

October 4, 2022

Chris Perez
Vie-Del Winery #1
PO Box 2908
Fresno, CA 93745-2907

RE: Final - Authority to Construct / Certificate of Conformity (Significant Modification)
Facility Number: C-1344
Project Number: C-1220078

Dear Mr. Perez:

The Air Pollution Control Officer has issued the Authority to Construct permit to Vie-Del Winery #1 for the modification of an existing 60 MMBtu/hr natural gas-fired boiler (permit unit C-1344-7) to tune the existing Haldor Topsoe model DNX-929 Selective Catalytic Reduction (SCR) system in order to meet the 2.5 ppmv NOx emission limit of District Rule 4320, at 11903 S Chesnut Ave, Fresno. Enclosed are the Authority to Construct permit and a copy of the notice of final action that has been posted on the District's website (www.valleyair.org).

Notice of the District's preliminary decision to issue the Authority to Construct permit was posted on August 17, 2022. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on August 17, 2022. All comments received following the District's preliminary decision on this project were considered.

Comments received by the District during the public notice period resulted in the correction of the calculated daily Post-Project Potential to Emit (PE2) value for VOC emissions from 88.7 lb/day to 7.9 lb/day (reference page 8 of the attached engineering evaluation). These changes were minor and did not trigger additional public notification requirements, nor did they have any impact upon the Best Available Control Technology determination or on the amount of offsets required for project approval.

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.

Samir Sheikh
Executive Director/Air Pollution Control Officer

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

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

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

Mr. Chris Perez
Page 2

Prior to operating with the modifications authorized by the Authority to Construct, you must submit an application to modify the Title V permit as an administrative amendment in accordance with District Rule 2520, Section 11.5. Application forms have been enclosed for your use. These forms may also be found on the District's website at www.valleyair.org.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Nick Peirce at (209) 557-6400.

Sincerely,



Brian Clements
Director of Permit Services

BC:za

Enclosures

cc: Courtney Graham, CARB (w/enclosure) via email
cc: Gerardo Rios, EPA (w/enclosure) via EPS

Facility # C-1344
VIE-DEL WINERY #1
P O BOX 2908
FRESNO, CA 93745-2908

AUTHORITY TO CONSTRUCT (ATC)

QUICK START GUIDE

1. **Pay Invoice:** Please pay enclosed invoice before due date.
2. **Modify Your Title V Permit.** Prior to operating the equipment authorized under this ATC, submit an application to modify your Title V permit. See application forms at <http://www.valleyair.org/permits/TVforms>.
3. **Fully Understand ATC:** Make sure you understand ALL conditions in the ATC prior to construction, modification and/or operation.
4. **Follow ATC:** You must construct, modify and/or operate your equipment as specified on the ATC. Any unspecified changes may require a new ATC.
5. **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. A startup inspection may be required prior to receiving your Permit to Operate.
6. **Source Test:** Schedule and perform any required source testing. See http://www.valleyair.org/busind/comply/source_testing.htm for source testing resources.
7. **Maintain Records:** Maintain all records required by ATC. Records are reviewed during every inspection (or upon request) and must be retained for at least 5 years. Sample record keeping forms can be found at http://www.valleyair.org/busind/comply/compliance_forms.htm.

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.**

Samir Sheikh
Executive Director/Air Pollution Control Officer

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

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

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

AUTHORITY TO CONSTRUCT

PERMIT NO: C-1344-7-4

ISSUANCE DATE: 10/04/2022

LEGAL OWNER OR OPERATOR: VIE-DEL WINERY #1
MAILING ADDRESS: P O BOX 2908
FRESNO, CA 93745-2908

LOCATION: 11903 S CHESTNUT AVE
FRESNO, CA 93725

EQUIPMENT DESCRIPTION:

MODIFICATION OF 60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER, FLUE GAS RECIRCULATION, AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM: TUNE EXISTING SCR SYSTEM TO ACHIEVE NOX EMISSIONS OF 2.5 PPMV @ 3% O2 FOR RULE 4320 COMPLIANCE

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
6. The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Samir Sheikh, Executive Director / APCO



Brian Clements, Director of Permit Services

C-1344-7-4 : Oct 4 2022 9:01AM -- ALEMANZ : Joint Inspection NOT Required

7. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rules 2201 and 2520] Federally Enforceable Through Title V Permit
8. Except during start-up and shutdown, emissions from the exhaust of the SCR system shall not exceed any of the following emission limits: 2.5 ppmv NO_x @ 3% O₂ or 0.003 lb-NO_x/MMBtu; 0.00285 lb-SO_x/MMBtu; 0.0076 lb-PM₁₀/MMBtu; 100 ppmv CO @ 3% O₂ or 0.0739 lb-CO/MMBtu; or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
9. During startup and shutdown, emissions shall not exceed any of the following emission limits: NO_x - 26 ppmv @ 3% O₂ or 0.032 lb/MMBtu; or CO 150 ppmv @ 3% O₂ or 0.1109 lb/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
10. Total duration of startup shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
11. Total duration of shutdown shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
12. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
13. The ammonia (NH₃) emissions from the exhaust of the SCR system serving this boiler shall not exceed 10 ppmvd @ 3% O₂. [District Rule 4102] Federally Enforceable Through Title V Permit
14. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
16. Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

23. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
24. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
25. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
26. The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ at least once during each month in which source testing is not performed. NO_x, CO and O₂ monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH₃ monitoring shall be conducted utilizing gas detection tubes (Dräger brand or District approved equivalent). Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless it has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
27. Ammonia emissions readings shall be conducted at the time the NO_x, CO and O₂ readings are taken. The readings shall be converted to ppmvd @ 3% O₂. [District Rules 4102]
28. If either the NO_x, CO or NH₃ concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
29. All NO_x, CO, O₂ and NH₃ emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NO_x, CO and O₂ analyzer as well as the NH₃ emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
30. The permittee shall maintain records of: (1) the date and time of NO_x, CO, NH₃ and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x, CO and NH₃ concentrations corrected to 3% O₂, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
31. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit
32. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Tuning of Natural Gas-Fired Boiler's SCR System for Rule 4320 Compliance

Facility Name: Vie-Del Winery #1
Mailing Address: PO Box 2908
Fresno, CA 93745-2908
Contact Person: Chris Perez
Telephone: (559) 834-2525
E-Mail: cperez@vie-del.com
Application #: C-1344-7-4
Project #: C-1220078
Deemed Complete: February 9, 2022

Date: August 16, 2022
Engineer: Zeferino Aleman
Lead Engineer: Dustin Brown

I. Proposal

Vie-Del Winery #1 has submitted an Authority to Construct (ATC) application to modify an existing 60.0 MMBtu/hr natural gas-fired boiler served by a Selective Catalytic Reduction (SCR) emission control system (current Permit to Operate (PTO) C-1344-7-2 included in Appendix B. The facility is proposing to tune and optimize the SCR emission control system to lower the NOx emissions from 5 ppmv @ 3% O₂ (equivalent to 0.0062 lb/MMBtu) to 2.5 ppmv @ 3% O₂ (equivalent to 0.003 lb/MMBtu). The proposed change is being requested such that this boiler complies with the latest requirements of District Rule 4320 *Advanced Emission Reduction Operations for Boilers, Steam Generators, and Process Heaters Greater Than 5.0 MMBtu/hr*. The project will not result in any increases in emissions.

Vie-Del Winery #1 received their Title V Permit on December 31, 2012. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Vie-Del Winery #1 must apply to administratively amend their Title V permit.

The draft ATC is included in Appendix A.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (8/15/19)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)

Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4305 Boilers, Steam Generators, and Process Heaters – Phase 2 (8/21/03)
Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3 (12/17/20)
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (12/17/20)
Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03)
Rule 4801 Sulfur Compounds (12/17/92)
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 11903 S Chestnut Ave in Fresno, CA. The equipment is located within 1,000 feet of the outer boundary of a K-12 school. However, this project does not result in an increase in emissions for any criteria pollutants. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Vie-Del Winery #1 operates a grape juice, brandy, and ethanol production and storage operation at this location. The facility operates this natural gas-fired boiler to provide heat and steam for their grape juice, brandy, and ethanol processing operations. Within this project, the facility has proposed to tune the boiler's Selective Catalytic Reduction (SCR) emission control system to achieve NO_x emissions of less than 2.5 ppmvd @ 3% O₂. There will be no other changes to their facility or grape juice, brandy, and ethanol production and storage operations as a result of this project.

V. Equipment Listing

Pre-Project Equipment Description:

C-1344-7-3: 60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER WITH FLUE GAS RECIRCULATION AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

Proposed Modification:

Tune existing Haldor Topsoe model DNX-929 Selective Catalytic Reduction (SCR) system in order to achieve NO_x emissions of 2.5 ppmv @ 3% O₂.

C-1344-7-4: MODIFICATION OF 60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER, FLUE GAS RECIRCULATION, AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM: TUNE EXISTING SCR SYSTEM TO ACHIEVE NOX EMISSIONS OF 2.5 PPMV @ 3% O2 FOR RULE 4320 COMPLIANCE

Post-Project Equipment Description:

C-1344-7-4: 60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER, FLUE GAS RECIRCULATION, AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

VI. Emission Control Technology Evaluation

Emissions from natural gas-fired boilers include NO_x, CO, VOC, PM₁₀, and SO_x.

NO_x is the major pollutant of concern when burning natural gas. NO_x formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_x) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_x). Due to the low fuel nitrogen content of natural gas, nearly all NO_x emissions are thermal NO_x. Formation of thermal NO_x is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

Low-NO_x burners reduce NO_x formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO_x burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NO_x. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

Flue gas recirculation (FGR) reduces NO_x emissions by recirculating a percentage of the exhaust gas back into the wind box. This reduces the oxygen concentration in the air-fuel mixture and regulates the combustion process, lowering the combustion temperature. The lowered availability of oxygen in conjunction with lowered combustion temperature reduces the formation of NO_x.

