BAY AREA
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APPENDIX F

Response to Comments Summary

Summary of Comments and Response on the Regulatory Package for Proposed New Regulation 13: Climate Pollutants, Rule 5: Industrial Hydrogen Plants and Proposed Amendments to Regulation 8: Organic Compounds, Rule 2: Miscellaneous Sources

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Comment Period Ending March 10, 2022

List of Commenters

The following table lists the individuals and organizations from whom Air District staff received written comments prior to the March 10, 2022, comment deadline.

Commenter	Contact Information
Air Products and Chemicals, Inc. (Air Products)	Scot Govern Senior Principal Environmental Specialist Letter, March 10, 2022
Chevron Products Company (Chevron)	Laurie Mintzer Senior Environmental Permitting Specialist Letter, March 10, 2022
Davidson, Charles (C. Davidson)	Charles Davidson Private Individual Letter, March 9, 2022
Holtzman, Jed (J. Holtzman)	Jed Holtzman Private Individual Letter, March 10, 2022
Martinez Refining Company (MRC)	Richard Shih Senior Environmental Engineer Letter, March 10, 2022
Rosenblum, Stephen (S. Rosenblum)	Dr. Stephen Rosenblum, Ph.D., Chemistry Private Individual Email, February 19, 21, March 9, 2022
Valero Refining Company (Valero)	Taryn Wier Manager, Environmental Engineering Letter, March 10, 2022
Western States Petroleum Association (WSPA)	Kevin Buchan Senior Manager, Bay Area Region Regulatory Affairs Letter, March 10, 2022

General Comments

References to Previous Comments or Comments Submitted by Others

Comment: Several commenters referred to comments submitted previously in relation to earlier versions of draft regulatory language or Workshop and Staff Reports. Three industry representatives expressed support for the comments provided by WSPA.

Air Products, Chevron, MRC, Valero, WSPA

Response: The Air District reviewed previously submitted comments as referenced in current comments. The text of Proposed New Regulation 13: Climate Pollutants, Rule 5: Industrial Hydrogen Plants (Rule 13-5) has changed over time, in part in response to comments received earlier in the rulemaking process. To the extent any of these comments are germane to the current version of the documents and proposed regulatory language, they are addressed herein. The Air District acknowledges the support of Chevron, MRC, and Valero for all comments made by WSPA.

Comment Period

Comment: The commenter expressed concern that the final rule package was published with insufficient time to integrate substantive public comment, and the belief that this is the first opportunity to comment on the specifics of the Rule 13-5.

J. Holtzman

Response: The written comment period for this rule development is based on statutory requirements set forth under the California Environmental Quality Act (CEQA), which is a 45-day comment period for a Draft Environmental Impact Report (Draft EIR). For rules that do not require an EIR, the customary written comment period is typically 30 days, although this is not statutorily required. Throughout the development of this proposed regulation over the last three years, the Air District provided multiple opportunities for stakeholders to review and comment on draft concepts, draft rule language, and associated reports.

Existing Conditions Baseline

Comment: The commenter questioned the use of data from 2019 as representative of "existing conditions" of Bay Area air pollution in Table 3.2-2 of the Draft EIR and suggests that data from 2020 would be more appropriate as it is now 2022.

WSPA

Response: The economic impacts resulting from the COVID-19 pandemic and subsequent economic slowdown render more recent data (2020 in particular) nonrepresentative of normal operating conditions. Rule 13-5 relies on a three-year period of 2016 through 2018 for baseline conditions which is most representative of recent normal operations.

Basin-wide Methane Strategy

Comment: The commenter requested that the Air District recommit to pursuing a Basin-Wide Methane Strategy as originally proposed in the 2017 Clean Air Plan and suggested that Air District actions to date have been inadequate to address methane emissions in the Bay Area.

J. Holtzman

Response: The comment is noted. Rule 13-5 is the first Rule proposed as part of the Basin-Wide Methane Strategy. An important step in advancing the Basin-Wide Methane Strategy is securing approval of this Rule by the Air District Board of Directors. Additional methane-

reduction efforts that the commenter would like to occur in the Bay Area Air Basin are beyond the scope of this rulemaking effort.

Alternative Compliance Plan (ACP)

Comment 1: Two commenters requested that the ACP be expanded to include other greenhouse gas (GHG) reductions accomplished outside of the hydrogen plant from other parts of refinery operations or even offsite reductions. One asked to substitute non-methane GHG reductions greater than the 20 percent as provided in Rule 13-5 with emissions averaged over a three-year period. The other commenter sought clarification that emissions from deaerator vents and carbon dioxide vents are not part of the baseline emissions determination.

MRC, WSPA

Response 1: Rule 13-5 is being proposed to reduce methane and other organic compound emissions from hydrogen plants. Air District staff added the ACP option in Section 13-5-303 to provide additional flexibility that will enable hydrogen plant owners and operators to achieve methane reductions equivalent to those that would result from compliance with Section 13-5-301, and to provide a compliance approach that would likely eliminate the need for a flare. Air District staff believes that the compliance flexibility components of Rule 13-5 should be limited to emissions reductions that can be achieved within the hydrogen plants. In addition, some independent hydrogen plant operators do not have the ability to require non-methane GHG (ostensibly carbon dioxide) emission reductions from the refineries they serve. To apply the Rule consistently to all potentially affected facilities, the non-methane GHG allowance should be limited to sources at the hydrogen plant since this the source to which this Rule applies. Rule 13-5 allows for but does not require operators to reduce up to 20 percent of the required methane reductions in the form of other GHGs, including carbon dioxide, exchanged on an equivalent basis. This is a form of regulatory flexibility intended to facilitate compliance; it is appropriate for the Rule to limit these substitutions to conditions on where those reductions originate at a proportional limit to ensure that methane emissions reductions remain the primary focus of the Rule. Averaging emissions reductions over longer time periods could potentially lead to excessive short-term emissions and bring unnecessary complexity to implementation and enforcement of the Rule.

As previously discussed, Air District staff established the baseline methane emissions as the average of years 2016, 2017, and 2018. These emissions data do not include emissions from deaerator vents or carbon dioxide vents and these vents would not be included in the methane emissions inventory used to determine the baseline for Section 13-5-403.

Comment 2: One commenter suggested that the emissions standards of Rule 13-5 be replaced with a hydrogen venting minimization plan, pointing to refinery emissions reductions achieved through use of flare minimization plans in compliance with Air District Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Refineries. The commenter believes that building the Rule around a hydrogen venting minimization plan would result in less impact to the environment without the need for a flare and refers to previous comments to the Air District both written and verbal to this effect.

Valero

Response 2: Rule 13-5 was modeled on Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations (Rule 8-2) by setting maximum emission limits for uncontrolled sources of methane. The Air District has also included the ACP option in Section 13-5-303 to provide additional flexibility to achieve methane reductions equivalent to those that would result from compliance with Section 13-5-301, and to provide a compliance approach that would likely eliminate the need for a flare. A hydrogen venting minimization plan may serve as all or part of the ACP so long as it complies with all of the requirements of the Rule, including the 90 percent equivalent emissions reduction criteria. Requiring a minimum level of emissions reductions is necessary to achieve the purposes of the Rule.

Further, a minimization plan would not necessarily ensure a specific level of emission reduction that the Proposed Rule requires and would also necessitate that the affected facilities draft plans and Air District staff review and approve those plans and then the facilities comply with the elements of said plans. This level of effort is not necessary to reduce methane to the extent the emissions standards of Rule 13-5 require.

Comment 3: One commenter suggested that the ACP is unwarranted and asked that it be removed from Rule 13-5, and one commenter objected to any substitution of longer lived GHGs for methane.

