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BEFORE THE HEARING BOARD OF THE AIR POLLUTION CONTROL DISTRICT, COUNTY OF SANTA BARBARA

Wine Institute; Inc. PETITIONER vs. Aeron Arlin Genet, Air Pollution Control Officer; RESPONDENT Central Coast Wine Services, REAL PARTY IN INTEREST (PERMITTEE)	Case No: 2017-21-AP; Case No. 2017-24-AP **Control Officer's Response to Petitioner's Opening Brief.** **Hearing Date**: May 2, 2018 **Time**: 9:30 AM **Place**: Board of Supervisors Hearing Room, 105 E. Anapamu St. Santa Barbara, Ca.

Introduction

This case is an appeal of the Air Pollution Control Officer's ("Control Officer" or "District") issuance of an Authority to Construct permit to Central Coast Wine Services ("Central Coast") for a change in operation at its Santa Maria winery that will cause an increase in air pollution. The "Project" is to allow red and white wine fermentation in 40 existing wine storage tanks, referred to as the "series 400 tanks." The pollution increase from the change in operation is large enough that under District Rules the Control Officer was required to have Central Coast install "**best available**

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control technology" ("BACT") on the Project. **This is the first time air pollution control technologies have been required as BACT for any winery in California and represents an important potential precedent** for future permits issued to wineries by any air district in the state.

This brief is submitted concurrently with the "***District's Analysis of Wine Institute Opening Brief - Policy, Regulatory and Technical Merits***," February 26, 2018 prepared by Michael Goldman, District Engineering Division Manager, and David Harris, Engineering Division Supervisor ("**District Analysis**"). The statements made in this brief are supported by evidence provided in or cited by the District's Analysis.

Summary of Case

Petitioner Wine Institute is not the permittee, rather Petitioner is a nonprofit corporation located in San Francisco that represents wineries in California. The **permittee Central Coast has accepted the permit and will not participate in this appeal as they are a party in name only**.

Petitioner contests the **Control Officer's determination that two air pollution control technologies– the NoMoVo and the EcoPAS – are BACT.** These two technologies **are already in use** at the Central Coast Winery. There are two NoMoVo systems, one installed in 2013 and another in 2015, and one EcoPAS system installed in 2015.

Central Coast installed the controls to keep emissions below the District's offset threshold. Now that the District has designated these controls as BACT, Central Coast is required to use the controls daily on the Project during the fermentation season, rather than only as needed to stay below the offset threshold. And the controls must meet a control efficiency of at least 67 percent. The District's analysis concluded both of these requirements will be met and Central Coast accepted that determination when it accepted the permit.

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The District determines BACT when a permit is issued for a project that will exceed emission thresholds specified in District Rule 802. A new technology may be designated as BACT if it is shown to be technologically feasible and cost effective. (*Id.*) Alternatively, a control technology may be determined to be BACT if it has been "**achieved in practice**" – i.e., it is already in use. (*Id.*) **In this case, the District's BACT determination is based on the fact that these two technologies have been successfully used at Central Coast and, therefore, have been achieved in practice.**

Central Coast uses the control systems to control air pollution that occurs during the annual "**fermentation season,**" which normally lasts between 60 and 80 days. During the fermentation season, harvested grapes are placed in winery tanks to ferment, which takes approximately 7 days for red wine and 15 days for white wine. After fermentation is complete, the wine is removed and another batch of grapes is introduced into the tank. Each cycle is called a "**fermentation cycle**."

The pollution of concern is ethanol, a reactive organic compound that is a precursor to ozone and to particulate matter of less than 10 microns. Ethanol pollution is relatively low during the beginning and end of the fermentation season and peaks during the middle. Central Coast typically operated the control systems during the peak pollution periods as this was sufficient to stay below the offset threshold at that volume of fermentation.

Even though the two technologies have been in use at Central Coast for several years, Petitioner raises a myriad of issues in its petition and opening brief, insisting the evidence in this case is controversial and complex, and that the BACT determination is unsound. The record, however, shows otherwise and fully supports the District's BACT determination.

T**he essential facts of this case are listed below. And these facts are undisputed.**

1. **Central Coast accepted the permit** subject to this appeal, **including the BACT determination**.

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2. **Central Coast has been using the two control systems** s**ince 2013 (for the first NoMoVo) and 2015 (for the second NoMoVo and the EcoPAS) – over three fermentation seasons of proven emission reductions.**

3. These air pollution control systems are **"passive systems" that utilize technologies have been around for decades**. Each uses a system of piping manifolds connected to closed top tanks to route emissions to the emissions control system. The two NoMoVo's use wet scrubbers that absorb gases into water. The EcoPAS uses a glycol chilled tube-in-shell condenser that turns the ethanol gas into liquid. The by-product of both is collected and disposed of offsite.

4. During the 2014, 2015 and 2016 fermentation seasons, Central Coast operated the **NoMoVo systems for 30, 47 and 37 consecutive days.** Additionally, **when used during the peak pollution period of the fermentation season**, **the NoMoVo operated 147 of 151 days or <u>97 percent of the time</u>**.

5. During the 2015 and 2016 fermentation seasons, Central Coast operated the EcoPAS system for **34 and 37 consecutive days.** Additionally, when used **during the peak pollution period of the fermentation season, the EcoPAS operated 108 of 117 days or <u>92 percent of the time</u>**.

6. The two **manufacturers of the control systems have issued guarantees that these systems will meet the BACT performance standard**.

7. The District has approved a **"mass balance calculation" methodology to determine compliance** with the BACT performance standard. This is a simple and efficient method that uses Air Resources Board emissions factors to **determine total potential emissions and then uses actual measurements to determine total emissions captured**. When the emissions captured are at least 67 percent of the total emissions, the BACT permit condition is met.

8. The **Air Resources Board emissions factors are used for winery permitting in the San Joaquin Valley, San Luis Obispo County and Monterey Bay air districts**, all of which regulate major wine producing areas.

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9. **No source testing is necessary under the mass balance approach.** The permit does not require source testing.

10. T**he Air Resources Board supports the BACT determination.**

11. **The Environmental Protection Agency supports the District's BACT determination.**

Notwithstanding the above, Petitioner insists that endless studies and testing be done before BACT may ever be imposed on a California winery. Indeed, this Petitioner's comments on the draft permit, when Petitioner said:

> "The way to prove such a track-record is straight-forward: (1) attach the Emissions Control Systems to closed fermentation tanks before fermentation begins, (2) measure all inputs and outputs from the closed systems (including waste products), (3) analyze the resulting data to develop a performance standard, (4) conduct repeated tests of the systems under all likely conditions of use—including with different types of grapes and styles of wine—in order to validate the performance standard, and (5) document the testing." (Wine Institute Comments on Draft Permit, June 20, 2017, Exhibit No. 2, Authority to Construct 15044, Attachment L, at p. 3.)

Petitioner's case is a classic example of the aphorism that "*perfection is the enemy of the good*" – where Petitioner demands endless studies and tests that will take years to complete before anything is ever done, thereby serving as **an excuse to not control air pollution from wineries even though control equipment exists, is readily available and operating successfully**.

The sum of this case is that notwithstanding all of Petitioner's protestations, arguments and evidence, **the essential facts of this case are those listed above. And they are undisputed.**

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Standard of Review

Petitioner Wine Institute filed a petition for review of the permit issued to Central Coast pursuant to Health and Safety Code section 42302.1 as an "aggrieved person." The permittee Central Coast has not appealed the issuance of the permit and, instead, has accepted that decision, with all conditions stated therein, including the "best available control technology" determination. The Hearing Board's responsibility is "to hold a public hearing and . . . render a decision on whether the permit was properly issued." (*Ibid*.) The leading commentator, Kenneth A. Manaster has stated that the Board's inquiry on permit appeals should be "whether district staff has made a fair, reasonable interpretation of the applicable legal requirements . . . The hearing board's usual function should be to determine whether the staff view in the permit dispute falls within a sensible application of the language and purpose of the pertinent regulations or other requirements." (Kenneth A. Manaster, *Fairness in the Air: California Air Pollution Hearing Boards*, (2006), 24 UCLA Journal of Environmental Law and Policy 1, 80.) Manaster went on to state that giving deference to the Control Officer's permit decision is "consistent with the **traditional legal presumption of the regularity and correctness** of administrative action." (*Ibid*., emphasis added, citing Evid. Code § 664 "It is presumed that official duty has been regularly performed.") Manaster went on to say:

> "This presumption means that the **burden of proof in a permit dispute should be on the party challenging the district staff's action or finding**. **It also means that the hearing board should not lightly disagree with the staff's determinations.** A hearing board in permit cases is operating analogously to the role of an appellate court reviewing administrative agency action. This is in contrast to the board's function in variance or abatement cases, where the better analogy is the work of trial courts determining matters in the first instance. In short, the **hearing board should not substitute its judgment in permit cases for**

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that of the expert, full-time staff of the APCD." (*Ibid*. at pp. 80-81, emphasis added.)

This does not mean the Hearing Board should forfeit its review function through automatic deference to staff and, additionally, the board has an obligation to consider additional evidence submitted by the petitioner. (*Ibid*., at p. 82; APCD Rule 503.)

In contrasting permit appeals to that of variances, Manaster observed:

> "Permit cases tend to be unusually technical, both scientifically and legally. The customary variance case emphasis on issues such as economic hardship, nuisance effects, and reasonable control is replaced in permit cases with much more sophisticated and time-consuming inquiries. These delve into the details of specific manufacturing processes, pollution control technology approaches, future emissions predictions, baseline emissions histories and formulas, ambient air quality levels, permit review procedures, and the legislative history of individual regulatory specifications."

In sum, the Control Officer's determinations in the permit issued to Central Coast is entitled to the traditional presumption of regularity and correctness, the burden of proof to show that the permit was not properly issued is on Petitioner, and the Hearing Board should not substitute its judgment for that of the highly qualified, expert full time staff that has so carefully documented its determination on BACT with substantial evidence.

Overview And Facts.

On August 18, 2017, the Control Officer issued Authority to Construct Permit No. 15044 (District Analysis at p. 1.) to Central Coast for modifications to an existing winery at 2717 Aviation Way in Santa Maria, California ("Winery"). Pursuant Central Coast's request, the District issued a modified permit, Authority to Construct No. 15044-1, on September 15, 2017 (collectively the permits are referred to as "Authority

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to Construct" unless otherwise noted). In the Authority to Construct, the Control Officer made a determination pursuant to District Rule 802 of what constitutes BACT for this winery. That determination is the subject of this appeal. This was the first time in California that any district required air pollution control technologies as BACT on a winery.

Due to the seasonal nature of winemaking, fermentation activities occur once per year for approximately 60 to 80 days - the "fermentation season." Fermentation in any one tank typically takes 7 for red wine and 15 days for white wine. Once a batch is completed, the finished wine is removed and the process is repeated. Each of these cycles is referred to as a "fermentation cycle." (See District Analysis at p. 4.) Although limited in duration, the fermentation of wine in the existing wine storage tanks would cause enough additional air pollution that the Project exceeded the District's New Source Review Rule 802 thresholds for "best available control technology" or "BACT." The pollutant in question is ethanol, a reactive organic compound that is a precursor to ozone and particulate matter less than 10 microns, both of which are "nonattainment pollutants" in Santa Barbara County. (District Rule 102 – Definitions "Precursor.")

Prior to its 2017 application, in 2013 and 2015 Central Coast voluntarily applied for permits to install and operate emission control systems, two "NoMoVo" systems (installed in 2013 and 2015) and one "EcoPAS" system (installed in 2015). Central Coast elected to use these controls in order to stay under the offset threshold of District Rule 802. Since the controls were voluntary, they could be operated "as needed" to stay below the offset threshold. This is in distinction to emission controls required as BACT as the District's Policy and Procedure for implementing BACT requires it must be in place at all times of operation during the life of the project.