Back end NO_x control technologies reduce the quantity of NO_x in the exhaust via chemical reactions in the presence of a catalyst that convert NO_x into molecular nitrogen and water or convert NO_x into potassium nitrites and nitrates. The back end NO_x control technology used by the applicant is a Selective Catalytic Reduction (SCR) system. In the SCR process, ammonia (NH₃) is injected into the gas exhaust gas stream and reacts with nitrogen oxide molecules in the presence of a catalyst to form molecular nitrogen and water. The NO_x-ammonia reaction takes

place over a limited temperature range (approximately 600 F to 750 F). Unreacted ammonia, an air contaminant, is exhausted from the SCR system (known as ammonia slip).

VII. General Calculations

A. Assumptions

- To streamline emission calculations, PM_{2.5} emissions are assumed to be equal to PM₁₀ emissions
- Prior to and after this modification, this unit will only be fired on PUC-regulated natural gas (current permit limit and proposed by the applicant)
- Maximum operating schedule for this boiler will be 24 hours/day and 8,760 hours/year (current permit limit and proposed by the applicant)
- Natural gas heating value: 1,000 Btu/scf (District Practice)
- F-Factor for natural gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B)

B. Emission Factors

Pre-Project Emission Factors:

The current permit for this boiler contains emission factors for all pollutants. The pre-project emissions factors are summarized in the table below:

Pre-Project Natural Gas Combustion Emission Factors			
Pollutant	lb/MMBtu	ppmv (@ 3% O ₂)	Source
NO _x	0.0062	5	Current Permit
SO _x	0.00285	--	District Policy APR-1720 (12/20/01) and Current Permit
PM ₁₀	0.003	--	District Practice ⁽¹⁾
CO	0.0739	100	Current Permit
VOC	0.0055	--	Current Permit
NH ₃	--	10	Current Permit

⁽¹⁾ The current permit limits the PM₁₀ emissions from the existing boiler/burner to 0.0076 lb/MMBtu. Based on information in the facility files, a source for the existing PM₁₀ emission limit could not be found and it has been included on the permit for this boiler since 2011. District policy APR 1110, Use of Revised Generally Accepted Emission Factors, states that existing emission factors should be revised at the time of permit modification if better emission data has become available since the time of the previous permitting action. Based on numerous source test results and current District practice, the PM₁₀ emissions from boilers fired on PUC-quality natural gas are not expected to exceed 0.003 lb/MMBtu. Based on this current District practice, the revised emission factor of 0.003 lb/MMBtu more appropriately represents the current PM₁₀ emissions from natural gas-fired boilers. Therefore, in accordance with District Policy APR 1110, the pre-project emission factor will be revised and re-established using the updated PM₁₀ emission factor.

Startup/Shutdown (each limited to 2 hours per day)

Pre-Project Natural Gas Combustion Emission Factors			
Pollutant	lb/MMBtu	ppmv (@ 3% O ₂)	Source
NO _x	0.032	26	Current Permit
CO	0.1109	150	Current Permit

Post-Project Emission Factors:

For the boiler, after tuning the SCR system, the emission factors for NO_x were proposed by the applicant. For the VOC and CO emission factors, the applicant has proposed to utilize the same emission factors that is on the current permit. The PM₁₀ emission factor is taken from current District practice for natural gas fuel combustion in boilers. The SO_x emission factor is based on District Policy APR-1720. The emission factors are summarized in the following table:

Post-Project Natural Gas Combustion Emission Factors			
Pollutant	lb/MMBtu	ppmv (@ 3% O ₂)	Source
NO _x	0.003	2.5	SCR System Manufacturer
SO _x	0.00285		District Policy APR-1720 (12/20/01) and Current Permit
PM ₁₀	0.003	--	District Practice
CO	0.0739	100	Current Permit/Proposed by Applicant
VOC	0.0055	--	Current Permit/Proposed by Applicant
NH ₃	--	10	Current Permit

Startup/Shutdown (each limited to 2 hours per day)

Post-Project Natural Gas Combustion Emission Factors			
Pollutant	lb/MMBtu	ppmv (@ 3% O ₂)	Source
NO _x	0.032	26	Current Permit
CO	0.1109	150	Current Permit

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Daily PE1:

The current permit for this boiler does not contain any daily operating limits. Therefore, the NO_x, CO, VOC, PM₁₀ and SO_x daily PE values will be calculated using the pre-project

emission factors listed above, the maximum heat input rating of the burner, and the maximum hours of operation during any given day.

For NO_x and CO, the unit is expected to operate 20 hrs/day at steady state conditions and 4 hrs/day in startup/shutdown mode. Therefore:

$$PE \text{ (lb/day)} = [EF_{\text{@Steady State}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 20 \text{ (hr/day)}] + [EF_{\text{SU/SD}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 4 \text{ (hr/day)}]$$

For SO_x, PM₁₀, and VOC, the unit is expected to operate at the steady state emission limits at all times, including during startup/shutdown. Therefore:

$$PE \text{ (lb/day)} = EF \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 24 \text{ (hr/day)}$$

Pollutant	Emission Factor (lb/MMBtu)	Burner Rating (MMBtu/hr)	Operating Hours (hr/day)	Daily PE1 (lb/day)
NO _x (steady state)	0.0062	60	20	7.4
NO _x (startup/shutdown)	0.032	60	4	7.7
SO _x	0.00285	60	24	4.1
PM ₁₀	0.003	60	24	4.3
CO (steady state)	0.0739	60	20	88.7
CO (startup/shutdown)	0.11	60	4	26.4
VOC	0.0055	60	24	7.9

Annual PE1:

The current permit for this boiler does not contain any annual operating limits. Therefore, the NO_x, CO, VOC, PM₁₀ and SO_x annual PE values will be calculated using the pre-project emission factors listed above, the maximum heat input rating of the burner, and the maximum hours of operation during any given year.

For NO_x and CO, the unit is expected to operate 7,300 hrs/year at steady state conditions and 1,460 hrs/year in startup/shutdown mode. Therefore:

$$PE \text{ (lb/year)} = [EF_{\text{@Steady State}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 7,300 \text{ (hr/year)}] + [EF_{\text{SU/SD}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 1,460 \text{ (hr/year)}]$$

For SO_x, PM₁₀, and VOC, the unit is expected to operate at the steady state emission limits at all times, including during startup/shutdown. Therefore:

$$PE \text{ (lb/year)} = EF \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 8,760 \text{ (hr/year)}$$

Pollutant	Emission Factor (lb/MMBtu)	Burner Rating (MMBtu/hr)	Operating Hours (hr/year)	Annual PE1 (lb/year)
NO _x (steady state)	0.0062	60	7,300	2,716
NO _x (startup/shutdown)	0.032	60	1,460	2,803
SO _x	0.00285	60	8,760	1,498
PM ₁₀	0.003	60	8,760	1,577
CO (steady state)	0.0739	60	7,300	32,368
CO (startup/shutdown)	0.11	60	1,460	9,636
VOC	0.0055	60	8,760	2,891

The total PE1 is calculated below:

Pollutant	Daily PE1 (lb/day)	Annual PE1 (lb/year)
NO _x	15.1	5,519
SO _x	4.1	1,498
PM ₁₀	4.3	1,577
CO	115.1	42,012
VOC	7.9	2,891

Ammonia (NH₃) from SCR:

The proposed daily NH₃ emissions can be calculated as follows:

$$PE = \text{ppm} \times MW \times (2.64 \times 10^{-9}) \times ff \times BR \times [20.9 / (20.9 - O_2\%)] \times 24 \text{ hour /day}$$

Where:

- PE is the emission factor in lb/hr
- ppm is the emission concentration in ppmvd @ 3% O₂
- MW is the molecular weight of the pollutant (MW_{NH₃}= 17 lb/lb-mol)
- 2.64 x 10⁻⁹ is one over the molar specific volume (lb/MMscf, at 60 °F)
- ff is the F-factor for natural gas (8,578 scf/MMBtu, at 60 °F)
- BR is the rating of the boiler (MMBtu/hr)
- O₂ is the stack oxygen content to which the emission concentrations are corrected (3%)

$$NH_3 \text{ PE (lb/day)} = 10 \times 17 \times (2.64 \times 10^{-9}) \text{ (lb-mol/MMscf)} \times 8,578 \text{ (scf/MMBtu)} \times 60.0 \text{ (MMBtu/hr)} \times [20.9 / (20.9 - 3.0)] \times 24 \text{ (hour/day)}$$

$$= 6.5 \text{ lb-NH}_3/\text{day}$$

$$\begin{aligned} \text{NH}_3 \text{ PE (lb/year)} &= 10 \times 17 \times (2.64 \times 10^{-9}) \text{ (lb-mol/MMscf)} \times 8,578 \text{ (scf/MMBtu)} \times \\ & 60.0 \text{ (MMBtu/hr)} \times [20.9 / (20.9 - 3.0)] \times 8,760 \text{ (hour/year)} \\ &= 2,363 \text{ lb-NH}_3/\text{year} \end{aligned}$$

2. Post-Project Potential to Emit (PE2)

Daily PE2:

The NO_x, CO, VOC, PM₁₀ and SO_x daily PE values will be calculated using the post-project emission factors listed above, the maximum heat input rating of the burner, and the maximum hours of operation during any given day.