J. Holtzman, S. Rosenblum

Response 3: The Air District statutory authority allows consideration of alternative means of compliance to achieve equivalent emissions reductions. The option set forth in Section 13-5-303 achieves this goal by allowing the affected facilities the opportunity to achieve equivalent emissions reductions with greater flexibility while potentially avoiding the construction of flare as the means of control. The detailed calculation demonstrating the equivalency will be included in the final Staff Report. Although the ACP allows for up to 20 percent substitution of other longer lived GHG emissions reductions, these reduction amounts would be subject to global warming potential (GWP) conversion as proscribed in the Rule. For example, 34 tons of carbon dioxide would need to be reduced as a substitution of one ton of methane reduced.

Comportment with State and Federal Programs

California's Cap-and-Trade Program (Cap-and-Trade)

Comment: One commenter questioned if the 20 percent GHG substitution provisions of the ACP option, as detailed in Section 13-5-303 of Rule 13-5, would conflict with Cap-and-Trade limitations on Air District authority to regulate carbon dioxide, as set forth in California Health & Safety Code Section 38594(b), the California Global Warming Solutions Act of 2006.

S. Rosenblum, WSPA

Response: Section 13-5-303 includes an allowance for methane emissions to be offset up to 20 percent by other GHG emission reductions. This option is not specifically limited to carbon dioxide, and is a voluntary option, not a requirement of the Rule. Rule 13-5, therefore, does not directly regulate carbon dioxide, but rather provides additional regulatory flexibility to comply

with its required methane reductions. Section 38594(c)(1) of the California Health and Safety Code provides that the Air District retains authority to adopt a rule for purposes other than to reduce carbon dioxide from sources subject to a market-based compliance mechanism adopted by the state board. Thus, Section 13-5-303 does not violate Section 38594(b) of the California Health & Safety Code.

Intergovernmental Panel on Climate Change (IPCC) guidance

Comment: One commenter suggested that Rule 13-5 is in conflict with or is contradictory to existing State and federal regulations so as to violate statutory guidelines for consistency, and that Rule 13-5 represents an example of a "problematic" or "ineffective" regulation as identified by the IPCC. The commenter further suggests that societal benefits of GHG reductions will be offset by other emissions within Cap-and-Trade and suggests language from the IPCC on sub-national programs be included in the final draft Staff Report for Rule 13-5.

WSPA

Response: As an initial matter, it should be noted that, while all current industrial hydrogen plants within the Air District's jurisdiction are affiliated with refineries and subject to Cap-and-Trade, it is possible that future stand-along hydrogen plants that are subject to Rule 13-5 may not be Cap-and-Trade sources. It should also be noted that Section 38594(c) of the Health & Safety Code explicitly affirms air districts' authority to adopt GHG reduction rules, so long as they do not regulate carbon dioxide from Cap-and-Trade sources. Further, while the IPCC recognizes there are concerns with local/sub-national regulation, it also recognizes that the benefits can outweigh these concerns.

Moreover, Air District staff believes the commenter has mischaracterized Rule 13-5 with respect to the referenced IPCC report, as Rule 13-5 actually complements Cap-and-Trade by demonstrating that early reductions can be achieved that may accelerate progress needed to address climate change. The Staff Report recognizes that the Rule could result in the generation of carbon offset credits that could be sold on the market; this is one of the benefits of Rule 13-5 and the sale of these credits could help to offset the cost of compliance, although this potential cost benefit was not included in the cost analysis. While the operators of the facilities that reduce methane emissions can translate those reduction into credits on the market, these credits would still be subject to discount provisions as the overall cap declines over time as is required under Cap-and-Trade.

Additionally, notwithstanding commenter's characterization of the referenced IPCC report, it also speaks to potential beneficial interactions of local efforts with broader jurisdictional efforts, such as Cap-and-Trade. In the subsection just prior to the one referenced by the commenter; the IPCC report states: "Policies introduced by a local jurisdiction sometimes reinforce the goals of efforts undertaken at a higher jurisdictional level. In particular, a sub-national policy can enhance cost-effectiveness if it addresses market failures that are not confronted by a national climate policy."[i] This is the case here, as Cap-and-Trade does not specifically target methane – a long-lived GHG – reductions that can be achieved from industrial hydrogen plants. The same subsection goes on to state that "Local-level action can also be a good source of information by allowing experimentation… Thus, an appealing feature of local-level actions are their ability to

try out policy options not currently in place at the higher jurisdictional level; the higher jurisdiction may have more confidence in introducing a policy subsequently if it already has a successful track record at the more local level." This is the case with Rule 13-5 because it provides a model for the types of regulations that can reduce GHG emissions within the larger Cap-and-Trade framework. Further, compliance with Rule 13-5 has been demonstrated to be cost effective, as demonstrated by the other five hydrogen plants that have provided the Air District with information indicating they would be in compliance with the emissions limits of Rule 13-5.

The IPCC report also points out that "…local policies can produce beneficial strategic interactions. If national policy is insufficiently stringent, a stringent state / province or even municipal policy may create pressure on the national government to increase its own policy's stringency. Goulder and Stavins (2011) cite the example of California, which repeatedly increased the stringency of its local air pollution standards and was repeatedly followed by the federal government increasing Clean Air Act regulations' stringency." The Air District often leads the State in the control of various air pollutants, and Rule 13-5 is an example of that leadership. Rule 13-5 comports with the State's Climate programs while achieving early reductions of GHGs and other pollutants.

Thus, contrary to commenter's suggestion, Rule 13-5 is not an example of what the IPCC considers a "problematic" or "ineffective" regulation, but rather is the type of local regulation that beneficially interacts with a state-level program like Cap-and-Trade.

Global Warming Potential (GWP)

Comment: Commenters suggested that the Air District should use different values for the GWP of methane when determining carbon dioxide equivalent emissions and reductions, and some pointed to inconsistent use of methane GWP values in the Staff Report for Rule 13-5. Commenters stated that the IPCC's fifth assessment report (AR5) suggests that various metrics and time horizons can be used to compare the contributions to climate change from emissions of different substances and AR5 provides a methane GWP of 34 when considering a 100-year time horizon and a methane GWP of 86 when considering a 20-year time horizon. Commenter noted that AR5 further states that "No single metric can accurately compare all consequences of different emissions and all have limitations and uncertainties". One commenter suggested that the Air District use a value of 86, and another suggested that the Air District use a value of 25 citing federal and State programs.

C. Davidson, WSPA

Response: The Air District appreciates the comment regarding inconsistent use of GWPs and clarifications are now provided in the final Staff Report. Schedule T of Air District Regulation 3: Fees sets the GWP for methane at 34. The Air District believes that this is the most appropriate GWP value to use as it will ensure internal consistency with our other climate protection programs. As noted in the submitted comments, AR5 recommends the use of 34 as the 100-year time horizon GWP for methane. In its fourth assessment report (AR4), the IPCC provided a GWP value of 25 for methane. This value is only used for the 2000-2019 emission

inventory in the Staff Report for Rule 13-5. None of the clarifications made in the Staff Report regarding GWP affect the analysis or conclusions associated with this rulemaking process.

California Environmental Quality Act (CEQA)

Draft EIR Calculations

Comment: Commenters raised several questions related to emission calculations provided in the Draft EIR. One commenter suggested that supplemental fuel may be required for flaring during startup or other times of low heating values of vent streams and asked the Air District to address concerns regarding the low heating value of hydrogen and how this might affect its use in fuel gas recovery systems. A second commenter echoed the former point in relation to "idealized vent streams" and further questioned the source, consistency, and veracity of emission factors used for the calculations.

