (TDC)</strong></td>
<td>$115,165</td>
</tr>
</tbody>
</table>

### Indirect Costs (IC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (5% of TDC)</td>
<td>$5,758</td>
</tr>
<tr>
<td>Permits (Building Department) (Allowance per unit)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Initial Source Testing (1 units x $15,000/unit)</td>
<td>$15,000</td>
</tr>
<tr>
<td>Owner's Cost (Total Allowance)</td>
<td>$17,084</td>
</tr>
<tr>
<td><strong>Total Indirect Cost (TIC)</strong></td>
<td>$47,842</td>
</tr>
<tr>
<td><strong>Subtotal Capital Investment (SCI = TDC + TIC)</strong></td>
<td>$163,007</td>
</tr>
<tr>
<td>Project Contingency (20% of SCI)</td>
<td>$32,601</td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (TDC + TIC + Contingency)</strong></td>
<td>$195,608</td>
</tr>
</tbody>
</table>

### Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Amortization Factor = \[ \frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \] = 0.1627, amortizing over 10 years at 10%

Therefore,

Annualized Capital Investment = $195,608 x 0.1627 = $31,834
### Annual Costs

#### Direct Annual Cost (DC)

<table>
<thead>
<tr>
<th>Operating Labor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td>1 hr/shift x 3 shifts/day x 1 unit x 90 days = 270 hr/year</td>
</tr>
<tr>
<td>Supervisor</td>
<td>15% of operator</td>
</tr>
<tr>
<td>Maintenance</td>
<td>1% of TCI</td>
</tr>
<tr>
<td>Chiller (Glycol)</td>
<td>1,116 lb/year (uncontrolled fermentation emissions) x 0.81 + 2000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Utility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>$0.102/kWh</td>
</tr>
</tbody>
</table>

$\text{Total DC} = \text{Costs from Operating Labor} + \text{Costs from Chiller (Glycol)} + \text{Utility Costs} = \$7,822$

#### Indirect Annual Cost (IC)

<table>
<thead>
<tr>
<th>Overhead</th>
<th>60% of Labor Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>2% TCI</td>
</tr>
<tr>
<td>Property Taxes</td>
<td>1% TCI</td>
</tr>
<tr>
<td>Insurance</td>
<td>1% TCI</td>
</tr>
<tr>
<td>Annual Source</td>
<td>One representative test/year @ $15,000</td>
</tr>
</tbody>
</table>

$\text{Total IC} = \text{Calculate Indirect Costs} = \$19,620$

#### Recovery Credits (RC)

- **80 Proof**
  - **Recovered**
    - 1,116 lb/year (uncontrolled fermentation emissions) x 0.81 x gal/6.62 lb ÷ 0.40
    - $\$\text{/gal 80 Proof EtOH} \times \text{Recovered Emissions}$

$\text{Annual Cost (DC + IC - RC)} = \text{Condenser System + Annual Cost} = \text{Total Annual Cost} = \$31,834 + \$\text{(with Recovery Credits)}$

### Emission Reductions

EcoPAS has indicated the PAS unit is capable of achieving a capture and control efficiency of 90%. However, the District's current BACT Guideline identifies a combined capture and control efficiency of 81% for condensation technology. The capture and control efficiency of 81% will be used in this analysis as the value of 90% has yet to be shown to be feasible.

**Annual Emission Reduction** = \text{Uncontrolled Emissions} \times 0.81
- = 1,116 lb-VOC/year \times 0.81
- = 904 lb-VOC/year
- = 0.45 tons-VOC/year
**Cost Effectiveness**

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $\text{[Redacted]}/\text{year} + 0.45 \text{ tons-VOC/year}

= $\text{[Redacted]}/\text{ton-VOC (with Recovery Credits)}$

The analysis demonstrates that the annualized purchase cost of the refrigerated condenser system and annual costs alone results in a cost effectiveness which exceeds the District’s Guideline of $17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.
Collection of VOCs and control by absorption (> 81% collection & control)

Design Basis

- The District provided notice to Andrew Fedak of NohBell Corporation to allow NohBell Corporation an opportunity to provide cost information. The District did not receive updated cost information; therefore, the NohBell equipment pricing and capital investment requirements developed for District Project N-1131615 (Gallo Livingston) will be factored as required to develop a cost effectiveness analysis for this project.
- Since project specific cost information was not provided, to develop an equipment cost for this project, the equipment cost from N-1131615 will be considered the base equipment cost and the equipment cost for this project will be developed by factoring the base equipment cost by the ratio of project capacity with an exponent of 0.6 \([\text{Capacity}_{\text{new}} / \text{Capacity}_{\text{base}}]^{0.6}\) where "Capacity" refers to the adjusted total nominal volume of all tanks included in the analysis (commonly referred to the "6-tenths Rule", traditionally employed to extrapolate equipment costs from one capacity to a different capacity).
- The District will consider the average control efficiency of the unit to be 81% for purposes of this project, consistent with the District's BACT Guideline for this class and category.
- The EPA Control Cost Manual, Sixth Edition (EPA/4521B-02-001) is used for this analysis with modifications to account for project-specific conditions.
- Instrumentation allowance of $2,000 per NoMoVo unit has been included for a pressure transmitter and a temperature transmitter for monitoring pressure of the collection header and vent stream and temperature from the NoMoVo unit.
- Sales tax = 3%
- Foundations and supports: not required — unit is supported from either a tank or the pipe rack structure. Equipment price includes required attachments and clips.
- Since the units are mobile which are ready for operation upon delivery, Handling and Erection is taken to be 2% of Purchased Equipment Cost as an allowance for pre-commissioning.
- Piping is taken to be 1% of Purchased Equipment Cost based on the only requirements being Tee fittings for the tank discharge.
- E & J Gallo Winery has indicated that, consistent with their current plant and corporate operating philosophy, programmable logic controls and data logging as well as integration with existing digital control systems will be required for any fermentation control system installed. The district has added an allowance of $10,000 per unit to cover the expected hardware and programming cost of this item.
- Insulation and painting are not required.
- Recovered ethanol storage tank = $40,000 (installed)
- Due to the unsteady state operation of fermentation tanks, initial source testing is expected to be a significant technical operation with significant expense, conducted over the fermentation cycle rather than the typical three 30-minute steady state measurements. An additional cost of $15,000 per unit will be assumed for initial source testing.
- Engineering costs will be assumed to be 5% of total direct cost exclusive of city/county plan check costs. The District believes that this value reflects a typical minimum for any significant industrial project and believes that this is consistent with standard estimating and good engineering practice.
- An allowance of $10,000 per unit will be added to cover plan check and building permit fees.
• Owner’s Cost: The District considers a value of $100,000 as a minimum value to cover the project management, internal engineering and operations planning required to implement a significant new process technology of this scale in a commercial winery.

• Project Contingency: Good engineering practice and accepted norms of the engineering industry, when applied to a conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received, approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material take-off for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction. Based on this discussion, the District will apply a conservative project contingency of 20% to the estimated capital investment for this project.

• Operating labor is estimated based on 2 operator hours per day per operating unit over a 90 day crush season and an hourly cost of $18.50 per hour.

• An allowance for annual maintenance cost was included as 1% of Total Capital Investment.

• Connected electrical load for each unit is 2.5 horsepower which is assumed to operate continuously for 90 days.

• Electric power cost = $0.102/kWh (see regenerative thermal oxidizer Top Down BACT Analysis section below)

• Captured ethanol is recovered as a 10% solution suitable for disposal to an ethanol distillery at a cost of $0.08 per gallon.

• Annual source testing will be required. It is assumed that only one representative unit will require testing each year. An annual charge of $15,000 has been included.

**Equipment Cost Scrubber**

Pricing for the NoMoVo units will be based on pricing previously received from NohBell Corporation for District Project N-1131615.

In project N-1131615, NohBell Corporation sized 18 scrubbers to handle twenty-four (24) 56,000 gallon tanks (total volume of 1,344,000 gallons) with a combined flow rate of 6,926.4 scfm (288.6 scfm x 24 tanks) and a combined VOC emission rate of 84,864 lb-VOC/year (3,536 lb-VOC/year x 24 tanks). Each tank in this project has a capacity of 1,720 gallons (total volume of 20,640 gallons with a combined flow rate of 106.8 scfm (8.9 scfm x 12 tanks) and a combined VOC emission rate of 1,116 lb-VOC/year (93 lb-VOC/year x 12 tanks). For this project, the number of required scrubbers will be scaled based on the ratios required for project N-1131615. Since project N-1131615 required 18 scrubbers for 24 fermentation tanks, the cost analysis for this project will be based upon nine scrubbers for 12 fermentation tanks.

As quoted by NohBell for project N-1131615, based on supply of 18 NoMoVo units each sized to control twenty-four (24) 56,000-gallon tanks, the price per scrubber is shown below.

NoMoVo v4.0-18 Reactor Units = $60,000 each
NoMoVo v2.0 Portable Pumping Skids = $7,500 each
Total = $60,000 + $7,500 = $67,500
Total Equipment Cost = $67,500 x 9 units
= $607,500

The vendor has indicated the equipment cost can be adjusted based upon VOC emissions sent to the control device. Using the six-tenths rule of thumb, the adjusted equipment cost is calculated as follows:

Adjusted Equipment Cost = $607,500 x (1,116 + 21,216)^0.8
= $103,788

All other costs (direct, indirect, and annual) will be taken from project N-1131615 and scaled using the six-tenths rule of thumb, as appropriate.

<table>
<thead>
<tr>
<th>Scrubber</th>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerated Scrubber System (9 NoVoMo Units)</td>
<td>$103,788</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Direct Costs (DC)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Scrubber System) See Above</td>
<td>$103,788</td>
</tr>
<tr>
<td>Instrumentation ($2,000 per unit)</td>
<td>$18,000</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$3,114</td>
</tr>
<tr>
<td>Freight (included)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td><strong>$124,902</strong></td>
</tr>
<tr>
<td>Foundations &amp; supports (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Handling &amp; erection 2%</td>
<td>$2,498</td>
</tr>
<tr>
<td>Electrical 1%</td>
<td>$1,249</td>
</tr>
<tr>
<td>Piping 1%</td>
<td>$1,249</td>
</tr>
<tr>
<td>Painting (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Insulation (not required)</td>
<td>-</td>
</tr>
<tr>
<td>PLC &amp; Programming (Allowance $10,000 per unit)</td>
<td>$90,000</td>
</tr>
<tr>
<td>Recovered Ethanol Storage Tank (installed)</td>
<td>$40,000</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td><strong>$134,996</strong></td>
</tr>
<tr>
<td><strong>Total Direct Costs (TDC)</strong></td>
<td><strong>$259,898</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indirect Costs (IC)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (5% of TDC)</td>
<td>$12,995</td>
</tr>
<tr>
<td>Construction and field expenses (2% of TDC)</td>
<td>$5,198</td>
</tr>
<tr>
<td>Permits (Building Department) (Allowance)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Contractor fees (2% of TDC)</td>
<td>$5,198</td>
</tr>
<tr>
<td>Start-up (1% of TDC)</td>
<td>$2,599</td>
</tr>
<tr>
<td>Source Testing (9 units x $15,000/unit)</td>
<td>$135,000</td>
</tr>
</tbody>
</table>
| **Owner's Cost (Total Allowance)** | **$100,000 x (1,116 + 21,216)^0.8 = $17,084**
**Total Indirect Costs (TIC)**  $188,074  

**Subtotal Capital Investment (SCI = TDC + TIC)**  $447,972  

**Project Contingency (20% of SCI)**  $89,594  

**Total Capital Investment (TCI) (TDC + TIC + Contingency)**  $537,566  

**Annualized Capital Costs**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Amortization Factor = \[
\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} = 0.1627, \text{ amortizing over 10 years at 10%}
\]

Therefore,

Annualized Capital Investment = $537,566 x 0.1627 = $87,486

**Wastewater Disposal Costs**

Additionally, the water scrubber will generate ethanol-laden wastewater containing 0.45 tons-ethanol annually (1,116 lb/year (uncontrolled fermentation emissions) x 0.81 + 2000). Assuming a 10% solution, approximately 1,365 gallons of waste water (0.45 ton-ethanol x 2000 lb/ton x gal/6.62 lb ÷ 0.10) will be generated annually. Per NohBell Corporation, an allowance of $0.08 per gallon is applied for disposal costs.

Annual disposal costs = 1,365 gallons x $0.08/gallon = $109

**Annual Costs**

<table>
<thead>
<tr>
<th>Annual Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Annual Cost (DC)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Operating Labor</strong></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>2 hr/day x 9 units x 90 days = 1,620 hr/year</td>
</tr>
<tr>
<td>Supervisor</td>
<td>15% of operator</td>
</tr>
<tr>
<td><strong>Maintenance Labor</strong></td>
<td>1% of TCI</td>
</tr>
<tr>
<td><strong>Wastewater Disposal</strong></td>
<td>10% Solution = 1,365 gal</td>
</tr>
<tr>
<td><strong>Utility</strong></td>
<td>9 units x 2.5 hp x 0.746 kW/hp x 2,160 hr/yr = 36,256 kWh/yr</td>
</tr>
<tr>
<td><strong>Total DC</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Indirect Annual Cost (IC)

<table>
<thead>
<tr>
<th></th>
<th>60% of Labor Cost</th>
<th>0.6 x ($29,970 + $4,496 + $6,747)</th>
<th>$24,728</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative</td>
<td>2% TCI</td>
<td></td>
<td>$10,490</td>
</tr>
<tr>
<td>Property Taxes</td>
<td>1% TCI</td>
<td></td>
<td>$5,245</td>
</tr>
<tr>
<td>Insurance</td>
<td>1% TCI</td>
<td></td>
<td>$5,245</td>
</tr>
<tr>
<td>Annual Source Test</td>
<td>One representative test/year @ $15,000</td>
<td></td>
<td>$15,000</td>
</tr>
<tr>
<td><strong>Total IC</strong></td>
<td></td>
<td></td>
<td>$60,708</td>
</tr>
</tbody>
</table>

### Annual Cost (DC + IC)

<table>
<thead>
<tr>
<th></th>
<th>$105,728</th>
</tr>
</thead>
</table>

**Total Annual Cost** = Scrubber System + Annual Cost

= $87,486 + $105,728

= $193,214

**Emission Reductions**

The District's BACT Guideline identifies an overall collection and control efficiency of 81% for absorption systems.

Annual Emission Reduction = Uncontrolled Emissions x 0.81

= 1,116 lb-VOC/year x 0.81

= 904 lb-VOC/year

= 0.45 tons-VOC/year

**Cost Effectiveness**

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $193,214/year ÷ 0.45 tons-VOC/year

= $429,364/ton-VOC

The analysis demonstrates that the annualized purchase cost of the water scrubber and annual costs alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.
Collection of VOCs and control by carbon adsorption (> 86% collection and control)

A potential common feature of all thermal or catalytic oxidation/carbon adsorption options when configured as a large single control device controlling many tanks is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device. Therefore, the requirements and cost of such a collection system will be considered separately.

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 twelve 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. The main header duct size of twelve inches may be insufficient for red wine fermentation but will be utilized as a worst case scenario.