For NO_x and CO, the unit is expected to operate 20 hrs/day at steady state conditions and 4 hrs/day in startup/shutdown mode. Therefore:

$$\text{PE (lb/day)} = [\text{EF}_{\text{Steady State}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 20 \text{ (hr/day)}] + [\text{EF}_{\text{SU/SD}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 4 \text{ (hr/day)}]$$

For SO_x, PM₁₀, and VOC, the unit is expected to operate at the steady state emission limits at all times, including during startup/shutdown. Therefore:

$$\text{PE (lb/day)} = \text{EF (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 24 \text{ (hr/day)}$$

Pollutant	Emission Factor (lb/MMBtu)	Burner Rating (MMBtu/hr)	Operating Hours (hr/day)	Daily PE2 (lb/day)
NO _x (steady state)	0.003	60	20	3.6
NO _x (startup/shutdown)	0.032	60	4	7.7
SO _x	0.00285	60	24	4.1
PM ₁₀	0.003	60	24	4.3
CO (steady state)	0.0739	60	20	88.7
CO (startup/shutdown)	0.11	60	4	26.4
VOC	0.0055	60	24	7.9

Annual PE2:

The current permit for this boiler does not contain any annual operating limits. Therefore, the NO_x, CO, VOC, PM₁₀ and SO_x annual PE values will be calculated using the post-project emission factors listed above, the maximum heat input rating of the burner, and the maximum hours of operation during any given year.

For NO_x and CO, the unit is expected to operate 7,300 hrs/year at steady state conditions and 1,460 hrs/year in startup/shutdown mode. Therefore:

$$PE \text{ (lb/year)} = [EF_{\text{@Steady State}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 7,300 \text{ (hr/year)}] + [EF_{\text{SU/SD}} \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 1,460 \text{ (hr/year)}]$$

For SO_x, PM₁₀, and VOC, the unit is expected to operate at the steady state emission limits at all times, including during startup/shutdown. Therefore:

$$PE \text{ (lb/year)} = EF \text{ (lb/MMBtu)} \times \text{Burner Rating (MMBtu/hr)} \times 8,760 \text{ (hr/year)}$$

Pollutant	Emission Factor (lb/MMBtu)	Burner Rating (MMBtu/hr)	Operating Hours (hr/year)	Annual PE2 (lb/year)
NO _x (steady state)	0.003	60	7,300	1,314
NO _x (startup/shutdown)	0.032	60	1,460	2,803
SO _x	0.00285	60	8,760	1,498
PM ₁₀	0.003	60	8,760	1,577
CO (steady state)	0.0739	60	7,300	32,368
CO (startup/shutdown)	0.11	60	1,460	9,636
VOC	0.0055	60	8,760	2,891

The total PE2 is calculated below:

Pollutant	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO _x	11.3	4,117
SO _x	4.1	1,498
PM ₁₀	4.3	1,577
CO	115.1	42,012
VOC	7.9	2,891

Ammonia (NH₃) from SCR:

The proposed daily NH₃ emissions can be calculated as follows:

$$PE = \text{ppm} \times \text{MW} \times (2.64 \times 10^{-9}) \times \text{ff} \times \text{BR} \times [20.9 / (20.9 - \text{O}_2\%)] \times 24 \text{ hour /day}$$

Where:

- PE is the emission factor in lb/hr

- ppm is the emission concentration in ppmvd @ 3% O₂
- MW is the molecular weight of the pollutant (MW_{NH3}= 17 lb/lb-mol)
- 2.64 x 10⁻⁹ is one over the molar specific volume (lb/MMscf, at 60 °F)
- ff is the F-factor for natural gas (8,578 scf/MMBtu, at 60 °F)
- BR is the rating of the boiler (MMBtu/hr)
- O₂ is the stack oxygen content to which the emission concentrations are corrected (3%)

$$\text{NH}_3 \text{ PE (lb/day)} = 10 \times 17 \times (2.64 \times 10^{-9}) \text{ (lb-mol/MMscf)} \times 8,578 \text{ (scf/MMBtu)} \times 60.0 \text{ (MMBtu/hr)} \times [20.9 / (20.9 - 3.0)] \times 24 \text{ (hour/day)}$$

$$= \mathbf{6.5 \text{ lb-NH}_3/\text{day}}$$

$$\text{NH}_3 \text{ PE (lb/year)} = 10 \times 17 \times (2.64 \times 10^{-9}) \text{ (lb-mol/MMscf)} \times 8,578 \text{ (scf/MMBtu)} \times 60.0 \text{ (MMBtu/hr)} \times [20.9 / (20.9 - 3.0)] \times 8,760 \text{ (hour/year)}$$

$$= \mathbf{2,363 \text{ lb-NH}_3/\text{year}}$$

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

Pursuant to District Rule 2201, the 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 (AER) that have occurred at the source, and which have not been used on-site.

As shown above, the proposed modification does not result in an increase in potential emissions for any criteria pollutant. The table below summarizes the SSPE1 calculations performed for this facility (see Appendix D see for SSPE1 calculations).

SSPE1 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	14,654	3,332	6,510	108,674	31,645

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

As discussed above, the only expected change in emissions from this facility are from the proposed modifications to the existing boiler. The SSPE2 is summarized in the table below:

SSPE2 (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
SSPE1	14,654	3,332	6,510	108,674	31,645
C-1344-7-3 (current PTO)	-5,519	-1,498	-1,577	-42,012	-2,891
C-1344-7-4 (new ATC)	4,117	1,498	1,577	42,012	2,891
SSPE2	13,252	3,332	6,510	108,674	31,645

5. Major Source Determination

Rule 2201 Major Source Determination:

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

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months), pursuant to the Clean Air Act, Title 3, Section 302, US Codes 7602(j) and (z)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 70.2

Pursuant to SSPE2 calculations performed in Appendix D, the emission totals for this facility are as follows:

Rule 2201 Major Source Determination (lb/year)						
	NO_x	SO_x	PM₁₀	PM_{2.5}	CO	VOC
SSPE1	14,654	3,332	6,510	6,510	108,674	31,645
SSPE2	13,252	3,332	6,510	6,510	108,674	31,645
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No	Yes

Note: PM2.5 assumed to be equal to PM10

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

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tons per year (tpy) for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO₂	VOC	SO₂	CO	PM	PM₁₀
Estimated Facility PE before Project Increase	7.3	15.8	1.7	54.3	3.3	3.3
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source?	No	No	No	No	No	No

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant basis to determine the amount of offsets required. As discussed below, this project is exempt from offsets pursuant to Rule 2201, Section 4.6.8. Therefore, BE calculations are not required and will not be performed as a part of this project.

7. SB 288 Major Modification

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

As shown above, this facility is not a major source for NO_x, SO_x, PM₁₀ or CO emissions. Therefore, this project cannot constitute an SB 288 major modification for these pollutants.

Since this facility is a major source for VOC emissions, 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.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
VOC	2,891	50,000	No

Since the SB 288 Major Modification Threshold for VOC emissions was not surpassed with this project, this project does not constitute an SB 288 Major Modification.

8. Federal Major Modification / New Major Source

Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a “Major Modification” as defined in 40 CFR 51.165 and part D of Title I of the CAA.

As defined in 40 CFR 51.165, Section (a)(1)(v) and part D of Title I of the CAA, a Federal Major Modification is any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act. The significant net emission increase threshold for each criteria pollutant is included in Rule 2201.

As demonstrated above, this facility is not a major source for NO_x, SO_x, and PM₁₀ emissions. In addition, in accordance with Rule 2201, Section 3.18, there are no Federal Major Modification thresholds for CO emissions. Therefore, this project cannot constitute a Federal Major Modification and no further analysis is required for NO_x, SO_x, PM₁₀, and CO emissions.

However, this facility is a Major Source for VOC emissions. Therefore, further analysis is required to determine if this project is a Federal Major Modification for VOC.

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. In step 1, emission decreases can not cancel out the increases. Step 2 allows consideration of the project’s net emissions increase as described in 40 CFR 51.165 and the Federal Clean Air Act Section 182 (e), as applicable.

Step 1: Project Emissions Increase

For modified existing emissions units, according to 40 CFR 51.165(a)(2)(ii)(C), the project’s emission increase for each pollutant is equal to the sum of the differences between the projected actual emissions (PAE) and the baseline actual emissions (BAE). Please note that in step 1, since the District is classified as extreme non-attainment for ozone, no NO_x and VOC emission decreases associated with the proposed project shall be accounted for.

$$\text{Project Emissions Increase} = \sum(\text{PAE} - \text{BAE})$$

As described in 40 CFR 51.165(a)(1)(xxviii)(B), when using historical data and company’s expected business activity to determine PAE, the portion of the emissions after the project that the existing unit could have accommodated (Unused Baseline Capacity, UBC) before the project (during the same 24-month baseline period used to determine BAE) and that

are unrelated to the particular project (including emissions increases due to product demand growth) are to be excluded.

Otherwise, according to 40 CFR 51.165(a)(1)(xxvii)(B)(4), when determining PAE, in lieu of using the method described in 40 CFR 51.165 (a)(1)(xxviii)(B)(1)-(3), *Projected Actual Emissions*, the owner/operator may elect to use emissions unit's Potential to Emit. If appropriate projected actual emissions are not provided by the applicant, then the emissions unit's Potential to Emit is used to calculate the emissions increase.

Since the project proponent has not provided information required to calculate PAE, the District will use the PE2 to calculate the emissions increase:

$$\text{Project Emissions Increase} = \sum(\text{PE2} - \text{BAE})$$

Projected Actual Emissions (PAE)

Vie-Del Winery #1 has indicated that they want the ability to use this boiler operation up to its full potential to emit. Therefore, the Projected Actual Emissions (PAE) will be set to equal to the post project annual PE2 value calculated above.

$$\text{PAE} = 2,891 \text{ lb-VOC/year}$$

Baseline Actual Emissions (BAE)

For emission units (other than electric utility steam generating units), according to according to 40 CFR 51.165(a)(1)(xxxv)(B), the BAE are calculated as the average, in tons/year, at which the emissions unit actually emitted during any 24-month period selected by the operator within the previous 10-year period.

The boiler being modified in this project is their primary boiler. Therefore, 2020 and 2021 will be used as the 24-month period in determining the BAE.

