To: **Liane M. Randolph**, Chair, California Air Resources Board
Honorable Board Members, California Air Resources Board

From: Steven S. Cliff, Ph.D., Executive Officer

Date: September 15, 2025

Subject: San Joaquin Valley Air Pollution Control District Stationary Source Review

Introduction

On April 15, 2019, the Central Valley Air Quality Coalition (CVAQ)[1] requested the California Air Resources Board (CARB or Board) conduct a "review of largest stationary sources that emit 10 tons or more of direct PM2.5 per annum" in the San Joaquin Valley. Specifically, CVAQ stated "[t]his would include 27 facilities/corporate operations, including the Valley's 5 active biomass incinerators, 5 large natural gas power plants, 4 major glass manufacturers, and the Valley's 7 largest oil and gas producers."

On July 25, 2024, the Board heard the "*San Joaquin Valley 2024 State Implementation Plan for the 2012 12 µg/m3 Annual PM2.5 Standards, Amendments to the Agricultural Equipment Incentive Measure and the 1997 15 µg/m3 State Implementation Plan Revision, and Implementation Update on the 2018 PM2.5 Plan*."[2] As part of the discussions, the Board inquired about CVAQ's 2019 request to have CARB audit the facilities and directed staff to work with the San Joaquin Valley Air Pollution Control District (SJV Air District) to survey the current status of facilities with significant fine particulate matter (PM2.5) and nitrogen oxide (NOx) emissions in response to concerns raised by CVAQ.[3] The Board directed staff to provide a written status update within 12 months of that Board meeting.

Specifically, Chair Randolph directed staff to analyze "the documentation we have about their emissions and ensure that they are operating to their permitted standards. And that presumably would help us understand whether or not we have a correct inventory about the emissions from those sources."[4] The Board directed staff to look at the "amount and source of emissions for both PM2.5 and NOx, type of pollution control equipment used at each

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[1] CVAQ is a coalition of community organizations that "raises awareness, act as watchdogs, advocates for policy, and mobilizes with a purpose to restore clean air to the San Joaquin Valley, especially in environmental justice neighborhoods." See CVAQ, *Who We Are*, available at *https://www.calcleanair.org/*.
[2] CARB, *Resolution 24-10* (July 25, 2024), available at *https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2024/res24-10.pdf*.
[3] CARB, *Board Meeting Transcript* (July 25, 2024), pp. 179-184, available at *https://ww2.arb.ca.gov/sites/default/files/barcu/board/mt/2024/mt072524.pdf*.
[4] *Id.* at 180.

source."[5] On February 18, 2025, CVAQ sent a letter to CARB requesting urgent action to conduct a review of the Valley's highest-emitting stationary sources of direct PM and NOx.

This memo provides an update to the Board related to this "spot-check" review of facilities in the SJV Air District per the Board's direction, identifying permitted equipment and associated emissions control technologies, identifying applicable air pollution control regulations, and assessing allowable and actual emissions. See "*Appendix A: List of Facilities and Relevant Data*." The goal of this spot-check analysis was to determine if existing permits issued to the 27 corporate operators identified by CVAQ for the largest PM2.5 emitting equipment effectively implemented the emission control requirements established by the SJV Air District, addressing the facilities identified by CVAQ. It also includes background history and actions the SJV Air District has taken to reduce emissions and achieve air quality.

CARB staff also reviewed an informational report, entitled *San Joaquin Valley Top Stationary Sources Review,* prepared by the SJV Air District documenting the extensive history of actions taken by the SJV Air District over the past two decades to implement programs needed to achieve and maintain the state ambient air quality standards. That report further documents that SJV Air District programs have resulted in some of the most stringent rules in the nation and that considerable emissions reductions have been achieved at these sources since the original request in 2019. This comprehensive report includes disclosure of emissions at the sources, trends, progress that has been made, implementation of control strategies, opportunities for public engagement, applicable stationary source rules, Community Air Protection (CAP) program, statewide collaboration efforts, overview of the stationary source regulatory program, emissions inventory, overview of SJV Air District compliance and enforcement activities, emission testing and monitoring, evaluation of the 27 sources that includes emission reductions, equipment type and control technologies, and commitments for further reductions. CARB staff believes the *San Joaquin Valley Top Stationary Sources Review* concisely and accurately documents the extensive history of the air pollution control activities undertaken by the SJV Air District over the past two decades and more. See "*Appendix B: San Joaquin Valley Top Stationary Sources Review*."

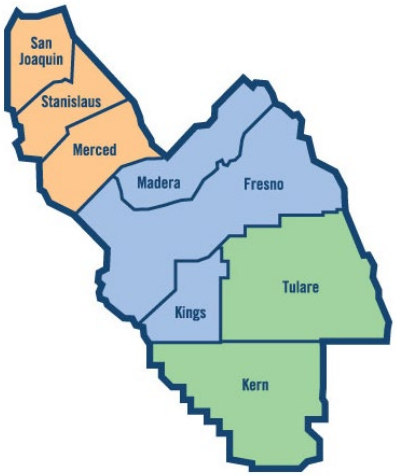
Based on this spot-check review, CARB finds that the SJV Air District is substantively meeting its statutory responsibility to ensure that the permits issued to the 27 corporate entities are issued in conformance with statutory requirements.[6] CARB did not find anything that would require legal intervention and the SJV Air District has made significant progress in emissions reductions since 2016.

[5] *Id.*
[6] Health & Saf. Code § 42301.

Background

State law vests California's 35 air pollution control and air quality management districts with the primary responsibility to control air pollution from stationary sources. It also vests CARB with the responsibility to periodically review air district programs to ensure that those programs are sufficiently effective to achieve and maintain ambient air quality standards. CARB exercises its authority through ongoing collaborative processes relating to air quality planning activities (e.g. State Implementation Plan development) where air districts and CARB evaluate what additional rules and rule amendments are needed to attain State and federal ambient air quality standards, program implementation support (e.g. rule and program implementation and air district staff training), and focused oversight activities, including focused "spot-check" reviews such as the permit reviews outlined in this memo. CARB provides oversight and support through review of control measure analyses conducted during development of attainment plans, during air district rule development activities, when air districts update emissions inventories to reflect changes in rule requirements, and by reviewing proposed permits that trigger public notification requirements under the air district new source review requirements. When CARB staff have comments or questions regarding control measures or a permitting project, staff work collaboratively with the air district to address questions or concerns.

The SJV Air District manages the San Joaquin Valley, which consists of eight counties in the central valley– San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, and Kings counties, and the San Joaquin Valley Air Basin portion of Kern County.[7] The area is partially enclosed by the Coast Mountain range to the west, the Tehachapi Mountains to the south, and the Sierra Nevada range to the east. The San Joaquin Valley population is over 4.3 million people.[8] Air pollution within the SJV Air District comes from a variety of sources. These include industrial facilities, vehicles, and consumer products.



Because the San Joaquin Valley remains in nonattainment for PM2.5 and ozone standards, the SJV Air District permitted facilities must apply the most stringent control measures feasible to control emissions. SJV Air District also operates the federally-mandated Title V program for major stationary sources, intended to ensure proper recordkeeping, monitoring, and

[7] SJV Air District, *About*, available at *https://www.valleyair.org/about*.
[8] SJV Air District, *2022 Plan for the 2015 8-Hour Ozone Standard, pp. 2-7* (Dec. 15, 2022), available at *https://ww2.valleyair.org/rules-and-planning/air-quality-plans/ozone-plans/2022-ozone-plan-for-the-san-joaquin-valley/*.

reporting. Additionally, pursuant to SJV Air District rules, new facilities or facilities modifying equipment in the Valley must secure an Authority to Construct (ATC) before beginning construction. These projects are subject to Best Available Control Technology (BACT), Risk Management Review (RMR), Toxic Best Available Control Technology (T-BACT), Ambient Air Quality Analysis (AAQA), public notice, and offsets.

Over the past two decades and more, CARB staff has been extensively engaged with the SJV Air District as it develops and implements the attainment plans, rules, programs, and permits needed to achieve California's clean air goals in the San Joaquin Valley. The SJV Air District annually submits emission information for thousands of facilities across the San Joaquin Valley to CARB for review and inclusion in the statewide emissions inventory database (California Emission Inventory Data Analysis and Reporting System or CEIDARS).

In 2005, CARB conducted an audit of the SJV Air District programs.[9] This review consisted of "the District's compliance, permitting, portable equipment registration, rule development, emissions inventory, AB 2588 "Hot Spots," Carl Moyer, and ambient air monitoring programs. Staff from five ARB Divisions participated in this effort."[10]

In 2019, CVAQ petitioned CARB to review the SJV Air District's Emission Reduction Credit (ERC) Program. [11, 12] CARB finalized its report in June 2020.[13] As part of that report, CARB made recommendations for the program to be more transparent, to upgrade implementation procedures and policies, and to review and revise assumptions in equivalency demonstrations. The SJV Air District made several commitments, including developing a new tracking database, conducting public workshops, each year, enhancing annual demonstration reporting, convening a public advisory working group, adjusting calculated emission reductions, analyzing orphan shutdown projects, and updating district policies for quantification of emissions. On September 21, 2020, CARB's Executive Officer sent an update to the Board that explained how the SJV Air District would address some of the concerns. On June 29, 2022, the Executive Officer sent a letter to the SJV Air District expressing appreciation for collaboration and highlighting the accomplishments made by

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[9] CARB, *San Joaquin Valley Air Pollution Control District Program Review Report of Findings and Recommendations* (Nov. 4, 2005), available at *https://ww2.arb.ca.gov/sites/default/files/2020-03/sjvaudit05_R.pdf*.

[10] *Id.*

[11] CARB, *San Joaquin Valley ERC Program Review Public Documents*, available at *https://ww2.arb.ca.gov/our-work/programs/san-joaquin-valley-emission-reduction-credit-program-review/san-joaquin-valley-1*.

[12] CVAQ, *Emission Reduction Credit Banking in the San Joaquin Valley* (Jan. 9, 2019), available at *https://ww2.arb.ca.gov/sites/default/files/2020-03/CVAQ_Coalition%E2%80%99s_petition_to_CARB_Chair_Nichols%281-9-19%29R.pdf*.

[13] CARB, *Review of the San Joaquin Valley Air Pollution Control District Emission Reduction Credit System* (June 2020), available at *https://ww2.arb.ca.gov/sites/default/files/2020-06/SVJERC_Review_Update.pdfhttps://ww2.arb.ca.gov/sites/default/files/2020-06/SJV_ERC_FINAL_20200604.pdf*.

the SJV Air District in relation to the ERC program—specifically enhancement of the ERC program and transitioning new major sources or federal major modifications to federal offsetting requirements for NOx and volatile organic compound (VOC) emissions. The letter also applauded the SJV Air District in its efforts to enhance the annual equivalency report and rollout of the new Public Advisory Working Group.