Capital Cost Ductwork

Ducting cost (see Attachment A) = $6,924
Redundant duct = $6,924
Unit installed cost for 6 inch butterfly valve (adjusted from 6 inch to 3 inch) = $2,125/valve x 12 valves x 2 systems x (3/6) = $25,500
Unit installed cost one foot removable spool (adjusted from 6 inch to 3 inch) = $500/tank x 12 tanks x 2 systems x (3/6) = $6,000
Knockout drums (2 drums @ 2,500 gallons each) = $44,000
Duct support allowance = $40,000

Total = $6,924 + $6,924 + $25,500 + $6,000 + $44,000 + $40,000
= $129,348

Instrumentation and electrical (grounding and dampers) may be required but will be excluded as a worst case scenario (based on comments provided by the emission control device vendors).
**Ductwork**

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct Estimate (See Duct Sizing Attachment A)</td>
<td>$129,348</td>
</tr>
<tr>
<td>Adjusting factor from 2005 dollars to 2014 dollars (2.75% inflation/year)</td>
<td>1.2475</td>
</tr>
<tr>
<td>Inflation adjusted duct cost</td>
<td>$161,362</td>
</tr>
</tbody>
</table>

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

**Direct Costs (DC)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Ductwork) See Above</td>
<td>$161,362</td>
</tr>
<tr>
<td>Instrumentation (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$4,841</td>
</tr>
<tr>
<td>Freight 5%</td>
<td>$8,068</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td>$174,271</td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
<td>$13,942</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
<td>$24,398</td>
</tr>
<tr>
<td>Electrical 4% (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Piping 2% (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Painting 1% (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Insulation 1% (not required)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td>$38,340</td>
</tr>
<tr>
<td><strong>Total Direct Costs</strong></td>
<td>$212,611</td>
</tr>
</tbody>
</table>

**Indirect Costs (IC)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
<td>$17,427</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
<td>$8,714</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
<td>$17,427</td>
</tr>
<tr>
<td>Start-up 2%</td>
<td>$3,485</td>
</tr>
<tr>
<td>Performance test 1%</td>
<td>$1,743</td>
</tr>
<tr>
<td>Contingencies 3%</td>
<td>$5,228</td>
</tr>
<tr>
<td><strong>Total Indirect Costs</strong></td>
<td>$54,024</td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (DC + IC)</strong></td>
<td>$266,635</td>
</tr>
</tbody>
</table>

**Capital Cost Clean-In-Place (CIP) System**

A ducting system on a tank farm must have this system to maintain sanitation and quality of the product. The cost of operation of the CIP system has not been estimated. Operation of a CIP system, using typical cleaning agents, will raise disposal and wastewater treatment costs. Most likely, these costs will be significant.
### Clean-In-Place (CIP) System

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current cost of CIP system</td>
<td>$200,000</td>
</tr>
</tbody>
</table>

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

#### Direct Costs (DC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (CIP System) See Above</td>
<td>$200,000</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
<td>$20,000</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$6,000</td>
</tr>
<tr>
<td>Freight 5%</td>
<td>$10,000</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td><strong>$236,000</strong></td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
<td>$18,880</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
<td>$33,040</td>
</tr>
<tr>
<td>Electrical 4%</td>
<td>$9,440</td>
</tr>
<tr>
<td>Piping 2%</td>
<td>$4,720</td>
</tr>
<tr>
<td>Painting 1%</td>
<td>$2,360</td>
</tr>
<tr>
<td>Insulation 1%</td>
<td>$2,360</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td><strong>$70,800</strong></td>
</tr>
<tr>
<td><strong>Total Direct Costs</strong></td>
<td><strong>$306,800</strong></td>
</tr>
</tbody>
</table>

#### Indirect Costs (IC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
<td>$23,600</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
<td>$11,800</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
<td>$23,600</td>
</tr>
<tr>
<td>Start-up 2%</td>
<td>$4,720</td>
</tr>
<tr>
<td>Performance test 1%</td>
<td>$2,360</td>
</tr>
<tr>
<td>Contingencies 3%</td>
<td>$7,080</td>
</tr>
<tr>
<td><strong>Total Indirect Costs</strong></td>
<td><strong>$73,160</strong></td>
</tr>
</tbody>
</table>

**Total Capital Investment (TCI) (DC + IC)**

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Capital Investment (TCI) (DC + IC)</strong></td>
<td><strong>$379,960</strong></td>
</tr>
</tbody>
</table>

### Annualized Capital Costs

Two CIP systems are required for a redundant ducting system.

Total capital costs  =  Ductwork + CIP System (x 2)

= $266,635 + $379,960 + $379,960

= $1,026,555
Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $1,026,555 x 0.163 = $167,067

**Carbon Adsorption**

Delivery and installation of a 1,000 cfm blower package for carbon adsorption is $80,000 - $85,000 and delivery and installation of a 50 cfm blower package for carbon adsorption is $20,000 - $25,000 per David Drewelow of Drewelow Remediation Equipment on February 3, 2015. The combined vapor flow rate for the tanks in this project is 106.8 cfm. A value of $20,000 for the 50 cfm blower package will be used as a conservative estimate.

Carbon Adsorption Capital Cost = $20,000

The carbon bed operated with steam to regenerate the bed produces a water alcohol mixture. The applicant has provide a cost of $5,000 for a water alcohol tank. The waste stream or disposal costs have not been analyzed in this project.

**Carbon Capital Cost**

Annual Emission Reduction = Uncontrolled Emissions x 0.95
= 1,116 lb-VOC/year x 0.95
= 1,060 lb-VOC/year
= 0.53 tons-VOC/year

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

Carbon required = 0.53 tons-VOC/year x 2000 lb/ton x 1/0.20
= 5,301 lb carbon

David Drewelow also provided a cost of $1.25/lb of carbon which does not include any delivery or servicing fees.

Carbon capital cost = $1.25/lb = $1.25/lb x 5,301 lb carbon = $6,626
<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Adsorption cost (see above)</td>
<td>$20,000</td>
</tr>
<tr>
<td>Carbon Capital Cost (see above)</td>
<td>$6,626</td>
</tr>
<tr>
<td>Water alcohol tank cost</td>
<td>$5,000</td>
</tr>
</tbody>
</table>

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

### Direct Costs (DC)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Carbon Adsorption System + Carbon) See Above</td>
<td>$31,626</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
<td>$3,163</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$949</td>
</tr>
<tr>
<td>Freight 5%</td>
<td>$1,581</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td><strong>$37,319</strong></td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
<td>$2,986</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
<td>$5,225</td>
</tr>
<tr>
<td>Electrical 4%</td>
<td>$1,493</td>
</tr>
<tr>
<td>Piping 2%</td>
<td>$746</td>
</tr>
<tr>
<td>Painting 1%</td>
<td>$373</td>
</tr>
<tr>
<td>Insulation 1%</td>
<td>$373</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td><strong>$11,196</strong></td>
</tr>
<tr>
<td><strong>Total Direct Costs</strong></td>
<td><strong>$48,515</strong></td>
</tr>
</tbody>
</table>

### Indirect Costs (IC)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
<td>$3,732</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
<td>$1,866</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
<td>$3,732</td>
</tr>
<tr>
<td>Start-up 2%</td>
<td>$746</td>
</tr>
<tr>
<td>Performance test 1%</td>
<td>$373</td>
</tr>
<tr>
<td>Contingencies 3%</td>
<td>$1,120</td>
</tr>
<tr>
<td><strong>Total Indirect Costs</strong></td>
<td><strong>$11,569</strong></td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (DC + IC)</strong></td>
<td><strong>$60,084</strong></td>
</tr>
</tbody>
</table>

### Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Annualized Capital Investment = $60,084 \times 0.163 = $9,778

**Total Annual Cost**

Total Annual Cost = Carbon Adsorption System + Ductwork + CIP System
= $9,778 + $167,067
= $176,845

**Emission Reductions**

Annual Emission Reduction = Uncontrolled Emissions \times 0.86
= 1,116 \text{ lb-VOC/year} \times 0.86
= 960 \text{ lb-VOC/year}
= 0.48 \text{ tons-VOC/year}

**Cost Effectiveness**

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions
= $176,845/\text{year} ÷ 0.48 \text{ tons-VOC/year}
= $368,519/\text{ton-VOC}

The analysis demonstrates that the annualized purchase cost of the carbon adsorption system and collection system ductwork and CIP equipment alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.
Collection of VOCs and control by thermal or catalytic oxidation
(> 88% collection & control)

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

\[ C_2H_5OH + 3O_2 \rightarrow 3H_2O + 2CO_2 \]

The RTO would be connected by ducts to the tanks themselves. If the tanks were to overfill and send liquid down the duct, damage to the RTO could occur. The presence of significant liquid in the knock out drum would cause a shut down of the RTO until the issue could be corrected. The ducting costs include a knock out drum allowance.

Thermal or Catalytic Oxidizer Capital Cost

A total capital investment cost of $145,500 and installation cost including freight of $22,900 for a Regenerative Thermal Oxidizer (RTO) is provided by Adwest Technologies, Inc on September 24, 2014 for an RTO handling 537 scfm. Therefore, this cost estimate will be used in this project as a conservative estimate.

Capital Cost = $145,500 + $22,900
= $168,400

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 cfm Regenerative Thermal Oxidizer cost</td>
<td>$145,500</td>
</tr>
<tr>
<td>Installation cost (including freight)</td>
<td>$22,900</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Direct Costs (DC)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Regenerative Thermal Oxidizer System) See Above</td>
<td>$168,400</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
<td>$16,840</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$5,052</td>
</tr>
<tr>
<td>Freight 5% (included)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td><strong>$190,292</strong></td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
<td>$15,223</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
<td>$26,641</td>
</tr>
<tr>
<td>Electrical 4%</td>
<td>$7,612</td>
</tr>
<tr>
<td>Piping 2%</td>
<td>$3,806</td>
</tr>
<tr>
<td>Painting 1%</td>
<td>$1,903</td>
</tr>
<tr>
<td>Insulation 1%</td>
<td>$1,903</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td><strong>$57,088</strong></td>
</tr>
<tr>
<td><strong>Total Direct Costs</strong></td>
<td><strong>$247,380</strong></td>
</tr>
</tbody>
</table>
### Indirect Costs (IC)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
<td>$19,029</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
<td>$9,515</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
<td>$19,029</td>
</tr>
<tr>
<td>Start-up 2%</td>
<td>$3,806</td>
</tr>
<tr>
<td>Performance test 1%</td>
<td>$1,903</td>
</tr>
<tr>
<td>Contingencies 3%</td>
<td>$5,709</td>
</tr>
<tr>
<td><strong>Total Indirect Costs</strong></td>
<td><strong>$58,991</strong></td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (DC + IC)</strong></td>
<td><strong>$306,371</strong></td>
</tr>
</tbody>
</table>

### Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $306,371 x 0.163 = $49,860

### 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 -\(dH_c\) = 20,276 Btu/lb

Daily VOC emissions rate = 6.0 lb/day x 12 tanks = 72.0 lb/day

Blower flow rate = 106.8 scfm

\[= 153,792 \text{ ft}^3/\text{day}\]

\[-dh(c) = 72.0 \text{ lb/day} \times 20,276 \text{ Btu/lb} + 153,792 \text{ ft}^3/\text{day}\]

\[= 9.49 \text{ Btu/ft}^3\]

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:

\[-dh(c) = 9.49 \text{ Btu/ft}^3 + 0.0739 \text{ lb/ft}^3\]

\[= 128.45 \text{ Btu/lb}\]
Fuel Flow Requirement

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

Where
- \( Pw = 0.0739 \text{ lb/ft}^3 \)
- \( Cp = 0.255 \text{ Btu/lb}^{-\circ}\text{F} \)
- \( Qw = 106.8 \text{ scfm} \)
- \( -dh(m) = 21,502 \text{ Btu/lb} \) for methane
- \( Tr = 77\circ\text{F} \) assume ambient conditions
- \( P(ef) = 0.0408 \text{ lb/ft}^3 \), methane at 77\circ\text{F}, 1 atm
- \( Tf = 1600\circ\text{F} \)
- \( Tw = 1150\circ\text{F} \)
- \( -dh(c) = 128.45 \text{ Btu/lb} \)

\[ Q = \frac{0.0739 \times 106.8 \times [0.255 \times (1.1 \times 1600 - 1150 - 0.1 \times 77) - 128.45]}{0.0408 \times [21,502 - 1.1 \times 0.255 \times (1600 - 77)]} \]

\[ Q = 198.39 + 859.9 = 0.23 \text{ ft}^3/\text{min} \]

Fuel Costs

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

- 2012 = $7.05/thousand ft³ total monthly average
- 2011 = $8.29/thousand ft³ total monthly average
- Average for two years = $7.67/thousand ft³ total monthly average

Fuel Cost = 0.23 cfm x 1440 min/day x 365 day/year x $7.67/1000 ft³

\[ = \$930/\text{year} \]

Electricity Requirement

\[ \text{Power}_{\text{fan}} = 1.17 \times 10^{-4} \frac{Qw \times \Delta P}{\epsilon} \]

Where
- \( \Delta P = \text{Pressure drop Across system} = 4 \text{ in. H}_2\text{O} \)
- \( \epsilon = \text{Efficiency for fan and motor} = 0.6 \)
- \( Qw = 106.8 \text{ scfm} \)

\[ \text{Power}_{\text{fan}} = \frac{1.17 \times 10^{-4} \times 106.8 \text{ scfm} \times 4 \text{ in. H}_2\text{O}}{0.60} \]

\[ = 0.08 \text{ kW} \]

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

Average cost of electricity to commercial users in California:\n\[\text{YTD through Jan 2014} = 0.1339\]
\[\text{YTD through Jan 2013} = 0.1181\]
\[\text{AVG} = 0.126\]

Electricity Cost = $0.08 \text{ kW x 24 hours/day x 365 days/year x 0.126/kWh} = 92/\text{year}$

Total Utility Costs

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

<table>
<thead>
<tr>
<th>Annual Cost</th>
<th>Operator 0.5 h/shift $18.5/h x 0.5 h x 365 days/yr</th>
<th>$3,376</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor 15% of operator</td>
<td>$506</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>Labor 0.5 h/shift $18.5/h x 0.5 h x 365 days/yr $3,376</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material 100% of labor $3,376</td>
<td></td>
</tr>
<tr>
<td>Utility</td>
<td>Natural Gas $930</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electricity $92</td>
<td></td>
</tr>
<tr>
<td>Indirect Annual Cost (IC)</td>
<td>Overhead 60% of Labor Cost $4,355</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Administrative Charge 2% TCI $1,216</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Property Taxes 1% TCI $608</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insurance 1% TCI $608</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Annual Cost $18,443</td>
<td></td>
</tr>
</tbody>
</table>

Total Annual Cost

Total Annual Cost = Regenerative Thermal Oxidizer System + Ductwork + CIP System + Annual Cost
= $49,860 + $167,067 + $18,443
= $235,370

\[\text{2 Energy Information Administration/Electric Power; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, Year-to-Date through January 2014 and January 2013}\]
Emission Reductions

Annual Emission Reduction = Uncontrolled Emissions x 0.88
= 1,116 lb-VOC/year x 0.88
= 982 lb-VOC/year
= 0.49 tons-VOC/year

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $235,370/year ÷ 0.49 tons-VOC/year
= $479,330/ton-VOC

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

Step 5—Select BACT

All identified feasible options with control efficiencies higher than the option proposed by the facility have been shown to not be cost effective. The facility has proposed Option 1, temperature-controlled open top tank with maximum average fermentation temperature of 95 deg F. These BACT requirements will be placed on the permits as enforceable conditions.
Attachment A

Duct Sizing Analysis
Connections From Tank to Main Duct:

Three inch is used to maintain structural integrity for short distance.

1. One of the major concerns of a manifold duct system is inadvertently transferring fluids from one tank to another.

2. For these reasons it is necessary to design into the system a positive disconnect of the ducting system when the tank is not being filled. There are a number of ways this can be done, but for illustration purposes we took a very brief look at a automatic butterfly valve with a physical spool to disconnect the tank from the ducts.

3. It should be pointed out that no design work has been done, and this should be considered a conceptual estimate.

<table>
<thead>
<tr>
<th>Number of Tanks to Connect</th>
<th>Total Feet</th>
<th>Cost Per Adjustment</th>
<th>Cost (adjusted if needed)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>83</td>
<td>$61.00</td>
<td>$30.50</td>
<td>$2,562.00</td>
</tr>
<tr>
<td>2</td>
<td>8.50</td>
<td>$61.00</td>
<td>$30.50</td>
<td>$318.50</td>
</tr>
<tr>
<td>4</td>
<td>10.27</td>
<td>$61.00</td>
<td>$30.50</td>
<td>$626.47</td>
</tr>
<tr>
<td>6</td>
<td>8.48</td>
<td>$61.00</td>
<td>$30.50</td>
<td>$517.28</td>
</tr>
<tr>
<td>8</td>
<td>8.50</td>
<td>$61.00</td>
<td>$30.50</td>
<td>$518.50</td>
</tr>
<tr>
<td>1</td>
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<td>2</td>
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<td>$61.00</td>
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<td>$517.28</td>
</tr>
<tr>
<td>4</td>
<td>8.50</td>
<td>$61.00</td>
<td>$30.50</td>
<td>$518.50</td>
</tr>
</tbody>
</table>

**Total**: $6,924

- 2 Knock drums (2500 gallons) $64,000
- Ducting Isolation Components $13,500
- Ducting Supports Allowance $40,000

**Ducting Cost**: $129,347

6.5% Butterfly installed per tank $2,325
1 foot removable spool $500
Attachment B

Achieved in Practice Analysis
Introduction

The purpose of this analysis is to determine whether there is any control technologies that can be considered to be Achieved in Practice BACT for controlling fermentation VOC emissions from wine fermentation tanks. If determined to be achieved in practice, the San Joaquin Valley Air Pollution Control District (District) would require the use of such technology for wine fermentation tanks when BACT is triggered, without any consideration of the cost effectiveness of the control technology. The District's achieved in practice BACT is functionally equivalent to Federal EPA's Lowest Achievable Emission Rate requirements outlined in Federal Non-Attainment NSR documents.