Based on the fuel usage rates for this boiler provided to the District by Vie-Del Winery #1 as a part of their annual emission inventory statements, the average fuel usage rate for the most recent 24-month period (2020 and 2021) is summarized below:

Year	Fuel Usage (MMscf/year)
2020	52.9367
2021	47.7895
Average	50.3631

Using a natural gas heating value of 1,000 Btu/scf and the VOC emission factor listed above, the BAE for this boiler is as follows:

$$\text{BAE} = \text{Avg Fuel Usage (MMscf/yr)} \times \text{Heating Value (Btu/scf)} \times \text{EF (lb-VOC/MMBtu)}$$

$$\text{BAE} = 50.3631 \text{ MMscf/yr} \times 1,000 \text{ Btu/scf} \times 0.0055 \text{ lb-VOC/MMBtu}$$

BAE = 277 lb-VOC/year

Project Emissions Increase

Project Emissions Increase = PE2 – BAE

Project Emissions Increase = 2,891 lb-VOC/year – 277 lb-VOC/year

Project Emissions Increase = 2,614 lb-VOC/year

Conclusion

In conclusion, the project’s combined total emission increases are summarized and are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
VOC*	2,614	0	Yes

*If there is any emission increases in NO_x or VOC, this project is a Federal Major Modification and no further analysis is required.

Since there is an increase in VOC emissions, this project constitutes a Federal Major Modification. The federal offset quantity required for this project is discussed below.

Federal Offset Quantity Calculation

In accordance with the Clean Air Act, Section 182(e)(2), the offset requirements of this part shall not be applicable in areas designated as Extreme non-attainment to a modification of an existing source if such modification consists of installation of equipment required to comply with an applicable attainment implementation plan or permit.

The District is designated as Extreme non-attainment for PM_{2.5}. As discussed above, the proposed project is to tune the boiler’s SCR system. The SCR system tune up, which typically involves computational fluid dynamics modeling of the exhaust flow regime around the ammonia injection grid and possible reconfiguration of the ammonia injection points to optimize the NO_x conversion efficiency of the SCR catalyst, is being done to bring the unit in to compliance with District Rule 4320. District Rule 4320 was adopted as a part of the District’s 2018 PM_{2.5} Attainment Plan for further reductions of nitrogen oxides (NO_x) emissions. Since this project involves the installation of equipment to comply with District Rule 4320 and the 2018 PM_{2.5} Attainment Plan, this project is not subject to federal offset requirements pursuant to CAA Section 182(e)(2).

Therefore,

VOC FOQ = 0 lb/year

New Major Source

As demonstrated above, this facility is not becoming a Major Source as a result of this project, therefore, this facility is not a New Major Source pursuant to 40 CFR 51.165 a(1)(iv)(A)(3).

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

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). The PSD Major Source threshold is 250 tons per year (tpy) for any regulated NSR pollutant.

PSD Major Source Determination: Potential to Emit (tons/year)						
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Total PE from New and Modified Units	2.1	1.4	0.7	21.0	0.8	0.8
PSD Major Source threshold	250	250	250	250	250	250
New PSD Major Source?	No	No	No	No	No	No

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

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix E.

VIII. Compliance Determination

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- 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 Adjusted Increase in Permitted Emissions (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

As discussed in Section I above, there are no new emissions units associated with this project. Therefore, BACT for new units with PE > 2 lb/day purposes is not triggered.

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

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

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

$$\text{AIPE} = \text{PE}_2 - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

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

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's PE prior to modification or relocation, (lb/day)

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

The AIPE for this boiler is summarized in the following table:

Pollutant	PE2 (lb/day)	PE1 (lb/day)	EF2 (lb/MMBtu)	EF1 (lb/MMBtu)	AIPE (lb/day)
NOx	11.3	15.1	0.003	0.0062	0
SOx	4.1	4.1	0.00285	0.00285	0
PM10	4.3	4.3	0.003	0.003	0
CO	115.2	115.2	0.0739	0.0739	0
VOC	7.9	7.9	0.0055	0.0055	0

As demonstrated above, the AIPE is not greater than 2.0 lb/day for any pollutant. Therefore, BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does constitute a Federal Major Modification for VOC emissions. Therefore, BACT is triggered for VOC for the boiler being modified in this project.

2. BACT Guideline

Per District Policy APR 1305, Section IX, "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." For source categories or classes covered in the BACT Clearinghouse, relevant information under each of the steps may be simply cited from the Clearinghouse without further analysis.

The District does not currently have an active BACT guideline in its BACT clearinghouse that applies to boilers in this size range. The District is currently in the process of creating a new BACT guideline for boilers rated at greater than or equal to 20.0 MMBtu/hr. Therefore, a project specific top-down BACT analysis will be performed for the purposes of this project that references requirements from the newly proposed BACT Guideline.

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 (see Appendix C), BACT has been satisfied with the following:

VOC: Natural Gas-Firing

The following condition will be included on the ATC as a mechanism to assure continued compliance with the BACT requirements:

- The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4320]

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2	13,252	3,332	6,510	108,674	31,645
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	No	No	No	No	Yes

2. Quantity of District Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for VOC emissions only. However, per District Rule 2201, Section 4.6.8, for existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders shall be exempt from offset requirements for all air pollutants, provided all of the following conditions are met:

- There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
- There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;
- There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
- The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons per year of CO.

Vie-Del Winery #1 is proposing to tune the existing boiler’s Selective Catalytic Reduction (SCR) emission control system. After this change, the boiler will be operating in compliance with applicable requirements of District Rule 4320. The modification does not result in an increase in the permitted rating of the boiler and the applicant is not proposing to increase its physical or operational design. In addition, as shown in the table below, the project does not result in an increase in emissions from the facility.

Pollutant	Daily PE1 (lb/day)	Daily PE2 (lb/day)	Annual PE1 (lb/year)	Annual PE2 (lb/year)
NO _x	15.1	11.3	5,519	4,117
SO _x	4.1	4.1	1,498	1,498
PM ₁₀	4.3	4.3	1,577	1,577
CO	115.2	115.2	42,048	42,048
VOC	7.9	7.9	2,891	2,891

Therefore, the proposed modification meets all of the criteria listed above and is exempt from the offset requirements of this rule.

C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, public noticing is required for:

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

a. New Major 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 Section VII.C.7 of this evaluation, this project is a Federal Major Modification. Therefore, public noticing is required for this project for Federal Major Modification purposes.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant; therefore, public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	14,654	13,252	20,000 lb/year	No
SO _x	3,332	3,332	54,750 lb/year	No
PM ₁₀	6,510	6,510	29,200 lb/year	No
CO	108,674	108,674	200,000 lb/year	No
VOC	31,645	31,645	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE

= SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	13,252	14,654	-1,402	20,000 lb/year	No
SO _x	3,332	3,332	0	20,000 lb/year	No
PM ₁₀	6,510	6,510	0	20,000 lb/year	No
CO	108,674	108,674	0	20,000 lb/year	No
VOC	31,645	31,645	0	20,000 lb/year	No

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

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modifications is required for this project.

2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification and Title V significant modification purposes. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB), Environmental Protection Agency (EPA), and a public notice will be electronically published on the District’s website prior to the issuance of the ATC 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.

Proposed Rule 2201 (DEL) Conditions:

- The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4320]
- Except during start-up and shutdown, emissions from the exhaust of the SCR system shall not exceed any of the following emission limits: 2.5 ppmv NO_x @ 3% O₂ or 0.003

lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 100 ppmv CO @ 3% O2 or 0.0739 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]

- During startup and shutdown, emissions shall not exceed any of the following emission limits: NOx-26 ppmv @ 3% O2 or 0.032 lb/MMBtu; CO 150 ppmv @ 3% O2 or 0.1109 lb/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
- Total duration of startup shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320]
- Total duration of shutdown shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320]
- The ammonia (NH3) emissions from the exhaust of the SCR system serving this boiler shall not exceed 10 ppmvd @ 3% O2. [District Rules 2201 and 4102]
- All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rules 2201 and 2520]

E. Compliance Assurance

1. Source Testing

This boiler is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr*. Source testing requirements, in accordance with District Rules 4305, 4306, and 4320, will be discussed in Section VIII of this evaluation.

2. Monitoring

This boiler is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr*. Monitoring requirements, in accordance with these rules will be discussed in more detail in Section VIII of this evaluation.

3. Recordkeeping

This boiler is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr*. Recordkeeping, in

accordance with these rules will be discussed in more detail in Section VIII of this evaluation.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. 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 is not a major modification, as defined in Rule 2201. As discussed above, this project triggers a Federal Major Modification. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has applied for a Certificate of Conformity (COC) and the District will forward to EPA, for a 45-day review period, this application review which includes the proposed modified Title V permit [i.e. proposed ATC(s)] and the compliance certification form which demonstrates compliance with the minor permit modification requirements in Section 11.4. Therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may construct/operate under the ATC upon submittal of the Title V administrative amendment application. The following conditions will be included on the ATC and will assure compliance with the requirements of Rule 2520:

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

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

40 CFR Part 60 Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This subpart applies to steam generating units that are constructed, reconstructed, or modified after 6/9/89 and have a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. Subpart Dc has standards for SO_x and PM₁₀ emissions.

The proposed boiler is subject to the requirements of this subpart. However, the proposed modification is not considered a modification per the definition used in Section 60.14e(5) as discussed below.

Section 60.14e(5) defines the meaning of modification to which the standards are applicable. §60.14, paragraph (e)(5) states that the following will not be considered as a modification: *“the addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or replaced by a system which the Administrator determines to be less environmentally beneficial”*.

No newly constructed or reconstructed units are proposed in this project, nor is the unit being modified (as defined above). Since the permittee is tuning the boiler's Selective Catalytic Reduction (SCR) emission control system for compliance with District Rules and regulations, the requirements of these sections are not triggered due to the proposed modification.