In April of 2017, Central Coast submitted the application for the expanded fermentation Project and the emissions from this Project exceeded the Rule 802.D.1 threshold for requiring BACT, which for any reactive organic compound is an increase

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of 25 pounds/day. On August 18, 2017 the District approved the Project and, in doing so, required BACT. After further discussions with Central Coast, on September 15, 2017 the District issued a modified permit to change to the calculation period for determining compliance with control system performance standard requirements; however, this did not change the equipment that had been designated as BACT. The technologies the District approved as BACT were the two already in use by Central Coast, the NoMoVo and the EcoPAS. The Central Coast daily use records showed both systems to be proven technologies, reliable and relatively simple. Both are "passive systems" utilizing technologies that have been around for decades.

The successful application of these technologies as BACT to the Central Coast winery is proven by actual data of their use at Central Coast over the last 3 plus years. The District's BACT determination was supported by the Environmental Protection Agency and the Air Resources Board and has been accepted by the applicant Central Coast. The evidence in this case is clear that the Control Officer properly issued the permit.

Response to Petitioner's Arguments and Evidence.

The District Analysis submitted with this Brief responds to all of Petitioner's points and evidence. The following is a summary of those responses, in the order presented by Petitioner, and is not exhaustive of all issues covered in the District Analysis. The evidence to support each point below is in the District Analysis.

- Tank size. Petitioner Opening Brief quickly makes errors in characterizing the size of the series 400 tanks by suggesting these tanks are larger than the tanks currently used for wine fermentation. (District Analysis, at p. 2.)
- Full and More Flexible Operation. Petitioner incorrectly asserts using the emissions controls will be a significant change to operations, when in fact the change will allow Central Coast to increase wine production while complying with District rules. (District Analysis, at pp. 3-4.)

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- Source Compliance Demonstration Period. Petitioner's characterization of the Source Compliance Demonstration Period is inaccurate. (District Analysis, at p. 4.)
- Permit Modification. Petitioner's characterization of the need for the modified permit is wrong, and ignores the collaboration that occurred between the District and Central Coast. (District Analysis, at pp. 4-5.)
- District Relied on Actual Use Data. Petitioner erroneously concludes that there is no "track record" to support the BACT determination. The District in fact relied on data showing actual usage of the EcoPAS and NoMoVo at Central Coast since 2013. This is detailed in the Harris Achieved in Practice BACT Memorandum and shows these two technologies have been "achieved in practice." (District Analysis, at pp. 6-7.)
- BACT Methodology. Petitioner incorrectly insists a very rigorous approach is needed to establish BACT, ignoring among other things the California Air Pollution Control Officers' Association BACT Clearinghouse Resource Manual that recognizes a flexible approach to determining BACT, which is essentially a factual inquiry and engineering analysis. (District Analysis, at p. 7.)
- Use of Controls on Every Tank. Petitioner is incorrect in asserting that each BACT technology had to be used on each and every exact fermentation tank at the Winery before being declared BACT. As demonstrated in the Harris Achieved in Practice BACT Memorandum, the emissions control systems have a proven track record of reliably controlling emissions from wine fermentation, regardless of tank type. (District Analysis, at p. 8.)
- Use of EcoPAS Control Systems on Red Wine. The evidence confirms that the EcoPAS has been shown to effectively control emissions from wine fermentation regardless of the specific wine type or grape varietal. (District Analysis at p. 9.)

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- Use of Controls Over Full Fermentation Cycle. Petitioner erred in insisting that the NoMoVo and EcoPAS will not work for the full fermentation cycles. The record shows these units have operated successfully on each and every day used. There is no technical or engineering reason why these will not be successful over each entire fermentation cycle. Additionally, as demonstrated in the Harris Achieved in Practice BACT Memorandum, the Environmental Protection Agency has stated that past use of these controls is a sufficient basis to conclude they have been achieved in practice and should be considered BACT. Finally, both vendors have recently confirmed that the emissions control systems were indeed used over the course of a full fermentation cycle at Central Coast, rendering this objection by Petitioner moot. (District Analysis, at pp. 10-11.)
- The Performance Standard. The emissions control system manufacturers have guaranteed the systems to meet the BACT performance standard. The District then vetted these guarantees with actual, real-world performance data from Central Coast's operations. (District Analysis, at pp. 11-12)
- Nonstandard Operations. Petitioner erred in asserting the District cannot issue a permit that allows for BACT to not apply during "nonstandard operations" (e.g., opening a "tank man-way" to perform visual tank inspections or tank pump overs). Such permit conditions were included to ensure the BACT requirements will not hamper winemaking operations. (District Analysis, at pp. 12-13.)
- Reliance on Central Coast's Withdrawn Letter. Many of Petitioner's criticisms of the District's BACT determination are based on the Central Coast letter dated September 5, 2017. Petitioner's Opening Brief does not disclose that Central Coast revoked that letter on September 8, 2017 based on the District's identification of significant inaccuracies. (District Analysis, at p. 13-14.)

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- Air Resources Board Emission Factors. Petitioner incorrectly asserts the BACT determination is based on "theoretical" estimates when the record shows the District used the Air Resource Board emission factors that were developed at the University of California at Davis and have been used and/or adopted by several air districts, including San Joaquin, Monterey Bay and San Luis Obispo. Additionally, San Joaquin incorporated these emission factors into its rules when the District adopted Rule 4694 "Wine Fermentation and Storage Tanks" in 2005. (District Analysis, at p. 15.)
- More Than One Technology as BACT. Petitioner erroneously argues the District cannot designate more than one technology as BACT. The District's policy is that BACT is comprised of both a technology and a performance standard. In practice, a source may use any technology that achieves the required BACT performance standard, provided the permittee lists it in the permit. This objection is puzzling because designating more than one technology allows competition among vendors, addressing a concern Petitioner raises elsewhere. (District Analysis, at p. 15.)
- Achieved in Practice Operational Duration. Petitioner erred in relying on the South Coast policy to conclude that at least 183 days of cumulative operation is required before a technology can be declared BACT. Petitioner's analysis misapplied the policy by failing to recognize this is the policy for a "major polluting facility." Central Coast would not be such a facility under that policy, even if it did apply in Santa Barbara County. The South Coast Policy applies a more flexible approach for "non-major polluting facilities," especially where the equipment is not operated continuously. Additionally, EPA's letter to San Joaquin, dated September 30, 2016, states that these agencies "have already agreed that the reasonable operating period is a complete crush [fermentation] season." This concurs with the District's position, as documented in the Harris Achieved in Practice BACT Memorandum. (District Analysis, at p. 16-17.)

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- Vendor Costs. Petitioner's speculation on the cost of the control equipment is not supported by any evidence. Additionally, it ignores that two competing vendors can and do offer the control equipment. For example water scrubbers have been around since 1875. (See "Wet Scrubbers," Second Edition, Schifftner & Hesketh, CRC Press, 1996). Additionally, chilled glycol vapor condensers have been around for decades. While the NoMoVo and EcoPAS equipment models may have patent protection, other vendors are free to enter the market with their own unique application of emission controls. (District Analysis, at pp. 17-18.)
- Economic feasibility analysis. Petitioner submitted an economic feasibility analysis prepared by Marianne F. Strange & Associates that contains several substantive errors that invalidate its conclusions. These include using an inflated number of units, inflated installation costs, inclusion of annual source testing costs even though source testing is not required, and an assumed 10 year life for stainless steel equipment inconsistent with Environmental Protection Agency guidance of a 15- year life span for refrigerated condensers and wet scrubbers. (District Analysis, at pp. 18-20.)
- District Economic Feasibility Analysis. Although cost is not a required consideration in an achieved in practice BACT determination, the District has performed an economic feasibility analysis that shows the NoMoVo and EcoPAS systems are cost effective. (District Analysis, at p. 18.)
- Wine quality. Petitioner has submitted a declaration from a Gallo employee along with a copy of a document that purports to analyze how air pollution control may have potential adverse impacts on wine quality. There are a few unusual aspects to this submittal. First, according to the Declaration, it was submitted to the Environmental Protection Agency on September 14, 2017, the exact same day Petitioner filed its petition for review before the Hearing Board. Second, there is no listed author on this document. Third, the document is a list

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of "concerns" and, essentially, fails to provide any substantial credible evidence of any actual impact on wine quality due to using technologies like the NoMoVo or EcoPAS to control air pollution during the fermentation process. The document aside, Petitioner's reckless assertion is belied by the fact Central Coast has used emission controls at its Winery since 2013 without any reported impact on wine quality and Central Coast is voluntarily expanding the use of controls to include the remaining tanks at the facility not subject to BACT requirements. (District Analysis, at p. 20-21.)

- Source Testing for BACT. Petitioner insists the District's BACT Policy requires source testing even though Petitioner acknowledges the Policy states "source testing may not be applicable in some BACT determinations and other means of compliance may be used." Their argument ignores the fact that the use of a mass balance approach obviates the need for source testing. EPA concurred with the mass balance approach in lieu of source testing in their September 30, 2016 letter to San Joaquin. (District Analysis, at p. 21-22.)
- MACT. Petitioner makes reference to federal standards for Maximum Achievable Control Technology or "MACT" that have no application in this case. Pursuant to Section 112 of the Clean Air Act, the Environmental Protection Agency is mandated to adopt standards for major sources of hazardous air pollutants. A major source is one that emits 10 tons per year of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants at the source. Those standards are referred to as MACT. Unlike BACT, **MACT is applied to existing sources**. Therefore, as has been noted by the Environmental Protection Agency, emission limits that can be achieved by BACT are not necessarily available for retrofit rules (like MACT) because BACT is applied to new and modified sources. (See *Nat'l Parks Conservation Ass'n v. United States EPA*, (2015) 803 F.3d 151, 163.) (And see District Analysis at p. 22.)

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- San Joaquin. Petitioner continues to cite dated analysis from San Joaquin on determining BACT. Petitioner has not considered recent correspondence from the Environmental Protection Agency that confirms San Joaquin will consider the Santa Barbara APCD BACT determination from August 2017 prior to making any future BACT determinations for wineries. (District Analysis, at pp. 22-23.)
- Environmental Protection Agency Comments. Petitioner's criticism of the Environmental Protection Agency comments, which stated that the emission control systems at Central Coast are achieved in practice, is unduly dismissive and ignores these comments are from the Chief of the Air Permits Office of the Environmental Protection Agency Region IX. (District Analysis, at p. 23.)

Conclusion

For the reasons stated herein and in the District's Analysis, the Control Officer respectfully requests that the Hearing Board find that the permit was properly issued and that this appeal be denied.

Dated: February 26, 2018

Respectfully submitted,

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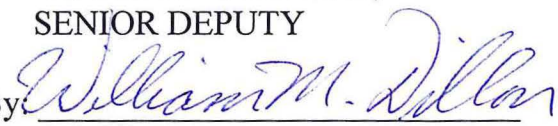
By 
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Santa Barbara County
Air Pollution Control District

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MEMORANDUM

TO: Santa Barbara County Air Pollution Control District Hearing Board

FROM: Michael Goldman, Manager, Engineering Division
David Harris, Supervisor, Engineering Division

SUBJECT: District's Analysis of Wine Institute Opening Brief - Policy, Regulatory and Technical Merits - Hearing Board Case Nos. 2017-21-AP and 2017-24-AP

DATE: February 26, 2018

I. Introduction

On August 18, 2017, the Santa Barbara County Air Pollution Control District (hereafter "District") issued a final Authority to Construct Permit to Central Coast Wine Services (hereafter "CCWS") to allow them to modify their existing winery and expand their business while complying with the District's rules and regulations. On September 15, 2017, the District issued a permit that modified two small aspects of the original permit. In these permitting actions, the District used the totality of data and evidence available, as well as input from oversight agencies, to determine the emissions control systems in use at the same winery since 2013 and 2015 had been achieved in practice, and would satisfy the requirement to implement Best Available Control Technology (hereafter "BACT") pursuant to District Rule 802. The District established a reasonable performance standard for the systems and developed a straightforward "mass balance" approach to demonstrate compliance with this performance standard.

On September 14, 2017 and again on October 10, 2017, Wine Institute (hereafter "Petitioner") filed permit appeals to dispute the achieved in practice BACT determinations contained in the respective permits issued to CCWS. The District agrees that this achieved in practice determination is the issue appealed to the Hearing Board.