LAER

The emission control requirement for new Major Sources and Federal Major Modifications in non-attainment areas is that the emission units meet the lowest achievable emission rate (LAER). LAER is the most stringent emission limitation from either of the following:

1. The most stringent emission limitation contained in the implementation plan of any State for such class and category of source; or
2. The most stringent emission limitation achieved in practice by such class or category of source.

In no event can the LAER requirement be less stringent than Federal New Source Performance Standards (NSPS), if there is an NSPS applicable to the type of source being evaluated.
In the case of wine fermentation tanks, the District did not identify any SIP that would require the use of add-on control systems. Therefore, add-on control systems can only be required as LAER for wine fermentation if they are determined to be achieved in practice for the source category.

**Achieved in Practice Criteria**

The term "achieved in practice" appears to be subject to interpretation since it is not defined in the federal statutes or regulations. As a result, there are few objective regulatory criteria to constrain the form of an achieved in practice determination. The following discussion outlines the achieved in practice criteria that is used by the District for determining LAER.

In a February 28, 1989 memorandum titled "Guidance on Determining Lowest Achievable Emission Rate (LAER), EPA provided the following guidance concerning the economic feasibility of LAER:

> Traditionally, little weight has been given to economics in LAER determinations, and this continues to be the case. The extract in your memorandum from the record of the House and Senate discussion of the Clean Air Act (Act) contains the sentence:

> "If the cost of a given control strategy is so great that a new major source could not be built or operated, then such a control would not be achievable and could not be required by the Administrator."

We interpret this statement in the record to be used in a generic sense. That is, that no new plants could be built in that industry if emission limits were based on levels achievable only with the subject control technology. However, if some other plant in the same (or comparable) industry uses that control technology, then such use constitutes de facto evidence that the economic cost to the industry of that technology control is not prohibitive. Thus, for a new source in that same industry, LAER costs should be considered only to the degree that they reflect unusual circumstances which, in some manner, differentiate the cost of control for that source from the costs of control for the rest of that industry. These unusual circumstances should be thoroughly analyzed to ensure that they really do represent compelling reasons for not requiring a level of control that similar sources are using. Therefore, when discussing costs, applicants should compare the cost of control for the proposed source to the costs for source(s) already using that level of control.
The statement "If some other plant in the same (or comparable) industry uses that control technology, then such use constitutes de facto evidence that the economic cost to the industry of that technology control is not prohibitive" is only true if the plant using that control technology purchased or leased that control technology. Scenarios where the purchase/lease of the control technology was subsidized with grant money, or where the plant allowed the control vendor to operate and test their equipment on-site without actually purchasing/leasing the control technology do not constitute evidence that the economic cost to the industry due to use of that technology control is not prohibitive. Therefore, the District's historical position is that a control technology must have been purchased or leased by the plant in order for that installation of the control technology to be considered as achieved in practice.

EPA Region IX has previously stated that the successful operation of a new control technology for six months constitutes achieved in practice. This position was established in an August 25, 1997 letter from David Howekamp of US EPA Region IX to Moshen Nazemi of South Coast Air Quality Management District. This guidance is reflected in the South Coast Air Quality Management District's BACT Policy, which includes the following criteria for determining whether a control technology is achieved in practice:

Reliability: All control technologies must have been installed and operated reliably for at least six months. If the operator did not require the basic equipment to operate daily, then the equipment must have at least 183 cumulative days of operation. During this period, the basic equipment must have operated: 1) at a minimum of 50% design capacity; or 2) in a manner that is typical of the equipment in order to provide an expectation of continued reliability of the control technology.

For wine fermentation tanks, the District has taken the position that successful operation of a control device for one full fermentation season is satisfactory for qualifying a control as achieved in practice. The requirement of one full fermentation season is considerably more conservative than the 6-month requirement, since the fermentation season typically lasts only two to three months.
The term "successful operation" is not tightly defined. The District considers the following when determining whether a control technology has been successfully operated for achieved in practice BACT determinations:

1. Was the control technology operated in the same manner that would be required by the District if the control technology was required for BACT?
2. How reliable has the control technology been over the life of its use?
3. Has the control technology been verified to perform effectively over the range of operation expected for that type of equipment? Was the effectiveness verified by performance test(s), when possible, or using other performance data?

Other typical considerations that the District considers when making an achieved in practice BACT determination include:

1. Is the control technology commercially available from at least one vendor?
2. On what class and category of source has the control technology been demonstrated?

In summary, the following criteria are used for determining whether a control technology is achieved in practice for wine fermentation:

1. Did the plant using the control technology purchase/lease the equipment? Was that purchase/lease subsidized?
2. Was the control technology operated for at least one fermentation season?
3. Was the control technology operated in the same manner that would be required by the District for BACT purposes?
4. How reliable has the control technology been during its use at the plant?
5. Has the control technology been verified to perform effectively over the range of operation expected for that type of equipment? Was the effectiveness verified by performance test(s), when possible, or other performance data?
6. Is the control technology commercially available from at least one vendor?
7. On what class and category of source has the control technology been demonstrated?
Achieved in Practice Analysis for Known Installations of Wine Fermentation Control Technologies

The following is an analysis of each known installation of an emission control technology to control VOC emissions from wine fermentation tanks and whether that installation can be considered achieved in practice.

**Terravant Wine Company (2008 – Current)**

Terravant Wine Company submitted an Authority to Construct application for a wine processing facility to the Santa Barbara County Air Pollution Control District (SBCAPCD) on September 20, 2007. The application was deemed complete on October 19, 2007. The fermentation tanks triggered BACT; however, the SBCAPCD evaluation determined BACT to be infeasible. However, this project also triggered offsets and Terravant Wine Company electively proposed to install a packed bed water scrubber with UV/hydrogen peroxide controls to control VOC emissions from the wine fermentation tanks. Proposing the control would reduce VOC emissions to a level below the SBCAPCD offset threshold. The control technology is only required to run sufficiently to reduce emissions to stay below the offset threshold — it is not required to be operated all of the time, as is BACT-required equipment.

The packed bed water scrubber was installed in 2008 and began operation in 2008, with a 95% control efficiency requirement on the Authority to Construct permit. However, in 2008, the unit failed to meet the 95% control efficiency requirement. Prior to the 2009 season, Terravant Wine Company was issued a revised Authority to Construct permit that reduced the control efficiency requirement to 75%. However, the unit has not been able to consistently demonstrate compliance with the 75% control efficiency requirement. The effectiveness of the packed bed scrubber has varied considerably over its life, and has been measured to be as low as 49% control efficiency. During discussions, SBCAPCD staff indicated that this facility has been issued a Notice of Violation for non-compliance with their permitted emission limits and they would not recommend that any wineries use this control technology for the control of fermentation tank emissions, as it has proven to be unreliable. Finally, the control technology used by Terravant Winery is custom designed, and is not a commercially available off-the-shelf type of unit.

The packed bed scrubber technology does not meet the achieved in practice criteria since this control technology has not been operating in compliance with its permit requirements, its effectiveness is highly variable, and the control technology is not commercially available.
EcoPAS, LLC (2009)

EcoPAS conducted testing of their passive alcohol system, which is condensation-based emission control system, at a winery located within the San Luis Obispo County Air Pollution Control District. The purpose of this installation was to conduct full-scale testing of the passive alcohol system on red wine fermentation tanks. The District was unable to verify whether the winery purchased the system.

Since the District could not verify that the winery purchased the control system, this installation doesn’t meet the first criteria listed to be considered as achieved in practice. Furthermore, the unit was operated for experimental testing of the control device. In the District’s experience, during experimental testing/trial runs, a control technology does not typically operate in the same manner as would be required by BACT, so the District has not historically considered experimental test/trial installations to constitute achieved in practice BACT.

Central Coast Wine Services (2009)

In 2009, Santa Barbara County Air Pollution Control District (SBCAPCD) determined that Central Coast Wine Services (CCWS) was operating without a permit. They required CCWS to submit an application for an Authority to Construct such that the winery would be in compliance with SBCAPCD Rules and Regulations. Based on the emission estimates for the facility, the facility was triggering Best Available Control Technology Requirements and Offsets. At that time, the SBCAPCD determined that BACT, while technologically feasible, was not cost effective. SBCAPCD issued an Authority to Construct/Permit to Operate on June 5, 2009 for the winery.

CCWS was allowed to exceed the offset thresholds during the fall 2009 harvest season in order to test potential control technologies. Three companies were invited to participate in testing of prototype emission control equipment, but only NohBell Corporation elected to install and test fugitive ethanol control equipment.

NohBell Corporation engineered and tested a full scale NoMoVo 1.0 system on a 50 ton tank at the CCWS plant. NoMoVo documents describe the equipment as successful, with full scale trials proceeding. After the 2009 season, NoMoVo documents indicate that CCWS decided to move the plant and equipment.
This installation does not meet the requirements to be considered achieved in practice. First, the facility does not appear to have purchased/leased the control system, nor did they intend to continue operating the system. This is evident by their decision to discontinue use of the system in the following year. Second, no data has been submitted to the District to demonstrate that the unit was continuously operated in the same manner that the District would require the system to operate if it were considered achieved in practice BACT. The purpose of this installation was to perform initial testing and trial runs of the control technology. In the District's experience, during experimental testing/trial runs, a control technology does not typically operate in the same manner as would be required by BACT, so the District has not historically considered experimental test/trial installations to constitute achieved in practice BACT. Furthermore, the type of records necessary to demonstrate continuous operation of the system was not required by the SBCAPCD permit. Finally, the SBCAPCD permit did not include testing requirements to sufficiently demonstrate the effectiveness of the system.

**Kendall Jackson Oakville (2010)**

Kendall Jackson Winery belongs to Jackson Family Wines Inc (JFW), and is located in Oakville, California. This winery is in Bay Area Air Quality Management District (BAAQMD). BAAQMD does not require permits for wine fermentation or storage operations. Their Regulation 2, Rule 1, 117.9 and 117.10 has exemptions for wine storage and fermentation operations. In 2010, NohBell installed a NoMoVo 2.0 system at the Kendall Jackson Winery. The system was connected to a 10,000 gallon fermentation tank and operated on a trial basis during the 2010 crush season. Pursuant to Brian Kosi, Winemaker at Kendall-Jackson Oakville, JFW never purchased the NoMoVo technology. The NoMoVo slurry was treated by the facilities on-site wastewater treatment system.

In 2010, NohBell installed a NoMoVo 2.0 system at the Kendall Jackson Winery. The system was connected to a 10,000 gallon fermentation tank and operated on a trial basis during the 2010 crush season. Pursuant to Brian Kosi, Winemaker at Kendall-Jackson Oakville, JFW never purchased the NoMoVo technology. The NoMoVo slurry was treated by the facilities on-site wastewater treatment system.

This installation does not meet the requirements of achieved in practice BACT. First, the system was never owned/leased by the winery. Secondly, the unit was operated for the purposes of testing/trial runs to evaluate the control technology. In the District's experience, during experimental testing/trial runs, a control technology does not typically operate in the same manner as would be required by BACT, so the District has not historically considered experimental test/trial installations to constitute achieved in practice BACT. Furthermore, BAAQMD does not have any record of source tests occurring during the 2010 crush season; therefore, the effectiveness for this installation was not established.
Kendall Jackson Oakville (2011-2013)

In its 2010 clean air plan, the BAAQMD included a further study measure (FSM 14 – Winery Fermentation) to examine whether ethanol emissions from Bay Area wine production could be cost-effectively reduced. On 9/26/11, the BAAQMD signed a Research Sponsorship Agreement (Contract No. 2011-126) with NohBell to help develop its technology to capture volatile organic compounds emitted by wine fermentation tanks at Kendall Jackson Oakville. The contract states that “District (BAAQMD) wishes to support NohBell’s effort to demonstrate the technology at JFW winery and wishes to verify the function and cost-effectiveness of the technology and acquire data to help DISTRICT (BAAQMD) determine whether the equipment could be cost effectively employed more widely in the wine industry”. NoMoVo submitted a project budget estimate of $118,750 for its NoMoVo 2.0 upgrades, pump upgrades, and related work at the plant. The BAAQMD contract promised $50,000 towards this effort, to be paid in installments directly to NohBell Corporation. Furthermore, Brian Kosi of Kendall-Jackson Oakville confirmed that the facility never purchased the NoMoVo system from NohBell and confirmed that the system has been removed from the site by NohBell.

For 2011, NohBell Corporation planned to conduct trials of the upgraded NoMoVo 2.0 system on 10 fermentation tanks. Six to eight trials were anticipated, operating on 4-6 day cycles. The trial runs were scheduled to be primarily conducted while fermenting red wines. The District was unable to obtain operational data for the 2012 and 2013 fermentation seasons for this equipment. Following the 2013 crush season, the equipment was removed and transferred to Constellation Wines in Monterey, CA.

This installation does not pass the first criteria of LAER, since the facility never owned the system and since the installation and operation of the control technology by NohBell was subsidized by a Research Sponsorship Agreement with BAAQMD. Furthermore, operation of the control technology at this facility was for trials/testing of the effectiveness of the control technology. In the District’s experience, during experimental testing/trial runs, a control technology does not typically operate in the same manner as would be required by BACT, so the District has not historically considered experimental test/trial installations to constitute achieved in practice BACT. Finally, the unit was removed, which indicates that this wasn’t intended as a permanent installation. For these reasons, the District does not consider this installation to be achieved in practice.
**J. Lohr Vineyard and Winery (2013)**

NohBell Corporation has indicated that they operated a NoMoVo system at J. Lohr Winery in Paso Robles during 2013 crush season. The District contacted J. Lohr Winery to obtain more information regarding this installation. J. Lohr Winery personnel stated that they considered this to be a pilot type testing operation. J. Lohr Winery did not purchase or lease the system. The unit operated during the 2013 crush season on fermentation tanks that were processing red wine. After the 2013 crush season, the system was removed and no longer operates at this site. San Luis Obispo Air Pollution Control District (SLOAPCD) had no knowledge that this unit was installed at this winery and no Authority to Construct or permit exemption was issued for this equipment.

This installation does not pass the first criteria of LAER, since the facility never purchased/leased the equipment. Furthermore, operation of the control technology at this facility was for trials/testing of the effectiveness of the control technology at this facility. In the District’s experience, during experimental testing/trial runs, a control technology does not typically operate in the same manner as would be required by BACT, so the District has not historically considered experimental test/trial installations to constitute achieved in practice BACT. Finally, the unit was removed, which indicates that this wasn’t intended as a permanent installation. For these reasons, the District does not consider this installation to be achieved in practice.

**Constellation Winery dba Gonzales Winery (2013)**

During the 2013 crush season, a NoMoVo unit was installed on a 39,000 gallon fermentation tank at Constellation Brands U.S. Operations, Inc. dba Gonzales Winery in Monterey, CA. The control technology was installed and operated as a “pilot operation”. Monterey Bay Unified Air Pollution Control District (MBUAPCD) compliance staff noticed the NoMoVo unit operating on-site without authorization from MBUAPCD and issued a notice of violation. Gonzales Winery submitted an Authority to Construct application; however, prior to processing that application, the facility notified MBUAPCD that the equipment had been removed from the site. The equipment operated at the site for a partial season for pilot testing purposes. MBUAPCD could not verify whether Gonzales Winery purchased or leased the equipment.
The District was unable to verify whether Gonzales Winery purchased or leased the NoMoVo unit. Furthermore, operation of the control technology at this facility was for trials/testing of the effectiveness of the control technology at this facility. In the District's experience, during experimental testing/trial runs, a control technology does not typically operate in the same manner as would be required by BACT, so the District has not historically considered experimental test/trial installations to constitute achieved in practice BACT. Finally, the unit was removed, which indicates that this wasn't intended as a permanent installation. For these reasons, the District does not consider this installation to be achieved in practice.