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 natural gas-fired boilers.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the pipeline heater will be fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will be included on the ATC as a mechanism to assure ongoing compliance:

- No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is

expected. The following condition will be added to the permit to further assure compliance with this rule.

- 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.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification of an existing source shall not result in an increase in cancer risk greater than the District’s significance level (20 in a million) and shall not result in acute and/or chronic risk indices greater than 1.

As demonstrated above, there are no increases in emissions associated with this project; therefore, a health risk assessment is not necessary and no further risk analysis is required.

Rule 4201 Particulate Matter Concentration

Section 3.0 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

The maximum particulate matter concentration for this natural gas-fired pipeline heater at dry standard conditions can be calculated as follows:

F-Factor: 8,578 dscf/MMBtu at 60 °F
 PM₁₀ Emission Factor: 0.003 lb-PM₁₀/MMBtu (From Section VII.B)
 Percentage of PM as PM₁₀ in Exhaust: 100%

$$\text{Grain Loading (GL)} = \left(\frac{0.003 \text{ lb} - \text{PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb} - \text{PM}} \right) \div \left(\frac{8,578 \text{ ft}^3}{\text{MMBtu}} \right)$$

$$\text{GL} = 0.002 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, the following condition will be listed on the permit as a mechanism to ensure compliance:

- Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

District Rule 4301 Fuel Burning Equipment

Rule 4301 limits air contaminant emissions from fuel burning equipment as defined in the rule. Section 3.1 defines fuel burning equipment as “any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer”.

Section 5.0 gives the requirements of the rule.

A person shall not discharge into the atmosphere combustion contaminants exceeding in concentration at the point of discharge, 0.1 grain per cubic foot of gas calculated to 12% of carbon dioxide at dry standard conditions.

A person shall not build, erect, install or expand any non-mobile fuel burning equipment unit unless the discharge into the atmosphere of contaminants will not and does not exceed any one or more of the following rates:

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO₂)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO₂)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

District Rule 4301 Limits (lb/hr)			
Unit	NO ₂	Total PM	SO ₂
C-1344-7-4	0.003 lb/MMBtu x 60.0 MMBtu/hr = 0.18	0.003 lb/MMBtu x 60.0 MMBtu/hr = 0.18	0.00285 lb/MMBtu x 60.0 MMBtu/hr = 0.171
Rule Limit (lb/hr)	140	10	200

The particulate emissions from the boiler will not exceed 0.1 gr/dscf at 12% CO₂ or 10 lb/hr. Further, the emissions of SO_x and NO_x will not exceed 200 lb/hr or 140 lb/hr, respectively. Therefore, continued compliance with the requirements of this rule is expected.

District Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2

This unit is natural gas-fired with a maximum heat input of 60.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*.

In addition, the unit is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3* and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater Than 5.0 MMBtu/hr*.

Since the emissions limits of District Rules 4306 and 4320 and all other requirements of these rules are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rules 4306 and 4320 requirements will satisfy requirements of District Rule 4305.

Therefore, compliance with District Rule 4305 requirements is expected and no further discussion is required.

District Rule 4306 Boilers, Steam Generators and Process Heaters – Phase 3

The unit has a maximum heat input of 60.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*. In addition, the unit is also subject to District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater Than 5.0 MMBtu/hr*. Because all of the requirements of District Rule 4320 are equivalent or more stringent than the requirements of District Rule 4306, compliance with the requirements of District Rule 4320 requirements will satisfy requirements of District Rule 4306 and compliance with District Rule 4306 is expected.

Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr

This rule limits NO_x, CO, SO₂ and PM₁₀ emissions from boilers, steam generators and process heaters rated greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NO_x emitted over the previous year.

The unit in this project is rated at 60.0 MMBtu/hr heat input and therefore, is subject to this rule.

Section 5.1 NO_x Emission Limits

Section 5.1 states that an operator of a unit subject to this rule shall comply with all applicable requirements of the rule and one of the following, on a unit-by-unit basis:

- 5.1.1 Operate the unit to comply with the emission limits specified in Sections 5.2 and 5.4; or
- 5.1.2 Pay an annual emissions fee to the District as specified in Section 5.3 and comply with the control requirements specified in Section 5.4; or
- 5.1.3 Comply with the applicable Low-use Unit requirements of Section 5.5.

On and after the indicated Compliance Deadline, units shall not be operated in a manner which exceeds the applicable NO_x emissions limit specified in Table 1 (until December 31, 2023) and Table 2 (on and after December 31, 2023). Also, units shall not be operated in a manner to which exceeds a carbon monoxide (CO) emissions limit of 400 ppmv.

The unit will comply with the NO_x and CO emissions limits specified in Section 5.2 of the rule which are summarized in the following tables:

Table 1: Tier 1, Rule 4320 Emissions Limits		
Category	Operated on gaseous fuel	
	NO_x Limit	CO Limit
B. Units with a total rated heat input > 20.0 MMBtu/hr, except for Categories C through G units	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or	400 ppmv
	b) Enhanced Schedule 5 ppmv or 0.0062 lb/MMBtu	

Table 2: Tier 2, Rule 4320 Emissions Limits			
Category	Operated on gaseous fuel		Compliance Deadline
	NO_x Limit	CO Limit	
B. Units with a total rated heat input > 20.0 MMBtu/hr, except for Categories C through E units	2.5 ppmv or 0.003 lb/MMBtu	400 ppmv	December 31, 2023

For this unit, the proposed NO_x and CO limits are 2.5 and 100 ppmv @ 3% O₂, respectively. Therefore, compliance with the emissions limits of Section 5.2 Table 2 of District Rule 4320 is expected.

Permit conditions listing the emissions limits will be listed on the ATC as shown in the DEL section above.

- Except during start-up and shutdown, emissions from the exhaust of the SCR system shall not exceed any of the following emission limits: 2.5 ppmv NO_x @ 3% O₂ or 0.003 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 100 ppmv CO @ 3% O₂ or 0.0739 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320]

Section 5.3 Annual Fee Calculation

Section 5.3.1 states that on and after January 1, 2010, an operator with units that will comply with the requirements of Section 5.1.2 in lieu of complying with Section 5.2 Table 1 shall pay a total annual fee to the District based on the total NO_x emissions from those units.

Section 5.3.2 states that beginning January 1, 2025, an operator with units that will comply with the requirements of Section 5.1.2 in lieu of complying with Section 5.2 Table 2 shall pay a total annual emission fee to the District based on total NO_x emissions from those units. Units paying an emissions fee under this section are not subject to Section 5.3.1.

Since the proposed unit will meet the emissions limits of Section 5.2 Table 2, the annual fee requirements are not applicable.

Section 5.4 Particulate Matter Control Requirements

Section 5.4.1 states that to limit particulate matter emissions, an operator shall comply with one of the options listed in the rule.

Section 5.4.1.1 provides option for the operator to comply with the rule by firing the unit exclusively on PUC-quality gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases.

Section 5.4.1.2 provides option for the operator to comply with the rule by limiting the fuel sulfur content to no more than five (5) grains of total sulfur per hundred (100) standard cubic feet.

Section 5.4.1.3 provides option for the operator to comply with the rule by installing and properly operating an emissions control system that reduces SO₂ emissions by at least 95% by weight; or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3 % O₂.

The boiler will be fired exclusively on PUC-quality natural gas. Therefore, compliance with this section of the rule is expected and the following condition will be included on the permit:

- The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4320]

Section 5.5 Low Use

Section 5.5 specifies requirements for units with maximum annual heat input limits of less than 1.8 billion BTUs per calendar year. The applicant is proposing to operate this boiler as a full time unit with a heat input greater than 1.8 billion Btu per calendar year; therefore, the proposed unit is not subject to the requirements of this section.

Section 5.6 Startup and Shutdown Provisions

Section 5.6 states that on and after the full compliance deadline in Section 5.0, the applicable emission limits of Sections 5.2 Table 1, Table 2, and 5.5.2 shall not apply during start-up or shutdown, provided an operator complies with the requirements specified in Sections 5.6.1 through 5.6.5. Sections 5.6.1 through 5.6.5 require the following:

1. The duration of each start-up or each shutdown shall not exceed two hours, except as provided in Section 5.6.3.
2. The emission control system shall be in operation and emissions be shall minimized insofar as technologically feasible during start-up or shutdown.

The following conditions will be listed on the ATC to ensure compliance:

- During startup and shutdown, emissions shall not exceed any of the following emission limits: NO_x-26 ppmv @ 3% O₂ or 0.032 lb/MMBtu; CO 150 ppmv @ 3% O₂ or 0.1109 lb/MMBtu. [District Rules 2201, 4305, 4306 and 4320]

- Total duration of startup shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320]
- Total duration of shutdown shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320]
- Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306 and 4320]

Section 5.7 Monitoring Provisions

Section 5.7.1 requires that the operator of any unit subject to District Rule 4320, Section 5.2 emissions limits shall install and maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NO_x, CO and O₂, or implement an APCO-approved Alternate Monitoring System.

The applicant has proposed to use the pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105, Alternate Monitoring), which requires that monitoring of NO_x, CO, O₂ and ammonia exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be listed on the ATC in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

- The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ at least once during each month in which source testing is not performed. NO_x, CO and O₂ monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH₃ monitoring shall be conducted utilizing gas detection tubes (Draeger brand or District approved equivalent). Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless it has been performed within the last month. [District Rules 4305, 4306, and 4320]
- If either the NO_x, CO or NH₃ concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the

permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

- All NO_x, CO, O₂ and NH₃ emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NO_x, CO and O₂ analyzer as well as the NH₃ emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320]
- Ammonia emissions readings shall be conducted at the time the NO_x, CO and O₂ readings are taken. The readings shall be converted to ppmvd @ 3% O₂. [District Rules 4305, 4306, and 4320]
- The permittee shall maintain records of: (1) the date and time of NO_x, CO, NH₃ and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x, CO and NH₃ concentrations corrected to 3% O₂, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 4305, 4306, and 4320]

Since this unit is not a low-use unit subject to the requirements listed in Section 5.5.1 or 5.5.2, it is not subject to Section 5.7.2 and 5.7.3 requirements.