In their Opening Brief, the Petitioner has requested the Hearing Board to "direct staff to remove the 'achieved in practice' determination from the California Air Resources Board's BACT Clearinghouse."[1] It is important to note that the District does not control the CARB BACT Clearinghouse.

[1] Petitioner Opening Brief at pg. 2

In this response to Petitioner's Opening Brief, the District herein analyzes the arguments and evidence presented by the Petitioner. This analysis confirms that the District's achieved in practice determination for BACT as set forth in the District's *Achieved in Practice Determination for Wine Fermentation Emission Control Technologies* memorandum (hereafter "AIP BACT Memorandum")[2] is fully supported by the evidence and made in compliance with all applicable rules, regulations, policies and procedures. Additionally, the District's BACT determination is supported by two oversight agencies, the U.S. Environmental Protection Agency (hereafter U.S. EPA) and the California Air Resources Board (hereafter "CARB").

II. Factual Background

B. CCWS

Petitioner incorrectly states CCWS does not produce its own wine.

The Petitioner claims that Central Coast Wine Services (CCWS) "does not produce its own wines, but instead charges fees to growers that use its facilities."[3] While it is true that CCWS does lease space to other winemakers, CCWS does in fact produce their own wines, as well as produce wines for other wineries throughout the region.[4] Turn Key Wine Brands is owned by Thornhill Companies, the parent company of CCWS, and produces their wines at the CCWS facility.[5] The permit in question is only valid for CCWS's winemaking operations for their own wines and other wine brands they produce at their facility; separate permits or exemptions authorize the lessee operations.[6]

Petitioner incorrectly characterizes tank size of the 400 series tanks.

The Petitioner contends that the "permits at issue address primarily the larger 400-series tanks."[7] This statement is not accurate. The 400-series tanks are not larger than the other fermentation tanks at the CCWS facility. In fact, the largest tanks at CCWS are 100-series tanks (tanks 151, 152, 161 and 162; 21,232 gallons each).[8] To characterize the 400-series tanks as the "larger" tanks at the facility is incorrect.

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[2] Exhibit 1 - Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum
[3] Petitioner Opening Brief at pg. 3
[4] http://www.centralcoastwineservices.com/services.html
[5] http://turnkeywinebrands.com/#!/company
[6] Exhibit 2, Final Authority to Construct 15044, Conditions 2.b and 13
[7] Petitioner Opening Brief at pg. 4
[8] *See id*. at Section A, Item # 11

C. The Emissions Control Systems

Petitioner incorrectly states the historical use of the emissions control systems.

The Petitioner's statements that the NoMoVo and EcoPAS systems were "never used on any tank over a full fermentation cycle"[9] are incorrect. Both the NoMoVo and EcoPAS emissions control systems have been used on multiple tanks over a full fermentation cycle at CCWS.[10] [11] The Petitioner also incorrectly states "the EcoPAS system was never used for red wine fermentation or on smaller 100-series tanks."[12] The EcoPAS system was in fact used for red wine fermentation on the 100-series tanks at CCWS.[13] And as discussed in Section II.B above, to characterize the 100-series tanks as the "smaller" tanks at the facility is incorrect.

D. The Permits

Petitioner incorrectly asserts using the emissions controls will be a significant change to operations, when in fact the change will allow CCWS to increase wine production while complying with District rules.

Petitioner asserts "[u]sing the Emissions Control Systems as BACT would be a significant change from the manner in which CCWS had used the Emissions Control Systems previously."[14] This assertion is incorrect. As discussed fully in sections III.B.1 and III.B.2 below, the emissions control systems have been used in the manner in which is required by the permit. The only changes at CCWS will in fact be positive. The evidence in the record shows the change will allow CCWS to grow its business, as desired, while complying with the District's rules and regulations. By utilizing their existing emissions control systems as BACT, CCWS was authorized to increase its total wine fermentation production and to ferment red wine in the 400-series tanks.[15] Additionally, by controlling emissions at the facility, CCWS was authorized to install a barrel room at its Santa Maria winery that had been previously located in its Paso Robles facility. These changes to the previous wine operations allows greater flexibility that achieves higher production rates, allows red wine fermentation, and provides for the addition of the barrel room.

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[9] Petitioner Opening Brief at pg. 4
[10] Exhibit 3, e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE NoMoVo Controlling Entire Fermentation Cycle, February 24, 2018
[11] Exhibit 4, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controlling Entire Fermentation Cycle, February 21, 2018
[12] Petitioner Opening Brief at pg. 5
[13] Exhibit 5, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controls on Red Wines, February 21, 2018
[14] Petitioner Opening Brief at pg. 6
[15] Exhibit 2, Final Authority to Construct 15044, Authorized Modification

CCWS has not appealed the permits, and has voluntarily elected to use the emissions control systems on all fermentation tanks at their facility.

Petitioner's characterization of SCDP is inaccurate.

Petitioner mischaracterizes the Source Compliance Demonstration Period (SCDP) as a "period during which a facility is permitted to operate while attempting to comply with the permit conditions"[16] and "during which CCWS is protected from potential violations."[17] It is important to note that all Authority to Construct permits are issued with a SCDP condition, as authorized by District Rule 201, Section E.1. Per District Policy and Procedure 6100.042.2016, the SCDP "allows a source (permit holder) to operate in a test mode after construction and before the PTO is issued for the purpose of performing equipment 'shakedown' and to conduct any performance tests and compliance demonstrations required by the APCD."[18]

Petitioner's characterization of the need for the modified permit is wrong, and ignores the collaboration that occurred between the District and CCWS.

Petitioner argues that the performance standard averaging period from ATC 15044 was modified due to CCWS's concerns that "the Emission Control Systems might not be capable of meeting the performance standard." [19] The CARB wine fermentation emission factors are averaged for the length of a full fermentation cycle. A full fermentation cycle is defined as the time from grape juice inoculation with yeast until the time the finished wine is removed from the fermentation tank. A fermentation cycle typically lasts around 7 days for red wines and around 15 days for white wines.[20] At the beginning of a wine fermentation cycle, CO_2 emissions are high and ethanol emissions are low. As the fermentation cycle progresses, CO_2 emissions decrease as ethanol emissions reach their peak. By the end of the fermentation cycle, CO_2 and ethanol emissions both decrease to zero.[21] Because the CARB emission factors have been averaged over a full fermentation cycle, the predicted emissions match closely to the actual emissions for a full fermentation cycle, but can differ significantly to actual emissions for a short-term snapshot. For example, a 10,000 gallon red wine fermentation will emit 62 pounds of ethanol over the course of the full fermentation cycle (10,000 gallons x 6.2 lbs./1000 gallon). This equates to an average of 8.9 pounds of ethanol per

[16] Petitioner Opening Brief at pg. 6
[17] *Id.* at pg. 8
[18] Exhibit 6, District Policy & Procedure No. 6100.042.2016 – Managing the Source Compliance Demonstration Period
[19] Petitioner Opening Brief at pg. 7
[20] Exhibit 7, District Wine Fermentation, Aging and Storage Emission Calculations (ver. 3), Winery.xlsx
[21] Exhibit 8, Modeling and Prediction of Evaporative Ethanol Loss During Wine Fermentations, L. Williams and R. Boulton, 1983

day (62 pounds / 7 day fermentation cycle). However, in actuality, the ethanol emissions are less than 8.9 pounds per day in the beginning and end of the fermentation cycle, and greater than 8.9 pounds per day in the middle of the fermentation cycle. In order to account for this variable emission rate of wine fermentation, a rolling 30-day period for determining compliance was and included in the first permit.[22] Subsequent to the issuance of the ATC, CCWS identified a potential scenario where during a rolling 30-day period the mass balance calculations may show less than 67 percent control efficiency even when the systems were in fact achieving greater than 67 percent control.[23] This was simply a mathematical issue due to the nature of the calculation. This concern was addressed by changing the calculation methodology to be based on the entire fermentation season, thereby eliminating the potential for a false non-compliance issue.

Extending the SCDP to the length of the fermentation season does not, as the Petitioner has suggested, "in effect give CCWS an entire year's shakedown period during which CCWS is protected from potential violations."[24] As stated by the Petitioner, "[t]he wine-making season lasts only about two to three months each year."[25] Therefore, the SCDP would only last for the two to three month duration of the wine fermentation season. The District had originally limited the SCDP to 90 days as a worst-case assumption for the length of a fermentation season. The District addressed a concern for the potential, although unlikely, fermentation season to last a few days longer than 90 days, and modified the SCDP be extended to the entire length of the fermentation season or 90 days, whichever was longer. That coupled with the change to a full fermentation season averaging period was the rationale for this minor change to the SCDP condition. This change to the SCDP condition will more than likely result in a shorter SCDP.

The District worked with CCWS in a collaborative manner after they identified potential issues, and agreed with them on the appropriate changes to the permit. As noted in the District's September 18, 2017 e-mails to U.S. EPA and CARB, these changes do not amount to substantive changes to the permit.[26] [27]

[22] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section 2.7
[23] Exhibit 9, Letter from Marshal Miller, CCWS to Michael Goldman, SBCAPCD, RE BACT Calculation, September 13, 2017
[24] Petitioner Opening Brief at pg. 8
[25] *Id.* at pg. 4
[26] Exhibit 10, e-mail from Michael Goldman, SBCAPCD to Gerardo Rios, USEPA, September 15, 2017
[27] Exhibit 11, e-mail from Michael Goldman, SBCAPCD to Tung Le and Chris Gallenstein, CARB, September 15, 2017

III. The District's "Achieved in Practice" Determination

A. Petitioner incorrectly asserts the "Achieved in Practice" determination lacks a sufficient "track record" showing that the technology works.

The Petitioner's description of achieved in practice, namely that "[i]t can be required, in essence, because *we know from prior experience that it works*"[28] perfectly summarizes the District's position in this permit appeal. At the time the ATC 15044 was issued, the NoMoVo system had been operated for four fermentation seasons and the EcoPAS system had been operated for two fermentation seasons at the CCWS facility.[29] During this time, both systems were operated on a frequent basis, with nearly continuous operation during the majority of fermentation operations.[30] When they were operated, the NoMoVo system achieved an average of 26.2 pounds of ethanol control per day, and the EcoPAS system achieved an average of 4.6 pounds of ethanol control per day.[31] The evidence shows that the emissions control systems have achieved a proven track-record of controlling ethanol emissions from wine fermentation.

Under District Rule 801(F)(2)(a), the District must require BACT for any permit for any new or modified facility that exceeds the BACT threshold where a control technology applicable to that facility has been "achieved in practice." The inquiry into whether a technology has been achieved in practice is a factual investigation and requires appropriate engineering analysis. The District's AIP BACT Memorandum performed that analysis and included a detailed review of all available operational data of the two emissions control systems, both of which were already in operation at CCWS.[32] This analysis concluded that when in operation at the peak of the fermentation season, the NoMoVo system was operated on 147 of 151 days, or 97 percent of the time, and the EcoPAS system was operated on 108 of 117 days, or 92 percent of the time.[33] Additionally, the NoMoVo system operated for 30 consecutive days in 2014, 47 consecutive days in 2015 and 37 consecutive days in 2016, and the EcoPAS system was operated for 34 consecutive days in 2015 and 37 consecutive days in 2016.[34]

The Petitioner asserts "the District should examine whether the emissions controls have been used **exactly** as they will be required to be used under the permit. At a minimum, that means the emissions controls must have been

[28] Petitioner Opening Brief at pg. 8
[29] Exhibit 1, Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum
[30] *Id.*
[31] *Id.*
[32] *Id.*
[33] *Id.*
[34] *Id.*

used in the same manner as a BACT control technology."[35] This assertion is wrong. The U.S. EPA has objected to the use of this criteria when evaluating whether a control technology has been achieved in practice. In their May 8, 2015 letter to the San Joaquin Valley APCD providing comments on a proposed winery project, they wrote:[36]

> "EPA is concerned that the District's AIP analysis applies the first criterion [Was the control technology operated in the same manner that would be required by the District if the control technology was required for BACT?] to exclude technologies that have achieved actual emission reductions that would not have otherwise occurred on the ground that the controls were not used during the entire batch fermentation process or as a part of a BACT determination. EPA believes the use of this factor might inappropriately exclude some controls from the achieved in practice determination."