**Vinwood Cellars Kenwood (2013)**

The District has found documents indicating that a NoMoVo system was installed on four 15,000 gallon fermentation tanks at Vinwood Cellars Kenwood in Sonoma county, and the system was operated during the 2013 season. District staff attempted to contact Vinwood Cellars; however, the staff at Vinwood Cellars was unable to verify information for this installation. BAAQMD had no knowledge of this installation, as they do not require permits for wine tanks, so they were unable to verify this installation. Furthermore, since this installation was not subject to permit requirements, BAAQMD has no operational history or test data for this site. While BAAQMD administered source tests at Kendall Jackson Oakville winery, they have no records of any source testing of the NoMoVo system at Vinwood Cellars Kenwood.

This installation has not met the requirements of achieved in practice. First, it has yet to be confirmed that the winery actually purchased the NoMoVo system. Second, BAAQMD has no test records to verify the effectiveness of the NoMoVo system at this site. Finally, the operational history of the unit at this site is not available to determine whether it was operated in the same manner as a unit would be if it were installed as BACT.

**Central Coast Wine Services (2013)**

On August 5, 2013, CCWS electively applied to install a NoMoVo wine emission capture and control system to control ethanol emissions from fermentation activities at their wine center. The existing fermentation tanks at the facility ranged in capacity from 350 gallons to 20,887 gallons. On September 23, 2013, a final ATC (ATC 14257) was issued for the installation of the NoMoVo system, and the unit began operation in September 27, 2013. The installation of this unit allowed CCWS to increase daily wine fermentation while remaining under their existing daily and annual facility-wide VOC emission limits. A Permit to Operate (PTO 14257) was issued on December 13, 2013.
PTO 14257 states: "The NoMoVo system is optional and may be used at CCWS’ discretion". Thus, the permit does not require continuous operation of the NoMoVo system. The NoMoVo system is portable. The system can be attached to four or five fermentation tanks at a time via flexible hoses. The facility is allowed to move the NoMoVo system around, as desired, to capture emissions from the tanks where fermentation is taking place. However, there is no requirement to keep the NoMoVo system attached to a tank and operate it for the full fermentation cycle of that tank. Thus, the District was unable to confirm that the unit was operated in the continuous manner that would be required if the District considered NoMoVo to be achieved in practice BACT.

SBCAPCD PTO 14257 does not include a control efficiency requirement, does not include any source testing requirements to verify the control effectiveness of the control system. The effectiveness of the control has only been estimated using the density change of the NoMoVo slurry to estimate the quantity of ethanol capture, and using a theoretical calculation of the quantity of ethanol that would be emitted if the tanks were uncontrolled. Inlet and outlet air quality testing has not been performed for this particular installation.

Finally, the disposal of the NoMoVo slurry is an important consideration when determining the effectiveness of the control system. If the slurry is disposed of in a manner that re-emits the ethanol into the atmosphere, then the effectiveness of the control is diminished. Until August 2014, the CCWS facility disposed of the NoMoVo slurry in their on-site wastewater treatment facility. On August 21, 2014, SBCAPCD sent a letter to CCWS informing them that they have concerns over the treatment of the NoMoVo slurry. Specifically, SBAPCD was concerned about the potential for stripping of ethanol to the atmosphere during the on-site waste water treatment process. The SBCAPCD letter states "In conclusion, after August 29, 2014, the District will not recognize emission reductions claimed based on the use of any of your NoMoVo systems (existing or new) at the facility until CCWS has a District-approved on-site or off-site ethanol disposal method in place". On August 27th, 2014, SBCAPCD approved the disposal of the NoMoVo slurry at Southern California Waste Water, an off-site facility in Santa Paula, California. In November, 2014, a vacuum truck carrying toxic chemicals from an unrelated facility exploded spreading about 1200 gallons of chemical waste including sulfuric acid and highly combustible organic peroxide. Since that incident, Southern California Waste Water has discontinued the acceptance of waste from all of their clients, so this disposal option is no longer available for the waste generated by CCWS.
The waste is now shipped to a distillery, which distills the ethanol and converts it into vehicle fuel. SBCAPCD has yet to approve the disposal of the NoMoVo slurry to the on-site wastewater facility. Consequently, the overall effectiveness of the system, including any ethanol re-emitted into the atmosphere during disposal, has yet to be sufficiently determined.

Since the control technology has not been demonstrated to operate in a manner that would be required by BACT and the overall effectiveness of the control technology has yet to be sufficiently determined, the District does not consider this installation to be achieved in practice.

Central Coast Wine Services (2014)

In 2014, CCWS submitted an Authority to Construct application for the installation of 40 new tanks, ranging in capacity from 7,407 gallons to 20,628 gallons. The proposal triggered BACT. CCWS decided to forego the normal BACT Analysis, and electively proposed to install six NoMoVo systems to control VOC emissions from the tanks, when the tanks were fermenting wine. A final ATC, (ATC 14350) was issued on July 28, 2014 and the tanks were installed for the 2014 season.

Unlike the previous installations of NoMoVo at this facility, the ATC requires use of the NoMoVo system on these tanks while fermentation is taking place, the permit requires a minimum capture and control efficiency, and the permit requires source testing to verify the effectiveness of the NoMoVo system. However, these tanks have yet to be used for fermentation and the effectiveness has yet to be determined for this installation of the NoMoVo system. An email from Richard Mather of CCWS to David Harris of SBCAPCD, dated September 16, 2014, states:

"We won't be using the new tanks for fermentation this year, but since our ATC permit only gives us until August 1, 2015 to fulfill the source test plan, we will need to conduct the test this fall before our last fermentation. It would be highly unlikely that we would be conducting fermentation next year before August 1. Since harvest is progressing rapidly, we probably only have several weeks of fermentation left this year.

Since these tanks have yet to be operated for fermenting wine and the effectiveness of the NoMoVo system has yet to be verified for this installation, the District does not consider this installation of the NoMoVo system to be achieved in practice."
**Conclusion**

None of the installations have met all of the criteria necessary for the control technology to be considered as achieved in practice BACT or federal LAER.
Appendix C

BACT Guideline 5.4.13 and Top Down BACT Analysis
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

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

**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.

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

*This is a Summary Page for this Class of Source

5.4.13
Top Down BACT Analysis for Wine Storage VOC Emissions for Permit Units N-1237-750-0 through '761-0

Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 2nd quarter 2014, identifies achieved in practice BACT for wine storage tanks as follows:

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

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

The SJVUAPCD BACT Clearinghouse guideline 5.4.13, 2nd quarter 2014, identifies technologically feasible BACT for wine storage tanks as follows:

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

<table>
<thead>
<tr>
<th>Rank</th>
<th>Control</th>
<th>Overall Capture and Control Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Capture of VOCs and thermal or catalytic oxidation or equivalent</td>
<td>98%</td>
</tr>
<tr>
<td>2</td>
<td>Capture of VOCs and carbon adsorption or equivalent</td>
<td>95%</td>
</tr>
<tr>
<td>3</td>
<td>Capture of VOCs and absorption or equivalent</td>
<td>90%</td>
</tr>
<tr>
<td>4</td>
<td>Capture of VOCs and condensation or equivalent</td>
<td>70%</td>
</tr>
<tr>
<td>5</td>
<td>Insulation or Equivalent, Pressure Vacuum Relief Valve (PVRV) set within 10% of the maximum allowable working pressure of the tank; &quot;gas-tight&quot; tank operation; and continuous storage temperature not exceeding 75 degrees F, achieved within 60 days of completion of fermentation</td>
<td>Baseline (Achieved-in-Practice)</td>
</tr>
</tbody>
</table>
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 facility.

Maximum Vapor Flow Rate

For a storage operation, the maximum vent rate from a tank is equal to the maximum liquid fill rate. A typical winery general purpose pump is assumed to be equipped with a 20 hp electric motor. Based on an electric motor efficiency of 90%, a centrifugal pump efficiency of 65% and a differential head of 22 psi (40' hydrostatic head plus 5 psi dynamic loss), maximum vent rate from each tank is determined to be 122 cfm. Total simultaneous rate from all twelve tanks is 12 x 122 cfm = 1,464 cfm.

Capture of VOCs and condensation (> 70% collection & control)

**Design Basis**

- The District provided notice to Steven Colome, Sc.D. of EcoPAS that this project was being proposed to allow EcoPAS an opportunity to provide cost information. The District did not receive updated cost information.
- EcoPAS has provided site-specific installation costs for the proposed scope of supply (see project N-1131615 Attachment C). The District will conservatively base the cost effectiveness analysis on these costs with the exception of the following adjustments:
  - Since project specific cost information was not provided, to develop an equipment cost for this project, the equipment cost from N-1131615 will be considered the base equipment cost and the equipment cost for this project will be developed by factoring the base equipment cost by the ratio of project capacity with an exponent of 0.6
    
    \[
    [(\text{Capacity}_{new}/\text{Capacity}_{base})^{0.6}] \n    \]
    
    where “Capacity” refers to the adjusted total nominal volume of all tanks included in the analysis (commonly referred to the “6-tenths Rule”, traditionally employed to extrapolate equipment costs from one capacity to a different capacity).
  - Engineering costs will be assumed to be 5% of total direct cost exclusive of city/county plan check costs. The District believes that this value reflects a typical minimum for any significant industrial project and believes that this is consistent with standard estimating and good engineering practice.
  - The EcoPAS cost for Permits and Testing ($10,000) is considered adequate to cover building department costs only, including plan check and building permit fees. Due to the unsteady state operation of fermentation tanks, initial source testing is expected to be a significant technical operation with significant expense, conducted over the fermentation cycle rather than the typical three 30-minute steady state measurements. An additional cost of $15,000 per unit will be assumed for initial source testing.
  - EcoPAS has estimated a cost of $98,100 to cover administrative cost and contingency for the project. The District’s analysis will consider these items separately as "Owner’s Cost" (administrative) and "Project Contingency".
• **Owner's Cost:** The District considers a value of $100,000 as a minimum value to cover the project management, internal engineering and operations planning required to implement a significant new process technology of this scale (see project N-1131615) in a commercial winery.

• **Project Contingency:** Good engineering practice and accepted norms of the engineering industry, when applied to an conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received with approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material take-off for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction. Based on this discussion, the District will apply a conservative project contingency of 20% to the estimated capital investment for this project.

• E & J Gallo Winery has indicated that, consistent with their current plant and corporate operating philosophy, programable logic controls and data logging as well as integration with existing digital control systems will be required for any fermentation control system installed. The District has added an allowance of $10,000 per unit to cover the expected hardware and programming cost of this item.

• Operating labor is estimated based on 1 operator hour per day and 3 shifts per day per operating unit over a 90 day crush season and an hourly cost of $18.50 per hour.

• An allowance for annual maintenance cost was included as 1% of Total Capital Investment.

• The cost of a chiller system has been annualized and the annualized cost is estimated at $270 per ton of recovered ethanol based on approximately $85 per ton energy charge at $0.13/kWh and $100 per ton capital charge for the central chilled water facility (based on a District analysis of annualized costs for a 100 ton mechanical chiller).

• Annual source testing will be required. It is assumed that only one representative unit will require testing each year. An annual charge of $15,000 has been included.

• EcoPAS has indicated the value of the recovered ethanol is $25 per gallon as a 60 proof alcohol spirit. However, E & J Gallo Winery has indicated the highest value for this product would be $M per gallon assuming the alcohol can be used for internal brandy production (which has not been demonstrated in practice to be true). This represents the facilities internal cost for distilling material alcohol and does not include additional processing. If the alcohol cannot be used internally, E & J Gallo Winery has indicated the product has no value outside the organization and would in fact incur a disposal cost resulting in a value less than $0 per gallon. E & J Gallo Winery has proposed to value the recovered alcohol at a conservative value of $MI per gallon until it can be proven in practice to have a greater value.

*Equipment Cost Refrigerated Condenser*

Pricing for the EcoPAS units will be based on pricing previously received from EcoPAS LLC for District Project N-1131615.

In project N-1131615, EcoPAS sized one condenser to handle six 56,000 gallon tanks (total volume of 336,000 gallons) with a combined flow rate of 1,731.6 scfm (288.6 scfm x 6 tanks) and a combined VOC emission rate of 21,216 lb-VOC/year (3,536 lb-VOC/year x 6 tanks).
The EcoPAS condenser proposed was not actually capable of actually handling the maximum flowrate but depended instead on the operational diversity of the six connected tanks to result in an actual combined peak flow less than the maximum since all six tanks would not achieve peak design flow simultaneously. Each tank in this project has a capacity of 1,720 gallons (total volume of 20,640 gallons with a combined flow rate of 1,464 scfm (122 scfm x 12 tanks) and a combined VOC emission rate of 48 lb-VOC/year (4 lb-VOC/year x 12 tanks). The capital cost of one condenser sized for the operation in project N-1131615 will be adjusted for the operation in this project using the six-tenths rule of thumb. As a conservative assumption, for this BACT analysis one condenser will serve all the tanks in this project.

As quoted by EcoPAS, based on supply of 4 PAS units each sized to control six (6) 56,000-gallon tanks (in project N-1131615), the price per condenser is estimated at $475,318 each. The estimated price includes shipping and California sales tax.

Equipment Cost = $475,318

In this project, as a conservative estimate one condenser will serve all twelve tanks. The vendor has indicated the equipment cost can be adjusted based upon VOC emissions sent to the control device. Using the six-tenths rule of thumb, the adjusted equipment cost is calculated as follows:

Adjusted Equipment Cost = $475,318 x (48 ÷ 21,216)\(^{0.6}\)
= $12,295

All other costs (direct, indirect, and annual) will be taken from project N-1131615 and scaled using the six-tenths rule of thumb, as appropriate.
<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Refrigerated Condenser system (1 PAS Unit)</td>
<td>$12,295</td>
</tr>
</tbody>
</table>

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

### Direct Costs (DC)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Condenser) See Above</td>
<td>$12,295</td>
</tr>
<tr>
<td>Instrumentation (included)</td>
<td>-</td>
</tr>
<tr>
<td>Sales Tax 3% (included)</td>
<td>-</td>
</tr>
<tr>
<td>Freight (included)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td>$12,295</td>
</tr>
<tr>
<td>Labor (per EcoPAS estimate)</td>
<td>$81,600 x (48 + 21,216)^0.8 = $2,111</td>
</tr>
<tr>
<td>Installation Expense (per EcoPAS estimate)</td>
<td>$59,175 x (48 + 21,216)^0.8 = $1,531</td>
</tr>
<tr>
<td>Subcontracts (per EcoPAS estimate)</td>
<td>$18,000 x (48 + 21,216)^0.8 = $466</td>
</tr>
<tr>
<td>PLC/Programming (Total Allowance)</td>
<td>$40,000 x (48 + 21,216)^0.8 = $1,035</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td>$17,438</td>
</tr>
<tr>
<td><strong>Total Direct Costs (TDC)</strong></td>
<td>$29,733</td>
</tr>
</tbody>
</table>

### Indirect Costs (IC)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (5% of TDC)</td>
<td>$1,487</td>
</tr>
<tr>
<td>Permits (Building Department) (Allowance per unit)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Initial Source Testing (1 units x $15,000/unit)</td>
<td>$15,000</td>
</tr>
<tr>
<td>Owner's Cost (Total Allowance)</td>
<td>$100,000 x (48 + 21,216)^0.8 = $2,587</td>
</tr>
<tr>
<td><strong>Total Indirect Cost (TIC)</strong></td>
<td>$29,074</td>
</tr>
<tr>
<td><strong>Subtotal Capital Investment (SCI = TDC + TIC)</strong></td>
<td>$58,807</td>
</tr>
<tr>
<td>Project Contingency (20% of SCI)</td>
<td>$11,761</td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (TDC + TIC + Contingency)</strong></td>
<td>$70,568</td>
</tr>
</tbody>
</table>