CARB and SJV Air District have also worked to develop numerous attainment plans outlining the path for the San Joaquin Valley to meet progressively stricter federal air quality standards, including the more recent *2020 RACT Demonstration*,[14] *2022 Ozone Plan,*[15] and *2024 PM2.5 Plan*,[16] containing CARB and SJV Air District's NOx, VOC, and PM2.5 control strategies. Through the plan development process, CARB and the SJV Air District conduct comprehensive evaluations of all emission sources under their respective regulatory authority, including extensive analyses of potential opportunities for emissions reductions.

These efforts have yielded cleaner air for San Joaquin Valley residents. Ongoing emission reduction efforts have driven steady progress in the San Joaquin Valley toward meeting stringent federal air quality standards for PM2.5 and ozone, including:

- The region has achieved the 1987 PM10[17] standard[18] and the 1979 1-hour ozone standard.[19]
- The U.S. Environmental Protection Agency (U.S. EPA) has recently determined that the Valley attained the 1997 24-hour PM2.5 standard by the December 31, 2020, deadline.[20]

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[14] SJV Air District, *2020 Reasonably Available Control Technology Demonstration for the 2015 8-Hour Ozone Standard* (June 18, 2020), available at *https://ww2.valleyair.org/media/3xrdxpvl/2020-ract-demonstration.pdf*.
[15] SJV Air District, *2022 Plan for the 2015 8-Hour Ozone Standard* (Dec. 15, 2022), available at *https://ww2.valleyair.org/media/q55posm0/0000-2022-plan-for-the-2015-8-hour-ozone-standard.pdf*.
[16] SJV Air District, *2024 Plan for the 2012 Annual PM2.5 Standard* (June 20, 2024), available at *https://ww2.valleyair.org/media/gw5bacvj/2024-pm25-plan.pdf*.
[17] PM10 refers to particulate matter with a diameter of 10 micrometers or less.
[18] U.S. EPA, *Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; State of California; PM–10; Revision of Designation; Redesignation of the San Joaquin Valley Air Basin PM–10 Nonattainment Area to Attainment; Approval of PM–10 Maintenance Plan for the San Joaquin Valley Air Basin; Approval of Commitments for the East Kern PM–10 Nonattainment Area*, 73 Fed. Reg. 66759 (Nov. 12, 2008), available at *https://www.govinfo.gov/content/pkg/FR-2008-11-12/pdf/E8-26500.pdf*.
[19] U.S. EPA, *Determination of Attainment of the 1-Hour Ozone National Ambient Air Quality Standard in the San Joaquin Valley Nonattainment Area in California*, 81 Fed. Reg. 46608 (July 18, 2016), available at *https://www.govinfo.gov/content/pkg/FR-2016-07-18/pdf/2016-16792.pdf*.
[20] U.S. EPA, *Partial Approval and Partial Disapproval of Air Quality Implementation Plans and Determination of Attainment by the Attainment Date; California; San Joaquin Valley Serious Area and Section 189(d) Plan for Attainment of the 1997 24-hour PM2.5 NAAQS; Final Rule*, 87 Fed. Reg. 4503 (Jan. 28, 2022), available at *https://www.govinfo.gov/content/pkg/FR-2022-01-28/pdf/2022-01728.pdf*.

- In the last 25 years, the 8-hour ozone design values[21] have significantly declined. In 2000, 92% of the regulatory monitoring sites within the SJV exceeded the 0.08 parts per million (ppm) standard with a maximum design value of 0.111 ppm. In 2024, only 23% of the sites exceeded the 0.08 ppm standard and the highest design value was 0.088 ppm. Comparing ozone levels twenty years ago in 2003 versus levels measured in 2023, there has been an 87% decrease in days per year that the region exceeds the 0.08 ppm standard. Most of the sites in the San Joaquin Valley now meet the 0.08 ppm standard. Despite U.S. EPA's recent finding of failure to attain,[22] the San Joaquin Valley has made progress and will continue to reduce emissions leading to ozone formation.
- Most recently, U.S. EPA proposed that the Valley has met the annual PM2.5 standard of 15 μg/m³ based on certified air quality data for 2022-2024.

Most areas in the Valley are also attaining the federal 12 μg/m³ annual PM2.5 standard. Alongside these milestones, all counties in the Valley are experiencing more days each year that meet health-based air quality standards. In parallel with these air quality milestones, the San Joaquin Valley has seen an increasing number of days meeting health-based air quality standards across all counties.

Building on those regionwide activities, the SJV Air District is also working to implement the community air protection goals established by Assembly Bill 617 (AB 617) to reduce exposure in state-selected communities that are disproportionately impacted by air pollution. AB 617 requires CARB and local air districts to work together with community members, community-based organizations, environmental justice organizations, state and local governments, regulated industries, and other key stakeholders to develop and implement Community Emission Reduction Programs (CERPs) for each community in the CAP program. To date, more than $347 million in funding has supported clean air projects in priority areas across the state, including $146 million allocated to CERP implementation for San Joaquin Valley communities.

In order to support consistent and clean stationary source technologies, CARB has established and maintains a statewide Technology Clearinghouse[23] that compiles stationary source technologies, namely best available control technology (BACT), best available retrofit control technology (BARCT), and related technologies for the control of toxic air contaminants (T-BACT). CARB works closely with all districts to compile all of the BACT

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[21] A design value is statistic defined by 40 C.F.R. Part 50 that describes the air quality status of a given location relative to the level of the National Ambient Air Quality Standards (NAAQS). Design values are typically used to designate and classify nonattainment areas, as well as to assess progress towards meeting the NAAQS.
[22] Air Quality State Implementation Plans; Approvals and Promulgations: California; San Joaquin Valley; Finding of Failure to Attain the 1997 8-Hour Ozone Standard, Proposed Rule (July 10, 3035), available at *https://www.regulations.gov/document/EPA-R09-OAR-2024-0587-0001*.
[23] CARB, *Technology Clearinghouse Tools*, available at *https://ww2.arb.ca.gov/capp/cst/tch/technology-clearinghouse-tools*.

guidelines, determinations and rules for publication on CARB's statewide technology clearinghouse. CARB also collects and publishes next generation technology that is cleaner than currently required by law. Next Generation Technology is evaluated for priority sources based on stakeholder input and emissions reductions needs. SJV Air District staff have collaborated with CARB to populate information for some of these Next Generation Technology evaluations.

It is against this backdrop of historic and ongoing air quality improvement that CARB staff conducted a spot-check of the largest permitted PM2.5 emissions units operating at facilities identified by CVAQ in their April 15, 2019, request to CARB.

Data

CARB staff used publicly available permit and emissions information to complete this screening. For purposes of transparency, all resources are identified below:

- SJV Air District Public Permits Information Portal is available online at *https://apps.valleyair.org/PublicPermits/Search/Permit*.
- SJV Air District Rules and Regulations are available at *https://www.valleyair.org/rules-and-planning/current-district-rules-and-regulations/*.
- CARB Facility Search Tool (CEIDARS) is available at *https://ww2.arb.ca.gov/facility-search-tool*.[24]

Scope and Methodology

CARB's review was two-fold – first conducting its own independent review of the publicly available permits and emissions data and then reviewing the information provided by SJV Air District using CVAQ's criteria and the Board's direction as guideposts. The goal of this spot-check review was to determine if existing permits issued to the 27 corporate operators identified by CVAQ for the largest PM2.5 emitting equipment effectively implement the emission control requirements established by the SJV Air District and if the annual emissions from those emissions units were within the limits established by the permits.

CVAQ identified 27 corporate entities operating 53 distinct facilities that collectively hold nearly 2,200 SJV Air District issued permits to operate equipment. These 2,200 permit units emit more than 650 tons per year (TPY) of PM2.5 and 2,100 TPY of NOx, which account for 4% of total NOx and 3% of PM2.5 emissions in the Valley.[25] Notably, in 2023, directly-emitted PM2.5 from these sources were less than half of what they were in 2016. NOx emissions from these sources have similarly declined by nearly 40% between 2016

[24] Facility and source emissions information was obtained from data reported by the District to CARB using CARB Facility Search Tool CEIDARS.
[25] All emissions information presented herein is based on reported emissions for 2023.

and 2023. Two of the 27 sources have ceased operations (Rio Bravo Fresno and Reworld/Covanta Stanislaus). CARB staff included the emissions from these sources in the analysis; however, staff did not include a review of these permits in the subsequent permit reviews.

CARB staff narrowed down the scope of the spot-check review to get at the most significant individual permitted emissions units. CARB staff's independent review focused on the subset of facilities and permits that met the following **criteria**:

1. **Criteria One: High emitters in AB617 Communities** - Staff started with the four highest emitting[26] permit units operating at four facilities located in one of the San Joaquin Valley's four AB617 communities.[27]

2. **Criteria Two: Equipment with Continuous Emissions Monitoring Systems** - Staff included the additional 36 permit units monitored by a Continuous Emissions Monitoring System (CEMS).[28,29]

3. **Criteria Three: Other Large Sources** – Staff also reviewed all emissions units not monitored by a CEMS with PM2.5 emissions of 10 tons or more located at facilities that operate a CEMS on other equipment. This resulted in two additional emissions units being added to the review.

By applying these criteria, staff identified 42 permit units for review operated by 19 of the 27 corporate entities identified by CVAQ. The 42 permit units reviewed represent nearly 50% of the PM2.5 and 55% of the NOx emissions from the original list of 2,200 permit units operated by the 27 corporate entities identified by CVAQ. Furthermore, these individual 45 permit units alone are responsible for nearly 12% of the PM2.5 emissions and 15% of the NOx emissions from *all stationary sources* permitted by the SJV Air District. Ensuring that the permits issued to these 42 sources effectively implement applicable requirements

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[26] The screening analysis was done using 2022 emissions data. Staff reviewed only equipment with substantial PM2.5 emissions (i.e. 0.25 tons per year or more).
[27] Staff did not include Rio Bravo Fresno in the analysis; Rio Bravo submitted an Authority to Construct application to the SJV Air District requesting that the permits be made dormant. SJV Air District approved that permit revisions and conducted an inspection of the facility to ensure that the equipment was deactivated into a dormant state.
[28] CEMS provide real-time emission monitoring and immediately alert operators if emissions increase to specific levels so that corrective action can be taken to avoid or mitigate a potential emissions issue. CARB staff used the requirement for a permit unit to be monitored by CEMS as a surrogate identifying high-emitting permit units.
[29] Staff did not include Reworld/Covanta Stanislaus in the permit analysis, because Reworld ceased operations in December 2024, and surrendered their permits.

serves as an important indicator of the overall effectiveness of the SJV Air District's permitting program.

Figure 1 identifies the industry type by facility, for the 19 facilities CARB reviewed, which includes oil and gas, biomass, glass, utility and power plants, and others such as chemical manufacturing. The largest industry types are oil and gas and utility/power plants.