The California Air Pollution Control Officers Association (CAPCOA) BACT Clearinghouse Resource Manual states "there are few objective regulatory criteria to constrain the form of an achieved-in-practice evaluation."[37] The District's BACT Policy & Procedure No. 6100.064.2017 (hereafter "BACT Policy") states that the criteria our District shall use to determine "achieved in practice" is a "proven 'track record' of reliability."[38] As demonstrated by the AIP BACT Memorandum, the records maintained by CCWS for the 2013 to 2016 fermentation seasons show the emissions control systems have track record of reliably controlling ethanol emissions from wine fermentation operations. The fact that the winery requiring the use of the emissions control systems as BACT is the same winery that has been successfully using these same emissions control systems only highlights the fact that the controls have established a proven track record of reliability. The records clearly show that the emissions control systems work, and have been achieved in practice.

The Petitioner mischaracterizes the potential impacts of the achieved in practice determination.

The Petitioner claims that the achieved in practice determination has "a potential impact of hundreds of millions of dollars" and will impose similar requirements on "scores of wineries across California."[39] These claims are presented entirely without citation or basis. They then state the determination will "end any inquiry into the technological feasibility and cost-effectiveness

[35] Petitioner Opening Brief at pg. 9, emphasis added
[36] Exhibit 12, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Project # N-1133347, May 8, 2015
[37] https://www.arb.ca.gov/bact/docs/controltech.htm
[38] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology
[39] Petitioner Opening Brief at pg. 9

of the emissions controls."[40] This statement is speculative. The achieved in practice determination subject to this permit appeal applies to the permit in question. While no class and category limitations were applied to this determination, there is nothing preventing another District (or our District) from analyzing the determination to ensure it is appropriate for other winery projects that trigger BACT in the future. It is up to each Air District to interpret achieved in practice determinations and decide how they apply to BACT requirements in their District. For example, Monterey Bay Air Resources District does not include an achieved in practice element in their BACT definition.[41] To assume that this achieved in practice determination will be applied to all wineries that trigger BACT is conclusionary.

B. Petitioner's arguments that the emissions control systems do not have a proven track record ignores the substantial evidence in this case.

1. Petitioner's argument that the emissions control systems have not been used on all tanks is irrelevant.

The Petitioner argues that "the Emissions Control Systems have not been used on all of the types of tanks at CCWS" and therefore should not be considered achieved in practice.[42] The District argues, however, that the type of tank is irrelevant to the achieved in practice determination. As demonstrated in the District's AIP BACT Memo, the emissions control systems have a proven track record of reliably controlling emissions from wine fermentation, regardless of tank type.[43]

As discussed in Section II.B, the Petitioner incorrectly characterizes the 400-series tanks as "larger" or in some other way different from the other tanks. As demonstrated in the District's AIP BACT Memorandum, the EcoPAS system has been used to effectively control the 400-series tanks. While the NoMoVo system has not yet been used on the 400-series tanks, these tanks are nearly identical to the existing wine fermentation tanks that have been controlled by the NoMoVo system since 2013.

[40] *Id.*
[41] MBARD Rule 207, Section 2.10, https://www.arb.ca.gov/drdb/mbu/curhtml/R207.PDF
[42] Petitioner Opening Brief at pg. 10
[43] Exhibit 1, Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum

Petitioner's argument that the EcoPAS system has not been used on red wine fermentation is incorrect.

The Petitioner also argues that since "the District's 'achieved in practice' determination does not cite any evidence that the EcoPAS system has ever been used at CCWS on red wine fermentation tanks" there is "no basis for assuming, much less determining with precedential effect, that the use of the EcoPAS system for red wine fermentation is 'achieved in practice.'"[44] This argument is without merit. In their own Petition for Review, the Petitioner noted "[t]he EcoPAS system has been used at various times on twenty fermentation tanks, including both older, smaller 100-series **red wine fermentation tanks** and larger 400-series white wine fermentation tanks (tanks 401-405 and 411-415)… Thus, **the CCWS EcoPAS data reflects a mix of fermentation tank sizes and configurations as well as contents**."[45]

The EcoPAS system has been shown to effectively control emissions from wine fermentation operations, regardless of the specific wine type or grape varietal. The system has been used to successfully control ROC emissions from red wine fermentation operations at CCWS[46] as well as other winemaking facilities. A Wine Business Monthly article on the EcoPAS system states:[47]

> "PAS units have been used with fermentations for a wide range of grape varieties, and the process is believed to be practical and beneficial for any fermented variety. Varieties that have been more commonly processed to date include: Pinot Noir, Cabernet Sauvignon, Chardonnay, and aromatic white varieties such as Muscat, Viognier and Riesling."

and

> "Highest yields are from warmer red wine fermentations."

The EcoPAS system is a glycol refrigerated tube-in-shell condenser that controls ethanol emissions by cooling the wine fermentation exhaust stream to condense the ethanol and water exhaust vapors. The U.S. EPA Clean Air Technology Center (E 143-03) Information Transfer and Program Integration Division, Office of Air Quality

[44] Petitioner Opening Brief at pg. 10
[45] Petitioner Petition for Review, at pg. 11, emphasis added
[46] Exhibit 5, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controls on Red Wines, February 21, 2018
[47] Exhibit 14, Wine Business Monthly – EcoPAS Technology Captures Fermentation Volatile Aromas to Enhance Wine Quality, Ted Rieger, April 2017

Planning and Standards concluded in its "Technical Bulletin: Refrigerated Condensers for Control of Organic Air Emissions" (2001):[48] that refrigerated condenser units work more efficiently on emission streams containing high levels of volatile organic compounds.

> "A refrigerated condenser works best on emission streams containing high concentrations of volatile organic emissions. They are less effective on dilute streams (i.e., where there is much more air flow than organic vapor flow)."

As the Petitioner correctly points out, red wine fermentation "produces ethanol emission that are approximately two and a half times higher than emissions from white wine fermentation."[49] Therefore, red wine fermentation exhaust streams will be higher in ROC concentration than white wine fermentation exhaust streams. Pursuant to the Clean Air Technology Center's conclusion, this means that a refrigerated condenser emissions control system such as the EcoPAS system **will achieve higher control efficiencies** when controlling emissions from red wine fermentation as compared to controlling emissions from white wine fermentation.

The evidence is clear. Both emissions control systems have a proven track record of controlling ethanol emissions from wine fermentation, regardless of tank or wine type.

2. Petitioner's argument that the emissions control systems have not been used for a full fermentation cycle is irrelevant and incorrect.

The Petitioner claims "there is no track record of using the Emissions Control Systems, as required by the ATC, to control emissions on any tank for a full fermentation cycle—from start to finish."[50] This claim is both irrelevant and incorrect. As demonstrated in the AIP BACT Memorandum, the control system usage records from CCWS clearly show that both control systems have effectively and reliably controlled ethanol emissions on every day that they were operated.[51] CCWS was never previously required to connect the emissions control systems to tanks at all times of fermentation, and doing so will only collect more ethanol emissions. There are no physical or operational barriers

[48] Exhibit 15, U.S. EPA Clean Air Technology Center Technical Bulletin – Refrigerated Condensers for Control of Organic Air Emissions, December 2001
[49] Petitioner Opening Brief at pg. 2
[50] *Id.* at pg. 11
[51] Exhibit 1, Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum

preventing these systems from being used during a full fermentation cycle. In fact, they have been specifically designed to be used that way.[52] [53] In addition, both the NoMoVo and EcoPAS emissions control systems have been used to control tanks for a full fermentation cycle at CCWS.[54] [55] In short, the District's achieved in practice determination is justified by the track record of use at CCWS.

3. Petitioner incorrectly claims the permit's performance standard is based on speculation.

The Petitioner argues that "the 67.0 percent performance standard that the District has specified is based on speculation—not real-world performance data."[56] This argument is incorrect. As fully explained in Section III.B.4 below, the performance standard was established based on manufacturers' guarantees that were then vetted with actual, real-world performance data from CCWS's operations. The District believes it is a very reasonable performance standard for this type of first generation emission control.

In explaining the basis of the manufacturers' guaranteed performance of 67 percent, the permit application stated "NohBell engineering has a solid understanding of winemaking operations at CCWS and has incorporated that understanding into their estimation of the impacts of the intermittent nature of the capture manifold into their performance guarantee."[57] The consultant that prepared the application now claims that the performance standard was "calculated… during the ATC permitting process as the efficiency necessary to ensure that the CCWS facility remained below the level at which an Air Quality Impact Analysis would be required."[58] This information was never relayed to the District at any time during the permitting process, and had no bearing on establishing the performance standard.

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[52] Exhibit 16, e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE NoMoVo Design, February 24, 2018

[53] Exhibit 17, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS General Design Question, February 21, 2018

[54] Exhibit 3 - e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE NoMoVo Controlling Entire Fermentation Cycle, February 24, 2018

[55] Exhibit 4, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controlling Entire Fermentation Cycle, February 21, 2018

[56] Petitioner Opening Brief at pg. 11

[57] Exhibit 18, ATC 15044 - Public Version Application

[58] Petitioner Opening Brief at pg. 11

4. There is sufficient data indicating that the emissions control systems have achieved the required performance standard.

The Petitioner claims "there is no data from CCWS, or from any other facility, to support a finding that CCWS could or would meet the 67 percent performance standard that the District has required."[59] This claim is simply incorrect.

The manufacturers have guaranteed their systems to achieve the 67 percent performance standard.[60] Source testing of the NoMoVo system has shown it to achieve the 67 percent performance standard.[61] The U.S. EPA's analysis of CCWS operational data determined that both systems have achieved the 67 percent performance standard.[62] The District's analysis on the ethanol capture data from 2014 – 2016 at CCWS shows that the emissions control systems have achieved 50 – 59 percent control when averaged over the entire fermentation season.[63] These control efficiencies were calculated using the amount of ethanol captured as the numerator and the total amount of predicted ethanol emissions for **all fermentation tanks** for the **entire** fermentation season as the denominator. Considering that the emissions control systems were able to achieve this level of control even though they were connected to less than half of the fermentation tanks[64] and only operated during the peak of the fermentation season,[65] the evidence shows that the systems are meeting the 67 percent performance standard. Simply stated, the evidence shows that the systems meet or exceed the required performance standard.

Petitioner erred in asserting the District cannot issue a permit that allows for BACT to not apply during nonstandard operations.

The Petitioner argues that because CCWS identified certain non-standard operations during which the BACT performance standard may not be achieved, the emissions control systems "therefore fails to meet one of the key requirements of the District's BACT Policy."[66] What the Petitioner has failed to recognize, however, is that the District's BACT Policy specifically allows for non-compliance with the BACT performance standard during non-standard operations and

[59] *Id.* at pg. 12
[60] Exhibit 18, ATC 15044 - Public Version Application, pages 34-36 and 68
[61] Exhibit 19, BAAQMD NoMoVo Source Test Results, October 10, 2013
[62] Exhibit 20, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Four Proposed Winery Permits, September 30, 2016
[63] Exhibit 21, CCWS Capture and Control Calcs.xlsx
[64] *Id.*
[65] *Id.*
[66] Petitioner Opening Brief at pg. 12

still satisfy BACT requirements.[67] As required by the BACT Policy, the following non-standard operations have been identified by CCWS and included in the Authority to Construct permit: visual inspections, tank pump-overs, red wine cap breakups, delastage (rack and return) and wine additions.[68] In addition, because compliance with the performance standard will be demonstrated as an average over the entire fermentation season, the 67 percent control BACT performance standard incorporates the non-standard operations identified. This was done to provide the operator the maximum level of operational flexibility. This is more stringent than the District's BACT Policy requires, and renders the Petitioner's argument moot.

Petitioner incorrectly characterizes concerns based on a revoked letter.