### Annualized Capital Costs

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Amortization Factor = \[
\frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} = 0.1627, \text{ amortizing over 10 years at } 10%\]

Therefore,

Annualized Capital Investment = $70,568 x 0.1627 = $11,485
### Annual Costs

#### Direct Annual Cost (DC)

<table>
<thead>
<tr>
<th>Operating Labor</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operator</strong></td>
<td>1 hr/shift x 3 shifts/day x 1 unit x 90 days = 270 hr/year</td>
<td>$18.50/h</td>
</tr>
<tr>
<td><strong>Supervisor</strong></td>
<td>15% of operator</td>
<td></td>
</tr>
<tr>
<td><strong>Labor</strong></td>
<td>1% of TCI</td>
<td></td>
</tr>
<tr>
<td><strong>Chiller (Glycol)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48 lb/year (uncontrolled storage emissions) x 0.70 + 2000</td>
<td>$270/ton EtOH</td>
<td>$5</td>
</tr>
</tbody>
</table>

#### Maintenance

<table>
<thead>
<tr>
<th>Chiller (Glycol)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chiller (Glycol)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48 lb/year (uncontrolled storage emissions) x 0.70 + 2000</td>
<td>$270/ton EtOH</td>
<td>$5</td>
</tr>
</tbody>
</table>

#### Utility

<table>
<thead>
<tr>
<th>Electricity</th>
<th>$0.102/kWh</th>
<th>$0</th>
</tr>
</thead>
</table>

**Total DC** = $7,705

#### Indirect Annual Cost (IC)

<table>
<thead>
<tr>
<th>Overhead</th>
<th>60% of Labor Cost</th>
<th>0.6 x ($4,995 + $749 + $1,956)</th>
<th>$4,620</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>2% TCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property Taxes</td>
<td>1% TCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>1% TCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Source</td>
<td>One representative test/year @ $15,000</td>
<td>$15,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total IC</strong></td>
<td></td>
<td></td>
<td>$19,620</td>
</tr>
</tbody>
</table>

#### Recovery Credits (RC)

<table>
<thead>
<tr>
<th>80 Proof Recovered</th>
<th>48 lb/year (uncontrolled storage emissions) x 0.70 x gal/6.62 lb ÷ 0.40</th>
<th>$ [ ] /gal 80 Proof EtOH</th>
<th>[ ]</th>
</tr>
</thead>
</table>

**Annual Cost (DC + IC – RC)**

Total Annual Cost = Condenser System + Annual Cost

= $11,485 + $ [ ]

= $ [ ] (with Recovery Credits)

### Emission Reductions

The District's BACT Guideline identifies an overall collection and control efficiency of 70% for condenser systems.

Annual Emission Reduction = Uncontrolled Emissions x 0.70

= 4 lb-VOC/year x 12 tanks x 0.70

= 34 lb-VOC/year

= 0.0168 tons-VOC/year
Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $\[\text{Cost/year} + 0.0168 \text{ tons-VOC/year}\]

= $\[\text{Cost/ton-VOC (with Recovery Credits)}\]

The analysis demonstrates that the annualized purchase cost of the refrigerated condenser system and annual costs alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.
Collection of VOCs and control by absorption (> 90% collection & control)

Design Basis

- The District provided notice to Andrew Fedak of NohBell Corporation to allow NohBell Corporation an opportunity to provide cost information. The District did not receive updated cost information; therefore, the NohBell equipment pricing and capital investment requirements developed for District Project N-1131615 (Gallo Livingston) will be factored as required to develop a cost effectiveness analysis for this project.
- Since project specific cost information was not provided, to develop an equipment cost for this project, the equipment cost from N-1131615 will be considered the base equipment cost and the equipment cost for this project will be developed by factoring the base equipment cost by the ratio of project capacity with an exponent of 0.6
  \[ \left( \frac{\text{Capacity}_{\text{new}}}{\text{Capacity}_{\text{base}}} \right)^{0.6} \] where “Capacity” refers to the adjusted total nominal volume of all tanks included in the analysis (commonly referred to the “6-tenths Rule”, traditionally employed to extrapolate equipment costs from one capacity to a different capacity).
- The District will consider the average control efficiency of the unit to be 90% for purposes of this project, consistent with the District’s BACT Guideline for this class and category.
- The EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001) is used for this analysis with modifications to account for project-specific conditions.
- Instrumentation allowance of $2,000 per NoMoVo unit has been included for a pressure transmitter and a temperature transmitter for monitoring pressure of the collection header and vent stream and temperature from the NoMoVo unit.
- Sales tax = 3%
- Foundations and supports: not required — unit is supported from either a tank or the pipe rack structure. Equipment price includes required attachments and clips.
- Since the units are mobile which are ready for operation upon delivery, Handling and Erection is taken to be 2% of Purchased Equipment Cost as an allowance for pre-commissioning.
- Piping is taken to be 1% of Purchased Equipment Cost based on the only requirements being Tee fittings for the tank discharge.
- E & J Gallo Winery has indicated that, consistent with their current plant and corporate operating philosophy, programmable logic controls and data logging as well as integration with existing digital control systems will be required for any fermentation control system installed. The district has added an allowance of $10,000 per unit to cover the expected hardware and programming cost of this item.
- Insulation and painting are not required.
- Recovered ethanol storage tank = $40,000 (installed)
- Due to the unsteady state operation of fermentation tanks, initial source testing is expected to be a significant technical operation with significant expense, conducted over the fermentation cycle rather than the typical three 30-minute steady state measurements. An additional cost of $15,000 per unit will be assumed for initial source testing.
- Engineering costs will be assumed to be 5% of total direct cost exclusive of city/county plan check costs. The District believes that this value reflects a typical minimum for any significant industrial project and believes that this is consistent with standard estimating and good engineering practice.
• An allowance of $10,000 per unit will be added to cover plan check and building permit fees.

• Owner's Cost: The District considers a value of $100,000 as a minimum value to cover the project management, internal engineering and operations planning required to implement a significant new process technology of this scale in a commercial winery.

• Project Contingency: Good engineering practice and accepted norms of the engineering industry, when applied to an conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received, approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material take-off for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction. Based on this discussion, the District will apply a conservative project contingency of 20% to the estimated capital investment for this project.

• Operating labor is estimated based on 2 operator hours per day per operating unit over a 90 day crush season and an hourly cost of $18.50 per hour.

• An allowance for annual maintenance cost was included as 1% of Total Capital Investment.

• Connected electrical load for each unit is 2.5 horsepower which is assumed to operate continuously for 90 days.

• Electric power cost = $0.102/kWh (see regenerative thermal oxidizer Top Down BACT Analysis section below)

• Captured ethanol is recovered as a 10% solution suitable for disposal to an ethanol distillery at a cost of $0.08 per gallon.

• Annual source testing will be required. It is assumed that only one representative unit will require testing each year. An annual charge of $15,000 has been included.

*Equipment Cost Scrubber*

Pricing for the NoMoVo units will be based on pricing previously received from NohBell Corporation for District Project N-1131615.

In project N-1131615, NohBell Corporation sized 18 scrubbers to handle twenty-four (24) 56,000 gallon tanks (total volume of 1,344,000 gallons) with a combined flow rate of 6,926.4 scfm (288.6 scfm x 24 tanks) and a combined VOC emission rate of 84,864 lb-VOC/year (3,536 lb-VOC/year x 24 tanks). Each tank in this project has a capacity of 1,720 gallons (total volume of 20,640 gallons with a combined flow rate of 1,464 scfm (122 scfm x 12 tanks) and a combined VOC emission rate of 48 lb-VOC/year (4 lb-VOC/year x 12 tanks). For this project, the number of required scrubbers will be scaled based on the ratios required for project N-1131615. Since project N-1131615 required 18 scrubbers for 24 fermentation tanks, the cost analysis for this project will be based upon nine scrubbers for 12 fermentation tanks.

As quoted by NohBell for project N-1131615, based on supply of 18 NoMoVo units each sized to control twenty-four (24) 56,000-gallon tanks, the price per scrubber is shown below.
NoMoVo v4.0-18 Reactor Units = $60,000 each  
NoMoVo v2.0 Portable Pumping Skids = $7,500 each  
Total = $60,000 + $7,500 = $67,500

Total Equipment Cost = $67,500 x 9 units  
= $607,500

The vendor has indicated the equipment cost can be adjusted based upon VOC emissions sent to the control device. Using the six-tenths rule of thumb, the adjusted equipment cost is calculated as follows:

Adjusted Equipment Cost = $607,500 x (48 + 21,216)^{0.6}  
= $15,714

All other costs (direct, indirect, and annual) will be taken from project N-1131615 and scaled using the six-tenths rule of thumb, as appropriate.

<table>
<thead>
<tr>
<th>Scrubber</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerated Scrubber System (9 NoVoMo Units)</td>
<td>$15,714</td>
</tr>
</tbody>
</table>

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

### Direct Costs (DC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Scrubber System) See Above</td>
<td>$15,714</td>
</tr>
<tr>
<td>Instrumentation ($2,000 per unit)</td>
<td>$18,000</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$ 471</td>
</tr>
<tr>
<td>Freight (included)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td>$34,185</td>
</tr>
<tr>
<td>Foundations &amp; supports (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Handling &amp; erection 2%</td>
<td>$ 684</td>
</tr>
<tr>
<td>Electrical 1%</td>
<td>$ 342</td>
</tr>
<tr>
<td>Piping 1%</td>
<td>$ 342</td>
</tr>
<tr>
<td>Painting (not required)</td>
<td>-</td>
</tr>
<tr>
<td>Insulation (not required)</td>
<td>-</td>
</tr>
<tr>
<td>PLC &amp; Programming (Allowance $10,000 per unit)</td>
<td>90,000</td>
</tr>
<tr>
<td>Recovered Ethanol Storage Tank (installed)</td>
<td>$40,000</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
<td>$131,368</td>
</tr>
<tr>
<td><strong>Total Direct Costs (TDC)</strong></td>
<td>$165,553</td>
</tr>
</tbody>
</table>

### Indirect Costs (IC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (5% of TDC)</td>
<td>$8,278</td>
</tr>
<tr>
<td>Construction and field expenses (2% of TDC)</td>
<td>$3,311</td>
</tr>
<tr>
<td>Permits (Building Department) (Allowance)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Contractor fees (2% of TDC)</td>
<td>$3,311</td>
</tr>
<tr>
<td>Start-up (1% of TDC)</td>
<td>$1,656</td>
</tr>
</tbody>
</table>
Source Testing (9 units x $15,000/unit) $135,000
Owner's Cost (Total Allowance) $100,000 x (48 ÷ 21,216) = $12,169
Total Indirect Costs (TIC) $161,556
Subtotal Capital Investment (SCI = TDC + TIC) $327,109
Project Contingency (20% of SCI) $65,422
Total Capital Investment (TCI) (TDC + TIC + Contingency) $392,531

**Annualized Capital Costs**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Amortization Factor = \[ \frac{0.1(1.1)^{10}}{(1.1)^{10} - 1} \] = 0.1627, amortizing over 10 years at 10%

Therefore,

Annualized Capital Investment = $392,531 x 0.1627 = $63,883

**Wastewater Disposal Costs**

Additionally, the water scrubber will generate ethanol-laden wastewater containing 0.0216 tons-ethanol annually (48 lb/year (uncontrolled storage emissions) x 0.90 ÷ 2000). Assuming a 10% solution, approximately 65 gallons of waste water (0.0216 ton-ethanol x 2000 lb/ton x gal/6.62 lb ÷ 0.10) will be generated annually. Per NohBell Corporation, an allowance of $0.08 per gallon is applied for disposal costs.

Annual disposal costs = 65 gallons x $0.08/gallon = $5

**Annual Costs**

<table>
<thead>
<tr>
<th></th>
<th>Direct Annual Cost (DC)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Labor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operator</td>
<td>2 hr/day x 9 units x 90 days = 1,620 hr/year</td>
<td>$18.50/h</td>
</tr>
<tr>
<td>Supervisor</td>
<td>15% of operator</td>
<td></td>
</tr>
<tr>
<td><strong>Maintenance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>1% of TCI</td>
<td>$6,747</td>
</tr>
<tr>
<td><strong>Wastewater Disposal</strong></td>
<td></td>
<td>$0.08/gal</td>
</tr>
<tr>
<td>10% Solution = 59 gal</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Utility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>9 units x 2.5 hp x 0.746 kW/hp x 2,160 hr/yr = 36,256 kWh/yr</td>
<td>$0.102/kWh</td>
</tr>
<tr>
<td><strong>Total DC</strong></td>
<td></td>
<td>$44,916</td>
</tr>
</tbody>
</table>
Indirect Annual Cost (IC)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead 60% of Labor Cost</td>
<td>0.6 x ($29,970 + $4,496 + $6,747) = $24,728</td>
</tr>
<tr>
<td>Administrative 2% TCI</td>
<td>$10,490</td>
</tr>
<tr>
<td>Property Taxes 1% TCI</td>
<td>$5,245</td>
</tr>
<tr>
<td>Insurance 1% TCI</td>
<td>$5,245</td>
</tr>
<tr>
<td>Annual Source Test One representative test/year @ $15,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Total IC</td>
<td>$60,708</td>
</tr>
<tr>
<td>Annual Cost (DC + IC)</td>
<td>$105,624</td>
</tr>
</tbody>
</table>

Total Annual Cost = Scrubber System + Annual Cost
= $63,883 + $105,624
= $169,507

Emission Reductions

The District's BACT Guideline identifies an overall collection and control efficiency of 90% for absorption systems.

Annual Emission Reduction = Uncontrolled Emissions x 0.90
= 4 lb-VOC/year x 12 tanks x 0.90
= 43 lb-VOC/year
= 0.0216 tons-VOC/year

Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $169,507/year ÷ 0.0216 tons-VOC/year
= $7,847,546/ton-VOC

The analysis demonstrates that the annualized purchase cost of the water scrubber and annual costs alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.
Collection of VOCs and control by carbon adsorption (> 95% collection and control)

Collection System Capital Investment (based on ductwork)

A common feature of all thermal or catalytic oxidation or carbon adsorption options is that they require installation of a collection system for delivering the VOCs from the tanks to the common control device.

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 twelve 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.