MRC, WSPA

Response: Air District staff believes that supplemental gas usage due to startup and shutdown events will be negligible in comparison to the overall natural gas usage for pilot and purge gas for several reasons. First, industrial hydrogen plants generally operate in conjunction with a refinery and is a continuous process with infrequent startup and shutdowns; this is true in general of hydrogen production operations. The infrequency of start-up and shutdown was supported by historical operational data provided by one of the refineries. Second, 40 CFR Section 63.670 allows assignment of a heat content that is higher than the actual measured heat content of hydrogen based on the high combustibility and flame stability of hydrogen flames which would minimize the necessity of supplemental gas during flare operations. Third, the Air District has not received any operational data that indicate the necessity of supplemental gas during these operational scenarios.

The emissions associated with purge gas are included in the Draft EIR calculations. The purge gas rate was provided by a flare equipment manufacturer.

In the Draft EIR, routing of excess hydrogen to a fuel gas recovery system is presented as one of the potential approaches that hydrogen plant owners or operators may implement to comply with Rule 13-5 since this is a known method implemented in practice to mitigate the total organic compound emissions from a hydrogen plant. In addition, the environmental impact analysis is based on installation of new flares, which provides the worst-case scenario environmental impact, and is not based on routing of excess hydrogen to a fuel gas recovery system. Lastly, Rule 13-5 does not require the operation of a flare and only requires that the owner and/or operator comply with the emission standards in Rule 13-5. Thus, the emissions calculations in the Draft EIR represent a worst-case scenario and actual emissions associated with implementing Rule 13-5 might be much lower.

As for the particulate matter (PM) emissions calculation, Air District staff has determined that the PM emissions are expected to be lower than a typical refinery flare since the sulfur typically contained in a refinery flare vent gas is not expected to be present in the feed to the hydrogen plant as the feeds to the hydrogen plants are treated to remove sulfur to avoid catalyst poisoning

upstream. Given that sulfur is a precursor to PM, the emission factor for light smoking petroleum flare was used when calculating PM emissions and most likely overestimates those emissions.

Draft EIR Project Objectives

Comment: One commenter believes Rule 13-5 to be in violation of CEQA because it does not meet the objectives identified in the Draft EIR: namely, to reduce emissions of GHGs as well as other organic compounds associated with operation of industrial hydrogen plants, and to assist the Air District in meeting its policy goal of reducing GHG emissions to 40 percent below 1990 levels by 2030. The commenter further states that the Air District has not adequately addressed impacts arising from control measures needed to comply with the Rule or evaluated mitigation of these impacts, and that implementation of the Rule will not comply with Cap-and-Trade and therefore violates CEQA.

WSPA

Response: Air District staff believes the Draft EIR fully evaluates the environmental impacts associated with controls required to meet the emissions standards of Rule 13-5 and includes a thorough discussion of potential mitigation measures to address these impacts. With respect to potential air quality impacts, the Draft EIR acknowledges that NOx emissions are potentially significant, notwithstanding the implementation of feasible mitigation measures. The Board of Directors of the Air District will consider whether these impacts are outweighed by the reductions in VOCs and GHGs that will result from adoption of Rule 13-5. With respect to GHG emissions, as stated on page 3.3-20 of the Draft EIR, "the emission reductions from Proposed Rule 13-5 are expected to greatly exceed the potential increase in GHG emissions, resulting in a beneficial impact on climate change." Thus, Rule 13-5 will achieve the objectives identified in the Draft EIR and will assist in meeting Air District policy goals. Regarding compliance with Cap-and-Trade, please see the response on that subject in the previous section on Comportment with State and federal Programs: IPCC Guidance.

Cost Estimations

Socioeconomic Impact Analysis Calculations

Comment: Commenters questioned the assumed costs for monitoring and control equipment and asserted the Air District erroneously calculated the annualized costs of controls, and improperly differentiated between capital and annual costs in the totals provided for the report.

MRC, WSPA

Response: Air District staff has reviewed the calculations provided by commenters and made appropriate revisions. Monitoring costs have been revised based on the assumption that a facility operator is required to obtain daily samples via manual sampling. The monitoring requirements in Sections 13-5-501, 502, and 504 do not require continuous analyzers, which was assumed for the cost figure cited in the comment, although the installation of a continuous analyzer in lieu of daily manual sampling is an acceptable method of monitoring to comply with Sections 13-5-501, 502, and 504. Calculations have been revised to include a capital recovery factor, a tax factor, an

insurance factor, general and administration costs, and operating and maintenance costs. The revised cost will be included in the Final Staff Report and Socioeconomic Impact Analysis report.

With the revised cost calculation, the total annual compliance cost for all facilities combined ranged from about $15.32 million to $17.65 million. This represents 1.9 to 2.2. percent of the estimated net income of the affected facilities combined. For the Valero and PBF Energy plants, which require major capital expenditures, the upper range costs represent 3.7 and 4.9 percent of net income, respectively. For the Air Liquide plant, which is a smaller facility, the annualized monitoring costs represent 7.6 to 11.3 percent of estimated net income.

The upper end cost estimate range may represent costs exceeding the ten percent threshold of significance for the Air Liquide plant. While the high-end estimate should be considered a worst-case scenario and costs may be substantially lower than this estimated figure, potential impacts associated with costs above the threshold of significance were estimated. Of particular concern under the California Health and Safety Code would be the potential for lost jobs at the plant to compensate for the impact to net income. At $270,000 per year, the upper end impact is about $30,000 above the 10 percent impact threshold. The average salary and benefits for workers in the gas production industry in California is $92,300. The cost impact, therefore, represents less than a third of the cost for one employee at Air Liquide. Thus, the Air District staff concludes that it is unlikely the company would choose to reduce employment to mitigate this impact.

The potential cost mitigation that may result from carbon credits were not included in the cost calculation. Carbon credits allow for business operations that generate carbon emissions to offset those impacts by trading credits with other activities that reduce, remove, or avoid greenhouse gas emissions. Applied to the proposed reduction of 2,504 tons of methane (equivalent to 85,119 tons of carbon dioxide based on a 34 GWP for methane), this would result in a carbon credit value ranging from $1.3 million to $2.1 million. The compliance cost may be lower than the values presented in the Socioeconomic Impact Analysis report since these costs may be offset by the carbon credits generated through the greenhouse gas emissions reductions.

Staff Report Calculations

Comment: The commenter identified arithmetic errors in the hypothetical example calculation provided to demonstrate the alternative methane and other GHG emissions standard option of Section 13-5-303.

S. Rosenblum

Response: The Air District notes the comment and the example calculations are revised to address the errors in the final version of the Staff Report. These errors and their correction have no bearing on any other calculations or conclusions drawn in the Staff Report.

Regulatory Language, General

Description and Applicability

Comment: The commenter suggests changes to rule language to clarify that the emission limits in Rule 13-5 only apply to atmospheric vents "in industrial hydrogen plants" and asks that an exemption from Rule 13-5 be provided for atmospheric vents controlled by flares, oxidizers, or other means of collection.

Valero

Response: The definition of atmospheric vents makes clear that abated vents would not be subject to emission standards or monitoring requirements. Emissions from and monitoring of abated sources of emissions are subject to Air District permit conditions and, as long as the abatement device operates within permitted parameters, such vents would not be subject to the emissions standards or monitoring requirements of the Rule.

Limited Exemption from Monitoring Requirements

Comment: The commenters requested limited exemptions from monitoring requirements for atmospheric vents operating in specific conditions. One commenter asked for an exemption for atmospheric vents that are used infrequently and only for a few days at a time. Another commenter requested an exemption from monitoring when an atmospheric vent is uncontrolled during maintenance of an abatement device and another proposed periodic source testing in place of monitoring during startup, shutdown, and emergencies. Another asked that monitoring not be required if a vent is abated. Finally, one commenter asked for an exemption for atmospheric vents associated with high purity hydrogen streams, such as those involved with production and delivery systems for fuel cell electric vehicle grade hydrogen. This commenter also asked for verification that small-scale hydrogen plants were exempt from monitoring requirements of the Rule so long as recordkeeping requirements are met to verify the hydrogen capacity limits found in Section 13-5-105.