Section 5.7.4 allows units operated at seasonal sources and subject to 40 CFR 60 Subpart Db to install a parametric monitoring system in lieu of a CEMS. The proposed unit is not operated at a seasonal source. Therefore, this unit is not subject to 5.7.4 requirements.

Section 5.7.6 outlines requirements for monitoring SO_x emissions. Section 5.7.6.1 states that operators complying with Sections 5.4.1.1 or 5.4.1.2 shall provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit to Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2.

Section 5.7.6.2 states that operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SO_x reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO.

Section 5.7.6.3 states that operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit to Operate. Source tests shall be performed in accordance with the test methods in Section 6.2.

The facility has proposed to show compliance using the requirement in sections 5.4.1.1, firing exclusively on PUC-regulated natural gas. The following condition will be placed on the permit as a mechanism to ensure compliance with this section.

- The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4320]
- Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320]

Section 5.8 Compliance Determination

Section 5.8.1 requires that the operator of any unit shall have the option of complying with either the applicable heat input (lb/MMBtu) emission limits or the concentration (ppmv) emission limits specified in Section 5.2. The emission limits selected to demonstrate compliance shall be specified in the source test proposal pursuant to Rule 1081 (Source Sampling). Therefore, the following condition will be listed on the permit:

- The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320]

Section 5.8.2 requires that all emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. Therefore, the following condition will be listed on the permit:

- All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]

Section 5.8.4 requires that for emissions monitoring pursuant to Section 5.7.1, and 6.3.1 using a portable NO_x analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five (5) readings evenly spaced out over the 15-consecutive-minute period. Therefore, the following condition will be listed on the permit:

- All NO_x, CO, O₂ and NH₃ emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NO_x, CO and O₂ analyzer as well as the NH₃ emission monitoring equipment shall be calibrated, maintained, and operated in accordance

with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320]

Section 5.8.5 requires that for emissions source testing performed pursuant to Section 6.3.1 for the purpose of determining compliance with an applicable standard or numerical limitation of this rule, the arithmetic average of three (3) 30-consecutive-minute test runs shall apply. If two (2) of three (3) runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit.

Therefore, the following condition will be listed on the permit:

- For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320]

Section 6.1 Recordkeeping

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.5 shall be maintained for five calendar years and shall be made available to the APCO upon request. Failure to maintain records or information contained in the records that demonstrate noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

The following condition will be listed on the permit:

- All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]

Section 6.1.2 requires that the operator of any unit subject to Section 5.5 shall record the amount of fuel use at least on a monthly basis for each unit. Since the unit is not subject to the requirements listed in Section 5.5, it is not subject to Section 6.1.2 requirements.

Section 6.1.3 requires that the operator of any unit subject to Section 5.5.1 or 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics of the unit have been performed. The unit is not subject to Section 6.1.3. Therefore, the requirements of this section do not apply to this unit.

Section 6.1.4 requires that the operator of a unit with startup or shutdown provisions keep records of the duration of the startup or shutdowns. The unit is subject to Section 6.1.4.

Therefore, the following condition will be listed on the permit:

- Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306 and 4320]

Section 6.1.5 requires that the operator of any unit fired on liquid fuel during PUC-quality natural gas curtailment periods pursuant to Section 5.4.2 shall record the sulfur content of the fuel, amount of fuel used, and duration of the natural gas curtailment period. The facility has not proposed the use of curtailment fuels; therefore, the requirements of this section do not apply.

Section 6.2 Test Methods

Section 6.2 identifies the following test methods as District-approved source testing methods for the pollutants listed:

Pollutant	Units	Test Method Required
NOx	ppmv	EPA Method 7E or ARB Method 100
NOx	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O2	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4

The following conditions will be listed on the permit:

- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
- NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]
- CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320]
- Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]
- Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320]

- Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081]

Section 6.3 Compliance Testing

Section 6.3.1 requires that these units be tested to determine compliance with the applicable requirements of section 5.2 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

The following conditions will be listed on the ATC:

- Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
- Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

Sections 6.3.2.1 through 6.3.2.7 address the requirements of group testing which is not proposed in this project. Therefore, these sections are not applicable.

Section 6.4, Emission Control Plan (ECP)

Section 6.4.1 requires that the operator of any unit shall submit to the APCO for approval an Emissions Control Plan according to the compliance schedule in Section 7.0 of District Rule 4320.

The applicant is proposing to operate this modified boiler in compliance with the emissions limits listed in Section 5.2, Tables 1 and 2, of this rule and with periodic monitoring and source testing requirements. Therefore, the application provided as a part of this project is considered their emission control plan and the applicant will not be required to submit an additional Emission Control Plan for this unit. No further discussion is required.

Section 7.0, Compliance Schedule

Section 7.0 indicates that an operator of boiler must be in compliance with both the ATC deadline and compliance deadlines listed in Table 1 of Section 5.2.

The applicant has proposed to operate this modified boiler in compliance with the emissions limits listed in Section 5.2, Tables 1 and 2, of this rule and with periodic monitoring and source testing requirements. Therefore, the compliance schedule requirements are satisfied and no further discussion is required.

Conclusion

Conditions will be incorporated into the ATC permit as a mechanism to ensure compliance with each section of this rule. Therefore, compliance with District Rule 4320 requirements is expected.

District Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1

This rule applies to boilers, steam generators, and process heaters at NO_x Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. The facility in this project is not a NO_x Major Source; therefore, the provisions of this rule do not apply.

Rule 4801 Sulfur Compounds

Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding a concentration of two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO₂) at the point of discharge on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

With:

N = moles SO₂

T (Standard Temperature) = 60°F = 520°R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}}$

EPA F-Factor: 8,578 dscf/MMBtu at 60 °F

$$\frac{0.00285 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} - \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times \frac{1,000,000 \text{ parts}}{\text{million}} = \frac{2.0 \text{ parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = \frac{2.0 \text{ parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is located within 1,000 feet of a school. However, pursuant to California Health and Safety Code 42301.6, since this project will not result in an increase in emissions, a school notice is not required.

California Environmental Quality Act (CEQA)

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 District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

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

Greenhouse Gas (GHG) Significance Determination

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

On December 17, 2009, the District's Governing Board adopted a policy, APR 2005, *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*, for addressing GHG emission impacts when the District is Lead Agency under CEQA and approved the District's guidance document for use by other agencies when addressing GHG impacts as lead agencies under CEQA. Under this policy, the District's determination of significance of project-specific GHG emissions is founded on the principal that projects with GHG emission reductions consistent with AB 32 emission reduction targets are considered to have a less than significant impact on global climate change. Consistent with District Policy 2005, projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, would be determined to have a less than significant individual and cumulative impact for GHG emission.

The California Air Resources Board (ARB) adopted a Cap-and-Trade regulation as part one of the strategies identified for AB 32. This Cap-and-Trade regulation is a statewide plan, supported by a CEQA compliant environmental review document, aimed at reducing or mitigating GHG emissions from targeted industries. Facilities subject to the Cap-and-Trade regulation are subject to an industry-wide cap on overall GHG emissions. Any

growth in emissions must be accounted for under that cap such that a corresponding and equivalent reduction in emissions must occur to allow any increase. Further, the cap decreases over time, resulting in an overall decrease in GHG emissions.

Under District policy APR 2025, *CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation*, the District finds that the Cap-and-Trade is a regulation plan approved by ARB, consistent with AB32 emission reduction targets, and supported by a CEQA compliant environmental review document. As such, consistent with District Policy 2005, projects complying with Cap-and-Trade requirements are determined to have a less than significant individual and cumulative impact for GHG emissions.

The GHG emissions increases associated with this project result from the combustion of fossil fuel(s), other than jet fuel, delivered from suppliers subject to the Cap-and-Trade regulation. Therefore, as discussed above, consistent with District Policies APR 2005 and APR 2025, the District concludes that the GHG emissions increases associated with this project would have a less than significant individual and cumulative 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 for each emissions unit affected by the project the potential project emission increase is equal to or less than 2 lbs per day per pollutant. Therefore, the potential project emission increase is considerably below all annual criteria emissions CEQA significant thresholds. The activity will occur at an existing facility and involves negligible expansion of the existing or former use. Furthermore, the District determined that the activity will not have a significant effect on the environment. Therefore, 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 common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

Indemnification Agreement/Letter of Credit Determination

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

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

a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC C-1344-7-4 subject to the permit conditions on the attached draft ATC in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-1344-7-4	3020-02-H	60.0 MMBtu/hr boiler	\$1,238

Appendixes

- A: Draft ATC C-1344-7-4
- B: Current PTO C-1344-7-2
- C: Top Down BACT Analysis
- D: SSPE1 Calculations
- E: Quarterly Net Emissions Change

APPENDIX A
Draft ATC C-1344-7-4

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: C-1344-7-4

LEGAL OWNER OR OPERATOR: VIE-DEL WINERY #1
MAILING ADDRESS: P O BOX 2908
FRESNO, CA 93745-2908

LOCATION: 11903 S CHESTNUT AVE
FRESNO, CA 93725

EQUIPMENT DESCRIPTION:

MODIFICATION OF 60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER, FLUE GAS RECIRCULATION, AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM: TUNE EXISTING SCR SYSTEM TO ACHIEVE NOX EMISSIONS OF 2.5 PPMV @ 3% O2 FOR RULE 4320 COMPLIANCE

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
6. The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Samir Sheikh, Executive Director / APCO