In their Opening Brief, the Petitioner cites a letter dated September 5, 2017 from CCWS to the District as evidence that the performance standard was "based more on hope than fact."[69] While the petitioner contends the "record is unclear"[70] regarding this letter, it is clear that Marshall Miller, Vice President of Finance and Operations at CCWS, stated "this letter was sent in error" and "request[ed] it be revoked"[71] due to significant inaccuracies identified by the District in a meeting on September 6, 2017.[72] CCWS resubmitted their concerns in a revised letter, for which both parties concurred was an accurate representation of the concerns addressed in our meetings.[73] Nonetheless, the District maintains that the conclusions drawn by the Petitioner from the revoked letter, namely that "both CCWS and the District were aware that it was uncertain whether the Emissions Control Systems could meet the 67 percent performance standard" are incorrect. The concern presented by CCWS was a mathematical issue only (see Section II.D). The District has never had any concern that the emissions control systems will meet the required performance standard, and nowhere in the record is there evidence to the contrary.

Lastly, the Petitioner cites what could be considered wavering language in the permit application as evidence that the emissions control systems have not met the performance standard.[74] The District

[67] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 8.2.
[68] Exhibit 2, Final Authority to Construct 15044, Condition 2.n.
[69] Petitioner Opening Brief at pg. 14
[70] *Id.* at pg. 15
[71] Exhibit 22, e-mail from Marshall Miller, CCWS to Michael Goldman, SBCAPCD RE Letter regarding CCWS BACT Clarification, September 8, 2017
[72] *Id.*
[73] Exhibit 9, Letter from Marshall Miller, CCWS to Michael Goldman, SBCAPCD RE BACT Calculation, September 13, 2017
[74] Petitioner Opening Brief at pg. 12

noted this language at the time the permit application was submitted, but in an attempt to meet CCWS's requested timelines, focused on the performance guarantees and the historical operational data rather than the language inserted by the consultant.

5. Petitioner incorrectly argues the District's "achieved in practice" determination violates the District's established procedures.

The Petitioner claims that the achieved in practice determination "violates the District's own established procedures."[75] This claim is incorrect. The e-mail correspondence between the District's Engineering Division Manager and the manufacturer of the EcoPAS system cited by the Petitioner is a description of how the District typically transitions a technologically feasible and cost effective BACT determination to an achieved in practice BACT determination. This is very different from an established procedure for how **all** achieved in practice BACT determinations are made by the District. Not only is the description in question not part of an established Policy and Procedure, it does not pertain to the issue at hand; namely the District's determination that the emissions control systems have been achieved in practice. Nowhere in the District's BACT Policy does it state that a control device must be deemed BACT under the technologically feasible and cost effective approach prior to being deemed achieved in practice. As stated in the District's AIP BACT Memorandum[76], this point was made by the EPA in a September 30, 2016 letter to the San Joaquin Valley APCD regarding winery emissions controls:[77]

> "The fact that the source was not required to achieve emission reductions to satisfy a new source review (NSR) requirement and instead used the controls to avoid an applicable requirement, does not factor into the evaluation of whether a specific emission reduction rate has been achieved in practice."

The District's achieved in practice determination subject to this appeal clearly does not violate any established policy or procedure from the District or the U.S. EPA.

[75] *Id.* at pg. 15
[76] Exhibit 1, Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum
[77] Exhibit 20, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Four Proposed Winery Permits, September 30, 2016

C. Petitioner incorrectly states the proposed performance standard is based on a theoretical estimate.

The District disagrees that the performance standard established in the Authority to Construct permit is "based on a theoretical estimate of facility emissions."[78] As explained in Sections III.B.3 and III.B.4, the performance standard is based on the performance guarantees that were provided by the respective system vendors, and vetted by the District with real data from their use at CCWS. The District has determined that compliance with the performance standard can be reliably demonstrated using a "mass-balance" approach, comparing the amount of ethanol collected by the emissions control systems to the amount of ethanol emissions predicted by the emission factors developed by CARB. The CARB emission factors are based on a kinetic model for wine fermentation developed by two professors at UC Davis.[79] Their model has been found to exhibit good agreement with reported experimental measurements.[80] The San Joaquin Valley APCD[81], Monterey Bay Air Resources District[82], and San Luis Obispo APCD[83] all use these emission factors for winery permitting purposes. In addition, the San Joaquin Valley APCD has incorporated these emission factors directly into their wine fermentation rule for calculating fermentation emission reductions.[84]

Petitioner erroneously argues the District cannot designate more than one technology as BACT.

The Petitioner's argument that if one emissions control system performs better than another then that other system is no longer BACT is simply false. To illustrate this point, take for example a facility that triggers BACT for the installation of new boilers. If achieved in practice BACT for the project is determined to be boilers that meet 9 ppmv NOx at 3% O_2, and it is found after the installation of two different boilers that one boiler achieves 8 ppmv NOx at 3% O_2 using technology "X" and the other boiler achieves 5 ppmv NOx at 3% O_2 using technology "Y", both boilers would still be considered BACT and satisfy the BACT performance standard of the permit.

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[78] Petitioner Opening Brief at pg. 15
[79] Exhibit 8, Modeling and Prediction of Evaporative Ethanol Loss during Wine Fermentation,
[80] *See id*. at Conclusions, pg. 242
[81] Exhibit 23 – SJVAPCD Permit No: C-447-330-1, Condition 16
[82] Exhibit 24 - e-mail from Amy Clymo, MBARD to Michael Goldman, SBCAPCD, RE Winery Emission Factors, February 21, 2018
[83] Exhibit 25, e-mail from Gary Willey, SLOAPCD to David Harris, SBCAPCD, RE Winery Emission Factors, February 7, 2018
[84] SJVAPCD Rule 4694 – Wine Fermentation and Storage Tanks, Section 3.16, https://www.valleyair.org/rules/currntrules/r4694.pdf

D. Petitioner's contention that the emissions control systems have not been tested over a sufficient period of time ignores CCWS's data of actual use of the technologies installed and operating since 2013 and 2015.

The Petitioner argues that the emissions control systems have not been operated "for a sufficient time period to make an 'achieved in practice' determination."[85] The Petitioner cites a six-month evaluation period referenced in an EPA letter and a 183 day period contained in a South Coast AQMD Policy as "minimum" time periods to use to establish an achieved in practice determination.[86] The District's BACT Policy sets the achieved in practice criteria as "a reasonable time period."[87] As noted in the District's AIP BACT Memorandum, the District has determined the successful operation of the control equipment for at least one full fermentation season to be a reasonable time period to demonstrate achieved in practice. [88] Operation for a full fermentation season at a seasonally operated winery is effectively equal to one full year of operation at a non-seasonal source. The District therefore determined 80 days of cumulative operation as the reasonable time period for demonstrating achieved in practice, as a full fermentation season typically lasts 60-80 days.

The U.S. EPA and San Joaquin Valley APCD have agreed with the District's determination that successful operation of the control equipment for one full fermentation season is the appropriate time period to determine achieved in practice:[89]

> "For the purposes of evaluating whether the use of this control equipment can be considered [achieved in practice] AIP, the evaluation criteria is whether a source was able to achieve a certain level of control over a reasonable operating period. The District [San Joaquin Valley APCD] and EPA have already agreed that the reasonable operating period is a complete crush season."

It is also important to note that the South Coast AQMD policy referenced by the Petitioner that requires at least 183 days of cumulative operation to be considered achieved in practice is only applicable to "major polluting facilities".[90] In the South Coast AQMD, the "major polluting facility" thresholds are between 10 and 100 tons per year for VOCs, depending on the

[85] Petitioner Opening Brief at pg. 17
[86] *Id.*
[87] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 5.1(a)
[88] Exhibit 1, Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum
[89] Exhibit 20, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Four Proposed Winery Permits, September 30, 2016
[90] Exhibit 26, SCAQMD Best Available Control Technology Guidelines, Overview

air basin of the facility.[91] In all cases, the CCWS facility would be considered a "non-major polluting facility" in the South Coast AQMD, and would therefore be subject to the South Coast AQMD's BACT Policy and Procedures for Non-Major Polluting Facilities.[92] In this policy, the time period standard for achieved in practice is less stringent than the policy cited by the Petitioner:

> "The control technology must have been installed and operated reliably for at least twelve months on a comparable commercial operation. If the operator did not require the basic equipment to operate continuously, such as only eight hours per day and 5 days per week, then the control technology must have operated whenever the basic equipment was in operation during the twelve months."

This policy suggests that the operation of the control equipment for 80 cumulative days (equal to one full fermentation season) would be considered a reasonable time period to demonstrate achieved in practice in the South Coast AQMD.

Lastly, it should be noted that as of the end of the 2017 fermentation season, the NoMoVo system has been operated successfully for 196 cumulative days and the EcoPAS system has been operated successfully for 161 cumulative days at the CCWS facility.[93]

E. Petitioner's speculation on the cost of acquiring and operating the emissions control systems lacks any evidence.

The Petitioner is correct in stating "an 'achieved in practice' determination implies a determination that the emission control is cost effective."[94] The fact that the emissions control systems have been successfully installed and used at the facility without economic detriment to that facility implies the inherent economic feasibility. In conversations with the District and the U.S. EPA, CCWS has stated the use of the emissions control systems at their winery adds approximately $0.33 per case in overall costs.[95] That is less than three cents per bottle. In addition, in an effort to simplify recordkeeping requirements, CCWS voluntarily proposed to install and operate emissions control systems on all of their fermentation tanks, above and beyond the District's BACT requirement to install and operate the systems on the 400-series tanks.[96] CCWS would never choose to install the controls on all of their fermentation

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[91] *Id.*
[92] Exhibit 27, SCAQMD Best Available Control Technology Guidelines Part C: Policies and Procedures for Non-Major Polluting Facilities, Achieved in Practice Criteria
[93] Exhibit 21, CCWS Capture and Control Calcs.xlsx
[94] Petitioner Opening Brief at pg. 18
[95] Statement by Richard Mather, CCWS, to Gerardo Rios, U.S. EPA and David Harris, SBCAPCD, October 4, 2017.
[96] Exhibit 18, ATC 15044 - Public Version Application, page 25

tanks instead of performing additional recordkeeping if the emissions control systems were in any way cost prohibitive to their business.

The Petitioner quotes a San Joaquin Valley APCD response to an EPA comment on a proposed winery permit in their jurisdiction. In this response, the San Joaquin Valley APCD stated that since the Kendall Jackson winery did not incur **any** economic cost from the use of an emission control system, the use of that system at their winery cannot be considered achieved in practice. This point does not apply to the case at hand. Unlike Kendall Jackson, CCWS has leased the emissions control systems in question, and has incurred economic costs due to the use of those systems.[97] The successful use of the emissions control systems at the Central Coast winery is sufficient evidence to find the controls are not cost prohibitive, and are therefore achieved in practice.

The Petitioner has identified a concern that "[t]he leasing of the Emissions Control Systems **may** [emphasis added] provide CCWS with a 'discount' from the fair market costs."[98] The Petitioner provided no evidence that the emissions control systems have been provided at below-market costs and this concern is therefore unsubstantiated. This concern also ignores that the two chosen technologies are well established, are provided by competing vendors, and the underlying technologies are not subject to patent, all of which would discourage the vendors from offering the systems at significantly reduced prices. The District has nevertheless investigated the issue by performing cost effectiveness analyses for the two emissions control systems in question. These analyses follow the District's cost effectiveness calculation procedures as specified in the District's BACT Policy.[99] The analyses use quoted vendor pricing for the purchase of the emissions control systems, actual cost data, where available, from the installations of the systems at the CCWS facility[100] [101], and conservative (higher) cost assumptions when actual cost data was not available. The results of these analyses show that both emissions control systems are cost effective[102] [103] when compared to the District's cost effectiveness thresholds specified in the BACT Policy.[104]

The Petitioner's Opening Brief referenced cost effectiveness analyses prepared by Marianne F. Strange and Associates as evidence that the emissions control systems would not meet cost effectiveness standards and

[97] Petitioner Exhibit 45, Declaration of M. Strange, Section 25
[98] Petitioner Opening Brief at pg. 18
[99] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 7
[100] Exhibit 28, EcoPAS Cost data, January 8, 2018
[101] Exhibit 29, NoMoVo Cost Data, February 14, 2018
[102] Exhibit 30, EcoPAS Cost Effectiveness Calculations
[103] Exhibit 31, NoMoVo Cost Effectiveness Calculations
[104] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 7.2.

therefore could not be considered achieved in practice. The District has reviewed these analyses and found several substantive errors:

- The analyses were performed using South Coast AQMD's Net Present Value method, which is inappropriate for use in Santa Barbara County.[105]

- The analyses were performed assuming all fermentation tanks at CCWS were required to be controlled. This assumption is inappropriate, as the Project only requires BACT for the 400-series tanks.[106]

- The analyses used 10-year equipment lifespans, which are inappropriate and inconsistent with the U.S. EPA's guidance of a 15-year lifespans for refrigerated condensers[107] and wet scrubbers.[108]

- The analyses specified **14 PAS-100 units** and **44 NoMoVo units** for the Project, while EcoPAS has specified **one PAS-100 unit** and NohBell has specified **four NoMoVo units** for controlling the 400-series tanks with a utilization of eight turns red wine per season.[109]

- The instrumentation costs are significantly higher than vendor quoted costs.[110] [111]

- The sales tax, freight, foundation and support, handling and erection, electrical, contractor fees, start-up, contingencies, electricity, overhead and administrative costs are all calculated based on the number of units, and are therefore overestimated.