Capital Cost Ductwork

Ducting cost (see Attachment A) = $6,924
Redundant duct = $6,924
Unit installed cost for 6 inch butterfly valve (adjusted from 6 inch to 3 inch) = $2,125/valve x 12 valves x 2 systems x (3/6) = $25,500
Unit installed cost one foot removable spool (adjusted from 6 inch to 3 inch) = $500/tank x 12 tanks x 2 systems x (3/6) = $6,000
Knockout drums (2 drums @ 2,500 gallons each) = $44,000
Duct support allowance = $40,000

Total = $6,924 + $6,924 + $25,500 + $6,000 + $44,000 + $40,000
= $129,348

<table>
<thead>
<tr>
<th>Ductwork</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct Estimate (See Duct Sizing Attachment A)</td>
<td>$129,348</td>
</tr>
<tr>
<td>Adjusting factor from 2005 dollars to 2014 dollars (2.75% inflation/year)</td>
<td>1.2475</td>
</tr>
<tr>
<td>Inflation adjusted duct cost</td>
<td>$161,362</td>
</tr>
<tr>
<td>The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).</td>
<td></td>
</tr>
</tbody>
</table>

Direct Costs (DC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Ductwork) See Above</td>
<td>$161,362</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
<td>$16,136</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$4,841</td>
</tr>
<tr>
<td>Freight 5%</td>
<td>$8,068</td>
</tr>
<tr>
<td>Purchased equipment cost</td>
<td>$190,407</td>
</tr>
<tr>
<td>Cost Description</td>
<td>Cost ($)</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Current cost of CIP system</td>
<td>$200,000</td>
</tr>
</tbody>
</table>

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

### Direct Costs (DC)

<table>
<thead>
<tr>
<th>Cost Description</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (CIP System) See Above</td>
<td>$200,000</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
<td>$20,000</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$6,000</td>
</tr>
<tr>
<td>Freight 5%</td>
<td>$10,000</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
<td><strong>$236,000</strong></td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
<td>$18,880</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
<td>$33,040</td>
</tr>
<tr>
<td>Electrical 4%</td>
<td>$9,440</td>
</tr>
<tr>
<td>Piping 2%</td>
<td>$4,720</td>
</tr>
<tr>
<td>Painting 1%</td>
<td>$2,360</td>
</tr>
<tr>
<td>Insulation 1%</td>
<td>$2,360</td>
</tr>
</tbody>
</table>
Direct installation costs | $70,800
---|---
Total Direct Costs | $306,800

Indirect Costs (IC)

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
<td>$23,600</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
<td>$11,800</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
<td>$23,600</td>
</tr>
<tr>
<td>Start-up 2%</td>
<td>$4,720</td>
</tr>
<tr>
<td>Performance test 1%</td>
<td>$2,360</td>
</tr>
<tr>
<td>Contingencies 3%</td>
<td>$7,080</td>
</tr>
<tr>
<td>Total Indirect Costs</td>
<td>$73,160</td>
</tr>
</tbody>
</table>

Total Capital Investment (TCI) (DC + IC) | $379,960

Annualized Capital Costs

Total capital costs = Ductwork + CIP System
= $306,555 + $379,960
= $686,515

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

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

Annualized Capital Investment = $686,515 x 0.163 = $111,727

Carbon Adsorption

Delivery and installation of a 1,000 cfm blower package for carbon adsorption is $80,000 - $85,000 and delivery and installation of a 50 cfm blower package for carbon adsorption is $20,000 - $25,000 per David Drewelow of Drewelow Remediation Equipment on February 3, 2015. The combined vapor flow rate for the tanks in this project is 1,464 cfm. A value of $80,000 for the 1,000 cfm blower package will be used as a conservative estimate.

Carbon Adsorption Capital Cost = $80,000

The carbon bed operated with steam to regenerate the bed produces a water alcohol mixture. The applicant has provide a cost of $5,000 for a water alcohol tank. The waste stream or disposal costs have not been analyzed in this project.

Carbon Capital Cost

Annual Emission Reduction = Storage Emissions x 0.95
= 4 lb-VOC/year x 12 tanks x 0.95
= 46 lb-VOC/year
= 0.0228 tons-VOC/year
Assume a working bed capacity of 20% for carbon (weight of vapor per weight of carbon)

Carbon required = 0.0228 tons-VOC/year x 2000 lb/ton x 1/0.20
= 228 lb carbon

David Drewelow also provided a cost of $1.25/lb of carbon which does not include any delivery or servicing fees.

Carbon capital cost = $1.25/lb x 228 lb carbon = $285

<table>
<thead>
<tr>
<th>Carbon Adsorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Description</td>
</tr>
<tr>
<td>Carbon Adsorption cost (see above)</td>
</tr>
<tr>
<td>Carbon Capital Cost (see above)</td>
</tr>
<tr>
<td>Water alcohol tank cost</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Direct Costs (DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Carbon Adsorption System + Carbon) See Above</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
</tr>
<tr>
<td>Freight 5%</td>
</tr>
<tr>
<td><strong>Purchased equipment cost</strong></td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
</tr>
<tr>
<td>Electrical 4%</td>
</tr>
<tr>
<td>Piping 2%</td>
</tr>
<tr>
<td>Painting 1%</td>
</tr>
<tr>
<td>Insulation 1%</td>
</tr>
<tr>
<td><strong>Direct installation costs</strong></td>
</tr>
<tr>
<td><strong>Total Direct Costs</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indirect Costs (IC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
</tr>
<tr>
<td>Start-up 2%</td>
</tr>
<tr>
<td>Performance test 1%</td>
</tr>
<tr>
<td>Contingencies 3%</td>
</tr>
<tr>
<td><strong>Total Indirect Costs</strong></td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (DC + IC)</strong></td>
</tr>
</tbody>
</table>
**Annualized Capital Costs**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $162,025 x 0.163 = $26,369

**Total Annual Cost**

Total Annual Cost = Carbon Adsorption System + Ductwork + CIP System

= $26,369 + $111,727

= $138,096

**Emission Reductions**

Annual Emission Reduction = Uncontrolled Emissions x 0.95

= 4 lb-VOC/year x 12 tanks x 0.95

= 46 lb-VOC/year

= 0.0228 tons-VOC/year

**Cost Effectiveness**

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $138,096/year ÷ 0.0228 tons-VOC/year

= $6,056,842/ton-VOC

The analysis demonstrates that the annualized purchase cost of the carbon adsorption system and collection system ductwork and CIP equipment alone results in a cost effectiveness which exceeds the District's Guideline of $17,500/ton-VOC. Therefore this option is not cost-effective and will not be considered for this project.
Collection of VOCs and control by thermal or catalytic oxidation
(> 98% collection & control)

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

\[ C_2H_5OH + 3O_2 \rightarrow 3H_2O + 2CO_2 \]

The RTO would be connected by ducts to the tanks themselves. If the tanks were to overfill and send liquid down the duct, damage to the RTO could occur. The presence of significant liquid in the knock out drum would cause a shut down of the RTO until the issue could be corrected. The ducting costs include a knock out drum allowance.

Thermal or Catalytic Oxidizer Capital Cost

A total capital investment cost of $150,000 and installation cost including freight of $34,670 for a Regenerative Thermal Oxidizer (RTO) is provided by Adwest Technologies, Inc on September 24, 2014 for an RTO handling 1,000 scfm. Therefore, this cost estimate will be used in this project as a conservative estimate.

Capital Cost = $150,000 + $34,670
= $184,670

<table>
<thead>
<tr>
<th>Thermal or Catalytic Oxidation</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 cfm Regenerative Thermal Oxidizer cost</td>
<td>$150,000</td>
</tr>
<tr>
<td>Installation cost (including freight)</td>
<td>$34,670</td>
</tr>
<tr>
<td>The following cost data is taken from EPA Control Cost Manual, Sixth Edition (EPA/452/B-02-001).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct Costs (DC)</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Equipment Costs (Regenerative Thermal Oxidizer System) See Above</td>
<td>$184,670</td>
</tr>
<tr>
<td>Instrumentation 10%</td>
<td>$18,467</td>
</tr>
<tr>
<td>Sales Tax 3%</td>
<td>$5,540</td>
</tr>
<tr>
<td>Freight 5% (included)</td>
<td>-</td>
</tr>
<tr>
<td>Purchased equipment cost</td>
<td>$208,677</td>
</tr>
<tr>
<td>Foundations &amp; supports 8%</td>
<td>$16,694</td>
</tr>
<tr>
<td>Handling &amp; erection 14%</td>
<td>$29,215</td>
</tr>
<tr>
<td>Electrical 4%</td>
<td>$8,347</td>
</tr>
<tr>
<td>Piping 2%</td>
<td>$4,174</td>
</tr>
<tr>
<td>Painting 1%</td>
<td>$2,087</td>
</tr>
<tr>
<td>Insulation 1%</td>
<td>$2,087</td>
</tr>
<tr>
<td>Direct installation costs</td>
<td>$62,604</td>
</tr>
<tr>
<td>Total Direct Costs</td>
<td>$271,281</td>
</tr>
</tbody>
</table>
Table: Indirect Costs (IC)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 10%</td>
<td>$20,868</td>
</tr>
<tr>
<td>Construction and field expenses 5%</td>
<td>$10,434</td>
</tr>
<tr>
<td>Contractor fees 10%</td>
<td>$20,868</td>
</tr>
<tr>
<td>Start-up 2%</td>
<td>$4,174</td>
</tr>
<tr>
<td>Performance test 1%</td>
<td>$2,087</td>
</tr>
<tr>
<td>Contingencies 3%</td>
<td>$6,260</td>
</tr>
<tr>
<td><strong>Total Indirect Costs</strong></td>
<td><strong>$64,691</strong></td>
</tr>
<tr>
<td><strong>Total Capital Investment (TCI) (DC + IC)</strong></td>
<td><strong>$335,972</strong></td>
</tr>
</tbody>
</table>

**Annualized Capital Costs**

Annualized Capital Investment = Initial Capital Investment x Amortization Factor

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

Therefore,

Annualized Capital Investment = $335,972 x 0.163 = $54,678

**Operation and Maintenance Costs**

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

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

- heat of combustion -dHc = 20,276 Btu/lb
- Daily VOC emissions rate = 0.2 lb/day x 12 tanks = 2.4 lb/day
- Blower flow rate = 1,464 scfm
  = 2,108,160 ft³/day

\[-dh(c) = \frac{2.4 \text{ lb/day} \times 20,276 \text{ Btu/lb} + 2,108,160 \text{ ft}^3/\text{day}}{2,108,160 \text{ ft}^3/\text{day}} \]

\[= 0.023 \text{ Btu/ft}^3 \]

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:

\[-dh(c) = 0.023 \text{ Btu/ft}^3 + 0.0739 \text{ lb/ft}^3 \]
\[= 0.312 \text{ Btu/lb} \]
Fuel Flow Requirement

\[ Q(\text{fuel}) = \frac{Pw \cdot Qw \cdot \{Cp \cdot [1.1 \cdot T_f - T_w - 0.1 \cdot T_r] - \text{-dh(c)}]\}}{P(\text{ef}) \cdot [\text{-dh(m)} - 1.1 \cdot Cp \cdot (T_f - T_r)]} \]

Where

\[ \begin{align*}
Pw & = 0.0739 \text{ lb/ft}^3 \\
Cp & = 0.255 \text{ Btu/lb}^\circ F \\
Qw & = 1,464 \text{ scfm} \\
\text{-dh(m)} & = 21,502 \text{ Btu/lb for methane} \\
T_r & = 77^\circ F \text{ assume ambient conditions} \\
P(\text{ef}) & = 0.0408 \text{ lb/ft}^3, \text{ methane at } 77^\circ F, 1 \text{ atm} \\
T_f & = 1600^\circ F \\
T_w & = 1150^\circ F \\
\text{-dh(c)} & = 0.312 \text{ Btu/lb} \\
\end{align*} \]

\[ Q = \frac{0.0739 \cdot 1,464 \cdot [0.255 \cdot [1.1 \cdot 1,600 - 1,150 - 0.1 \cdot 77] - 0.312]}{0.0408 \cdot [21,502 - 1.1 \cdot 0.255 \cdot (1,600 - 77)]} \]

\[ = 16,582.71 + 859.9 = 19.28 \text{ ft}^3/\text{min} \]

Fuel Costs

The cost for natural gas shall be based upon the average price of natural gas sold to "Commercial Consumers" in California for the years 2011 and 2012.3

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Price</th>
<th>Total Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$7.05/1000 ft³</td>
<td>= $7.05/thousand ft³</td>
</tr>
<tr>
<td>2011</td>
<td>$8.29/1000 ft³</td>
<td>= $8.29/thousand ft³</td>
</tr>
<tr>
<td>Average for two years</td>
<td>= $7.67/1000 ft³</td>
<td>= $7.67/thousand ft³</td>
</tr>
</tbody>
</table>

Fuel Cost = 19.28 cfm x 1440 min/day x 365 day/year x $7.67/1000 ft³

= $77,742/year

Electricity Requirement

\[ \text{Power}_{\text{fan}} = \frac{1.17 \times 10^{-4} \cdot Qw \cdot \Delta P}{\epsilon} \]

Where

\[ \begin{align*}
\Delta P & = \text{Pressure drop Across system} = 4 \text{ in. H}_2\text{O} \\
\epsilon & = \text{Efficiency for fan and motor} = 0.6 \\
Qw & = 1,464 \text{ scfm} \\
\end{align*} \]

\[ \text{Power}_{\text{fan}} = \frac{1.17 \times 10^{-4} \cdot 1,464 \text{ cfm} \cdot 4 \text{ in. H}_2\text{O}}{0.60} \]

= 1.14 kW

---

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

Average cost of electricity to commercial users in California:\2
YTD through Jan 2014 = $0.1339
YTD through Jan 2013 = $0.1181
AVG = $0.126

Electricity Cost = 1.14 kW x 24 hours/day x 365 days/year x $0.126/kWh = $1,260/year

Total Utility Costs

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

<table>
<thead>
<tr>
<th></th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td>$3,376</td>
</tr>
<tr>
<td>Supervisor</td>
<td>$506</td>
</tr>
<tr>
<td>Labor</td>
<td>$3,376</td>
</tr>
<tr>
<td>Material</td>
<td>$3,376</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>$77,742</td>
</tr>
<tr>
<td>Electricity</td>
<td>$1,260</td>
</tr>
<tr>
<td>Indirect Annual Cost (IC)</td>
<td>$4,355</td>
</tr>
<tr>
<td>Overhead</td>
<td>$4,355</td>
</tr>
<tr>
<td>Administrative Charge</td>
<td>$1,216</td>
</tr>
<tr>
<td>Property Taxes</td>
<td>$608</td>
</tr>
<tr>
<td>Insurance</td>
<td>$608</td>
</tr>
<tr>
<td>Total Annual Cost</td>
<td>$96,423</td>
</tr>
</tbody>
</table>

Total Annual Cost

Total Annual Cost = Regenerative Thermal Oxidizer System + Ductwork + CIP System + Annual Cost
= $54,678 + $111,727 + $96,423
= $262,828

Emission Reductions

Annual Emission Reduction = Uncontrolled Emissions x 0.98
= 4 lb-VOC/year x 12 tanks x 0.98
= 47 lb-VOC/year
= 0.0235 tons-VOC/year

---

4 Energy Information Administration/Electric Power; Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State, Year-to-Date through January 2014 and January 2013
Cost Effectiveness

Cost Effectiveness = Total Annual Cost ÷ Annual Emission Reductions

Cost Effectiveness = $262,828/year ÷ 0.0235 tons-VOC/year
= $11,174,660/ton-VOC

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

Step 5 - Select BACT

All identified feasible options with control efficiencies higher than the option proposed by the facility have been shown to not be cost effective. The facility has proposed Option 1, 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 listed on the permits as enforceable conditions.
Appendix D

Compliance Certification
E&J Gallo Winery—Livingston
Compliance Certification Statement
For Federal Major Permit Modifications
Compliance with District Rule 2201, Section 4.15.2

"I certify under penalty of law that all major stationary sources (Title V facilities) operated under my control in California are compliant with all applicable air emissions limitations and standards. The facilities included in this certification statement include the E&J Gallo Winery—Fresno, the E&J Gallo Winery—Livingston, and the E&J Gallo Winery—Modesto."

Mr. Steve Kidd
Vice President of Operations

03/27/14
Date
Appendix E

Draft Authority to Construct Permits
AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-750-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

MAILING ADDRESS:
ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F701) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. [1829] The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

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 (209) 557-8400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. THIS IS NOT A PERMIT TO OPERATE.

Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle-Director of Permit Services
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-8400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility’s seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year’s start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-751-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY

MAILING ADDRESS: ATTN: EHS MANAGER

18000 W RIVER RD

LIVINGSTON, CA 95334

LOCATION:

18000 W RIVER RD

LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:

1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F702) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. (98) No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

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

Seyed Sadredin, Executive Director APCO
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201].

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-752-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

MAILING ADDRESS:
ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F703) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services
M-1237-752-0  Apr 28, 2001 1:48AM - TOWS - Joint Inspection NOT Required
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or
ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on
which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of
the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period
will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual
throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-753-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION:
18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK
(TANK F704) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and
   procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction
   credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter
   - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this
   facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be
   provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from
   these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and
   approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new
   offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this
   Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons.
   The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity
   measurement. [District Rule 2201]

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

Seyed Sadredin, Executive Director

Arnaud Manolle, Director of Permit Services

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-754-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY

MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F705) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. 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 (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services
N-1237-754.0, Apr 20, 2014 1:56 PM. - TOWN: J-Ant Inspection NOT Received

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

PERMIT NO: N-1237-755-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY

MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F706) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

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

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

Seyed Sadredin, Executive Director APCO

Arnaud Marjolle, Director of Permit Services
N-1237-755-0: 4/20/2014 1 PROOF - TYPE: Draft - Proof Approved Not Required
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95358-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-756-0
LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334
LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK
(TANK F707) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-I, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

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

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or 
ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on 
which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of 
the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period 
will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual 
throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-757-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F708) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT.