Figure 1. Industry Type by Facility

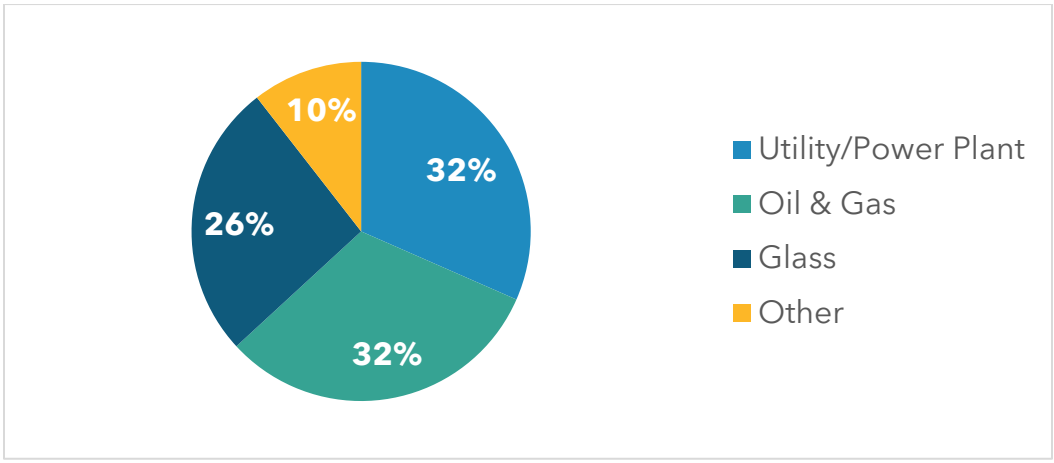
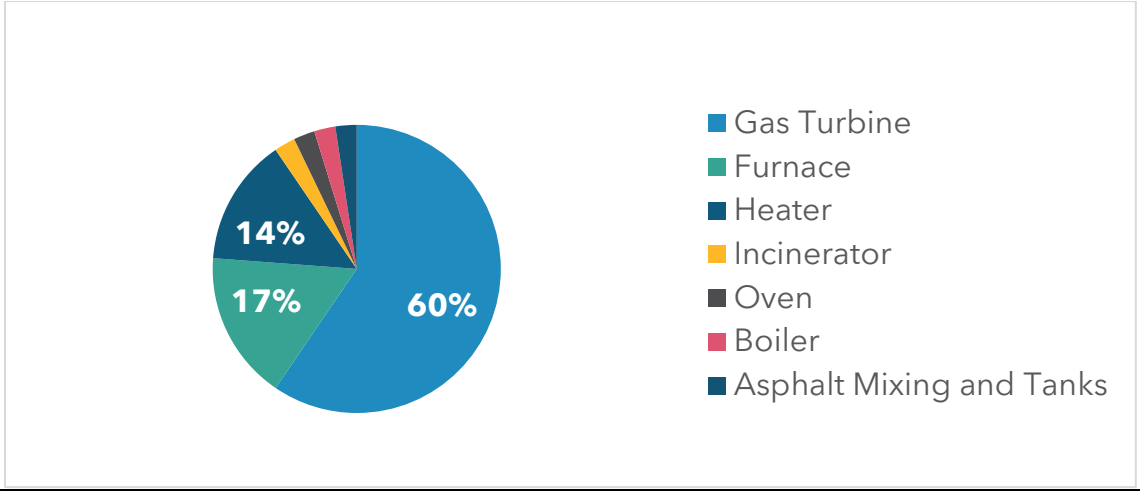


Figure 2 shows the types of equipment that are utilized at the 19 facilities reviewed, including gas turbine, furnace, heater, boiler, flare, coating operation, oven, incinerator, biomass receiving, and asphalt mixing and tanks. Approximately 80% of the emissions equipment consists of gas turbines, furnaces, and heaters.

Figure 2. Equipment Type by Permit



CARB Analysis and Findings

CARB finds that the SJV Air District is substantively meeting its statutory responsibility to ensure that the permits issued to the 27 corporate entities are issued in conformance with applicable requirements. With the list of specific emission sources to review, CARB conducted an analysis intended to determine if the permits effectively implement the underlying prohibitory rule requirements; and if the permitted equipment are reporting emissions within allowable limits.

(1) Permits to Operate

CARB staff conducted a review of the 42 emissions sources by accessing the current Permits to Operate (PTO or permit) from the SJV Air District Public Information Portal. The permit reviews identified the applicable prohibitory rules, operating and emissions limits, and required emissions control systems. CARB's findings are as follows:

- All emissions sources had enforceable permits establishing emission control requirements and limitations.

Please see Appendix A for a list of the relevant PTOs.

(2) Applicable SJV Air District Prohibitory Rules

CARB staff reviewed SJV Air District's prohibitory rules applicable to the permits looking at information such as rule emissions limits, control device requirements, and rule applicability dates. The SJV Air District's rules are located online. CARB staff evaluated whether the permits implemented the existing prohibitory rules. CARB's findings are as follows:

- All of the permits have limits that are either as stringent as or more stringent than the applicable prohibitory rule limits.

Please see Appendix A for a list of relevant prohibitory rules applicable to each permit.

(3) Emission Control Systems

CARB staff reviewed the Permits to Operate (PTO or permit) for those 42 sources to identify the emission control technologies the equipment used. The data analyzed from permits identify the types of emissions control equipment utilized and which permits have units that do not operate any emissions control devices. CARB's findings are as follows:

- All permit units have emission control devices, equipment, techniques, or operational limitations identified as enforceable operating conditions in the permits.

Please see Appendix A for a list of relevant control technologies at the facilities.

(4) Annual Emissions

Staff explored whether emissions reported by the facilities for those permit units were below established permit limits.

CARB analyzed the California Criteria Pollutant Emission Inventory through the Facility Search Tool. The Facility Search Tool allows for a query of a stationary point for criteria pollutant emissions in a given inventory reporting year. The tool pulls data from CEIDARS, which is a database management system that tracks statewide criteria pollutant and air toxic emissions. CARB staff then compared the reported annual emissions with the limits established by the permits. CARB's findings are as follows:

- Ten permit units reported annual PM10[30] and NOx emissions below the enforceable annual emissions limits specifically established in the permits.
- Thirty-two permit units did not include enforceable annual PM10 and NOx emissions limits.[31] However, staff was able to estimate the maximum potential annual emissions using the most stringent enforceable sub-annual emissions limits established in the permits.[32] Staff compared this estimate to annual reported emissions and found that:
    - Thirty-one of the permit units have reported annual PM10 and NOx emissions below staff estimates of maximum potential annual emissions.
    - One facility reported emissions above CARB staff's estimate of the maximum potential annual emissions. That facility operated under a variance while necessary repairs to emission control equipment were made.[33] State law[34] establishes a public process where facility operators can seek temporary relief from permit requirements if the air district Hearing Board can make certain factual findings.

Please see Appendix A for a list of relevant emissions.

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[30] Permits establish particulate matter emissions limits as PM10; accordingly, CARB staff compared reported PM10 emissions with thePM10 limits established in the permits.
[31] There is no requirement in federal or State law or in SVJ Air District rule that specifically requires all permits to have enforceable annual emissions limits. In many cases, SJV Air District permits include enforceable sub-annual emissions limits (e.g. per day aggregate emissions limits) or production-based emissions limits (e.g. emissions per number of units produced) combined with operational limitations (e.g. limits on number of units produced per time period).
[32] Staff took a conservative approach to estimating maximum permittable emissions, by evaluating the most stringent sub-annual emissions limit and assuming the facility operated at a steady state for the maximum allowable operational time established by the permit; Staff assumed 24 hours of daily operation each day if the permit did not include other operational restrictions.
[33] See variance C-22-13S (December 21, 2021).
[34] Health & Saf. Code § 42350, et seq.

Conclusion

CARB finds that the District is substantively meeting its statutory responsibility to ensure that the permits issued to the 27 corporate entities are issued in conformance with applicable requirements. The SJV Air District continues to make significant progress toward meeting California's clean air goals through extensive planning, rulemaking, permitting, and enforcement efforts. CARB remains committed to working with the SJV Air District and communities to attain National Ambient Air Quality Standards and reduce harmful air pollution that impacts communities. Also, CARB strives to address sources most important to communities through AB 617's Community Air Protection Program, State Implementation Plans, and community-focused enforcement. Each of these provides opportunities for CARB, air districts, and communities to work together to help shape California's strategy to address air quality goals. For more information on how stationary source air quality permitting is conducted in California, please see the following CARB website, [35] which was a collaboration between CARB, the California Air Pollution Control Officers Association (CAPCOA), and air districts, including SJV Air District.

Enclosures: Appendix A: List of Facilities and Relevant Data

Appendix B: SJV Air District Top Stationary Sources Review

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[35] CARB, *Stationary Source Permitting – Community Questions, available at https://ww2.arb.ca.gov/capp/cst/tch/stationary-source-permitting-community-questions.*

Appendix A

List of Facilities and Relevant Data[36]

Facility Name & Permit No.	Review Criteria[37]	Applicable SJV Air District Prohibitory Rules (for PM and NOx)	Pollution Control Technology	Emissions			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Kern Oil & Refining Co. PTO S-37-1-18	1	4201, 4301, 4305, 4306, 4320, 4351	Low-NOx burners	0.014 lb/MMBtu (#1, #2)	4.43	15 ppmv @3% O2 (#1) 0.018 lb/MMBtu (#1) 9 ppmv @3% O2 (#2) 0.011 lb/MMBtu (#2)	12.42
Kern Oil & Refining Co. PTO S-37-4-20	2	4201, 4301, 4305, 4306, 4320, 4351	Low-NOx burners	7.6 lbs/MMscf (#1, #2, #3) 10.8 lb/day (combined)	0.53	25 ppmv @ 3% O2 (#1, #2, #3) 0.03 lb/MMBtu (#1, #2, #3) 42.6 lb/day (combined)	1.56
Kern Oil & Refining Co. PTO S-37-77-21	2	4201, 4301, 4305, 4306, 4320, 4351	Low-NOx burners	0.0076 lb/MMBtu (#1, #2)	0.88	25 ppmv @ 3% O2 (#1, #2) 13 lb/day (#1, #2)	2.37
Kern Oil & Refining Co. PTO: S-37-118-6	2	4305, 4306, 4351, 4301, 4320, 4201	Low-NOx burners	0.0076 lb/MMBtu (#1, #2)	0.61	25 ppmv @ 3% O2 (#1, #2)	2.80

[36] Staff's analysis uses reported emissions data for calendar year 2023, which was the most current year with complete reported data.
[37] Criteria used to determine the facilities are described in the Scope and Methodology section.