Air Products, Chevron, MRC, Valero

Response: Air District staff does not believe that an exemption for infrequently used atmospheric vents is warranted. Detailed emissions information has not been presented to the Air District to demonstrate that these sources would have only a minimal contribution to emissions of total organic compounds. Similarly, Air District staff does not believe an exemption for atmospheric vents during startup, shutdown, and maintenance of an abatement device, or in emergency situations is warranted without detailed emissions information supporting such exemptions. In the event that the operator of a facility is unable to comply with the Rule requirements due to matters beyond their control, relief may be sought through the variance process before the Air District Hearing Board. Abated vents would not be vented directly to the atmosphere and, therefore, would not be subject to monitoring requirements. If sources can be shown to emit less than the emission limits set forth in Section 13-5-301, then they would be considered in compliance with the Rule. High purity hydrogen streams would not likely exceed the standard of 300 parts per million (ppm). For monitoring of these streams, the

facility may present the engineering means of verifying the purity of these streams as an alternative method which may be approved by the APCO as sufficient. The Final Staff Report has been revised to provide clarification on this issue. Regulatory language has been modified to clarify that small-scale industrial hydrogen plants are exempt from the requirements of Rule 13-5 so long as records are maintained pursuant to Section 13-5-506.3.

Exemption for Short Term Releases from Specific Atmospheric Vents

Comment: The commenter requested the addition of an exemption from the requirements of the Rule for a vent that is utilized during startups and shutdowns that is primarily steam and so infeasible to combust. Cooling down the steam to remove water is feasible but would produce an elevated risk of corrosion.

Valero

Response: Before an exemption could be considered for such a vent, Air District staff would have to understand the nature of these emissions, and also determine that there was not a cost-effective means for addressing any total organic compound emissions from these vents. Such information has not been provided to Air District staff. Thus, the requested exemption is not warranted.

Exemption for Startup, Shutdown, and Maintenance Conditions

Comment: One commenter stated that without an exemption from startups, shutdowns and maintenance, their facility would need to run a flare constantly in anticipation of infrequent emergency and shutdown scenarios. Other commenters asked for an allowance for maintenance periods of control devices which would typically be of short duration.

MRC, Valero, WSPA

Response: The emission limits of Rule 13-5 are fashioned largely on those of Rule 8-2 which was adopted in 1980 and limits emissions of total carbon to 15 pounds per day and 300 ppm without an allowance for startup and shutdowns. Air District staff believe that if hydrogen plant owners and operators subject to Rule 8-2 are capable of meeting its emissions limit at all times, then hydrogen plant owners and operators should similarly be able to meet the emissions limits of Rule 13-5, regardless of the means of control. Affected facility operators are responsible for ensuring compliance with those emissions limits regardless of the method of control employed. This is the case with the control of other air pollutants and should be the case under this Rule. With respect to maintenance of control devices, in the event that the operator of a facility is unable to comply with rule requirements due to matters beyond their control, relief may be sought through the variance process before the Air District Hearing Board.

Exemption from Regulation 12, Rule 12 for Hydrogen Flares

Comment: The commenter requests that the requirements of Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Refineries (Rule 12-12) not apply as a result of flaring to meet the requirements of Rule 13-5.

MRC

Response: The provisions of Rule 12-12 are beyond the scope of this rulemaking effort, and determinations such as those proposed are more appropriately made at a permitting level. In the past, Air District staff have made the determination that a hydrogen flare is exempt from the requirements of Rule 12-12 when there is no potential of refinery fuel gas flaring. Such a determination requires extensive review of facility plans and would be part of the routine evaluation of an operating permit for such a flare.

Regulatory Language, Definitions

Atmospheric Vent

Comment: One commenter found the definition to be overly broad to the extent that it would include all vents regardless of total organic compound content, even those with low methane levels. The commenter believes that atmospheric vents should be defined as only those that vent total organic compounds including methane. Several commenters suggested revisions to the definition to ensure that emissions from abatement devices such as flares or other combustion sources are not subject to the emissions standards of Rule 13-5, or to explicitly exclude vent streams routed to a control device or gas recovery device.

Air Products, MRC, Valero, WSPA

Response: At the onset of this rule development effort, Air District staff had limited understanding of the nature of the emissions from atmospheric vents located at hydrogen plant. The characterization of the emissions from these vents is vital to crafting a well-developed rule. Further, understanding whether material vented from any potential source of emissions that may have an impact on air quality is within the Air District's jurisdiction. In addition, the monitoring requirements for carbon dioxide and deaerator vents allow for the operator to request a decrease in the monitoring frequency after eight quarterly samples have been taken.

The definition of atmospheric vents makes clear that abated vents would not be subject to emission standards or monitoring requirements. The text of the Draft Staff Report erroneously stated that abated vents were subject to the emissions standards and monitoring requirements of the Rule; this has been corrected in the Final Staff Report. Abated vents would require an Air District permit and so long as the abatement device operates within permitted parameters, it would not be subject to the emissions standards or monitoring requirements of Rule 13-5.

Industrial Hydrogen Plant

Comment: One commenter requests that the definition be changed to remove delivery systems, compression operations, and tail gas from the definition of "Industrial Hydrogen Plant." Another asks if Rule 13-5 will apply to hydrogen production independent of a refinery.

S. Rosenblum, Valero

Response: The first commenter may be referring to a previous draft of Rule 13-5. As currently proposed, an Industrial Hydrogen Plant is defined as a comprehensive hydrogen operation that includes all operations that produce hydrogen via steam-methane reformation and the delivery

and distribution system to downstream consumers (including compression operations). It does not include tail gas and the "boundary" ends at that downstream consumer unit. Air District staff believes monitoring and controlling any atmospheric vents contained within this boundary is reasonable. Rule 13-5 applies to any hydrogen plant utilizing the methane-steam reformation process and that has a daily hydrogen production rate of 20 tons or more, regardless of whether it is located at a refinery.

Organic Compound and Total Organic Compounds

Comment: The commenter believes that the definitions are ambiguous with reference to carbon monoxide, carbon dioxide, and carbonic or metallic carbides or carbonates.

WSPA

Response: Air District staff does not believe these definitions are ambiguous. The definition of "Organic Compound" found in Regulation 1: General Requirements is: "Any compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate." The compounds referenced in the comment are explicitly excluded from the definition of "Organic Compound." The definition of "Total Organic Compound" in Rule 13-5 adds methane to the other compounds included in the definition of "Organic Compound" and is reflective of the definition of "Total Organic Compound" found in Regulation 8, Organic Compounds, Rule 18: Equipment Leaks, Section 8-18-219.

Regulatory Language, Standards

Emission Limits

Comment: The commenter asks for confirmation that after indicating its intent to utilize the ACP provisions of Section 13-5-303, a facility operator may still opt to comply with the provisions of Section 13-5-301 so long as all deadlines in that section are met.

MRC

Response: This is correct. The language of Section 13-5-401 has been revised to clarify that those provisions that detail permitting and operating control devices do not apply to those owner/operators that will comply with 13-5-303, rather than those owner/operators who submit an ACP. In addition, Section 13-5-303.4 addresses this comment: "No later than two years following the adoption date of this Rule, the APCO shall approve or deny the Alternative Compliance Plan to meet this alternative standard. In the event that the plan is denied, the owner and/or operator of an industrial hydrogen plant may not utilize this optional standard and must comply with Sections 13-5-301 and 401." This does not preclude an owner/operator with an approved ACP from complying with Sections 13-5-301 and 401. The timelines for both compliance options are aligned to allow this possibility.