CONDITIONS

1. {1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

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

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-758-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F709) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. (98) No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

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

Amnaud Marjolle, Director of Permit Services
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-759-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F710) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. (98) No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

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

Seyed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95356-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-760-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F711) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
3. ERC Certificate Numbers S-4160-I, C-1229-I, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]
5. (98) No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director APCO

Arnaud Marjolleire, Director of Permit Services
Northern Regional Office • 4800 Enterprise Way • Modesto, CA 95358-8718 • (209) 557-6400 • Fax (209) 557-6475
6. When this tank is 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]

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]

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 Rule 4694]

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]

10. The weighted annual average ethanol content of wine stored in this tank, calculated on a twelve month rolling basis, shall not exceed 21 percent by volume. [District Rule 2201]

11. The maximum wine storage throughput in this tank shall not exceed 1,720 gallons per day. [District Rule 2201]

12. The maximum wine storage throughput in this tank, calculated on a twelve month rolling basis, shall not exceed 19,585 gallons per year. [District Rule 2201]

13. The annual VOC emissions from wine storage in this tank, calculated on a 12 month rolling basis, shall not exceed 4 lb/year. [District Rule 2201]

14. The daily VOC emissions for fermentation operations in this tank shall not exceed 3.46 lb per 1000 gallons of tank capacity. [District Rule 2201]

15. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall not exceed 93 pounds. [District Rule 2201]

16. The annual VOC emissions from wine fermentation in this tank, calculated on a 12 month rolling basis, shall be determined by the following formula: Annual Fermentation VOC emissions = 2.5 lb-VOC/1,000 gallons x Annual White Wine Production (in gallons) + 6.2 lb-VOC/1,000 gallons x Annual Red Wine Production (in gallons). [District Rule 2201]

17. When this tank is used for wine storage, the operator shall determine and 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]

18. 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]

19. The operator shall maintain records of the calculated 12 month rolling wine ethanol content and storage and fermentation throughput rate (ethanol percentage by volume and gallons per 12 month rolling period, calculated monthly). [District Rule 2201]

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]

21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

AUTHORITY TO CONSTRUCT

PERMIT NO: N-1237-761-0

LEGAL OWNER OR OPERATOR: E & J GALLO WINERY
MAILING ADDRESS: ATTN: EHS MANAGER
18000 W RIVER RD
LIVINGSTON, CA 95334

LOCATION: 18000 W RIVER RD
LIVINGSTON, CA 95334

EQUIPMENT DESCRIPTION:
1,720 GALLON INSULATED STAINLESS STEEL RED AND WHITE WINE FERMENTATION AND WINE STORAGE TANK (TANK F712) WITH PRESSURE/VACUUM VALVE, OR EQUIVALENT

CONDITIONS

1. (1829) The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit

2. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1 lb, 2nd quarter - 1 lb, 3rd quarter - 31 lb, and 4th quarter - 31 lb. The quantity of offsets required have been reduced by 35%, as District Rule 4694 Section 5.1 requires this facility to achieve at minimum this level of reduction in their Baseline Fermentation Emissions. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]

3. ERC Certificate Numbers S-4160-1, C-1229-1, S-3805-1, S-4126-1, S-4232-1, S-4230-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

4. The nominal tank dimensions are 6.5 feet in diameter and 7 feet in height with a proposed volume of 1,720 gallons. The permittee shall submit to the District the gauge volume of the tank within 30 days of the actual tank capacity measurement. [District Rule 2201]

5. (98) No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director RPCO

Arnaud Marjollet, Director of Permit Services
6. When this tank is 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]

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]

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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]

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21. The permittee shall maintain the following records: red wine and white wine produced by fermentation at this facility, based on values reported to the Alcohol and Tobacco Tax and Trade Bureau (TTB), U.S. Department of the Treasury; the volume of each wine movement; and the calculated 12 month rolling wine throughput rate for fermentation operations (gallons per 12 month rolling period, calculated monthly). [District Rules 2201 and 4694]

CONDITIONS CONTINUE ON NEXT PAGE
22. If the throughput or ethanol content calculated for any rolling 12-month period exceeds the annual throughput or ethanol content limitations of this permit, in a crush season in which the start of the crush season (defined as the day on which the facility's seasonal crushing/fermentation operations commence) occurs less than 365 days after the start of the previous crush season, then no violation of the throughput or ethanol content limits for that rolling 12-month period will be deemed to have occurred so long as the calendar year throughput and ethanol content are below the annual throughput and ethanol content limitations. [District Rule 2201]

23. Records shall be maintained that demonstrate the date of each year's start of crush season. [District Rule 2201]

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

Comments and Responses
District Response to EcoPAS Comments to SJVAPCD on ATC Project for E & J Gallo Winery, Facility # N-1237, Project # N-1141254, Submitted on June 5, 2014

Comment #A.1 — The Top Down BACT analysis for Gallo — Livingston facility is for twelve (12) new 1,720-gallon ferment/storage tanks

As a vendor which provides VOC control equipment to the wine industry, along with the option for turn-key design and installation of the entire system, it is surprising that we were never contacted by the District regarding this application. Our interest is well-known to the District in addition to our willingness to assist in the costing and analysis of PAS technology, especially since our technology is one of the two evaluating in the Top-Down BACT analysis.

Instead of contacting the vendor the District made general assumptions and applied a completely inappropriate engineering “rule of thumb”. Our company could design and fabricate a collection system for all 12 tanks with a modified PAS device.

As we have requested for other ATC application reviews, we would need the site plot plan and certain other details regarding the proposed tank array to design the most cost-effective and efficient manifold system.

Response #A.1 — The Top Down BACT analysis for Gallo — Livingston facility is for twelve (12) new 1,720-gallon ferment/storage tanks

Steven Colome of EcoPAS, was given notification of the project and provided an opportunity to provide cost information on April 8, 2014. The District to date has not received any information requests for this project nor any project specific cost information. As a result, the District moved forward with the project analysis using general engineering rule of thumb estimates.

Comment #A.2 — Maximum CO₂ flow rates

The District knows better than to propagate the highly improbable maximum flow scenarios that are presented in the Top-Down BACT analysis. The District has previously admitted that the maximum combined tank flow scenario derived from the proprietary EJ Gallo kinetic model is unrealistic and should not be used as the engineering design basis for a control system.

This issue is important and is dealt with in greater detail in Section C below. For now, suffice it to say that the approach assumed grossly overestimates real-life flow patterns and forces an unnecessary and over-capitalized control system. The net effect is to make a cost-effective solution appear to be cost ineffective. It is the
responsibility of a public agency to be more discerning and to present realistic scenarios in its evaluations and public documents.

**Response #A.2 — Maximum CO₂ flow rates**

The District concurs with EcoPAS's assertion that the maximum combined flow rate provided by Gallo most likely overstates the requirements for the sizing of the control device and that reasonable operating practices combined with a probability analysis could yield an actual design basis with a substantially smaller flowrate. For purposes of the analysis, the District's final decision has incorporated EcoPAS's previous assertion in this regard by basing the analysis on EcoPAS's estimated requirement of four PAS units required for control of emissions from 24 tanks. As a conservative assumption, for this BACT analysis one condenser was assumed to be required to serve 12 tanks in this project.

**Comment #A.3 — Six-tenths Rule**

The District incorrectly and unnecessarily applies an engineering "rule of thumb" to extrapolate from the EJ Gallo Livingston Base Case to the current application. The "6-tenths Rule Is a somewhat odd adjustment factor that lacks clear provenance or theoretical foundation. That writ, its main purpose is for crude extrapolation to the unknown, only when direct estimates or systems do not exist.

In the current case, the District could simply have picked up the phone and asked us to provide a configuration of our system that would best meet the needs of the current application.

It is completely invalid to use the "6-tenths Rule" in the current BACT analysis.

**Response #A.3 — Six-tenths Rule**

Steven Colome of EcoPAS, was given notification of the project and provided an opportunity to provide cost information on April 8, 2014. The District to date has not received any information requests for this project nor any project specific cost information. As a result, the District moved forward with the project analysis using general engineering rule of thumb estimates.

**Comment #A.4 — Engineering Costs**

District engineering cost estimate is inconsistent with and is overestimated relative to the EPA Control Cost Manual. Components are quickly and directly integrated into an existing or new winery tank-farm with minimal engineering required. PAS
assembly is substantially less expensive to install than assumed by the District, or envisioned in 2002 in the EPA Control Cost Manual for a generic VOC condenser.

Designed specifically to control emissions from wine fermentation, and unlike conventional air pollution systems, PAS is an invention comprised of standard food/beverage components that are easily assembled on-site.

The PAS system arrives fully fabricated. We proudly state that after mounts are attached "no tools are required to install the PAS because components are assembled by hand with triclamp fittings familiar to the wine industry. This allows for easy assembly and seasonal cleaning.

Use by the District of simple and unjustified "rules of thumb" is incorrect and overestimates the Total Annual Costs of the PAS units.

Response #A.4 – Engineering Costs

District staff experience indicates that 5% of direct cost is a minimum allowance for any engineering and construction project including capital-intensive projects, particularly when considering a project still in the conceptual estimate stage. Considering that the implementation of fermentation controls on a major winery expansion would be first-of-a-kind, essentially prototype project rather than a cookie-cutter duplicate of a previous project, engineering costs would be expected to be substantially higher than average. In the District's opinion, an engineering expenditure of $25,000 would be a typical expenditure for front-end engineering to fully develop and define all the requirements and impacts of the project. A recognized construction industry Best Practice is to expend approximately 25% of the total engineering budget during front end engineering. A final engineering cost of $105,000 is consistent with this approach. The District maintains that a 5% engineering allowance is a prudent approach for estimating the potential cost of this project.

Comment #A.5 – Initial Source Testing

Our system uniquely collects the "pollutant" (ethanol vapor) and condenses it into a usable product that must be reported to the US Treasury (TTB) for taxation purposes. Actual, quantifiable and integrated capture of contaminant is far superior and subject to less error and uncertainty than the approach suggested by the District. That precedent has already been set by the SBCAPCD which allows quantification of VOC captured for determination of emission reduction.

This suggested cost is unnecessary, counter-productive and overestimates the Total Annual Costs of the PAS units.
Response #A.5 — Initial Source Testing

Installation of a control device on an emission source (this project) which, considered alone, has an uncontrolled potential to emit which exceeds the Major Source threshold of Rule 2201 and is both a Federal Major Modification and an SB288 Major Modification would require source testing to demonstrate compliance with the District New Source Review (NSR) Rule 2201 by District Policy. District’s statement on page 24 of the ATC application review, that source testing is not required for compliance with Rule 2201 pursuant to District Policy APR 1705, refers to the approved configuration of the project which does not include add-on control devices. The presence of accepted emission factors for wine fermentation is not a consideration in this regard. APR 1705 provides a guideline for source testing frequency but does not place a limit on any source testing requirements deemed necessary by the APCO.

Under NSR, the District is required to establish emission limits (limiting the amount of ethanol delivered to the atmosphere) and to require a demonstration of compliance by periodic source testing (annual frequency for a source of this magnitude). Meeting those criteria dictates source testing of the control device outlet as a minimum (assuming a gas tight operation can be achieved between the fermentation tank and the control device). While the District has recognized emission factors for fermentation, the factors represent an average fermentation operation in the San Joaquin Valley and the actual emissions will vary significantly depending upon initial sugar content and fermentation temperature of the operation. Given the above, it is apparent that a measurement of the ethanol collected by the control device would not suffice to demonstrate compliance with an emission limit or to establish the actual collection efficiency of the control device.

Source testing, in whatever form, is required to be conducted based on a specific protocol, approved by the District, and must be conducted by a specifically approved 3rd party. While routine on-going measurement of collected ethanol would satisfy the recordkeeping requirements of Rule 2201, it would not qualify as source testing to demonstrate compliance with emission limits. Due to the non-steady state nature of the fermentation process, conventional source testing procedures involving three 30-minute steady state measurement periods will also not be applicable. A measurement of actual emissions is expected to require either continuous monitoring or frequent periodic measurements over a 3-8 day period depending upon the specific fermentation. Regardless of the source testing protocol ultimately established for the process, 3rd party testing over such a period is expected to represent significant cost. The District maintains that source testing costs are a reasonable representation of the potential source testing expense for this project.
Comment #A.6 — Owner's Cost

Like the prior erroneous "capital adjustment factor" applied to the PAS, this expense is not an included category in the EPA Control Cost Manual. We have not been able to verify but suspect that this category may never have been applied by the District in analyses prior to the Base Case. Further, the category is redundant to other costs already included within the EPA Control Cost Manual. The effect of this uncategorized and gratuitous cost category is to overestimate the Total Annual Costs of the PAS units.

Response #A.6 — Owner's Cost

EcoPAS provided a turnkey estimate for supply and installation of the EcoPAS units, however, no direct mention of the inclusion of owner's costs is included as a part of the estimate, however an estimate of $98,100 was provided for "administrative costs and contingency". Generally, turnkey estimates and or bids provided by equipment suppliers only cover the scope of work which will be under the control of the bidder. Since the equipment supplier cannot take responsibility for the owner's costs (or even accurately estimate them), such costs would be inappropriate in a supplier's bid and would not be relied upon by the owner to establish such cost. The District has separated the category "administrative costs and contingency" into two separate categories estimated by the District: 1) "owner's cost" (assuming "administrative" refers to such costs) and 2) "contingency". The rationale for owner's costs is based on 1) the equipment supplier is not responsible for owner's costs nor has any control of those costs, 2) the EcoPAS cost estimate does not directly mention owner's costs or provide a breakout of those costs, and 3) the District's opinion is that the estimated value of $98,100 provided by EcoPAS is not sufficiently large to include owner's cost based on the description of the expected effort by the owner's organization provided above.

Comment #A.7 — Project Contingency

This excessive charge based on an ad hoc contingency assignment of 20% of the total estimated capital investment is contrary to the 3% of Purchased Equipment Costs used in the EPA Control Cost Manual. The effect of using this ad hoc and unrealistically exaggerated contingency is to overestimate the Total Annual Costs of the PAS units.

Response #A.7 — Project Contingency

To fix the equipment cost, detailed specifications for the equipment must be agreed upon between the supplier and the owner, finalized, and included in a purchase order. This point is reached in a project when engineering is approximately 25%
complete. Even at that point, prudent estimating practice in the process industries is to still include a 3-5% contingency to allow for expected scope change that may occur during completion of detailed design. For purposes of this cost effectiveness analysis, the District has assumed that EcoPAS's statements regarding the capacity and operability of the proposed equipment are correct and that the equipment, as proposed, will be capable of meeting the emission control objectives of the project, based upon EcoPAS's knowledge of the proposed operation and EcoPAS's standards of construction. However, given that the proposed equipment has never been demonstrated commercially or operated at the scale of this project, nor has the equipment scope and specific features been studied, reviewed and approved by the owner, there is a significant probability that the scope and cost of the equipment supply will increase dramatically in the actual implementation of this project.

Good engineering practice and accepted norms of the engineering industry, when applied to a conceptual estimate of this type, require a project contingency exceeding 20%. Contingencies less than 10% are only achieved when preliminary engineering has been completed (all major equipment fully specified and firm quotations received with approved piping and instrumentation diagrams, plot plans and equipment layouts) plus a preliminary design basis and/or preliminary design sketches with material takeoff for all significant cost components of the project. Contingencies less than 5% are only applicable to projects for which all engineering is completed and approved for construction.

Consistent with the discussion above, the District has appropriately applied a reasonable project contingency of 20% to the estimated capital investment for this project.

Comment #A.8 — Annual Source Testing

This suggested cost is unnecessary, counter-productive and overestimates the Total Annual Costs of the PAS units.

Response #A.8 — Annual Source Testing

See response to Comment #A.5.