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Kern Oil & Refining Co. PTO: S-37-119-8	2	4201, 4202, 4305, 4306, 4201, 4320, 4351	Low-NOx burners	0.0076 lb/MMBtu (#1, #2, #3, #4)	1.20	25 ppmv @ 3% O2 (#1, #2, #3) 9 ppmv @ 3% O2 (#4)	3.94
Kern Oil & Refining Co. PTO: S-37-122-8	2	4201, 4301	Low-NOx burners	0.0137 lb/MMBtu	0.06	95 ppmv @ 3% O2	0.10
Kern River Cogeneration Facility PTO: S-88-1-23	2	4201, 4703	Dry Low-NOx burners	5 lb/hr 120 lb/day	1.57	3 ppmv @15% O2 12.4 lb/hr(3-hr) 140 lb/hr (2-hr, startup/shutdown) 552.8 lb/day	5.10
Kern River Cogeneration Facility PTO: S-88-2-24	2	4201, 4703	Dry Low-NOx burners	5 lb/hr 120 lb/day	2.48	3 ppmv @15% O2 12.4 lb/hr 140 lb/hr (2hr, startup/shutdown) 552.8 lb/day	7.17
Kern River Cogeneration Facility PTO: S-88-4-25	2	4201, 4703	Dry Low-NOx burners	5 lb/hr 120 lb/day	0.26	3 ppmv @15% O 12.4 lb/hr (3-hr) 140 lb/hr (2-hr, startup/shutdown) 552.8 lb/day	1.44

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Certainteed Corporation PTO: C-261-2-32	2	4202, 4201, 4354	Clean fire HRX burners Dry ESP	0.5 lb/ton product (24-hr)(combined) 22.8 lb/hr (NG)(oil)(combined) 547.2 lb/day (LPG)(combined) 8.4 lbs/hr (through ESP) 34,325 lb/yr (combined)	14.08	3 lb/ton product (with nitrate, 24-hr) (combined) 1.45 lb/ton product (no nitrate, 24-hr)(combined) 55.9 lb/hr (NG)(combined) 40 lb/hr (oil)(combined) 1,074.7 lb/day (LPG)(combined) 200,521 lb/yr(combined)	27.72
Certainteed Corporation PTO: C-261-3-21	3	4202, 4201, 4309	Wet electrostatic precipitators Baghouse dust collector	0.0076 lb/MMBtu (#1, #2, #3) 11.8 lb/hr (#1, #2, #3) 22.8 lb/hr (combined) 547.2 lb/day (combined) 323 lb/year (#3)	28.23	4.3 ppmv @19% O2 (#3) 0.049 lb/MMBtu (#3) 2,468 lb/yr (#3) 1,074.7 lb/day (combined)	4.95
Certainteed Corporation PTO: C-261-4-18	3	4202, 4201	Cyclonic scrubbers Condenser Wet ESP Bagging Controlled by Baghouse	4.5 lb/hr (#1, #2) 108 lb/day (#1, #2) 22.8 lb/hr (combined) 547.2 lb/day (combined) (propane)	18.10	1,074.7 lb/day (combined) (propane)	42.90
Sycamore Cogeneration Facility PTO: S-511-1-21	2	4201, 4703	Dry Low-NOx burners	5 lb/hr 120 lb/day	3.99	3 ppmv @15% O2 12.4 lb/hr (3-hr) 140 lb/hr (2-hr, startup/shutdown) 552.8 lb/day 271,200 lb/yr (combined)	13.02

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Sycamore Cogeneration Facility PTO: S-511-2-22	2	4201, 4703	Dry Low-NOx burners	5 lb/hr 120 lb/day	0.61	3 ppmv @15% O2 12.4 lb/hr 140 lb/hr (2-hr, startup/shutdown) 552.8 lb/day 271,200 lb/yr (combined)	2.01
Sycamore Cogeneration Facility PTO: S-511-4-21	2	4201, 4703	Dry Low-NOx burners	5 lb/hr 120 lb/day	5.86	3 ppmv @15% O2 12.4 lb/hr 140 lb/hr (2-hr, startup/shutdown) 552.8 lb/day 271,200 lb/yr (12-month rolling)(combined)	22.90
Guardian Industries, LLC PTO: C-598-4-21	2	4201, 4354	High temp scrubber (DS) Electrostatic precipitator (PD) Selective catalytic reduction (SCR)	0.2 lb/ton product (24-hr) 5.83 lb/hr	21.83	2.8 lb/ton product (24-hr) 2.5 lb/ton product (30-day) 81.67 lb/hr	182.75
Dte Stockton, LLC PTO: N-645-36-7	1	4201, 4203, 4301	multi-clone ESP Wet Scrubber Selective Catalytic Reduction	0.0214 lb/MMBtu 0.078 lb/MMBtu (startup/shutdown) 26,824 (Q1) 26,824 (Q2) 26,824 (Q3) 26,824 (Q4)	11.24	0.065 lb/MMBtu 0.74 lb/MMBtu (startup/shutdown) 140 lb/hr 53,837 lb/Q1 53,837 lb/Q2 53,838 lb/Q3 53,838 lb/Q4	105.46

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
J R Simplot Company PTO: C-705-3-21	2	4201	NO2 to N2 butane/natural gas-fired combustor Scrubber Non-selective catalytic reduction system	0.13 lb/ton product	5.03	2.98 lb/ton product (3-hr) 0.78 lb/ton product (12-month rolling average) 834.4 lb/day	5.47
Ardagh Glass Inc. PTO: C-801-1-24	2	4354, 4202, 4201, 4301	Low-NOx oxy-fuel burners Semi-dry scrubber/ESP	0.2 lb/ton product (24-hr) 164,719 lb/year (combined)	3.11	1.1 lb/ton product (30-day)	29.15
Ardagh Glass Inc. PTO: C-801-2-15	2	4354, 4202, 4201, 4301	semi-dry scrubber semi-dry ESP staged low-NOx burners	0.5 lb/ton product (24-hr) 95,618 lb/year 164,719 lb/year (combined)	3.91	1.3 lb/ton product (24-hr) 252,473 lb/year (12-month rolling)	65.00
Henry Company LLC- Fresno (Formerly MB Technology) PTO: C-817-1-7	1	4201	Mist eliminator	0.16 lb/ton product	0.01	Unit does not emit NOx	Unit does not emit NOx
Vitro Flat Glass LLC PTO: C-948-11-21	1	4354, 4202, 4201, 4301	Dry scrubber Cooling tower Electrostatic precipitator Selective non-catalytic reduction	0.2 lb/ton product 18.8 lb/hr 14,310 lb/year	27.01	2.8 lb/ton product (24-hr) 2.5 lb/ton product (30-day)	178.49

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Berry Petroleum Company LLC PTO: S-1246-250-7	2	4201, 4703	Selective Catalytic Reduction	2.6 lb/hr	3.75	5 ppmv @15% O2 (w 90d of next Major Overhaul) 8 lb/hr	4.08
Berry Petroleum Company LLC PTO: S-1246-251-7	2	4201, 4703	Selective Catalytic Reduction	2.6 lb/hr	3.79	5 ppmv @15% O2 (w 90d of next Major Overhaul) 8 lb/hr	5.51
Aera Energy LLC PTO: S-1547-148-29	2	4703,	SCR Ammonia injection	0.016 lb/MMBtu 90.4 lb/day	3.92	3 ppm @ 15% (3-hr)	2.53
Aera Energy LLC PTO: S-1547-149-28	2	4201, 4703,	SCR Ammonia injection	0.016 lb/MMBtu 90.4 lb/day	5.52	3 ppm @ 15% (3-hr) 190.2 lb/day	9.08
Aera Energy LLC PTO: S-1547-151-29	2	4201, 4703,	SCR Ammonia injection	0.016 lb/MMBtu 90.4 lb/day	5.87	3 ppm @ 15% (3-hr)190.2 lb/day	6.96
Gallo Glass Company PTO: N-1662-1-29	2	4354, 4202, 4201, 4301	SOx scrubber Ammonia injection system Ceramic filter dust collectors	0.18 lb/ton of product (#1) 22,936 lb/Q1 (#1) 23,190 lb/Q2 (#1) 23,445 lb/Q3 (#1) 23,445 lbQ4 (#1) 0.71lb/ton (full/partial emission control bypass)(#1) 0.0049 lb/ton of lime (#2)(combined)	7.26	0.99 lb/ton (30-day)	70.49

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Berry Petroleum Company LLC PTO: S-2265-1-16	2	4201, 4703	Low NOx combustors Selective catalytic reduction (SCR)	5.7 lb/hr	1.59	5 ppmv @15%O2 8.29 lb/hr	2.22
Cxa La Paloma, LLC PTO: S-3412-1-23	2	4201, 4703	Dry Low NOx combustors Selective catalytic reduction (SCR) Oxidation Catalyst	11 lb/hr 264 lb/day 96,360 lb/year	5.21	2.5 ppmv @15%O2 17.3 lb/hr 511.4 lb/day 146,001 lb/year	15.20
Cxa La Paloma, LLC PTO: S-3412-2-24	2	4201, 4703	Dry Low NOx combustors Selective catalytic reduction (SCR) Oxidation Catalyst	11 lb/hr 264 lb/day 96,360 lb/year	6.98	2.5 ppmv @15%O2 17.3 lb/hr 511.4 lb/day 146,001 lb/year	16.97
Cxa La Paloma, LLC PTO: S-3412-3-24	2	4201, 4703	Dry Low NOx combustors, Selective catalytic reduction Oxidation Catalyst	11 lb/hr 264 lb/day 96,360 lb/year	4.83	2.5 ppmv @15% O2 17.03 lb/hr 511.4 lb/day 146,001 lb/year	16.73
Cxa La Paloma, LLC PTO: S-3412-4-19	2	4201, 4703	Dry Low NOx combustors Selective catalytic reduction (SCR) Oxidation Catalyst	11 lb/hr 264 lb/day 96,360 lb/year	6.06	2.5 ppmv @15%O2 17.3 lb/hr 511.4 lb/day 146,001 lb/year	10.91
Elk Hills Power LLC PTO: S-3523-1-13	2	4201, 4703	Dry Low NOx (DLN) combustors Selective catalytic reduction (SCR) Oxidation catalyst	15.0 lb/hr (3hr) 360.0 lb/day 720.0 lb/day combined 261,960 lb/year (combined)	18.77	2.5 ppmv @15% O2 (1-hr) 15.8 lb/hr (1-hr) 752.0 lb/day 1,103.0 lb/day (combined) 335,022 lb/year (combined)	36.21

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Elk Hills Power LLC PTO: S-3523-2-13	2	4201, 4703	Dry Low NOx (DLN) -combustors Selective catalytic reduction (SCR) Oxidation catalyst	15.0 lb/hr 360.0 lb/day 720.0 lb/day combined 261,960 lb/year (combined)	22.26	2.5 ppmv @15% O2 15.8 lb/hr 752 lb/day 1103 lb/day (combined) 335,022 lb/year (combined)	37.78
Pastoria Energy Facility, LLC PTO: S-3636-1-10	2	4703	Dry Low NOx-combustors, Selective catalytic reduction (SCR)	9 lb/hr 216 lb/day 224,343 lb/year (combined)	6.96	2.5 ppmv @15% O2 130 lb/hr (coldstartup) 17.03 lb/hr 107 lb/hr (hot startup) 119 lb/hr (warmstartup) 58.5 lb/hr (shutdown) 450 lb/day	35.33
Pastoria Energy Facility, LLC PTO: S-3636-2-10	2	4703	Dry Low NOx combustors Selective catalytic reduction	9 lb/hr 216 lb/day 224,343 lb/year (combined)	6.99	2.5 ppmv @15% O2 130 lb/hr (cold startup) 17.03 lb/hr 107 lb/hr (hot startup) 119 lb/hr (warm startup) 58.5 lb/hr (shutdown) 450 lb/day (day of startup/shutdown)	32.40