- The operating, supervising and maintenance labor costs were all highly inflated compared to actual vendor quoted cost data from the operation of the equipment at CCWS.[112] [113]

- Annual source testing costs were included in the analyses even though source testing is not required by the permit.[114]

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[105] *Id.* at Section 7.1
[106] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section 2.7
[107] Exhibit 32, EPA Air Pollution Cost Control Manual, Section 3, Chapter 2, November 2017
[108] Exhibit 33, EPA Air Pollution Cost Control Manual, Section 5.2, Chapter 1, December 1995
[109] Exhibit 28, EcoPAS Cost data, January 8, 2018
[110] Exhibit 28, EcoPAS Cost data, January 8, 2018
[111] Exhibit 34, e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE Additional NoMoVo Cost Data, February 24, 2018
[112] Exhibit 28, EcoPAS Cost data, January 8, 2018
[113] Exhibit 29, NoMoVo Cost Data, February 14, 2018
[114] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation

- Programmable log controller (PLC) programming costs were included in the EcoPAS analysis even though PLCs are not required for the operation of the EcoPAS system.[115]

F. Petitioner has submitted no evidence that the emissions control systems have an adverse effect on wine quality.

The Petitioner raises a concern of possible issues to wine quality as a reason the emissions control systems should not be considered achieved in practice.[116] This potential concern has been disproved by the fact that there are two wineries in Santa Barbara County (CCWS and Terravant) that have operated emissions control systems at their facilities since 2013 and 2008, respectively. Both wineries have operated the controls voluntarily, and certainly would not do so if the equipment were causing issues with the quality of their wines. In addition to producing their own wines, both wineries produce wines for many additional wine brands.[117] [118] None of these wineries or wine brands has ever expressed any concern with the quality of the wines produced by CCWS and Terravant. To suggest without any substantial evidence that the use of emissions control systems may have a negative effect on wine quality is detrimental to the wineries that produce wines at these facilities. To date, no evidence has been submitted to show that these passive emissions control systems have any effect on the quality of wine.

To further emphasize this point, we note that in an effort to simplify recordkeeping requirements, CCWS voluntarily elected to install and operate emissions control systems on all of their fermentation tanks, above and beyond the District's BACT requirement to install and operate the systems on the 400-series tanks.[119] CCWS would never voluntarily operate the controls on all of their fermentation tanks if there was any risk or concern of negative impacts to their clients and the quality of their wines.

The Petitioner states "[w]ines may be affected by bacteria, different types of yeast, and mold, all of which may grow in or be transmitted through the hoses and ducting that connect the Emissions Control Systems to the wine tanks."[120] Ethanol, the main alcohol produced during wine fermentation, is a natural sterilizer.[121] Many wineries use fermentation tanks that are completely open to the atmosphere. All wineries open their fermentation tanks to the atmosphere multiple times throughout the fermentation process. Wineries

[115] Exhibit 35, EcoPAS Comments on SJVAPCD Project #N-1133659, May 5, 2014 at pg. 12
[116] Petitioner Opening Brief at pg. 21
[117] Exhibit 36, Bonded Wineries at CCWS - 12-31-2017
[118] http://www.terravant.com/brandbook/
[119] Exhibit 18, ATC 15044 - Public Version Application.pdf, page 25
[120] Petitioner Opening Brief at pg. 21
[121] Exhibit 37, Disinfection, Sterilization, and Preservation, Fifth Edition, 2001, at pg. 229

already use hoses and ducting similar to that of the emissions control systems for juice transfer, pump-over and wine transfer operations. All of these practices have risks of contamination from naturally occurring yeasts, molds and bacteria, as well as cross contamination from other wine fermentations occurring in the same building, yet they are performed on a regular basis apparently without causing wine quality issues. The emissions control systems and their associated ducting and piping add no new risk of contamination that is not already part of the winemaking process. There is no evidence to suggest the systems, by themselves, have any adverse impact on wine quality.

G. Petitioner incorrectly asserts the District's BACT policy requires source testing to determine BACT.

The Petitioner's argument that the District's BACT Policy requires source testing to be performed is incorrect. As the Petitioner has even noted, the District's BACT Policy states: "[s]ource testing may not be applicable in some BACT determinations and other means of compliance may be used."[122] In this case, the permit is using a mass balance approach as an alternative means of compliance.

The Petitioner cites correspondence regarding a potential U.S. EPA study to develop source testing methods appropriate for wine fermentation. They argue this potential proves that source testing should be required for this permit. The fact is no such source testing methods currently exist, no such source testing methods are currently under development by the U.S. EPA, and the potential for the U.S. EPA to develop them in the future has no bearing on this permit or this BACT determination. As an effective alternative, the District and the permittee have agreed that a mass balance calculation in lieu of a snapshot source test is appropriate for this BACT determination due to the batch nature and variable emission rates of wine fermentation and the specifics in the vendor performance guarantees.

The U.S. EPA has also weighed in on the matter of source testing for winery emissions controls, and agreed with the District's conclusion that a mass balance approach is preferable:[123]

> "due to the batch nature of operation and the non-steady state of the wine fermentation process source testing may not be the best way to accurately measure achieved emissions reductions. Instead, emission calculations using mass-balance may be a better way to measure the actual emissions reductions achieved by the control device."

[122] Petitioner Opening Brief at pg. 22

[123] Exhibit 20, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Four Proposed Winery Permits, September 30, 2016

Lastly, the Petitioner claims that the Supervisor of the Permitting Section failed to waive the requirement for source testing, as required by the District's BACT Policy. This is not true. By signing and dating Section 12.0 - Recommendation of the Permit Evaluation for Authority to Construct 15044[124], the Supervisor of the Permitting Section affirmatively waived the requirement for source testing, as outlined in Section 10 of the BACT Documentation Attachment to the permit. The District also notes that the Petitioner did not raise this issue when it commented on the draft permit.

IV. Petitioner argues that in other Clean Air contexts, "Achieved in Practice" is a high bar; however, this is irrelevant to this case.

In this argument, Petitioner cites a federal Maximum Achievable Control Technology (MACT) standard and tries to apply it to the case at hand.[125] MACT standards are federal air toxics programs that have no relation or bearing whatsoever to a local NSR BACT determination.[126] The Petitioner is correct when they state "this standard does not apply directly to the case before the hearing board."[127]

V. Petitioner continues to cite dated analysis from San Joaquin Valley APCD on determining achieved in practice BACT.

The District has previously addressed the San Joaquin Valley APCD AIP analysis in the response to Item 2-12 of the Wine Institute Comments on the Draft Authority to Construct 15044.[128] As noted in our response, each agency implements their New Source Review program in a fashion that best meets their programmatic designs and goals. The San Joaquin Valley APCD's conclusions were made in 2016, are now dated, and have no bearing on conclusions made for CCWS. Nonetheless, we reviewed the San Joaquin Valley APCD memo, and disagreed with its conclusions.

In addition, on January 23, 2018, the San Joaquin Valley APCD significantly modified its position that the emissions controls have not been achieved in practice. In an e-mail to EPA Region IX, Dave Warner, the Deputy Air Pollution Control Officer at the San Joaquin Valley APCD, wrote:[129]

> "The August 18, 2017, Achieved in Practice BACT determination for fermentation tanks by the Santa Barbara APCD establishes an additional data point that was not available and therefore was not considered in SJV Air District BACT determinations made prior to that date. While BACT determinations by the District are project-by-project determinations that must not be pre-judged, we do

[124] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section 12.0
[125] Petitioner Opening Brief at pg. 23
[126] https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9
[127] Petitioner Opening Brief at pg. 23
[128] Exhibit 2, Final Authority to Construct 15044, Attachment M, Item 2-12
[129] Exhibit 38, Letter from Matthew Lakin, USEPA to Dave Warner, SJVAPCD RE BACT Determinations for Wine Fermentation Tanks, January 25, 2018

agree that Achieved in Practice BACT determinations by other agencies establish a minimum level of control for future BACT determinations. We agree that future BACT determinations by the San Joaquin Valley for projects deemed complete after August 18, 2017, must consider any determination by Santa Barbara, or by other agencies, at the time the SJV District performs the BACT determinations."

This communication shows the San Joaquin Valley APCD has refined its position on achieved in practice BACT for wine fermentation.

VI. Petitioner's criticism of EPA's comments on emission control systems is unduly dismissive and ignores EPA's comments are from the Chief of the Air Permits Office of EPA Region IX.

The Petitioner mentions a series of letters written by "an EPA staff person"[130] that explicitly state the emissions control systems in question have been achieved in practice, at the winery in question no less.[131] This "staff person" is in fact the Chief of the Air Permits Office of U.S. EPA Region IX, with the responsibility of federal oversight for all State programs in 11 States that administer Clean Air Act permitting programs. As an oversight agency of the District, the U.S. EPA's determinations are critically important to any determinations made by the District. The U.S. EPA's input is important, as they bring valuable insight, guidance, expertise and knowledge to these matters.

The facts are clear. The Chief of the Air Permits Office of U.S. EPA Region IX established with irrefutable logic and rationale the fundamental basis of why these existing emissions controls, **at this specific facility**, are indeed achieved practice. The U.S. EPA has not revised or rescinded any of their letters. In fact, the agency followed up those letters with a warning to the San Joaquin Valley APCD that the wineries issued permits without emissions control system BACT requirements may be subject to federal enforcement action if construction is initiated under the permits issued by San Joaquin Valley APCD.[132] This dispute was recently resolved when the San Joaquin Valley APCD backed down from their position that the emissions control systems are not achieved in practice and agreed to consider this achieved in practice determination for all future projects.[133]

[130] Petitioner Opening Brief at pg. 24
[131] Exhibit 20, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Four Proposed Winery Permits, September 30, 2016
[132] Exhibit 39, Letter from Gerardo Rios, USEPA to Dave Warner, SJVAPCD RE Comments on Four Proposed Winery Permits, October 7, 2016
[133] Exhibit 38, Letter from Matthew Lakin, USEPA to Dave Warner, SJVAPCD RE BACT Determinations for Wine Fermentation Tanks, January 25, 2018

VII. Conclusion

Central Coast Wine Services has been using these emission controls at their facility to effectively control ethanol emissions from their wine fermentation tanks since 2013. These controls have been verified to work, and are clearly meeting District criteria for satisfying the achieved in practice criterion for BACT. The U.S. EPA and CARB support the District's determination.

Attachments

A. District Analysis of Declaration of Steven Branoff
B. District Analysis of Declaration of Cristopher Savage
C. District Analysis of Declaration of Marianne Strange

Attachment A

District Analysis of Declaration of Steven Branoff

The following is the District's analysis of the Declaration of Steven Branoff in support of Wine Institute's Petition for Review:

4. Mr. Branoff cites an achieved in practice technical review he participated in while employed at the U.S. EPA as evidence of his relevant experience. This example supports the District's position that the U.S. EPA carefully considers all relevant data when making an achieved in practice determination, as they have done with the winery emissions control systems in question. An achieved in practice determination from the U.S. EPA should be considered well thought out and justified.