Comment #A.9 — Minimum Duct Sizing

The tank vents and common manifold minimum duct diameter were provided by Eichleay. At the unrealistic Gallo-provided worst-case peak potential CO₂ volume of 8.9-scfm from each tank, the carrying velocities would be at laminar flow rather than a more desirable turbulent flow rate.
Given,
- Maximum CO₂ rate is 8.9 scfm from each tank (Gallo kinetic model)
- Minimum duct diameter (Eichleay): 6" diameter (0.19635-ft²)
- Minimum manifold diameter (Eichleay): 12" diameter (0.78540-ft²)

Therefore,
- Tank (6" diameter) velocity: \( \frac{8.9 \text{ scfm}}{0.19635 \text{ ft}^2} = 45 \text{ fpm at peak} \)
- Manifold (12" diameter) velocity: \( (12) \times \frac{\text{tanks \times 8.9 \text{ scfm}}}{0.78540} = 136 \text{ fpm} \)

We cannot and the District should not consider as serious a simultaneous peaking scenario, and the District could and should apply permit conditions that would limit that improbably peak emissions potential (see Section C below and Attachment 1 for more detail). Our approach is to design for realistic flow patterns under operating winery conditions and allow extreme and excess flow to safely be released, as with a dam spillway. To do otherwise, is bad engineering and bad public policy.

Notwithstanding these considerations, the duct diameters as estimated by Eichleay for Gallo should be reduced to create a more desirable turbulent flow rate under most operating conditions within acceptable static pressure limits. Eichleay and Gallo have not only produced an improbable flow scenario, but have exaggerated the desired duct sizing, even for the high-flow scenario, thereby compounding errors and overestimating capital control cost requirements.

The duct diameters would be no greater than 2" diameter for the tank connections and 6" diameter for the manifold for reasonable and realistic engineering design.

Response #A.9 — Minimum Duct Sizing

For purposes of the analysis, the District’s final decision has incorporated EcoPAS’s previous assertion in this regard by basing the analysis on EcoPAS’s estimated requirement of four PAS units required for control of emissions from 24 tanks. As a conservative assumption, for this BACT analysis one condenser was assumed to be required to serve 12 tanks in this project. To handle the gas volume from the assumed number of units, a minimum duct sizing of six inch diameter for the tanks and 12 inch diameter for the manifold is required to provide sufficient pipe diameter to handle the required flow scenario.

Comment #B — Capital Recovery Factor in District’s BACT Policy

The following quote is from District document APR 1305, the SJVUAPCD Best Available Control Technology (BACT) Policy, Section X.A.1 on Procedures for Conducting Cost-Effectiveness Analysis of Technologically Feasible Alternatives.
"Calculate an equivalent annual cost from a capital cost using a capital recovery factor as shown below:

\[ A = P \frac{i(1+i)^n}{(1+i)^n - 1} \]

where:

\[ A = \text{Equivalent Annual Control Equipment Capital Cost} \]
\[ P = \text{Present value of the control equipment, including installation cost} \]
\[ i = \text{interest rate (use 10\%, or demonstrate why alternate is more representative of the specific operation).} \]
\[ n = \text{equipment life (assume 10 years or demonstrate why alternate is more representative of the specific operation).} \]

The District's written policy recognizes the variable quality of the interest rate and equipment life as inputs to the Capital Recovery Factor. Further, the District has had ample demonstration for why better alternatives to the 10/10 default assumption are more appropriate for this analysis.

1. Interest rate, i

We know of no other public agency currently using a value of 10\% discount rate to evaluate cost-effectiveness.

The value of 10\% is outdated and is not reflective of either private or public money costs. Per statute CARB updates the cost-effectiveness limit and capital recovery factors (CRF) annually. For 2014 CARB continues to use a discount rate of 1\% with a revised cost-effectiveness limit of $17,720.

EPA uses the values reported by the Office of Management and Budget (OMB), the federal agency that annually updates interest rates for use in project evaluation8.

OMB reports both nominal and real discount rates for projects of different duration. Nominal rates are the same as market rates and typically used for lease-purchase analysis. Real discount rates remove the inflation premium and are "often required in cost-effectiveness analysis". Below is a Table of Nominal and Real interest rates for 10 and 20 year projects.
Clearly, the District’s continued use of a 10% discount rate represents an extreme outlier among public agencies. The 10% value does not represent current rates and biases results, making cost-effective solutions appear to be cost-ineffective.

Most significantly, continued use by the District of an outdated 10% CRF serves to discourage new and innovative pollution controls that will serve to assist in cleaning up the serious and persistent air quality problems in the Central Valley.

2. Equipment Life, n

The District has also received ample evidence for why ten years is an incorrectly short life expectancy for PAS VOC controls. Use of a ten year life is also inconsistent with the EPA Air Pollution Control Cost Manual. The EPA Manual gives default equipment life for a generic condensing control system of 15 years.

Fifteen years is a minimum feasible life for the PAS system. There are no moving parts (including motors, fans, or pumps) integral to the control unit. The body of the unit is fabricated from food-grade stainless steel and while in-use, pressures and temperatures within the system are moderate. Compared with other types of pollution control equipment, which operate under more extreme conditions of temperature and pressure, it is reasonable to assume a product life of at least 25 years for the PAS.

In sum, the District is incorrectly applying the economic concept of a Capital Recovery Factor, is not using values of equipment life and current interest rates (i) consonant with other public agencies including CARB, EPA and the Office of Management and Budget.

The net effect of using an unrealistic discount rate and incorrectly short equipment life-expectancies is to make a very cost-effective control solution appear to be cost-ineffective.

As such, the District is establishing itself as an extreme outlier among public agencies and is actively discouraging the adoption of innovative new control technologies.
Response #B — Capital Recovery Factor in District’s BACT Policy

Since essentially the formation of the San Joaquin Valley Air Pollution Control District in the early 1990’s, the District has consistently used a 10% discount rate and a 10 year equipment life in cost effectiveness calculations. These are the standard default values listed in District Policy APR-1305. Although APR-1305 allows consideration of other values for these parameters, to the District’s knowledge, no other values have ever been used in any District analysis. A 10% discount rate and a 10 year equipment life represent financially conservative values consistent with the District’s conservative and cautionary approach when imposing new controls (with substantial technical and socio-economic unknowns) on businesses in the San Joaquin Valley. Given the District’s consistent history of using only the conservative default values, the District would be irresponsible to implement significantly different values for a specific project. While the values may not reflect current economic conditions, the District would only implement changes in the precedent-based use of APR-1305 after substantial study of the socio-economic impact and public input. The District has used the appropriate discount rate and equipment life for this project based on established precedent and a conservative approach with respect to imposing new technology on businesses in the San Joaquin Valley.

Comment #C — Unrealistic Estimate of Maximum CO₂ Production Rate

The District has used a highly improbable flow condition to report potential maximum CO₂ flow rates in the current BACT analysis. We will show in this section just how unrealistic is this estimate. The District is fully aware of the improbable conditions established in the simultaneous maximum flow condition derived from Gallo’s proprietary CO₂ flow model. The problem is that the District continues to propagate an unrealistic calculation of multitank maximum combined fermentation activity (and therefore CO₂ flows).

It is quite simply bad engineering and bad public policy to use these conditions to design a control system. Clearly, the purpose of posing an extreme and improbable flow condition is to suggest need for an over-sized and over-capitalized system that will have difficulty meeting cost effectiveness criteria. This would be like oversizing a dam or revising building codes to require structures sustain Richter 11 ground shakes.

As usual, the District continues to state peak flow rates without a time constant, in spite of the fact that they have been repeatedly reminded that a flow rate is not useful for engineering design in the absence of a time constant. The individual-tank peak flow rates as calculated by the EJ Gallo proprietary model are not consistent
with production of quality wines; and any good winemaker will avoid overly rapid fermentation activity characterized by the flow rates reported in the proprietary kinetic model.

Why that model is still proprietary is somewhat of a mystery to us. The basic stoichiometry has been known for over a century and modeling and measurement activities have been reported in the literature, including our own sensitive mass-flow meter measurements taken in a commercial winery reported in a public abstract.

In our study we reported results from direct CO2 flow measurements made within a commercial winery during normal wine production operations. We found that the integrated mass of CO2 released to the atmosphere during primary fermentation is dependent on the total sugar consumed (0 Brix reduction) and not the fermentation duration. We also found that the time course of CO2 release can be complex and is primarily dependent on the length of active fermentation.

The worst-case peak tank flow scenario as envisioned and calculated in the EJ Gallo proprietary model, and referenced repeatedly by the District, represents exceedingly short and higher-temperature ferments not consistent with good winemaking practice.

Response #C – Unrealistic Estimate of Maximum CO2 Production Rate

See response to Comment #A.2.

Comment #D – District's Current Wine Fermentation BACT

The District's BACT for wine fermentation is to "require" average fermentation temperatures be maintained below 95 degrees F. This is in recognition that temperature IS the most significant variable affecting the atmospheric release of ethanol vapors for most commercial wine fermentation. In fact, this relationship is quite nonlinear.

District emission factors for wine fermentation are derived by the California Air Resources Board and adopted in District Rule 4694.

These emission factors are:

- Red wine: 6.21lbs./1000gal at 78°F and 21.8°Brix reduction
- White wine: 2.5lbs./1000gal at 58°F and 20.4°Brix reduction
It is also recognized by the District that:

"... as fermentation temperature increases, ethanol loss increases exponentially"

Note in the example above for red vs. white emission factors that a 20°F difference in fermentation temperature (58°F to 78°F) results in a 2.4 fold increase in emissions (not counting the slight difference is assumed sugar consumption).

Should wine be processed at the District's current BACT of 95°F, VOC emissions to the atmosphere would be several-fold higher than 6.2lbs/1000gal.

While BACT is reported to be "the most stringent control technique for the emissions unit and class of source", it must be recognized that this BACT policy represents no control at all; for good winemaking practice calls for temperatures of both red and white wines be maintained below this temperature.

We have asked the District for written protocols on how temperatures are recorded and reported to the District, and none have been produced to date. Starting times for temperature recording are also not specified (e.g., following tank-fill with must, or following yeast inoculation, or once sugar consumption is first detected).

There are multiple options for placement of thermal wells and for the timing and frequency of temperature recording which all affect the calculation of average fermentation temperature.

The District uses separate emission factors for red and white wine under the assumption that white wines are typically fermented at lower temperatures. However, the District has not set a separate and lower temperature for fermentation of white wines in spite of the fact that the District must assume lower fermentation temperatures to rely on the lower 2.5 lbs/1,000 gallon emission factor used for emission models.

We have asked the District multiple times whether temperatures are reviewed by the District for white wine fermentations and have not received a direct answer. If white wines are processed primarily for ethanol markets, therefore at the lowest price points, it is possible that they will be fermented at higher temperature in order to shorten time in the fermentation tanks. In that case, emission rates would begin to approximate those for normal red wine fermentations.
District BACT analysis identifies the SJVUAPCD BACT Clearinghouse Guideline 5.4.14 for wine fermentation BACT as a **Maximum Average Fermentation Temperature** of 95°F. While this term is consistent with the one-page Clearinghouse Guideline for this emission source, it is undefined mathematically and as such is meaningless. The term is inconsistent with the draft Authority to Construct Condition, which states: "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".

More telling is the fact that the Compliance Department memo, for inspection of tanks involved in the fermentation of wine (COM 2293, dated April 3, 2012 and signed by Morgan Lambert), does not directly mention the role of the field inspector in monitoring and reviewing compliance of wineries for this wine fermentation BACT requirement.

The lack of definition, conflicting terminology, and lax monitoring or recording of values by inspectors underscore the fact that this is a meaningless control measure that is not treated seriously by the District.

**Response #D — District’s Current Wine Fermentation BACT**

The fermentation data are collected every 12 hours during the fermentation period, at a minimum. The data can be collected as grab samples or by in tank thermocouples.

A red wine fermenter typically operates at a much higher throughput and produces significant more emissions (i.e. higher emission factor) relative to a white wine fermenter of the same size. Therefore, the cost effectiveness determination for red wine is much more favorable in terms of cost effectiveness for a control device than white wine so the BACT determination, at the moment, focuses only on red wine fermentation. If a control technology is determined to be cost effective for red wine, then the control technology will also be analyzed for white wine.

**Comment #E — The Problem with Certified Emission Reduction (CER) Credits**

It is not clear from the current application whether the proposed project is fully offset by ERCs and CERs. In the past, Gallo has offset the first 35% of emissions with CERs. If use of CERs is under consideration for this project, then the following section is relevant.
The first 35% of offset credits for the proposed facility are derived from Certified Emission Reduction (CER) credits as described in Rule 4694. Unlike Emission Reduction Credits (ERCs), Certified Emission Reductions are treated as semi-secretive transactions not included in the public ERC record.

We have asked for any written District documentation, rules or policies that guide this class of emission reduction; and we have been met with lack of knowledge or silence. We understand that one senior member of the engineering/permit staff, who has since retired, was the sole District repository of, and accountant for, the CERs program. Current status and responsibility for the program are presently unclear.

The CERs used in the present Gallo application are derived from emission reductions on brandy-aging facilities owned and operated by the winery. It is unclear to us why this source of VOC emission was not identified by the District as an independent source of VOC emissions that should have had its own rule.

Nonetheless, we understand that thermal oxidizers were installed on the brandy-aging buildings and that annual CER credits were derived. The emissions from brandy-aging are continuous; unlike wine fermentation which is a definite seasonal source.

It is an error for the District to allow a non-seasonal, annualized source of emission credits to be used to offset a clearly seasonal fermentation emission source, one for which over 75% of all emissions occur within the two month ozone season of September and October.

Further, by allowing thermal oxidizer controls to offset winery fermentation VOC emissions, the District has elected to trade off NOx emissions from the oxidizers for control of the VOC fermentation emissions.

In contrast, the PAS control option directly captures fermentation VOC emissions without generating unnecessary NOx emissions.

Response #F – The Problem with Certified Emission Reduction (CER) Credits

The status and responsibility of the CER program remains under the management and direction of the Permit Service Department in the Central Region in Fresno. All submitted information under this program is available in the Fresno office.

District Rule 4695 has adopted a dedicated rule to Brandy Aging and Wine Aging Operations.
District Rule 2201 Section 4.13.8 states Actual Emission Reductions for NOx and VOC that occurred from April through November may be used to offset increases in NOx and VOC during any period of the year. Therefore, credits for ozone precursors are allowed to be used as offsets for any period of the year.

However, the District agrees that wine fermentation operations are seasonal. For Stationary Sources with quarterly Potential to Emit that is not constant throughout the year and for Seasonal Sources the amount shall be calculated in pounds per quarter. Fermentation operations occur during the crush season between August and November in the third and fourth quarter of each calendar year. Therefore, emission offset requirements for the fermentation operation were equally distributed and assessed in the third and fourth quarter.

As discussed in the staff report of Rule 4694, to provide time for industry and the District to better understand the uncertainty associated with technical feasibility and cost effectiveness of controlling wine fermenters, staff proposed a market-based approach for Rule 4694. Operators would be required to achieve a 35% reduction in their total fermentation emissions. This level of emissions reduction is consistent with the District’s attainment plans for the source category and is reasonable given the cost of control estimates and degree of uncertainty about potential impact on product quality.

Structuring Rule 4694 consistent with a market-based approach would achieve emission reductions in excess of the required 35% reduction in baseline emissions. Emission reductions occurring offsite require an offset ratio of 1.2 tons. This is a 20% premium for operators employing this provision. The uncertainty of the grape harvest is expected to result in emission reductions exceeding the 35% reduction requirement. The volume of wine fermentation that occurs within a given year is intrinsically linked to the grape harvest. Operators cannot accurately predict their actual emissions. To guard against potential determination of violation of the rule, and to simplify the process of demonstrating compliance, with the 35% VOC emission reduction requirement, operators are expected to obtain emission reductions in excess to the rule requirements. The three-year compliance plan provision and annual compliance demonstration will enable the District to quantify these additional reductions.

Based on the development of Rule 4694 and the intended reductions to be obtained by the rule, the District analyzed if controls on brandy-aging buildings utilizing a thermal oxidizer was approvable. An ambient air quality analysis was performed in the approval determination and the result was the project would not violate an ambient air quality standard, met all rules and regulations, and therefore was approvable. The Rule 4694 staff report also identified condensation, refrigeration, and cryogenic systems as possible control options and were considered viable control options for wine fermentation operations.