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Pastoria Energy Facility, LLC PTO: S-3636-3-10	2	4703	Dry Low NOx combustors, Selective catalytic reduction	9 lb/hr 216 lb/day 224,343 lb/year (combined)	7.12	2.5 ppmv @15% O2 130 lb/hr (cold startup) 17.03 lb/hr 107 lb/hr (hot startup) 119 lb/hr (warm startup) 58.5 lb/hr (shutdown) 450 lb/day (day of startup/shutdown)	35.55
Sunrise Power Co PTO: S-3746-1-14	2	4201, 4703	Dry Low NOx combustors Selective catalytic reduction (SCR) Oxidation catalysts	17.8 lb/hr 461.2 lb/day 922.3 lb/day (combined) 269,651 lb/year (combined)	0.97	2.0 ppmv @15% O2 (1-hr) 15.96 lb/hr 1,170.0 lb/day 2,341.8 lb/day (combined) 311,337 lb/year (combined)	24.28
Sunrise Power Co PTO: S-3746-2-14	2	4201, 4703	Dry Low NOx combustors, Selective catalytic reduction (SCR) Oxidation catalysts	17.8 lb/hr 461.2 lb/day 922.3 lb/day (combined) 269,651 lb/year (combined)	1.55	2.0 ppmv @15% O2 (1-hr) 15.96 lb/hr 1,170.0 lb/day 2,341.8 lb/day (combined) 311,337 lb/year (combined)	24.53

Facility Name & Permit No.	**Review Criteria**[37]	**Applicable SJV Air District Prohibitory Rules (for PM and NOx)**	**Pollution Control Technology**	**Emissions**			
				PM2.5 PTO Limits (Emission Unit #1, #2, etc.)	**Reported PM2.5 2023 (TPY)**	**NOx PTO Limits** (Emission Unit #1, #2, etc.)	**Reported NOx 2023 (TPY)**
Walnut Energy Center Authority PTO: N-7172-1-5	2	4703, 4201	Dry Low NOx-combustors, Selective catalytic reduction (SCR) Oxidation catalyst	7 lb/hr 168 lb/day	21.48	2.0 ppmv @15% O2 (1-hr) 30 ppmv @15% O2 (1-hr, with short term excursion) 119.0 lb/hr (startup/shutdown) 444.2 lb/day (Combined start/stop/steady) 35,000 lb/quarter (combined with 7172-2) 140,000 lb/year (combined with 7172-2)	21.37
Walnut Energy Center Authority PTO: N-7172-2-5	2	4703, 4201	Dry Low NOx-combustors, Selective catalytic reduction (SCR) Oxidation catalyst	7 lb/hr 168 lb/day	21.81	2.0 ppmv @15% O2 (1-hr) 30 ppmv @15% O2 (1-hr, with short term excursion) 119.0 lb/hr (startup/shutdown) 444.2 lb/day (Combined start/stop/steady) 35,000 lb/quarter (combined with 7172-2) 140,000 lb/year (combined with 7172-2)	21.34

Appendix B

San Joaquin Valley Top Stationary Sources Review Report

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

San Joaquin Valley Top Stationary Sources Review
August 26, 2025

I. Introduction

Due to decades of strategic investment and strong partnerships, the San Joaquin Valley (Valley) has achieved significant clean air milestones. Since 1992, the San Joaquin Valley Air Pollution Control District (District) has adopted nearly 700 rules to reduce emissions from sources under its jurisdiction – reflecting a consistent push toward cutting-edge, feasible solutions. As a result, nitrogen oxide (NOx) emissions from stationary sources have dropped by an incredible 94%, helping drive down both ozone and particulate matter with an aerodynamic diameter of less than 2.5 microns (PM2.5) pollution. Today, emissions of ozone and PM2.5 precursors are at all-time lows, delivering real health benefits across the region. According to the most recent data from the California Health and Human Services (CalHHS) Agency (2015-2022), the Valley has experienced a positive trend in decreasing the number of asthma related hospitalizations, with a 47.5% decrease during this timeframe. Building on this success, the District remains committed to further reducing pollution so all Valley residents breathe cleaner air.

Background

In April 2019, the Central Valley Air Quality Coalition (CVAQ) and partners submitted a letter to the California Air Resources Board (CARB) following CARB's adoption of the San Joaquin Valley's *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* (*2018 PM2.5 Plan*),[1] urging CARB to conduct a thorough review of emission reduction opportunities at the Valley's largest stationary sources of pollution. In this letter, CVAQ identified 27 corporate operations ("27 sources") in the Valley that emitted 10 tons per year (tpy) or more of direct PM2.5 (based on 2016 emissions inventory data), and requested that CARB conduct an evaluation of the amount and sources of emissions at these facilities, the types of pollution control equipment in use, and emission reduction opportunities at each source.

In a response letter to CVAQ dated August 16, 2019, CARB described ongoing efforts and complementary goals to address emissions from stationary sources, including the initiation of the development of a technology clearinghouse that identifies the best technologies for reducing emissions (Including best available control technology (BACT), best available retrofit control technology (BARCT), and related technologies for the control of toxic air contaminants (T-BACT)), adoption of an enhanced criteria and toxics emissions reporting regulation for stationary sources, development of community-focused enforcement plans, and the enhancement of the District's Emission Reduction Credit (ERC) program. CARB and the District collaborated throughout these efforts to provide information regarding the programs in place to reduce emissions from stationary sources.

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[1] SJVAPCD. *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*. November 15, 2018. Retrieved from: https://archive.valleyair.org/pmplans/documents/2018/pm-plan-adopted/2018-Plan-for-the-1997-2006-and-2012-PM2.5-Standards.pdf

Overview

This document provides a detailed analysis of the 27 “sources”, or collective operations identified in the 2019 letter, which include over 2,800 individually permitted units located at 53 facilities, which are dispersed throughout the San Joaquin Valley. Each source’s NOx and PM2.5 emissions reported in the state’s emissions inventory database (CEIDARS) is presented below.

To prepare the annual criteria and toxic emissions data reported in the CEIDARS database, the District works extensively throughout the year to quantify emissions and collaborates closely with CARB to validate the accuracy of the data. The emissions inventory process begins early each calendar year, when emissions-related information is requested from permitted stationary sources for the prior calendar year. District staff reviews the submitted usage rates, emission factors, and emissions for each process at every permitted unit, for which the facility is required to provide a signed attestation to the accuracy of the information. Emissions may be calculated from Continuous Emissions Monitoring Systems (CEMS) or using process rates and emission factors. If source testing is required, then the source test data is used to update the emission factor.

The District performs internal quality checks to identify outliers and investigates to ensure the data is correct. Additionally, these calculated emissions are subject to quality assurance to ensure they do not exceed permit limits for any pollutant. CARB conducts an additional review and quality assurance of the submitted data as part of the statewide emissions inventory process. The table compares each facility’s emissions from 2016, as this was the year originally referred to in the 2019 letter, to 2023, the most recent year with complete data available.

Table 1 – 2016 and 2023 Emissions at 27 Sources

Source Type	Source Name	NOx (tpy)		% Change	PM2.5 (tpy)		% Change
		2016	2023		2016	2023	
Oil and Gas	Aera Energy, LLC	384.00	213.87	-44%	119.76	43.18	-64%
	Alon Bakersfield Refining	6.89	5.34	-23%	15.62	2.53	-84%
	Berry Petroleum Company LLC / Linn Operating, Inc	151.61	70.23	-54%	118.55	61.66	-48%
	California Resources Production Corporation	264.87	46.79	-82%	50.14	14.85	-70%
	Chevron USA INC	339.85	72.19	-79%	502.54	41.99	-92%
	Kern Energy (Kern Oil & Refining Co.)	50.92	29.20	-43%	15.95	11.33	-29%
	Sentinel Peak Resources	76.41	42.36	-45%	91.27	54.74	-40%
	Oil and Gas Total	**1274.56**	**479.97**	**-62%**	**913.84**	**230.29**	**-75%**
Biomass	DTE Stockton, LLC	95.76	105.46	+10%	12.47	13.20	+6%
	Kern River Cogeneration Co	49.52	14.97	-70%	15.93	4.54	-72%
	Reworld (Covanta) Stanislaus, INC*	295.56	178.98	-39%	32.74	51.53	57%

Source Type	Source Name	NOx (tpy)		% Change	PM2.5 (tpy)		% Change
		2016	2023		2016	2023	
	Rio Bravo Fresno*	91.40	83.6	+9%	25.44	15.00	-41%
	Sycamore Cogeneration Co	103.91	39.62	-62%	27.81	11.01	-60%
	Biomass Total	**636.15**	**422.63**	**-34%**	**114.38**	**95.28**	**-17%**
Glass	Ardagh Glass Inc	142.70	107.27	-25%	23.17	12.39	-47%
	Gallo Glass Company	274.20	251.82	-8%	15.48	13.69	-12%
	Guardian Industries, LLC	309.19	183.14	-41%	11.64	22.42	+93%
	Vitro Flat Glass LLC	284.36	179.40	-37%	12.27	34.43	+181%
	Glass Total	**1010.45**	**721.63**	**-29%**	**62.55**	**82.93**	**+33%**
Utility/Power Plants	CXA LA Paloma, LLC	103.63	59.93	-42%	26.52	24.28	-8%
	Elk Hills Power LLC	66.08	74.02	+12%	82.59	42.10	-49%
	Pastoria Energy Facility, LLC	91.49	104.72	+14%	27.17	26.37	-3%
	Sunrise Power Co	61.47	48.81	-21%	75.95	8.62	-89%
	Walnut Energy Center Authority	34.01	42.76	+26%	34.69	44.31	+28%
	Utility/Power Plants Total	**356.67**	**330.25**	**-7%**	**246.91**	**145.69**	**-41%**
Other	CertainTeed Corporation	110.44	75.76	-31%	59.59	60.50	+2%
	Foster Foods Products	4.76	2.90	-39%	10.06	8.64	-14%
	Henry Company (MB Technology)	0.00	0.00	-	0.89	0.04	-95%
	J R Simplot Company	9.09	12.64	+39%	11.50	5.85	-49%
	NAS Lemoore	56.30	70.86	+26%	16.08	9.49	-41%
	Nestle Purina Petcare Company	0.24	2.17	+804%	12.85	13.61	+6%
	Other Total	**180.83**	**164.33**	**-9%**	**110.98**	**98.13**	**-12%**
	TOTAL	**3,459**	**2119**	**-39%**	**1,449**	**652**	**-55%**

**Note: Rio Bravo and Reworld (Covanta) Stanislaus have since closed their operations.*

Due in part to the comprehensive control strategy implemented by the District, emissions at these facilities have decreased significantly since 2016, including a 39% reduction in NOx emissions and a 55% reduction in PM2.5 emissions as of 2023. Out of the 27 sources on the 2016 list, two sources are no longer in operation, representing an additional 0.8% reduction in NOx emissions and 3% reduction in PM2.5 emissions. Among the facilities still operating beyond 2023, only 18 remain above 10 tpy PM2.5. Emissions at many of these facilities are expected to decrease further as certain types of equipment in use at these facilities are subject to recently amended District rules that will require more stringent emission limits with compliance dates in 2024 and beyond.