Comingling and Dilution Prohibition

Comment: The commenter suggests that in order to allow some streams to be comingled for purposes of control, the language of Section 13-5-302 should be changed to, "Any atmospheric vent that is in service prior to the adoption of this Rule cannot comply with the concentration standard set forth in Section 13-5-301 solely through dilution and/or comingling."

WSPA

Response: The emission limits of Rule 13-5 apply to atmospheric vents that emit gases directly to the atmosphere and not those routed to a control device. Any streams that are comingled prior to abatement would not be subject to the emissions standards in Section 13-5-301 and therefore would not result in a violation of Section 13-5-302. Monitoring of and emissions from abated sources would be subject to permit conditions and the abatement device would be in compliance with this section of the Rule as long as it operates within permitted parameters. The Staff Report has been revised to clarify this section of Rule 13-5.

Alternative Emissions Standard

Comment: One commenter asserted that Rule 13-5 must be written so that emissions limits eventually fall to zero in order for it to be effective. Another commenter objected to the ACP provisions stating that a 90 percent reduction in the emissions inventory for some facilities would not bring it below the 15 pounds per day level and further objected to any substitution of longer lived GHGs for methane.

J. Holtzman, S. Rosenblum

Response: In addressing GHGs, like other pollutants, including toxics and undifferentiated particulate matter, Air District staff believes it is reasonable to achieve interim levels of cost-effective emissions reductions. As indicated in the Staff Report's incremental cost-effectiveness analysis, reducing over 90 percent of the methane emissions from hydrogen plants is much more cost-effective than reducing these emissions by the next increment of 10 percent. The alternative compliance option is based on the overall control efficacy of the most likely method of compliance with Section 13-5-301, which is combustion via a flare. The overall efficiency of a dedicated hydrogen flare from a carbon dioxide equivalent (CO_2e) reduction basis is estimated to be approximately 90 percent; the components of this efficiency estimate include 1) a flare hydrocarbon (including methane) destruction efficiency of 98 percent; 2) accounting for the generation of carbon dioxide emissions from the combustion of the hydrocarbon, including the additional fuel needed for pilots and purge gas, and 3) the two percent of hydrocarbons remaining after combustion. Thus, the ACP option would achieve generally equivalent GHG emissions reductions as compliance with the standard in Section 13-5-201 as shown in the Staff Report. The basis for the emissions values used in the calculation is provided in Appendix B of the Draft EIR.

The above value (90.4 percent) is the overall net emissions reduction due to compliance with Section 13-5-301: Emission Limits for Industrial Hydrogen Plants using a flare and is basis of the 90 percent control efficiency requirement of the alternative compliance option contained in

Section 13-5-303: Alternative Methane and Other Greenhouse Gas Emissions Standard Option of the Rule.

A detailed calculation demonstrating the equivalency will also be included in the Final Staff Report. The level of control must be reflective of the current industry standard, which is flaring, although higher levels of control may be achieved through the operation of a pressure swing adsorption system, which is far more costly. As stated in the earlier response to comments about the ACP, substitution of longer-lived GHGs for methane is limited to one fifth of the total and must be discounted by the GWP for the compound.

Regulatory Language, Administrative Requirements

Control Device Requirements

Comment: Two commenters suggested that the intermediate deadline from issuance of an Authority to Construct (A/C) to beginning construction of an emissions control device was unnecessary and asked that it be removed from Rule 13-5. Two other commenters identified the "by the next turnaround" language in the emissions control device provisions of the Rule as unreasonable given that the owner of a facility may have such a turnaround planned for shortly after the relevant trigger in the Rule, be it rule adoption, or issuance of an A/C.

Air Products, MRC, Valero, WSPA

Response: The Air District agrees with these comments and has removed this intermediate construction deadline; however, the operation of the control equipment must begin within three years of issuance of and A/C. Air District staff reviewed the "turnaround" language and provided additional clarity in revisions to the final Staff Report. The regulatory language of Rule 13-5 has been revised to address both of these concerns.

Reporting Requirements

Comment: Commenters asked when the reporting requirements apply and suggested that they not be applied to atmospheric vents routed to control devices. Commenters also suggested alternative reporting timelines to be consistent with either Title V self-reporting guidelines or the timeline for a reportable flaring event as described in Rule 12-12.

MRC, Valero, WSPA

Response: The reporting requirements in Section 13-5-402 would only be triggered by a breakdown of the control device abating an atmospheric vent. As such the regulatory language has been revised to make the notification and reporting requirements consistent with the breakdown provisions of Sections 1-431 and 1-432 of Air District Regulation 1: General Provisions and Definitions.

Regulatory Language, Monitoring and Records

General Monitoring Requirements

Comment: Commenters suggested that monitoring requirements be aligned with the effective dates of the emission standards and identified the "by the next turnaround" language in the monitoring provisions of Rule 13-5 as unreasonable given that the owner of a facility may have such a turnaround planned for shortly after the relevant trigger in the Rule, be it rule adoption, or issuance of an A/C.

Air Products, MRC, WSPA

Response: The Air District believes that monitoring of atmospheric vents should not be delayed until the facility comes into compliance with the emissions limits of the Rule. As mentioned in the response to comments regarding the atmospheric vent definition, requiring facilities to monitor to better understanding these emissions sources is important, necessary and within the jurisdiction of the Air District. However, the Air District recognizes that sufficient time is necessary to install monitoring equipment. Air District staff reviewed the "turnaround" language and provided additional clarity in revisions to the Final Staff Report. The regulatory language of Rule 13-5 has been revised to address these concerns, so that monitoring devices must be in place by the next scheduled turnaround; however, no earlier than two years from adoption of the Rule and no later than five years after adoption of the Rule.

Regulatory Language, Manual of Procedures

Alternative Monitoring Methodology

Comment: Some commenters suggested that the Air District must perform monitoring of emissions through the use of aerial monitoring methods or other methods such as the MIRA Pico System rather than rely on self-reporting. Other commenters requested clarity regarding alternative monitoring methods, in particular the monitoring requirements for facilities using pressure swing adsorption systems or vents associated with high purity hydrogen streams.

C. Davidson, CPC, J. Holtzman, WSPA

Response: The purpose of Rule 13-5 is to limit emissions of methane and other organic compound emissions from atmospheric vents located at industrial hydrogen plants. The sources of these emissions are identified and not fugitive in nature. Source testing and parametric monitoring of these vents are the most accurate means of determining emissions from these sources. The Air District already uses remote monitoring methods to improve the accuracy of its methane emissions inventory and the MIRA Pico System may prove useful in that application, or for the purpose of determining fugitive leaks as in the example provided by the commenter. Sections 13-5-601 and 602 refer to vetted source test methods of the United States Environmental Protection Agency (US EPA) and the South Coast Air Quality Management District for the measurement of emissions, but allowance for alternative methodologies is subject to Air District approval. The operator of a facility subject to Rule 13-5 could potentially submit an alternative monitoring methodology using the MIRA Pico System for Air District approval.

As the US EPA's delegated agency for the region, the Air District is tasked with oversight of source testing conducted within the geographical boundaries of its authority. Although Air District staff and management greatly appreciate and value the unique in-house source testing capabilities that the Agency possesses, and Air District staff routinely conducts source testing throughout the Bay Area to improve emission inventories, establish emission factors, audit facility compliance, perform special projects and collect needed emissions data for policy development, the Clean Air Act firmly establishes that the burden of maintaining and showing compliance with emission standards rests on the owners and operators of regulated facilities.

This burden to maintain and confirm compliance extends to all source testing and monitoring activities and requires facilities to directly bear the costs to perform field sampling and report the results in accordance with regulatory requirements and standards. The specific test requirements and standards are codified in Air District, State and federal regulations, permit conditions, the Air District Manual of Procedures, and guidance documents.