13. The District disagrees with Mr. Branoff's conclusion that the emissions control technologies have not been achieved in practice for wine fermentation operations. The District's conclusion that the emissions control systems are achieved in practice is supported by overwhelming evidence and oversight agencies.

15. The four criteria cited by Mr. Branoff as outlined by the U.S. EPA and adopted by the South Coast AQMD into its BACT Guidelines, namely (1) commercial availability, (2) reliability, (2) effectiveness and (4) cost, have all been considered and addressed in the District's Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum.[134]

16. Mr. Branoff's assertion that add-on controls are not considered achieved in practice in SJVAPCD is outdated. See response to item 34 below.

18. Mr. Branoff has incorrectly characterized the study used as the basis for the CARB wine fermentation emission factors. The statement "[t]hese factors were calculated using a model published in a scientific paper, which showed the relationship between fermentation temperature and wine must sugar content"[135] is incorrect. The study correlated the effects of fermentation temperature, sugar content and the presence of a cap of grape skins, among other variables, on the rate of ethanol emissions from wine fermentation.

19. The District disagrees with Mr. Branoff's assertion that the uncontrolled level of ethanol emissions from the CCWS winery has not been accurately calculated. The uncontrolled emissions have been calculated for every day of operation since 2011 using emission factors widely accepted and used throughout California for permitting and compliance demonstration purposes.

20. Mr. Branoff argues that the emissions control systems used at CCWS should not be considered achieved in practice because the performance standard has not been adequately documented. This argument is incorrect. The manufacturers have

[134] Exhibit 1, Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum
[135] Petitioner Exhibit 43, Declaration of S. Branoff, Section 18

guaranteed their systems to achieve the performance standard required by the permit.[136] Source testing of the NoMoVo system has shown it to achieve the performance standard required by the permit.[137] The U.S. EPA's analysis of CCWS operational data determined that both systems have achieved the performance standard required by the permit.[138] The District's analysis on the ethanol capture data from 2014 – 2016 at CCWS shows that the emissions control systems have achieved 50 – 59 percent control when averaged over the entire fermentation season, even though the systems were connected to less than half of the fermentation tanks[139] and only operated on some of the days of fermentation.[140] Considering that the systems were able to achieve this level of control even though they were not being used to control all emissions at the facility, it is clear to the District that the systems have met the performance standard required by the permit. Simply stated, there is ample evidence to show that the systems are meeting the required performance standard.

21. – 22. Mr. Branoff claims that "SBPACD [sic] has not determined the 'most effective' control option" and cites a third technology (the packed bed scrubber at Terravant Wine Company) as possibly being a more effective control option, and therefore BACT for the CCWS project.[141] While it is true that this system has demonstrated a higher level of control than that required by the CCWS permit, it is incorrect to state that the District did not evaluate this technology as a potential for BACT at CCWS. As documented in the District's Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memo, the District determined that the Terravant packed bed scrubber system is achieved in practice for new wineries, and therefore not currently appropriate or feasible for the proposed modifications to the existing wine fermentation operations at CCWS.

23. – 24. Mr. Branoff argues that because the emissions control systems may not have been used for a continuous fermentation cycle on a single tank, and the EcoPAS system may not have been used to control red wine fermentation emissions at CCWS, the systems should not have been determined achieved in practice. These speculative concerns have no bearing on the achieved in practice determination. The control system usage records from CCWS clearly show that both control systems have effectively and reliably controlled ethanol emissions from wine fermentation activities on every day that they were operated. Even if the systems fail to capture and control ethanol emissions on days when they historically would not have been operated (which is highly unlikely), it does not negate the fact that the systems do

[136] Exhibit 18, ATC 15044 - Public Version Application.pdf, pages 34-36 and 68
[137] Exhibit 19, BAAQMD NoMoVo Source Test Results, October 10, 2013
[138] Exhibit 20, Letter from Gerardo Rios, USEPA to Arnaud Marjollet, SJVAPCD RE Comments on Four Proposed Winery Permits, September 30, 2016
[139] Exhibit 21, CCWS Capture and Control Calcs.xlsx
[140] *Id.*
[141] Petitioner Exhibit 43, Declaration of S. Branoff, Section 21

have a proven track record of capturing and controlling wine fermentation emissions. In addition, both the EcoPAS and NoMoVo systems have been used for a continuous fermentation cycle on a single tank and for the control of red wine fermentation at CCWS.[142] [143] [144]

25. No citation or reference is provided for Mr. Branoff's statement suggesting additional testing is required before determining achieved in practice BACT, so therefore it must be considered an opinion. The District, for the reasons explained throughout the entirety of the administrative record for this appeal, disagrees with this opinion.

28. Mr. Branoff asserts that the U.S. EPA letters deeming the subject emissions control systems as achieved in practice are not an enforceable standard. The U.S. EPA "staff"[145] who wrote the letters is in fact the Chief of the Air Permits Office of U.S. EPA Region IX, with the highest level of expertise in NSR and BACT issues in the United States. As an oversight agency of the District, the U.S. EPA's determinations are valued input to any determinations made by the District.

In addition, Mr. Branoff references ongoing discussions between the U.S. EPA and SJVPACD as a reason the U.S. EPA letters are not binding on our BACT determination. Subsequent to Mr. Branoff's Declaration, the discussions between these two agencies were concluded, and SJVAPCD changed their position that the emissions control systems have not been achieved in practice. See response to item 34 below.

29. While it is correct that Santa Barbara County is attainment for federal ozone standards and therefore not subject to federal LAER requirements, it would be remiss to ignore an achieved in practice determination made by an oversight agency. The U.S. EPA's input is very valuable, as they bring the highest level of knowledge and expertise on NSR and BACT matters.

33. Mr. Branoff claims "[t]he achieved in practice BACT determination made by SBCAPCD would therefore require that any new or modified wine fermentation facility in Santa Barbara would require the use of a control device, regardless of cost."[146] This claim is false. Mr. Branoff has incorrectly calculated the daily wine production volume that triggers BACT requirements. His 4,000 gallons of red wine fermentation per day figure is off by a factor of seven, as his calculations do not take into account that the CARB emission factors represent total emissions

[142] Exhibit 3, e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE NoMoVo Controlling Entire Fermentation Cycle, February 24, 2018
[143] Exhibit 4, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controlling Entire Fermentation Cycle, February 21, 2018
[144] Exhibit 5, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controls on Red Wines, February 21, 2018
[145] Petitioner Exhibit 43, Declaration of S. Branoff, Section 28
[146] Petitioner Exhibit 43, Declaration of S. Branoff, Section 33

from a full fermentation cycle, not emissions on a daily basis. The correct production value which triggers BACT requirements is roughly 28,000 gallons per day of red wine (significantly more for white wine). This would eliminate the majority of wineries in Santa Barbara County.

34. Mr. Branoff asserts the SJVAPCD has "not listed these controls as 'achieved in practice' and have rejected this determination in response to USEPA comments."[147] This is not true. In response to the U.S. EPA's September 30th letter, the SJVAPCD wrote:[148]

> "This letter is to inform EPA that the District does not intend to issue [Certificates of Conformity] COCs for these projects. The intent of this commitment is to allow EPA, the District, and other interested parties to work together to resolve these LAER issues so that the District may issue at a later date each facilities' Title V permit without EPA objection."

In addition, after Mr. Branoff submitted his Declaration, the Deputy Air Pollution Control Officer at the SJVAPCD wrote an e-mail to the U.S. EPA stating:[149]

> "The August 18, 2017, Achieved in Practice BACT determination for fermentation tanks by the Santa Barbara APCD establishes an additional data point that was not available and therefore was not considered in SJV Air District BACT determinations made prior to that date. While BACT determinations by the District are project-by-project determinations that must not be pre-judged, we do agree that Achieved in Practice BACT determinations by other agencies establish a minimum level of control for future BACT determinations. We agree that future BACT determinations by the San Joaquin Valley for projects deemed complete after August 18, 2017, must consider any determination by Santa Barbara, or by other agencies, at the time the SJV District performs the BACT determinations."

This concession demonstrates that the SJVPACD has significantly refined its position on whether the emissions control systems in question have been achieved in practice.

The District also disagrees with Mr. Branoff's implication that the achieved in practice determination will eliminate the District's ability to make BACT determinations for wineries on a case-by-case basis. The District reviews all projects that trigger BACT on a case-by-case basis to ensure BACT requirements are appropriate considering the individual operations of the source.

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[147] Petitioner Exhibit 43, Declaration of S. Branoff, Section 14

[148] Exhibit 40, Letter from David Warner, SJVAPCD to Gerardo Rios, USEPA RE Comments on Four Proposed Winery Permits, October 7, 2016

[149] Exhibit 38, Letter from Matthew Lakin, USEPA to Dave Warner, SJVAPCD RE BACT Determinations for Wine Fermentation Tanks, January 25, 2018

35. For the reasons described herein, and throughout the entirety of the administrative record for this appeal, the District disagrees with Mr. Banoff's opinion that the emissions control systems have not satisfied the criteria to be considered achieved in practice.

Attachment B

District Analysis of Declaration of Christopher Savage

The following is the District's analysis of the Declaration of Christopher Savage in support of Wine Institute's Petition for Review:

The District notes that Exhibit A of Mr. Savage's Declaration is a document entitled "Microbiological Concerns Related to Potential Proposed Requirements of Alcohol Emission Fermenter Ducting." There are a few unusual aspects to this document. First, according to the Declaration, it was submitted to the Environmental Protection Agency on September 14, 2017[150], the exact same day Petitioner filed its petition for review before the Hearing Board. Second, there is no listed author on this document. Third, the document is a list of "concerns" and, essentially, fails to provide any substantial credible evidence of any actual impact on wine quality due to using technology like the NoMoVo or EcoPAS to control air pollution during the fermentation process.

Central Coast Wine Services has operated emissions control systems at their winery since 2013. Terravant Wine Company has operated an emissions control system at their winery since 2008. In addition to producing their own wines, both wineries produce wines for dozens of additional wine brands. To date, none of these wineries or wine brands has ever expressed any concern with the quality of the wines produced by these facilities. The document submitted by Mr. Savage is speculative in nature. The emissions control systems in question are passive in operation. They do nothing to effect or alter the fermentation process. There is simply no evidence to suggest that these passive emissions control systems have any effect on the quality of wine.

Ethanol, the main alcohol produced during wine fermentation, is a natural sterilizer. Many wineries use fermentation tanks that are completely open to the atmosphere. All wineries open their fermentation tanks to the atmosphere multiple times throughout the fermentation process. Wineries already use piping and tubing similar to that of the emissions control systems for juice transfer, pump-over and wine transfer operations. All of these practices have significantly higher risk of contamination from naturally occurring yeasts, molds and bacteria, as well as cross contamination from other wine fermentations occurring in the same building.

The main cause of contamination concerns is foam overs. Foam overs are extremely rare in well-operated wineries (CCWS reports one every few years), and occur due to overfilled fermentation tanks. Any winery that experiences foam overs on a regular basis simply needs to properly manage their tank volumes and operations. In the EcoPAS system, a foam-over preventer is incorporated in the system design.[151] The NoMoVo system can include a self clean-in-place feature.[152] If any emissions control system piping is potentially contaminated by foam over, that piping can be isolated and cleaned while the rest of the tanks continue to ferment.