This document includes a review of the District and CARB's control strategies and programs, past and current emissions at these sources, applicable District rules, control technologies installed at these facilities, emission reductions achieved since 2016, and potential emission reduction opportunities.

Emissions and Air Quality Trends

Significance of Sources in Valley

Stationary sources make up just a fraction of total NOx and PM2.5 emissions in the Valley. Figure 1 and Figure 2 below show the total 2023 emissions inventory for NOx and PM2.5, respectively, broken down by source type (mobile, area, or stationary). The stationary source emissions in the figures are further broken down to show the portion of emissions from each of the 27 sources on the list.

Figure 1 – 27 Sources Contribution to 2023 NOx Emissions Inventory

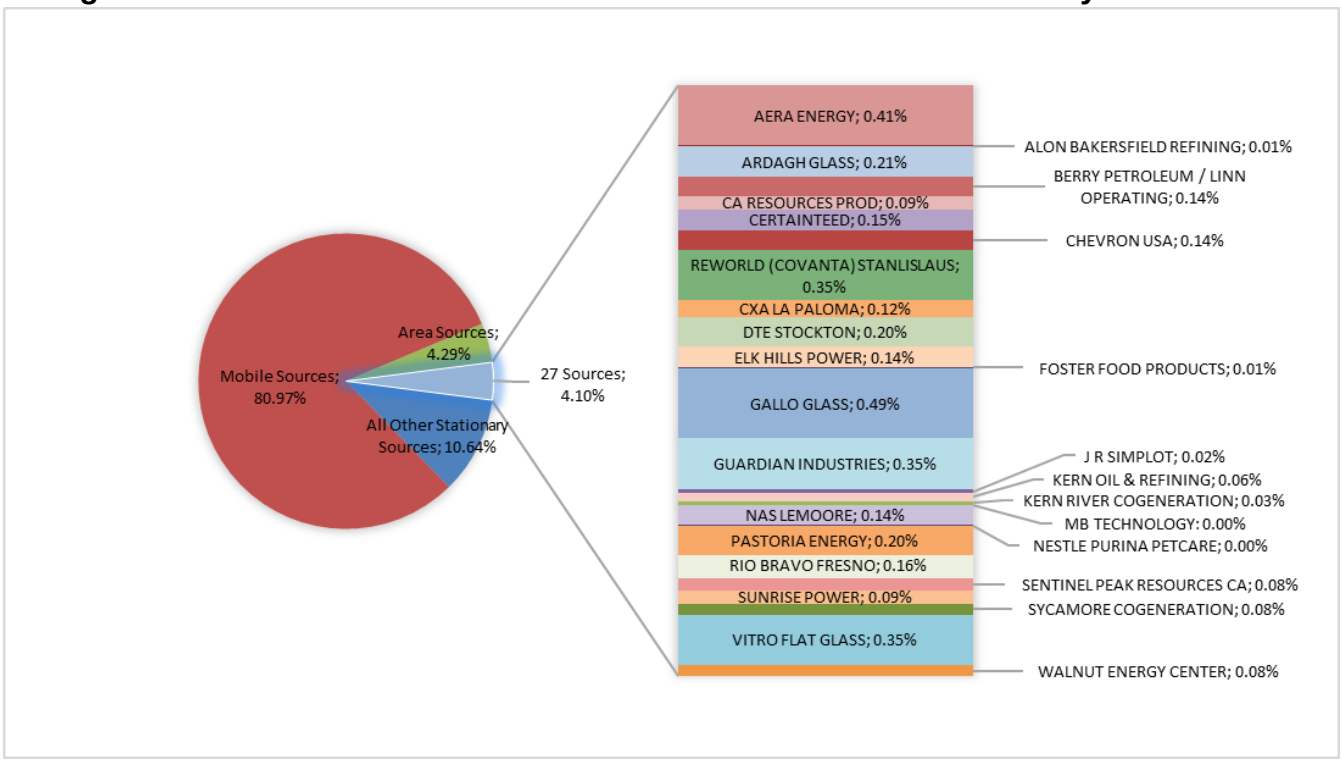
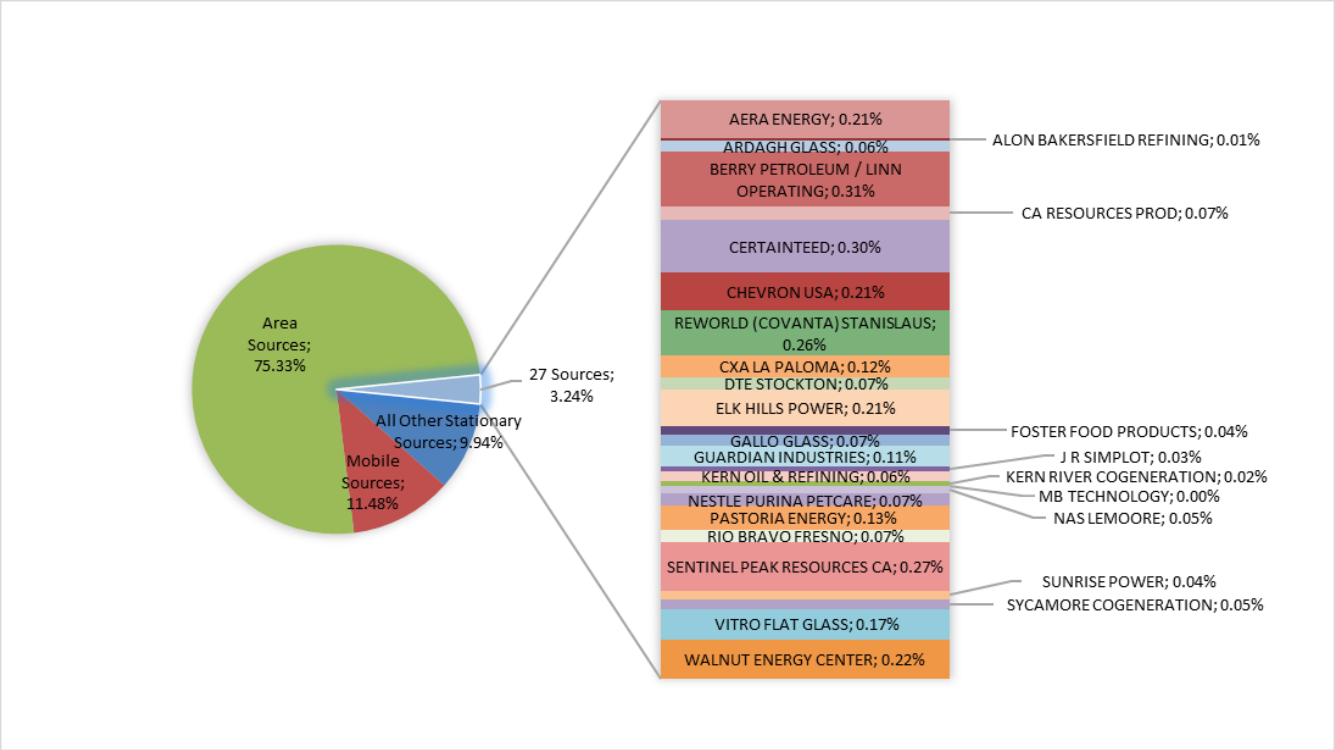


Figure 2 – 27 Sources Contribution to 2023 PM2.5 Emissions Inventory

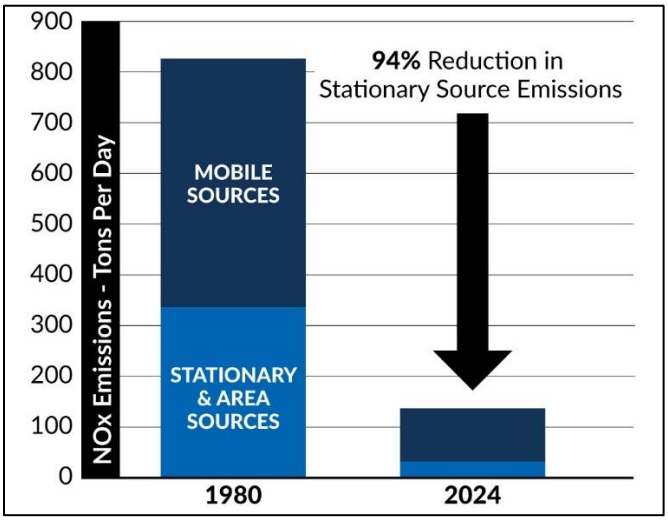


As shown above, emissions from the 27 “sources” are only a small portion of total emissions in the Valley.

Air Quality Trends

Through the significant investments made in the Valley to implement emission reduction strategies, the Valley’s ozone and PM2.5 precursor emissions are at historically low levels, and air quality has improved significantly, providing Valley residents with associated health benefits. Since 1992, the District has taken nearly 700 regulatory actions through ongoing air quality improvement strategies to reduce emissions in the Valley from various sources. Many emission reduction strategies are fourth- or fifth-generation, meaning that they have been revised multiple times and emission limits have been lowered, as new emission control technologies become available, technologically feasible, and cost-effective. Through these ongoing local air quality improvement efforts, NOx emissions have been reduced from mobile and stationary sources by over 75%, including a greater than 94% reduction from stationary sources under the District’s jurisdiction, as shown in the figure below. Stationary sources contributed approximately 40% of NOx emissions in the Valley in the 1980’s, however today, contribute just 14% - leaving the overwhelming majority of NOx emissions in the Valley attributable to mobile sources outside of the District’s control.