Owners and operators are required to notify the Air District of all scheduled source tests, submit test plans for review when necessary, and submit final reports, documenting the results and test conditions during the testing performed, for review and approval by highly trained and qualified Air District technical staff. These test reports are reviewed in detail to ensure that facility source tests conform to all reference methods and Air District requirements, and confirm that the reported results are accurate, representative, and defensible. In cases where the testing is determined to be deficient, the source test results submitted are disapproved, resulting in mandatory retesting and/or a recommendation for a notice of violation when determined appropriate. Test results documenting failures to comply with emission, or associated limitations are referred to the Compliance & Enforcement Division for further evaluation of potential violations.

Source tests are performed by highly qualified professional staff, who are typically specialty consultants hired by the facilities, utilizing approved and promulgated reference test methods as codified in the Code of Federal Regulations, the California Health and Safety Code, and Air District documents.

Section 13-5-505 of the Rule contains the requirements for monitoring the purity of the hydrogen emitted from pressure swing adsorption vents, and the rule language has been revised to clarify that it applies to pressure swing adsorption vents. Under this section, the owner / operator "shall demonstrate hydrogen gas percent purity via the use of a hydrogen gas analyzer or an alternative method approved by the APCO." There is no requirement for continuous monitoring and there is also an opportunity for the operator to have the Air District approve an alternative to the use of a hydrogen gas analyzer. This alternative could feasibly include the methodology by which the operator routinely determines the purity of the hydrogen.

Statutory Findings

Necessity Finding

Comment: The commenter states that the Air District has not justified the necessity of methane emissions reductions at facilities within Cap-and-Trade or the costs associated with those emissions reductions and monitoring of numerous de minimis vents. According to the commenter, the magnitude of the emissions reductions does not justify the Rule as they are small relative to the Air District inventory and meet the definition of de minimis for GHG reporting as part of Cap-and-Trade.

WSPA

Response: California Health & Safety Code Section 40727(a) requires that air district adoption of a rule must be supported by certain findings, among them a finding of "necessity" for the rule. "Necessity" is defined in Section 40727(b) to mean that "a need exists for the regulation, or for its amendment or repeal, as demonstrated by the record of the rulemaking authority." The meaning of "necessity" in Section 40727(a) is further illuminated by Health & Safety Code Section 40001(c) which provides that "prior to adopting any rule or regulation to reduce criteria pollutants, a district shall determine that there is a problem that the proposed rule or regulation will alleviate and that the rule or regulation will promote attainment or maintenance of state or federal ambient air quality standards."

The Staff Report includes lengthy discussion about the importance of reducing methane emissions in the Bay Area. The Air District has made clear its policy goal of reducing Bay Area GHG emissions, and industrial hydrogen plants are a major source of methane emissions in the Bay Area. The statutory requirement to show necessity does not require a showing that a proposed rule will, by itself, eliminate all of the emissions in a category it seeks to control. Nor do these provisions require a comparison of a proposed rule with other rules that may be possible to adopt. Rather, the Air District must demonstrate that, based on the rulemaking record, Rule 13-5 will make progress towards achieving the Air District's methane reduction goals.

Comments relating to Cap-and-Trade are addressed in responses to comments in the Comportment with State and Federal Programs: Cap-and-Trade section of this document.

Authority Finding

Comment: The commenter questions the Air District's authority to adopt a rule to control methane sources that are deemed de minimis GHG sources and will be offset from other sources within Cap-and-Trade.

WSPA

Response: The Air District has the authority to adopt this Rule under Sections 38594, 40000, 40001, 40702, and 40725 through 40728.5 of the California Health and Safety Code. Comments relating to Cap-and-Trade are addressed in responses to comments in the Comportment with State and Federal Programs: Cap-and-Trade section of this document.

Clarity Finding

Comment: The commenter believes that key details in rule applicability and implementation should be in the Rule, while acknowledging that more recent changes to rule language have addressed some of their previous comments.

WSPA

Response: As discussed in the Staff Report, Section 40727(b)(3) of the California Health and Safety Code states that "'Clarity' means that the regulation is written or displayed so that its meaning can be easily understood by the persons directly affected by it."

Rule 13-5 is clear, in that the Rule specifically delineates the affected industry, compliance options, and administrative requirements for the industry subject to this Rule, so that its meaning can be easily understood by the persons directly affected by it. The Air District appreciates the body of comments received as these have contributed to clarification of the regulatory language proposed in the final version to be considered by the Board of Directors.

Consistency Finding

Comment: The commenter states that the Rule 13-5 will be in conflict with Cap-and-Trade and believes that reporting requirements are not consistent with other Air District rules.

WSPA

Response: Rule 13-5 is consistent with other Air District rules, and not in conflict with State or federal law. As explained in previous responses, Rule 13-5 is not in conflict with Cap-and-Trade. Recent revisions to rule language align reporting requirements to other Air District rules. The Air District appreciates the body of comments received as these have contributed to clarification of the regulatory language proposed in the final version to be considered by the Board of Directors.

Non-duplication Finding

Comment: The commenter believes that emissions for industrial hydrogen plants are already adequately regulated under Cap-and-Trade.

WSPA

Response: As detailed in the regulatory analysis found in the Staff Report, Rule 13-5 is non-duplicative of other statutes, rules, or regulations. As explained in previous responses, Rule 13-5 is not in conflict with Cap-and-Trade.

Comment Period Ending April 15, 2022

List of Commenters

The following table lists the individuals and organizations from whom Air District staff received written comments prior to the April 15, 2022, comment deadline.

Commenter	Contact Information
Davidson, Charles (C. Davidson)	Charles Davidson Private Individual Letter, April 13, 2022
Rosenblum, Stephen (S. Rosenblum)	Dr. Stephen Rosenblum, Ph.D., Chemistry Private Individual Email, March 28, 2022
Valero Refining Company (Valero)	Taryn Wier Manager, Environmental Engineering Letter, April 14, 2022
Western States Petroleum Association (WSPA)	Kevin Buchan Senior Manager, Bay Area Region Regulatory Affairs Letter, April 15, 2022

General Comments

Appreciation for Regulatory Language Revisions posted March 25, 2022

Comment: The commenter appreciates the schedule amendment for implementation of controls reflecting the authority to construct, and further states that this maintains the overall schedule requirement and allows facilities to focus on a single deadline.

WSPA

Response: The Air District acknowledges the comment in appreciation of recent revisions to the regulatory language of Rule 13-5.

Fugitive Methane Emissions

Comment: The commenter asks what in-situ methods are being considered to measure fugitive methane emissions from industrial hydrogen plants, and further asks for identification of suspected point-sources of fugitive emissions which the Air District, CARB, and US EPA have failed to detect in past tests.

C. Davidson

Response: The primary purpose of Rule 13-5 is to control emissions from known atmospheric vents and it is not intended to address fugitive leaks. Air District Compliance and Enforcement staff typically use a Gazoscan methane leak detector manufactured by Gazomat for detection of

methane leaks. Identification of sources of methane emissions previously undetected is beyond the scope of this current rule making effort.

Existing Conditions Baseline

Comment: The commenter questioned the use of data from 2019 as representative of "existing conditions" of Bay Area air pollution in Table 3.2-2 of the Draft EIR and suggests that data from 2020 would be more appropriate as it is now 2022.

WSPA

Response: A similar comment was received earlier. Comments relating to "existing conditions" are addressed in the General Comments: Existing Conditions Baseline response in the Comment Period Ending March 10, 2022 section earlier in this document.

IPCC Guidance

Comment: The commenter suggested that Rule 13-5 is in conflict with or is contradictory to existing State and federal regulations so as to violate statutory guidelines for consistency, and that Rule 13-5 represents an example of a "problematic" or "ineffective" regulation as identified by the IPCC. The commenter further suggests that societal benefits of GHG reductions will be offset by other emissions within Cap-and-Trade and suggests language from the IPCC on sub-national programs be included in the final draft Staff Report for Rule 13-5.