Real world experiential evidence from the use of the emissions control systems at the CCWS facility and other wineries has shown that there are no issues with wine quality or contamination related to the use of the systems. The following vendor statements highlight this fact:

[150] Petitioner Exhibit 44, Declaration of C. Savage
[151] Exhibit 35, EcoPAS Comments on SJVAPCD Project #N-1133659, May 5, 2014, at pg. 6
[152] Exhibit 41, NoMoVo Comments on SJVAPCD Project #N-1133659 - Addendum, May 1, 2014, at pg. 2

EcoPAS - "The system operated from start of harvest through the entire crush (multiple turns, or fermentation cycles) without requiring maintenance of any sort. This is mostly due to the inherent self-cleaning nature of the system, in which the high-ethanol vapor content of the driving gas (CO2) creates an environment that is inhospitable to microbial growth of any sort. In fact, ATP1 testing revealed zero evidence of microbial presence at the end of the harvest season— indicating no contamination within the manifold system."[153]

NoMoVo - "In the 5 years of NoMoVo operations, there has never been an instance of negative impact on wine quality, style characteristics, or cross contamination of wine batches, either when controlling single tanks or multiple tanks with a single control device. The systems are cleaned in place and have demonstrated all industry standards for sanitation."[154]

[153] Exhibit 42, Letter from Patrick Thompson, EcoPAS to Michael Goldman, SBCAPCD, RE Update on Winery Emissions Capture Technology, April 12, 2016
[154] Exhibit 43, NoMoVo Comments on SJVAPCD Project #N-1133659, May 1, 2014, at pg. 2

Attachment C

District Analysis of Declaration of Marianne F. Strange

The following is the District's analysis of the Declaration of Marianne F. Strange in support of Wine Institute's Petition for Review:

6. Ms. Strange's statement "ATC-14350-01 was subsequently superseded by ATC 14632, which required the implementation of BACT controls"[155] is incorrect. ATC 14632 was never issued, and did not supersede 14350-01.

19. – 21. Ms. Strange's example of a thermal oxidizer used in the oil and gas production industry actually supports, rather than detracts from, the District's conclusion that the winery emissions control systems in question should be considered achieved in practice. Thermal oxidizers have a proven track record of successfully controlling waste gas at oilfields, and are therefore considered achieved in practice BACT by multiple Air Districts, CARB and the U.S. EPA.[156] [157] [158] [159] For most oilfield projects triggering BACT, a thermal oxidizer would be required to satisfy BACT requirements. In rare circumstances, under certain limited conditions, a thermal oxidizer may not work to control oilfield waste gas, as described by Ms. Strange's example. The permit applicant will usually demonstrate this incompatibility during the permitting process, and the permitting authority will then deem the controls technically infeasible for that application. This same process can be used by the wine industry in cases where the achieved in practice emissions control systems are not technically feasible due to a particular winery's set of circumstances. Ms. Strange's example demonstrates the achieved in practice controls may not be appropriate for all wineries.

22. Ms. Strange's statement that "These controls have not been used continuously by CCWS throughout a complete fermentation cycle"[160] is incorrect. Both the NoMoVo and EcoPAS emissions control systems have been used to control tanks for a full fermentation cycle at CCWS.[161] [162]

26. Ms. Strange suggests that when calculating the costs of the emissions control systems, chiller system and clean-in-place system costs should be included. This is not correct. Chilled glycol is required for the NoMoVo and EcoPAS systems, however, since CCWS (and most other wineries) already has a glycol chiller

[155] Petitioner Exhibit 45, Declaration of M. Strange, Section 6.
[156] Exhibit 44, SBCAPCD BACT Guideline 1.5.1 - Oilfield Production Flares and Thermal Oxidizers
[157] Exhibit 45, SCAQMD BACT Determination - Enclosed Ground Flare with Clean Enclosed Burner
[158] https://www.arb.ca.gov/bact/bactnew/determination.php?var=988
[159] https://cfpub.epa.gov/rblc/index.cfm?action=PermitDetail.ProcessInfo&facility_id=28425&PROCESS_ID=111865
[160] Petitioner Exhibit 45, Declaration of M. Strange, Section 22.
[161] Exhibit 3 - e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE NoMoVo Controlling Entire Fermentation Cycle, February 24, 2018
[162] Exhibit 4, e-mail from Patrick Thompson, CCWS to Michael Goldman, SBCAPCD RE EcoPAS Controlling Entire Fermentation Cycle, February 21, 2018

system for fermentation temperature control that can be tied in to the systems, it is not necessary to include the purchase price of a chiller in the cost analysis.[163] [164]

A clean-in-place system is unnecessary for the EcoPAS system, as a foam-over preventer is incorporated in and budgeted with the PAS design.[165] A stand-alone clean-in-place system in unnecessary for the NoMoVo systems, as NoMoVo Units can self clean-in-place as an included feature.[166]

27. The cost effectiveness analyses that were included in Ms. Strange's Declaration were performed using the SCAQMD's methodology for conducting cost effectiveness analyses. The SCAQMD's Net Present Value method differs from the District's required Annualized Cash Flow method, and is therefore not applicable in any cost effective determination in Santa Barbara County.

Ms. Strange's statement "The District does not have its own established cost effectiveness thresholds" is incorrect. The District's cost effectiveness thresholds are documented in BACT Policy and Procedure No. 6100.064.2017.[167] These thresholds were in place when CCWS submitted their application for ATC 15044.

30. Ms. Strange speculates that a clean-in-place or redundant manifold system may be required. This speculation is incorrect. A clean-in-place system is not required for either system (see response to item 26 above). A redundant capture manifold system is also unnecessary. As described by CCWS, foam overs are extremely rare at their winery, and only occur every few years. In the rare case of a foam over, the capture line connected to the foamed over tank could be isolated and cleaned, and the emissions control systems and all remaining tanks would still be available for fermentation.

Exhibit A The District has identified the following errors in the cost effectiveness analyses prepared by Marianne F. Strange and Associates:

EcoPAS Analysis:

a. The analysis was performed using South Coast AQMD's Net Present Value method, which is inappropriate for use in Santa Barbara County.[168]

[163] Exhibit 35, EcoPAS Comments on SJVAPCD Project #N-1133659, May 5, 2014, at pg. 4
[164] Exhibit 46, e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE NoMoVo Cooling Demands, February 24, 2018
[165] Exhibit 35, EcoPAS Comments on SJVAPCD Project #N-1133659, May 5, 2014, at pg. 6
[166] Exhibit 41, NoMoVo Comments on SJVAPCD Project #N-1133659 - Addendum, May 1, 2014, at pg. 2
[167] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 7.2
[168] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 7.1

b. The analysis was performed assuming all fermentation tanks at CCWS were required to be controlled. This assumption is inappropriate, as the Project only requires BACT for the 400-series tanks.[169]

c. The analysis specified 14 PAS-100 units for the Project, while EcoPAS has specified a single PAS-100 unit for controlling the 400-series tanks with a utilization of 8 turns red wine per season.[170]

d. The instrumentation costs are significantly higher than vendor quoted costs.[171]

e. The sales tax, freight, foundation and support, handling and erection, electrical, contractor fees, start-up, contingencies, electricity, overhead and administrative costs were all calculated based on the number of EcoPAS units, and were therefore overestimated.

f. Programmable log controller (PLC) programming costs were included in the analysis even though no PLCs are required for the operation of the EcoPAS system.[172]

g. The operating, supervising and maintenance labor costs were all highly inflated compared to actual vendor quoted cost data from the operation of the equipment at CCWS.[173]

h. Annual source testing costs were included in the analysis even though source testing is not required by the permit.[174]

i. The analysis used a 10-year equipment lifespan, which is inappropriate and inconsistent with the U.S. EPA's guidance of a 15-year lifespan for refrigerated condensers[175]

NoMoVo Analysis:

a. The analysis was performed using SCAQMD's Net Present Value method, which is inappropriate for use in Santa Barbara County.[176]

[169] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section 2.7
[170] Exhibit 28, EcoPAS Cost data, January 8, 2018
[171] *Id.*
[172] Exhibit 35, EcoPAS Comments on SJVAPCD Project #N-1133659, May 5, 2014, at pg. 12.
[173] Exhibit 28, EcoPAS Cost Data submitted 1/8/2018
[174] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section
[175] Exhibit 32, EPA Air Pollution Cost Control Manual, Section 3, Chapter 2, November 2017
[176] Exhibit 13, District Policy & Procedure No. 6100.064.2017 – Best Available Control Technology, Section 7.1

b. The analysis was performed assuming all fermentation tanks at CCWS were required to be controlled. This assumption is inappropriate, as the Project only requires BACT for the 400-series tanks.[177]

c. The analysis specified 44 NoMoVo units for the Project, while NoMoVo has specified 4 NoMoVo units for controlling the 400-series tanks with a utilization of 8 turns red wine per season.[178]

d. The sales tax, freight, foundation and support, handling and erection, electrical, contractor fees, start-up, contingencies, electricity, overhead and administrative costs are all calculated based on the number of NoMoVo units, and were therefore overestimated.

e. The operating, supervising and maintenance labor costs were all highly inflated compared to actual vendor quoted cost data from the operation of the equipment at CCWS.[179]

f. Annual source testing costs were included in the analysis even though source testing is not required by the permit.[180]

g. The analysis used a 10-year equipment lifespan, which is inappropriate and inconsistent with the U.S. EPA's guidance of a 15-year lifespan for wet scrubbers.[181]

[177] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section 2.7
[178] Exhibit 29, NoMoVo Cost Data, February 14, 2018
[179] Exhibit 34, e-mail from Ad Verkuylen, NohBell to Michael Goldman and David Harris, SBCAPCD RE Additional NoMoVo Cost Data, February 24, 2018
[180] Exhibit 2, Final Authority to Construct 15044, Permit Evaluation Section
[181] Exhibit 33, EPA Air Pollution Cost Control Manual, Section 5.2, Chapter 1, December 1995

EXHIBIT NO.	DESCRIPTION	BATES NO.
EXH. 1	Achieved in Practice Determination for Wine Fermentation Emission Control Technologies memorandum	0001
EXH. 2	Final Authority to Construct 15044	0026
EXH. 3	E-mail from NohBell to SBCAPCD RE NoMoVo Controlling Entire Fermentation Cycle - 2-24-2018	0153
EXH. 4	E-mail from EcoPAS to SBCAPCD RE EcoPAS Controlling Entire Fermentation Cycle - 2-21-2018	0154
EXH. 5	E-mail from EcoPAS to SBCAPCD RE EcoPAS Controls on Red Wines - 2-21-2018	0155
EXH. 6	SBCAPCD P&P 6100-042-2016 - Managing the SCDP	0156
EXH. 7	District Wine Fermentation, Aging and Storage Emission Calculations - Winery.xlsx	0167
EXH. 8	Modeling and Prediction of Evaporative Ethanol Loss during Wine Fermentation	0168
EXH. 9	Letter from CCWS to SBCAPCD RE BACT Calculation - 9-13-2017	0177
EXH. 10	E-mail from SBCAPCD to USEPA - 9-15-2017	0179
EXH. 11	E-mail from SBCAPCD to CARB - 9-15-2017	0180
EXH. 12	Letter from USEPA to SJVAPCD RE Comments on Project # N-1133347 - 5-8-2015	0181
EXH. 13	SBCAPCD P&P 6100-064-2017 - Best Available Control Technology	0185
EXH. 14	Wine Business Monthly - EcoPAS Technology - April 2017	0199
EXH. 15	EPA Clean Air Technology Center Technical Bulletin - Refrigerated Condensers	0206
EXH. 16	E-mail from NohBell to SBCAPCD RE NoMoVo Design - 2-24-2018	0235

EXH. 35	EcoPAS Comments on SJVAPCD Project #N-1133659 - 5-5-2014	0490
EXH. 36	Bonded Wineries at CCWS - 12-31-2017	0513
EXH. 37	Disinfection, Sterilization and Preservation - pg 229	0514
EXH. 38	Letter from USEPA to SJVAPCD RE BACT Determinations for Wine Fermentation Tanks - 1-25-18	0515
EXH. 39	Letter from USEPA to SJVAPCD RE Comments on Four Proposed Winery Projects - 10-7-2016	0517
EXH. 40	Letter from SJVAPCD to USEPA RE Comments on Four Proposed Winery Projects - 10-7-2016	0518
EXH. 41	NoMoVo Comments on SJVAPCD Project #N-1133659 - Addemdum - 5-1-2014	0520
EXH. 42	Letter from EcoPAS to SBCAPCD RE Update on Winery Emissions Capture Technology - 4-12-2016	0522
EXH. 43	NoMoVo Comments on SJVAPCD Project #N-1133659 - 5-1-2014	0524
EXH. 44	SBCAPCD BACT-Guideline-1.5.1	0538
EXH. 45	SCAQMD BACT Determination - Enclosed Ground Flare with Clean Enclosed Burner	0539
EXH. 46	E-mail from NohBell to SBCAPCD RE NoMoVo Cooling Demands - 2-24-2018	0543