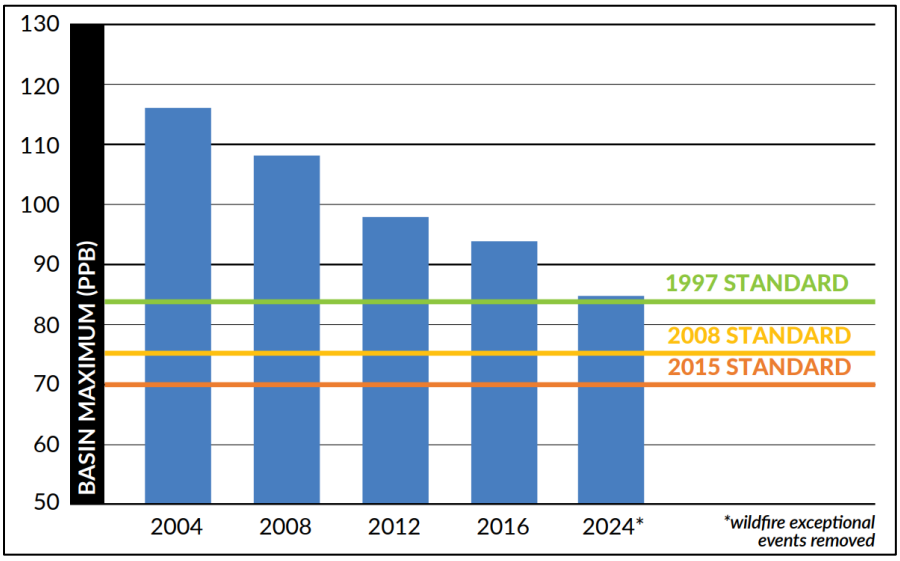
Figure 3 – Major NOx Reductions



As a result of these ongoing emission reduction efforts, the Valley has steadily progressed toward meeting strict federal air quality standards for PM2.5 and ozone. Even with occasional setbacks from wildfires, recent analyses by the District and CARB show the region is approaching attainment of additional key air quality standards. Improvements are evident across both rural and urban areas – including Stockton, Modesto, Fresno, Visalia, and Bakersfield – where air quality is significantly better than in previous years.

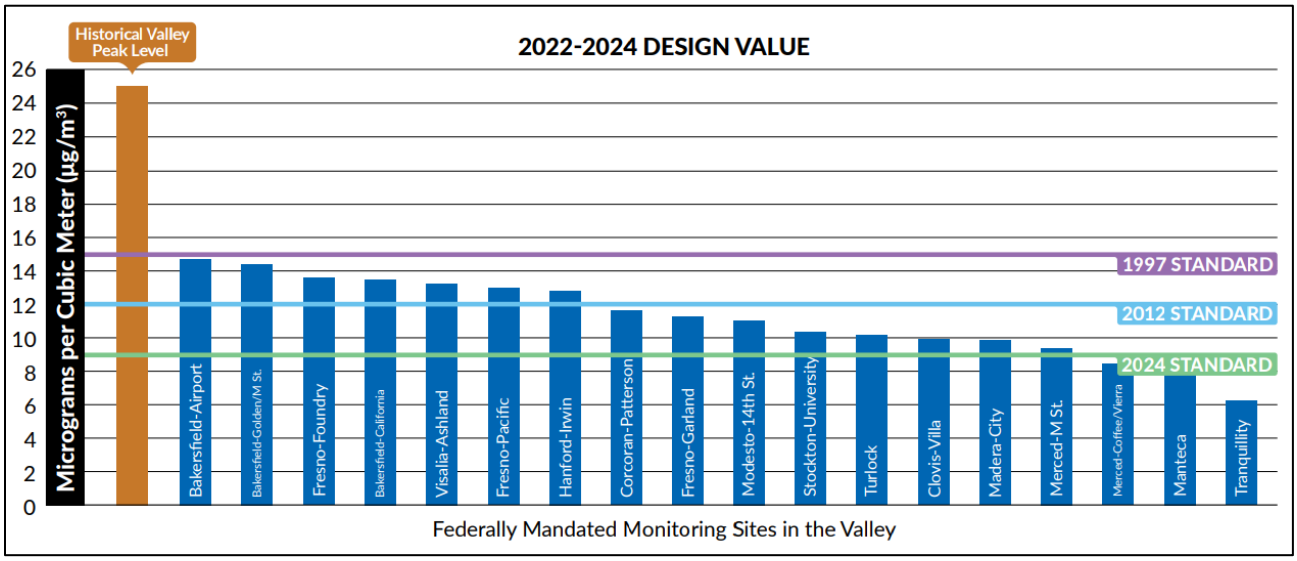
Significant progress has been made with respect to ozone concentrations in the Valley. Excluding wildfire impacts, the Valley is on the verge of attaining the 8-hour standard of 84 parts per billion (ppb), while progressing towards the more stringent standards of 75 ppb and 70 ppb. The figure below shows how far the Valley has come in reducing peak ozone values, bringing the Valley even closer to attaining the health-based air quality standards.

Figure 4 – 8-Hour Ozone Design Value Progress



The District has also made substantial progress in reducing PM2.5 concentrations, including an over 50% reduction in annual average PM2.5 since PM2.5 first began to be measured in the Valley in 1999. The figure below shows the historical Valley peak PM2.5 and the most recent PM2.5 design values for each federally mandated monitoring site. Most notably, based on certified air quality data from 2022-2024, the District has demonstrated that the Valley is now in attainment of the annual PM2.5 standard of 15 µg/m^3. Furthermore, a majority of the Valley is in attainment of the 12 µg/m^3 standard. Alongside these improvements, the Valley has seen an increasing number of days meeting health-based air quality standards across all counties. By continuing to build on past achievements and strengthening collaborative efforts, the Valley remains committed to further reducing PM2.5 pollution and ensuring cleaner air for all communities in the region.

Figure 5 – 2022-2024 Design Values by Monitoring Site



In addition to the recent attainment of the 15 µg/m^3 PM2.5 standard, the Valley has attained the 1987 PM10 standard[2] and the 1979 1-hour ozone standard.[3] Additionally, on January 28, 2022, EPA determined that the Valley attained the 1997 24-hour PM2.5 standard of 65 µg/m^3 by the attainment date of December 31, 2020.[4]

II. Implementation of Control Strategies/Programs/Emissions Inventory

District Attainment Plans

The District has developed numerous attainment plans over the years that set forth a path for the Valley to attain increasingly more stringent federal air quality standards. Most recently, the District adopted the *2020 RACT Demonstration*,[5] *2022 Ozone Plan,*[6] and *2024 PM2.5 Plan*,[7] which contain the District's NOx, VOC, and PM2.5 control strategies. These attainment plans evaluate all emission sources under the District and

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[2] EPA. *Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; State of California; PM–10; Revision of Designation; Redesignation of the San Joaquin Valley Air Basin PM–10 Nonattainment Area to Attainment; Approval of PM–10 Maintenance Plan for the San Joaquin Valley Air Basin; Approval of Commitments for the East Kern PM–10 Nonattainment Area*. 73 FR 66759. November 12, 2008. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2008-11-12/pdf/E8-26500.pdf

[3] EPA. *Determination of Attainment of the 1- Hour Ozone National Ambient Air Quality Standard in the San Joaquin Valley Nonattainment Area in California*. 81 FR 46608. July 18, 2016. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2016-07-18/pdf/2016-16792.pdf

[4] EPA. *Partial Approval and Partial Disapproval of Air Quality Implementation Plans and Determination of Attainment by the Attainment Date; California; San Joaquin Valley Serious Area and Section 189(d) Plan for Attainment of the 1997 24-hour PM2.5 NAAQS; Final Rule.* 87 FR 4503. January 28, 2022. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2022-01-28/pdf/2022-01728.pdf

[5] SJVAPCD. *2020 Reasonably Available Control Technology Demonstration for the 2015 8-Hour Ozone Standard.* June 18, 2020. Retrieved from: https://ww2.valleyair.org/media/3xrdxpvl/2020-ract-demonstration.pdf

[6] SJVAPCD. *2022 Plan for the 2015 8-Hour Ozone Standard*. December 15, 2022. Retrieved from: https://ww2.valleyair.org/media/q55posm0/0000-2022-plan-for-the-2015-8-hour-ozone-standard.pdf

[7] SJVAPCD. *2024 Plan for the 2012 Annual PM2.5 Standard*. June 20, 2024. Retrieved from: https://ww2.valleyair.org/media/gw5bacvj/2024-pm25-plan.pdf

CARB's regulatory authority for both NOx and PM2.5 sources, including significant analysis to ensure the District is meeting all requirements including Best Available Control Measure (BACM) and Most Stringent Measures (MSM), as well as analysis of potential emission reduction opportunities to ensure the District is implementing the most stringent control strategy in the nation. Each stationary and area source control measure evaluation conducted in attainment plans follows a thorough and comprehensive analysis, including the discussions and evaluations listed below, modeled after EPA's guidance for stringency requirements:

- Emissions inventory
- Regulatory evaluation of federal, state, and local regulations, including an assessment of stringency compared to federal requirements (RACT, BACM, MSM)
- Summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, such as technological and economic feasibility evaluations
- Summary of the evaluation findings

Notably, in 2020, EPA determined that District rules met BACM and MSM requirements as part of their approval of the District's Plan for the 2006 PM2.5 Standard.[8] In addition to these comprehensive analyses included in the District's and CARB's attainment plans, the District recently submitted SIP revisions to address contingency measure requirements, including the *PM2.5 Contingency SIP Revision*[9] and *Ozone Contingency SIP Revision*,[10] which contained comprehensive analyses of all contingency measure opportunities from sources under the District and CARB regulation. These analyses ultimately demonstrated the stringency of the District's regulations, and limited available opportunities to achieve additional emissions reductions. More recently, EPA conducted a similar analysis of the District's regulatory program as it relates to contingency measure requirements, and came to the same conclusions regarding the stringency of the District's regulations.[11] EPA has reviewed the District and CARB's analysis and issued their final approval of the *PM2.5 Contingency SIP Revision*,[12] and proposed approval of the *Ozone Contingency SIP Revision*.[13]

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[8] EPA. *Technical Support Document, EPA Evaluation of BACM/MSM for the San Joaquin Valley PM2.5 Plan for the 2006 PM2.5 NAAQS*. February 2020. Retrieved from: https://www.regulations.gov/document/EPAR09-OAR-2019-0318-0005

[9] SJVAPCD. *PM2.5 Contingency Measure State Implementation Plan Revision*. May 18, 2023. Retrieved from: https://ww2.valleyair.org/media/jkhaefnp/06-pm25-contingency-measure-sip-revision.pdf

[10] SJVAPCD. *Ozone Contingency Measure State Implementation Plan Revision*. April 25, 2024. Retrieved from: https://ww2.valleyair.org/media/ovgo2gku/2_-ozone-contingency-sip-update_final-adopted.pdf

[11] EPA. *Federal Implementation Plan for Contingency Measures for the Fine Particulate Matter Standards; San Joaquin Valley, California*. 88 FR 53431. August 8, 2023. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2023-08-08/pdf/2023-16748.pdf

[12] EPA. *Clean Air Plans; Contingency Measures for the Fine Particulate Matter Standards; San Joaquin Valley, California*. 89 FR 80749. October 4, 2024. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2024-10-04/pdf/2024-22681.pdf

[13] EPA. *Conditional Approval; Contingency Measure State Implementation Plan for the 2008 Ozone Standard; San Joaquin Valley, California*. 89 FR 85119. October 25, 2024. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2024-10-25/pdf/2024-24706.pdf

District Public Engagement

Committed to open and transparent public processes, the District provides meaningful opportunities for public input and is responsive to all public inquiries. The District values and seeks input from stakeholders, industry groups, and the public when developing rules and plans, and the input and ideas provided are critical in developing the District's overall attainment strategy. All District rules and plans that are adopted are developed through a public process to gather public input at workshops and other public meetings. This input is then used to shape the measures that are adopted by the District's Governing Board, and subsequently, the California Air Resources Board. The below list includes all of the opportunities that the public has had to comment over the last 7 years for attainment plans and rule development.