WSPA

Response: A similar comment was received earlier. Comments relating to the IPCC guidance are addressed in the Comportment with State and Federal Programs: IPCC Guidance response in the Comment Period Ending March 10, 2022 section earlier in this document.

GWP

Comment: The commenter states that the IPCC's fifth assessment report (AR5) suggests that various metrics and time horizons can be used to compare the contributions to climate change from emissions of different substances and AR5 provides a methane GWP of 34 when considering a 100-year time horizon and a methane GWP of 86 when considering a 20-year time horizon, noting that AR5 further states that "No single metric can accurately compare all consequences of different emissions and all have limitations and uncertainties". Commenter suggests that the Air District use a value of 25 citing federal and State programs.

WSPA

Response: A similar comment was received earlier. Comments relating to the Air District assigned GWP values are addressed in the Comportment with State and Federal Programs: GWP response in the Comment Period Ending March 10, 2022 section earlier in this document.

Draft EIR Calculations

Comment: The commenter raised several questions related to emission calculations provided in the Draft EIR, suggesting that supplemental fuel may be required for flaring during startup or other times of low heating values of vent streams and questioning the source, consistency, and veracity of emission factors used for the calculations.

WSPA

Response: The Air District notes that these comments were also submitted previously during the comment period for the Draft EIR. Comments relating to the Draft EIR Calculations are addressed in the CEQA: Draft EIR Calculations response in the Comment Period Ending March 10, 2022 section earlier in this document.

Draft EIR Project Objectives

Comment: The commenter believes Rule 13-5 to be in violation of CEQA because it does not meet the objectives identified in the Draft EIR: namely, to reduce emissions of GHGs as well as other organic compounds associated with operation of industrial hydrogen plants, and to assist the Air District in meeting its policy goal of reducing GHG emissions to 40 percent below 1990 levels by 2030. The commenter further states that the Air District has not adequately addressed impacts arising from control measures needed to comply with the Rule or evaluated mitigation of these impacts, and that implementation of the Rule will not comply with Cap-and-Trade and therefore violates CEQA.

WSPA

Response: The Air District notes that these comments were also submitted previously during the comment period for the Draft EIR. Comments relating to the Draft EIR Project Objectives are addressed in the CEQA: Draft EIR Project Objectives response in the Comment Period Ending March 10, 2022 section earlier in this document.

Socioeconomic Impact Analysis Calculations

Comment: The commenter questioned the assumed costs for monitoring and control equipment and asserted the Air District erroneously calculated the annualized costs of controls, and improperly differentiated between capital and annual costs in the totals provided for the report.

WSPA

Response: A similar comment was received earlier. Comments relating to the Socioeconomic Impact Analysis Calculations are addressed in the Cost Estimations: Socioeconomic Analysis Calculations response in the Comment Period Ending March 10, 2022 section earlier in this document.

Hydrogen Venting Minimization Plan

Comment: The commenter suggested that the emissions standards of Rule 13-5 be replaced with a hydrogen venting minimization plan, pointing to refinery emissions reductions achieved through use of flare minimization plans in compliance with Air District Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Refineries. The commenter believes that building the Rule around a hydrogen venting minimization plan would result in less impact to the environment without the need for a flare and refers to previous comments to the Air District both written and verbal to this effect.

Valero

Response: A similar comment was received earlier. Comments relating to potential use of a hydrogen venting minimization plan are addressed in the General Comments: Alternative Compliance Plan response to Comment 2 in the Comment Period Ending March 10, 2022 section earlier in this document.

Alternative Compliance Plan (ACP)

Comment: The commenter suggests that the 20 percent substitution of carbon dioxide equivalent emissions for methane might run afoul of perceived restrictions imposed by AB 398 of gasses subject to cap-and-trade limitations. The commenter further states that there is no scientific basis for assuming that replacing 20 percent of the 100-year equivalent methane emission with carbon dioxide or other long lived GHGs such as N_2O or short-lived pollutants such as black carbon, is a valid trade-off, given that Methane is a short-lived climate pollutant with an atmospheric lifetime of 12 years whereas carbon dioxide has an atmospheric lifetime of hundreds to thousands of years.

S. Rosenblum

Response: Similar comments were received earlier. Comments relating to the 20 percent substitution provisions of the Alternative Compliance Plan are addressed in the General Comments: Alternative Compliance Plan response to Comment 3 in the Comment Period Ending March 10, 2022 section earlier in this document.

Regulatory Language, General

Description and Applicability

Comment: The commenter suggests changes to rule language to clarify that the emission limits in Rule 13-5 only apply to atmospheric vents "in industrial hydrogen plants" and asks text related to the hydrogen delivery system and tail gas be removed from the definition of Industrial hydrogen Plant.

Valero

Response: Similar comments were received earlier. Comments relating to the scope of Rule 13-5 are addressed in the Regulatory Language, General: Description and Applicability and Regulatory Language, Definitions: Industrial Hydrogen Plant responses in the Comment Period Ending March 10, 2022 section earlier in this document.

Exemption for Abated Atmospheric Vents

Comment: The commenter requested an exemption be added to expressly exempt from Rule 13-5 any atmospheric vent that is abated by a flare or thermal oxidizer, and that a limited exemption be added for abated atmospheric vents from the monitoring requirements of Sections 13-5-501 and 502.

Valero

Response: Similar comments were received earlier. Comments relating to the scope of Rule 13-5 emissions standards and monitoring requirements as applied to abated atmospheric vents are addressed in the Regulatory Language, General: Description and Applicability response and Regulatory Language, Definitions: Atmospheric Vents responses in the Comment Period Ending March 10, 2022 section earlier in this document.

Exemption for Short Term Releases from Specific Atmospheric Vents

Comment: The commenter requested the addition of an exemption from the requirements of the Rule for a vent that is utilized during startups and shutdowns that is primarily steam and so infeasible to combust. Cooling down the steam to remove water is feasible but would produce an elevated risk of corrosion.

Valero

Response: Similar comments were received earlier. Comments relating to requested exemptions for these atmospheric vents are addressed in the Regulatory Language, General: Exemption for Short Term Releases from Specific Atmospheric Vents response in the Comment Period Ending March 10, 2022 section earlier in this document.

Exemption for Startup, Shutdown, and Maintenance Conditions

Comment: One commenter stated that without an exemption from startups, shutdowns and maintenance, their facility would need to run a flare constantly in anticipation of infrequent emergency and shutdown scenarios. Another commenter asked for an allowance for maintenance periods of control devices which would typically be of short duration.

Valero, WSPA

Response: Similar comments were received earlier. Comments relating to requested exemptions for these scenarios are addressed in the Regulatory Language, General: Exemption for Startup, Shutdown, and Maintenance Conditions response in the Comment Period Ending March 10, 2022 section earlier in this document.

Regulatory Language, Definitions

Atmospheric Vent

Comment: One commenter requested that definition of "Atmospheric Vent" be amended to replace "during hydrogen plant operations" with "in hydrogen plant units" and remove any reference to abatement devices, arguing that once a vent is abated it is no longer an atmospheric vent. One commenter found the definition to be overly broad to the extent that it would include all vents regardless of total organic compound content, even those with low methane levels. The commenter believes that atmospheric vents should be defined as only those that vent total organic compounds including methane.

Valero, WSPA

Response: The Air District agrees with the statement that once a vent is abated it is no longer an Atmospheric Vent; however, the Air District does not agree that the text of the Rule needs to be changed. There is no reference to abatement devices in the definition of Atmospheric Vents in current draft rule language. Comments relating to the scope of Rule 13-5 emissions standards and monitoring requirements as applied to abated atmospheric vents and those with low methane levels are addressed in the Regulatory Language, General: Description and Applicability and Regulatory Language, Definitions: Atmospheric Vents responses in the Comment Period Ending March 10, 2022 section earlier in this document.