Brian Clements, Director of Permit Services

C-1344-7-4 : Aug 8 2022 9:49PM - ALEMANZ : Joint Inspection NOT Required

7. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rules 2201 and 2520] Federally Enforceable Through Title V Permit
8. Except during start-up and shutdown, emissions from the exhaust of the SCR system shall not exceed any of the following emission limits: 2.5 ppmv NO_x @ 3% O₂ or 0.003 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 100 ppmv CO @ 3% O₂ or 0.0739 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
9. During startup and shutdown, emissions shall not exceed any of the following emission limits: NO_x - 26 ppmv @ 3% O₂ or 0.032 lb/MMBtu; or CO 150 ppmv @ 3% O₂ or 0.1109 lb/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
10. Total duration of startup shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
11. Total duration of shutdown shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
12. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
13. The ammonia (NH₃) emissions from the exhaust of the SCR system serving this boiler shall not exceed 10 ppmvd @ 3% O₂. [District Rule 4102] Federally Enforceable Through Title V Permit
14. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
16. Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

23. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
24. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
25. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
26. Ammonia emissions readings shall be conducted at the time the NO_x, CO and O₂ readings are taken. The readings shall be converted to ppmvd @ 3% O₂. [District Rules 4102]
27. The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ at least once during each month in which source testing is not performed. NO_x, CO and O₂ monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH₃ monitoring shall be conducted utilizing gas detection tubes (Dräger brand or District approved equivalent). Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless it has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
28. If either the NO_x, CO or NH₃ concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
29. All NO_x, CO, O₂ and NH₃ emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NO_x, CO and O₂ analyzer as well as the NH₃ emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
30. The permittee shall maintain records of: (1) the date and time of NO_x, CO, NH₃ and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x, CO and NH₃ concentrations corrected to 3% O₂, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
31. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit
32. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

DRAFT

APPENDIX B
Current PTO C-1344-7-2

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-1344-7-2

EXPIRATION DATE: 04/30/2022

EQUIPMENT DESCRIPTION:

60.0 MMBTU/HR NEBRASKA MODEL NB-200D-60 NATURAL GAS-FIRED BOILER, WITH NATCOM P60-20-1015 LOW NOX BURNER WITH FLUE GAS RECIRCULATION AND HALDOR TOPSOE MODEL DNX-929 SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rules 2201 and 2520] Federally Enforceable Through Title V Permit
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
4. The unit shall only be fired on PUC-regulated natural gas. [District Rules 2201 and 2520] Federally Enforceable Through Title V Permit
5. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit
6. Except during start-up and shutdown, emissions from the exhaust of the SCR system shall not exceed any of the following emission limits: 5 ppmv NO_x @ 3% O₂ or 0.0062 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 100 ppmv CO @ 3% O₂ or 0.0739 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
7. During startup and shutdown, emissions shall not exceed: NO_x - 26 ppmv @ 3% O₂ or 0.032 lb/MMBtu; CO 150 ppmv @ 3% O₂ or 0.1109 lb/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
8. Total duration of startup shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
9. Total duration of shutdown shall not exceed 2 hr/day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
10. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
11. The ammonia (NH₃) emissions from the exhaust of the SCR system serving this boiler shall not exceed 10 ppmvd @ 3% O₂. [District Rule 4102] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

12. The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃ and O₂ at least once during each month in which source testing is not performed. NO_x, CO and O₂ monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH₃ monitoring shall be conducted utilizing gas detection tubes (Dräger brand or District approved equivalent). Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless it has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. If either the NO_x, CO or NH₃ concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
14. All NO_x, CO, O₂ and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NO_x, CO and O₂ analyzer as well as the NH₃ emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Ammonia emissions readings shall be conducted at the time the NO_x, CO and O₂ readings are taken. The readings shall be converted to ppmvd @ 3% O₂. [District Rules 4102]
16. The permittee shall maintain records of: (1) the date and time of NO_x, CO, NH₃ and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x, CO and NH₃ concentrations corrected to 3% O₂, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. Source testing to measure NO_x, CO, and NH₃ emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
19. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

21. NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
22. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
23. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
24. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit
25. Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081] Federally Enforceable Through Title V Permit
26. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
27. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
28. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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

APPENDIX C

Top Down BACT Analysis

Top-Down BACT Analysis for 60.0 MMBtu/hr Natural Gas-Fired Boiler

The District does not currently have an approved BACT Guideline for this source category. The District's BACT Clearinghouse previously included guideline 1.1.2, which applied to boilers that were rated at equal to or greater than 20.0 MMBtu/hr. However, guideline 1.1. is not currently an active guideline. Therefore, a project-specific BACT analysis is required for the proposed modification of this 60.0 MMBtu/hr natural gas-fired boiler.

BACT Analysis for VOC Emissions:

VOC emissions result from the incomplete combustion of various elements in the natural gas fuel.

a. Step 1 - Identify all control technologies

As discussed above, the SJVUAPCD BACT Clearinghouse previously contained guideline 1.1.2, which identified BACT requirements for boilers rated at greater than 20.0 MMBtu/hr as firing on natural gas fuel or propane as a backup fuel. The BACT guideline was rescinded due to the fact that the NO_x emission requirements of Rule 4320 were more stringent than the NO_x requirements specified in BACT guideline 1.1.2.

However, Rule 4320 does not specify any requirements for VOC emissions. In addition, District Rule 4320 Section 3.7 indicates that PUC-quality natural gas is a high methane gas with at least 80% methane by volume. Because PUC-quality natural gas is mostly composed of methane, an exempt VOC compound, combustion of natural gas generally does not result in significant VOC emissions.

Therefore, it will be assumed that the previous requirements specified within BACT guideline 1.1.2 remain valid and will be used as BACT for VOC emissions for the purposes of this project and will be set equal to the following:

- 1) Natural gas with LPG backup or propane fired

No technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1.

c. Step 3 - Rank remaining options by control effectiveness

- 1) PUC-Quality Natural Gas (Achieved in Practice)

d. Step 4 - Cost Effectiveness Analysis

The only option listed above has been identified as achieved in practice. Therefore, the option is required and is not subject to a cost analysis.

e. Step 5 - Select BACT

Pursuant to the above BACT Analysis, BACT for VOC emissions from the boiler is the use of PUC-quality natural gas as fuel. The applicant has proposed to use only PUC-quality natural gas (regulated by the PUC or FERC) as fuel. Therefore, the BACT requirements for VOC emissions from the modification of the existing 60.0 MMBtu/hr boiler will be satisfied.

APPENDIX D

SSPE1 Calculations

PE Calculations for Permit C-1344-2-8

Equipment

C-1344-2-8: 72.0 MMBTU/HR BABCOCK & WILCOX MODEL FM-1936 NATURAL GAS-FIRED BOILER, WITH ADVANCED COMBUSTION TECHNOLOGY MODEL GIDION MGW-60 ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION, AND SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

A. Assumptions

Maximum operating schedule: 24 hours/day and 365 days/year (per applicant)
 Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
 F-Factor for Natural Gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60 Appendix B)
 Ammonia (NH₃) from SCR:

The proposed daily NH₃ emissions can be calculated as follows:

$$PE = ppm \times MW \times (2.64 \times 10^{-9}) \times ff \times BR \times [20.9 / (20.9 - O_2\%)] \times 24 \text{ hour /day}$$

Where:

- PE is the emission factor in lb/hr
- ppm is the emission concentration in ppmvd @ 3% O₂
- MW is the molecular weight of the pollutant (MW_{NH3}= 17 lb/lb-mol)
 - $\times 10^{-9}$ is one over the molar specific volume (lb/MMscf, at 60 °F)
- ff is the F-factor for natural gas (8,578 scf/MMBtu, at 60 °F)
- BR is the rating of the boiler (MMBtu/hr)
- O₂ is the stack oxygen content to which the emission concentrations are correct (3%)

B. Emission Factors

Emission factors for permit unit C-1344-2-8 are provided in the table below.

Start-up and Shutdown Emission Factors:

Post Project Emission Factors (EF) Startup and Shutdown			
Pollutant	EF (ppmvd @ 3% O ₂)	EF (lb/MMBtu)	Source
NOx	50	0.061	Current PTO
SOx	---	0.00285	District Policy APR 1720
PM ₁₀	---	0.0076	AP-42 (07/98) Table 1.4-2
CO	140	0.1035	Current PTO
VOC	---	0.0055	AP-42 (07/98) Table 1.4-2
NH ₃	10	0.0045	Current PTO

Steady State Emission Factors:

Post Project Emission Factors (EF)			
Pollutant	EF (ppmvd @ 3% O ₂)	EF (lb/MMBtu)	Source
NOx	5	0.0062	Current PTO
SOx	---	0.00285	District Policy APR 1720
PM ₁₀	---	0.0076	AP-42 (07/98) Table 1.4-2
CO	140	0.1035	Current PTO
VOC	---	0.0055	AP-42 (07/98) Table 1.4-2
NH ₃	10	0.0045	Current PTO

C. Calculations

Start-up and Shutdown Emissions:

The following equations are used to calculate daily and annual potential to emit (PE) for startup and shutdown:

$$\text{Annual PE} = (\text{EF, lb/MMBtu}) \times (72.0 \text{ MMBtu/hr}) \times (4 \text{ hr/day}) \times (365 \text{ day/yr})$$

The following table summarizes the annual PE calculations for this unit.

Post Project Potential to Emit (PE) – Startup/Shutdown Emissions		
Pollutant	EF (lb/MMBtu)	Annual PE (lb/yr)
NOx	0.061	6,412
SOx	0.00285	300
PM ₁₀	0.0076	799
CO	0.1035	10,880
VOC	0.0055	578
NH ₃	0.0045	473

Steady State Emissions:

The following equations are used to calculate annual potential to emit (PE) for steady state operation:

$$\text{Annual PE} = (\text{EF, lb/MMBtu}) \times (72.0 \text{ MMBtu/hr}) \times (20 \text{ hr/day}) \times (365 \text{ day/yr})$$

The following table summarizes the annual PE calculations for this unit.