Organic Compound and Total Organic Compounds

Comment: The commenter believes that the definitions are ambiguous with reference to carbon monoxide, carbon dioxide, and carbonic or metallic carbides or carbonates.

WSPA

Response: Similar comments were received earlier. Comments relating to these definitions are addressed in the Regulatory Language, Definitions: Organic Compound and Total Organic Compounds response in the Comment Period Ending March 10, 2022 section earlier in this document.

Regulatory Language, Standards

Comingling and Dilution Prohibition

Comment: The commenter suggests that in order to allow some streams to be comingled for purposes of control, the language of Section 13-5-302 should be changed to, "Any atmospheric vent that is in service prior to the adoption of this Rule cannot comply with the concentration standard set forth in Section 13-5-301 solely through dilution and/or comingling."

WSPA

Response: Similar comments were received earlier. Comments relating to Section 13-5-302 are addressed in the Regulatory Language, Standards: Comingling Dilution Prohibition response in the Comment Period Ending March 10, 2022 section earlier in this document.

Alternative Emissions Standard

Comment 1: One commenter requested that the scope of GHG emissions reductions be expanded beyond the industrial hydrogen plant as part of the Alternative Compliance Plan, to allow for reductions from the associated petroleum refinery and perhaps even beyond through credits.

WSPA

Response 1: Similar comments were received earlier. Comments relating to the scope of emissions reductions in the Alternative Compliance Plan are addressed in the General Comments: Alternative Compliance Plan response to Comment 1 in the Comment Period Ending March 10, 2022 section earlier in this document.

Comment 2: One commenter requested that Alternative Emissions Standard be removed from the rule, arguing that a 90 percent reduction in emissions is not enough and the existence of industrial hydrogen plants operating at near zero methane emissions using pressure swing adsorption methods demonstrate that there is already a cost-effective Best Available Retrofit Control Technology available to limit methane emissions to that level.

S. Rosenblum

Response 2: The existence of a control technology does not mean that it is cost-effective. Further analysis of the individual facility design and the control equipment would need to be performed to verify this claim. The Air District evaluated control costs and these are included in the Staff Report. Further information relating to the Alternative Emissions Standard may be found in the Regulatory Language: Alternative Emissions Standard response in the Comment Period Ending March 10, 2022 section earlier in this document.

Regulatory Language, Administrative Requirements

Control Device Requirements

Comment: The commenter asks for additional time to begin operation of control equipment, suggesting the three-year deadline after issuance of an Air District authority to construct be changed to "within three years of after the next applicable turnaround." The commenter states that their facility has a unique integrated refinery design that requires refinery wide turnarounds to accomplish critical construction tasks to comply with the emissions standards of Rule 13-5.

Valero

Response: Compliance with either Section 13-5-301 through application of a new control device, or Section 13-5-303 through application of an Alternative Compliance Plan (ACP), will involve submittal of an Air District Permit application within three years, and after the authority to construct is issued, commencement of those controls or implementation of the ACP is required within three years of issuance of the authority to construct. Air District staff believes that six years is sufficient time to plan for a turnaround in order to accomplish construction of equipment to comply with the emissions standards of 13-5.

Reporting Requirements

Comment: Commenters object to the revised language for this section stating that immediate notification upon discovery is not feasible and 30 days is insufficient to thoroughly evaluate the cause of the occurrence. One commenter is unaware of similar Air District reporting provisions associated with exceeding an emission limit that are "immediate upon discovery."

Valero, WSPA

Response: The notification and reporting requirements in Section 13-5-402 would only be triggered by a breakdown of the control device abating an atmospheric vent. As such the regulatory language has been revised to make the notification and reporting requirements consistent with the breakdown provisions of Sections 1-431 and 1-432 of Air District Regulation 1: General Provisions and Definitions.

Regulatory Language, Monitoring and Records

General Monitoring Requirements

Comment: The commenter states that a two-year deadline to install monitors does not appear feasible, nor are the requirements clear as they have previously stated in earlier submitted comments to the Air District.

WSPA

Comment: The due date for installation of monitoring equipment is not two years from adoption of the rule. Rule Language specifies that the section does not go into effect for two years from adoption and equipment installation is not required until the next turnaround but no later than five years. This makes the monitoring requirements due by the next turnaround to occur after two years but no later than five years from adoption of the rule. Further information relating to the General Monitoring Requirements may be found in the Regulatory Language, Monitoring and Records: General Monitoring Requirements response in the Comment Period Ending March 10, 2022 section earlier in this document.

Regulatory Language, Manual of Procedures

Alternative Monitoring Methodology

Comment 1: One commenter asks if the Air District has formally considered assessing the advantages of the MIRA Pico methane monitor over EPA Method 18 and 21, and if the Air District has made a scientific comparison between the MIRA Pico and other methods.

C. Davidson

Response 1: The burden of emission quantification and measurement is the responsibility of the facility, with oversight and approval authority provided by the Air District. The Air District remains technology neutral. It is the responsibility of the facility to propose new technologies or methods and provide information to show equivalence for any proposed alternative method, typically as specified in EPA Method 301. The Air District does not have resources to directly perform scientific evaluation or assessment of new technologies, except in high priority situations, but will accept scientific data or reports provided by others for evaluation of equivalence. In cases where an adopted method exists, the adopted method will always be preferred over any alternative. It is typically the facilities responsibility to request alternative approval for any technology or method. The Air District may suggest particular technologies or methods that it has deemed equivalent, but the facility typically retains the option of whether to consider the suggestion or use the promulgated method.

Emission quantification needs to be performed using promulgated methodologies or approved alternatives wherever feasible. The MIRA Pico could be proposed as an alternative by the facility, but the application would need to be specific to in-vent or in-stack measurement, or feed streams to the vent or stack, to be considered as an option for Section 13-5-301 compliance demonstration. In cases where the alternative emission reduction options are being considered, the emission quantification would still need to be performed using promulgated or approved alternative methods wherever possible to be legally defensible. If a facility is considering the MIRA Pico, they would need to submit a methodology for its use to be considered. That methodology would not necessarily need to be specific to the MIRA Pico.

Comment 2: One commenter requested clarity regarding alternative monitoring methods, in particular the monitoring requirements for facilities using pressure swing adsorption systems or vents associated with high purity hydrogen streams.

WSPA

Response 2: Similar comments were received earlier. Comments relating to alternative monitoring methods, in particular for those facilities with high purity streams are addressed in the Regulatory Language, Manual of Procedures" Alternative Monitoring Methodology response in the Comment Period Ending March 10, 2022 section earlier in this document.

Statutory Findings

Comment: The commenter states that the Air District has not justified the necessity of methane emissions reductions at facilities within Cap-and-Trade or the costs associated with those emissions reductions and monitoring of numerous de minimis vents, and questions the Air District's Authority to adopt Rule 13-5. The commenter believes that the rule is not clear, is duplicative and/or in conflict with Cap-and-Trade, and is not consistent with other Air District Rules.

WSPA

Response: Similar comments were received earlier. Comments relating to Statutory Findings are addressed in the Statutory Findings responses in the Comment Period Ending March 10, 2022 section earlier in this document.

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[i] IPCC. " Beneficial interactions," Section 15.7.2.1, Somanathan E., T. Sterner, T. Sugiyama, D. Chimanikire, N. K. Dubash, J. Essandoh-Yeddu, S. Fifita, L. Goulder, A. Jaffe, X. Labandeira, S. Managi, C. Mitchell, J. P. Montero, F. Teng, and T. Zylicz, 2014: National and Sub-national Policies and Institutions. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter15.pdf