Post Project Potential to Emit (PE) – Steady State Emissions		
Pollutant	EF (lb/MMBtu)	Annual PE (lb/yr)
NOx	0.0062	3,259
SOx	0.00285	1,498
PM ₁₀	0.0076	3,995
CO	0.1035	54,400
VOC	0.0055	2,891
NH ₃	0.0045	2,365

Overall Emissions:

Post Project Potential to Emit (PE)	
Pollutant	Annual PE (lb/yr)
NOx	9,671
SOx	1,798
PM ₁₀	4,793
CO	65,280
VOC	3,469
NH ₃	2,838

PE Calculations for Permit C-1344-3-4

C-1344-3-4: 26,489 BARREL CAPACITY BRANDY STORAGE AND AGING OPERATION (WAREHOUSE UNIT 2) WITH TWO PERMANENT TOTAL ENCLOSURES (ROOMS 6 AND 7) SERVED BY A 0.289 MMBTU/HR ADWEST TECHNOLOGIES MODEL RETOX 1.0 RTO95 REGENERATIVE THERMAL OXIDATION (PRIMARY RTO) AND A 1.156 MMBTU/HR ADWEST TECHNOLOGIES MODEL RETOX 4.0 RTO95 REGENERATIVE THERMAL OXIDATION (SECONDARY RTO)

A. Assumptions

- Maximum brandy storage capacity is 26,489 bbls.
- One proof-gallon (PG) = One gallon brandy with 50% ethanol (100 proof) at 60 °F
- One PG weighs 7.78007 lb (27 CFR 30, Table No. 5, Gauging Manual for the Alcohol and Tobacco Tax and Trade Bureau, U. S. Dept. of the Treasury)
- One gallon of ethanol (EtOH) at 60 °F weighs 6.6097 lb (27 CFR 30, Table No. 5, Gauging Manual for the Alcohol and Tobacco Tax and Trade Bureau, U. S. Dept. of the Treasury)
- As shown below, EtOH content in one PG = 3.31 lb-EtOH/PG
1.00 PG x 0.50 gal EtOH/PG x 6.6097 lb-EtOH/gal EtOH = 3.31 lb-EtOH/PG
- Maximum daily uncontrolled VOC emission rate is 7,200 lb-VOC/day per previous project C-1062589.
- VOC destruction efficiency of the regenerative thermal oxidizer is 98% per manufacturer’s guarantee.
- The maximum operating schedule is 24 hours per day
- The RTO’s are fired on PUC regulated natural gas.
- Natural Gas Heating Value: 1,000 Btu/scf (AP-42 Section 1.4).
- F-Factor for Natural Gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B).

B. Emission Factors

Emission factors for permit unit C-1344-3-4 are provided in the table below.

Pollutant	Natural Gas Burner Emission Factors	Source
NO _x	0.100	Current PTO
SO _x	0.00285	
PM10	0.0076	
CO	0.084	
VOC	0.0055	

C. Calculations

Annual PE

a. Evaporative Emissions

The evaporative emissions associated with this operation are 25,109 lb-VOC/year.

b. Emissions from Natural Gas Combustion

Max Burner Rating =	0.289 + 1.156 = 1.445 MMBtu/hr
Operating hours =	8,760 hr/year
PE _{Natural Gas} (lb/year) =	Max NG (MMBtu/hr) x EF (lb/MMBtu) x 8,760 hr/year
PE _{NOx} (lb/year) =	1.445 MMBtu/hr x 0.10 lb-NOx/MMBtu x 8,760 hr/year
	= 1,266 lb-NOx/year
PE _{SOx} (lb/year) =	1.445 MMBtu/hr x 0.00285 lb-SOx/MMBtu x 8,760 hr/year
	= 36 lb-SOx/year
PE _{PM10} (lb/year) =	1.445 MMBtu/hr x 0.0076 lb-PM ₁₀ /MMBtu x 8,760 hr/year
	= 96 lb-PM10/year
PE _{CO} (lb/year) =	1.445 MMBtu/hr x 0.084 lb-CO/MMBtu x 8,760 hr/year
	= 1,063 lb-CO/year
PE _{VOC} (lb/year) =	1.445 MMBtu/hr x 0.0055 lb-VOC/MMBtu x 8,760 hr/year
	= 70 lb-VOC/year

The annual post project potential to emit for each permit unit is the sum of the evaporative VOC emissions from brandy aging, and the emissions from natural gas combustion. In the following table, the individual emissions are summarized and summed to yield the Pre-Project Potential to Emit:

Annual Pre-Project Potential to Emit PE			
Pollutant	Evaporative VOC (lb/year)	Natural Gas Combustion (lb/year)	Total PE (lb/year)
NO _x	0	1,266	1,266
SO _x	0	36	36
PM ₁₀	0	96	96
CO	0	1,063	1,063
VOC	25,109	70	25,179

PE Calculations for Permit C-1344-4-2 & '-8-2 through '-71-2

C-1344-4-2: 15,486 GALLON ETHANOL STORAGE TANK (TANK # 1) WITH
PRESSURE/VACUUM VALVE

C-1344-8-2: 15,486 GALLON ETHANOL STORAGE TANK (TANK # 2) WITH
PRESSURE/VACUUM VALVE

C-1344-71-2: 997 GALLON ETHANOL STORAGE TANK (TANK # SING4) WITH
PRESSURE/VACUUM VALVE

A. Assumptions

- VOC is the only pollutant of concern from ethanol storage and this facility is already identified as a major source for VOC emissions.

B. Emission Factors

There are no emission factors for these ethanol storage tanks on the current PTOs.

C. Calculations

Since the only pollutant of concern from ethanol storage is VOCs and this facility is already identified as a major source for VOC emissions, calculation of the VOC potential to emit for these units is not required for the purposes of this project.

PE Calculations for Permit C-1344-7-2

Refer to Section VII of the main body of this engineering evaluation document above.

PE Calculations for Permit C-1344-72-2, '-73-2, & '-74-2

- C-1344-72-2: 192 BHP (INTERMITTENT) CUMMINS MODEL N-885-F (S/N 42603) NON-CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP
- C-1344-73-2: 115 BHP (INTERMITTENT) DETROIT DIESEL MODEL 4061AZ (S/N 4A0161660) NON-CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP
- C-1344-74-2: 115 BHP (INTERMITTENT) DETROIT DIESEL MODEL 4061AZ (S/N 4A0162893) NON-CERTIFIED DIESEL-FIRED EMERGENCY IC ENGINE POWERING A FIREWATER PUMP

A. Assumptions

- Non-emergency operating schedule: 100 hours/year (Current Permit)
- Density of diesel fuel: 7.1 lb/gal
- Fuel heating value: 137,000 Btu/gal
- BHP to Btu/hr conversion: 2,542.5 Btu/hp-hr
- Thermal efficiency of engine: commonly ≈ 35% for diesel engines

B. Emission Factors

Emission factors for permit units C-1344-72-2, '-73-2, and '-74-2 are provided in the table below.

Emission Factors		
Pollutant	Emission Factor (g/bhp-hr)	Source
NO _x	10.00	Project C-1131420
SO _x	0.0051	Mass Balance Equation Below
PM ₁₀	0.475	Project C-1131420
CO	3.04	Project C-1131420
VOC	1.14	Project C-1131420

$$\frac{0.000015 \text{ lb} - S}{\text{lb} - \text{fuel}} \times \frac{7.1 \text{ lb} - \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} - SO_2}{1 \text{ lb} - S} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ bhp input}}{0.35 \text{ bhp out}} \times \frac{2,542.5 \text{ Btu}}{\text{bhp} - \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.0051 \frac{\text{g} - SO_x}{\text{bhp} - \text{hr}}$$

C. Calculations

$$\text{Annual PE (lb-pollutant/yr)} = \text{EF (g-pollutant/bhp-hr)} \times \text{rating (bhp)} \times \text{operation (hr/yr)} / 453.6 \text{ g/lb}$$

Annual Emissions for C-1344-72-2				
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hrs/year)	Annual PE (lb/yr)
NO _x	10.00	192	100	423
SO _x	0.0051	192	100	0
PM ₁₀	0.475	192	100	20
CO	3.04	192	100	129
VOC	1.14	192	100	48

Annual Emissions for C-1344-73-2 & '-74-2				
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hrs/year)	Annual PE (lb/yr)
NO _x	10.00	115	100	254
SO _x	0.0051	115	100	0
PM ₁₀	0.475	115	100	12
CO	3.04	115	100	77
VOC	1.14	115	100	29

Conclusion

SSPE1 (lb/year)					
Permit Unit	NO_x	SO_x	PM₁₀	CO	VOC
C-1344-2-8	6,938	1,798	4,793	65,280	3,469
C-1344-3-4	1,266	36	96	1,063	25,179
C-1344-7-2	5,519	1,498	1,577	42,048	2,891
C-1344-8-2 through C-1344-71-2	0	0	0	0	N/D*
C-1344-72-2	423	0	20	129	48
C-1344-73-2	254	0	12	77	29
C-1344-74-2	254	0	12	77	29
Total SSPE1	14,654	3,332	6,510	108,674	31,645

*VOC emissions "Not Determined" at this time.

APPENDIX E
Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post-Project Potential to Emit for each emissions unit, lb/qtr.
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$PE2_{quarterly} = PE2_{annual} \div 4 \text{ quarters/year}$$

$$PE1_{quarterly} = PE1_{annual} \div 4 \text{ quarters/year}$$

Quarterly NEC [QNEC]			
Pollutant	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	1,029.25	1,379.75	-350.5
SO _x	374.5	374.5	0
PM ₁₀	394.25	394.25	0
CO	10,512	10,512	0
VOC	722.75	722.75	0