- Development of the *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* through a joint public process between the District and CARB:
    - December 1, 2016: Public workshop to discuss strategies for meeting PM2.5 standards and science-based assessment of sources contributing to PM2.5 levels in the Valley
    - December 7, 2016: Public scoping meeting
    - January 11, 2017: Public Advisory Workgroup (Consisting of representatives from regulated entities, community advocates, and advisors from EPA and CARB) meeting to discuss air quality modeling
    - January 25, 2017: Public Advisory Workgroup meeting to discuss CARB Mobile Source measures for the Valley
    - February 9, 2017: Public Advisory Workgroup meeting to discuss District measures under consideration for Integrated PM2.5 Plan
    - March 9, 2017: Public workshop to discuss the development of PM2.5 Plan
    - April 12, 2017: Public Advisory Workgroup meeting to provide an update on air quality modeling and continue discussions on potential measures
    - May 8, 2017: Public workshop to discuss potential District measures under consideration
    - May 17, 2017: Community meeting held in Fresno to discuss strategies for meeting PM2.5 standards and to assess opportunities for reductions from stationary and mobile sources as part of a comprehensive PM2.5 attainment strategy
    - May 18, 2017: Public workshop to discuss the 5% Plan and PM10 Maintenance Plan
    - September 26, 2017: Public workshop to outline attainment strategy for meeting PM2.5 standards
    - November 14, 2017: Public Advisory Workgroup meeting to discuss the development of the PM2.5 attainment strategy
    - March 8, 2018: Public workshop to provide update on continued efforts in defining the final proposed attainment strategy and the remaining steps for development of the comprehensive plan

  - July 31, 2018: Public workshop to present, discuss and solicit feedback on the *2018 PM2.5 Plan*
  - August 28, 2018: Public workshop to present, discuss and solicit feedback on the *2018 PM2.5 Plan*
  - August 31, 2018: Draft *2018 PM2.5 Plan* published for 30-day public review and comment
  - October 16, 2018: *Proposed 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* published for public review and comment, 30-days prior to the District's Governing Board public hearing
  - November 15, 2018: District public hearing for the adoption of the *Proposed 2018 PM2.5 Plan* with opportunities for public comment.
  - January 24, 2019: CARB public hearing for the adoption of the *2018 PM2.5 Plan* with opportunities for public comment
- Development of the *2022 Plan for the 2015 8-Hour Ozone Standard* through a joint public process between the District and CARB:
  - April 27, 2021: Public workshop to present and receive comments on the development of the plan for the 2015 8-hour ozone standard
  - July 13, 2021: Technical working group to present and receive comments on the emissions inventory and modeling process in the development of the plan for the 2015 8-hour ozone standard
  - October 12, 2021: Technical working group to present and receive comments on analyses pertaining to stationary and area sources and their ongoing emissions reduction strategies, reasonably available control measure requirements for the *2022 Ozone Plan*, and the State SIP Strategy and ongoing mobile source emissions reduction strategies
  - March 7, 2022: Technical working group to present and receive comments on the State SIP Strategy and technical analysis under development for the *2022 Ozone Plan*
  - May 24, 2022: Publication of draft chapters and appendices of the *2022 Ozone Plan* on the District website and paper copies available upon request for public review and comment, with an associated comment period
  - June 1, 2022: Public workshop to present and receive comments on initial modeling results in addition to initial draft chapters and appendices of the *2022 Ozone Plan*
  - October 14, 2022: Publication of Draft *2022 Ozone Plan* on the District website and paper copies available upon request for public review and comment, with an associated comment period
  - October 27, 2022: Public workshop to present and receive comments on the Draft *2022 Ozone Plan*
  - November 15, 2022: *Proposed 2022 Ozone Plan* published for public review and comment, 30-days prior to the District's Governing Board public hearing
  - December 15, 2022: District public hearing for the adoption of the *Proposed 2022 Ozone Plan* with opportunities for public comment

    - January 26, 2023: CARB public hearing for the adoption of the *2022 Ozone Plan* with opportunities for public comment
- Development of the *2024 PM2.5 Plan* through a joint public process between the District and CARB:
    - March 23, 2023: Public workshop to present, discuss, and receive feedback on the development of the *2024 PM2.5 Plan*, and solicit suggestions for more robust public engagement and suggestions for discussion topics for future workshops
    - May 11, 2023: Public workshop to present, discuss, and receive feedback on the development of the *2024 PM2.5 Plan*, and solicit suggestions for sources of interest, and potential emission reduction opportunities to be included in BACM/MSM analysis
    - August 28, 2023: Publication of the Draft *Initial SIP Requirements* on the District website
    - September 7, 2023: Public workshop to present, discuss, and receive feedback on the development of the *2024 PM2.5 Plan*, including results of the precursor and BACM/MSM analyses, and solicit feedback on the Draft *Initial SIP Requirements*
    - September 19, 2023: *Proposed Initial SIP Requirements* published on the District website, with paper copies available upon request for public review and comment
    - February 15, 2024: Public workshop to present, discuss, and receive feedback on the development of the *2024 PM2.5 Plan*
    - April 26, 2024: Publication of draft chapters of the *2024 PM2.5 Plan* on the District website, with paper copies available upon request for public review and comment
    - April 29, 2024: Public workshop to present, discuss, and receive feedback on the development of the *2024 PM2.5 Plan*
    - May 21, 2024: *Proposed 2024 PM2.5 Plan* published for public review and comment, 30-days prior to the District's Governing Board public hearing
    - June 20, 2024: District public hearing for the adoption of the Proposed *2024 PM2.5 Plan* with opportunities for public comment
    - July 25, 2024: CARB public hearing for the adoption of the *2024 PM2.5 Plan* with opportunities for public comment
- Rule Development and Other Workshops
    - March 8, 2018: Public workshop for Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
    - June 21, 2018: Public hearing for proposed amendments to Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
    - September 13, 2018: Public scoping meeting for Rule 2280 (Portable Equipment Registration)
    - October 24, 2018: Public workshop for Rule 2280 (Portable Equipment Registration)
    - December 12, 2018: Public scoping meeting for Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters)

- December 20, 2018: Public hearing for proposed amendments to Rule 2280 (Portable Equipment Registration)
- April 11, 2019: Public workshop for Rule 4901 (Wood-Burning Fireplace and Wood-Burning Heaters)
- April 15, 2019: Public workshop for Rules 2201 (New and Modified Stationary Source Review Rule), 2301 (Emission Reduction Credit Banking), and 2520 (Federally Mandated Operating Permits)
- June 20, 2019: Public hearing for proposed amendments to Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters)
- August 15, 2019: Public hearing for proposed amendments to Rules 2201 (New and Modified Stationary Source Review Rule), 2301 (Emission Reduction Credit Banking), and 2520 (Federally Mandated Operating Permits)
- October 3, 2019: Public workshop for Petroleum Refinery Fence-line and Community Monitoring
- November 5, 2019: Public workshop for Petroleum Refinery Fence-line and Community Monitoring
- November 13, 2019: Public workshop for Rule 4311 (Flares)
- December 3, 2019: Public workshop for Rule 4601 (Architectural Coatings)
- December 4, 2019: Public scoping meeting for Rule 3160 (Prescribed Burning Fee)
- December 5, 2019: Public workshop for Rule 4306 (Boilers, Steam Generators, and Process Heaters - Phase 3) and Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr)
- December 5, 2019: Public scoping meeting for Rule 4702 (Internal Combustion Engines)
- December 12, 2019: Public scoping meeting for Rule 4692 (Commercial Charbroiling)
- December 19, 2019: Public hearing for adoption of proposed Rules 4460 (Petroleum Refinery Fence-line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees)
- January 22, 2020: Public workshop for Rule 3160 (Prescribed Burning Fee)
- January-March, 2020: Air Quality Workshop Series focused on Conservation Management Practice (CMP) Plans
- February 5, 2020: Public workshop for Rule 4601 (Architectural Coatings)
- April 16, 2020: Public hearing for adoption of proposed Rule 4601 (Architectural Coatings)
- May 14, 2020: Public workshop for Petroleum Refinery Community Air Monitoring
- July 30, 2020: Public workshop for Rules 4306 & 4320 (Boilers, Steam Generators, Process Heaters) and Rule 4311 (Flares)
- August 25, 2020: Public workshop for Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)

- September 24, 2020: Public workshop for Rule 4702 (Internal Combustion Engines), Rules 4306 & 4320 (Boilers, Steam Generators, Process Heaters) and Rule 4311 (Flares)
- October 8, 2020: Public workshop for Rules 4306 & 4320 (Boilers, Steam Generators, Process Heaters) and Rule 4311 (Flares)
- October 15, 2020: Public hearing for adoption of proposed amendments to Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
- November 19, 2020: Public workshop for Rule 4702 (Internal Combustion Engines)
- December 3, 2020: Public scoping meeting for Rule 4352 (Solid Fuel-Fired Boilers)
- December 3, 2020: Public scoping meeting for Rule 4354 (Glass Melting Furnaces)
- December 11, 2020: Public scoping meeting for Rules 4401 (Steam-Enhanced Crude Oil Production Wells), 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities), 4455 (Components at Petroleum Refineries, Gas Liquid Processing Facilities, and Chemical Plants), 4623 (Storage of Organic Liquids), and 4624 (Transfer of Organic Liquid)
- December 17, 2020: Public hearing for proposed amendments to Rule 4311 (Flares)
- December 17, 2020: Public hearing for adoption of the draft 2020 Staff Report and Recommendations on Agricultural Burning
- June 3, 2021: Public workshop for Supplemental Report and Recommendations on Agricultural Burning
- June 28, 2021: Public workshop for Rule 4702 (Internal Combustion Engines)
- August 19, 2021: Public hearing for adoption of proposed revisions to the State Implementation Plan for the 1997 annual average PM2.5 National Ambient Air Quality Standard
- August 19, 2021: Public hearing for adoption of proposed amendments to Rule 4702 (Internal Combustion Engines)
- September 30, 2021: Public workshop for Rule 4352 (Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters)
- September 30, 2021: Public workshop for Rule 4354 (Glass Melting Furnaces)
- October 7, 2021: Public workshop for Rules 4401 (Steam-Enhanced Crude Oil Production Wells), 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities), 4455 (Components at Petroleum Refineries, Gas Liquid Processing Facilities, and Chemical Plants), 4623 (Storage of Organic Liquids), and 4624 (Transfer of Organic Liquid)
- November 4, 2021: Public workshop for Rule 4352 (Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters)
- November 4, 2021: Public workshop for Rule 4354 (Glass Melting Furnaces)

- November 18, 2021: Public workshop for Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
- November 18, 2021: Public hearing for adoption of the Burn Cleaner Fireplace and Woodstove Change-out Inventive Measure
- November 18, 2021: Public hearing for adoption of the proposed Rule 4103 (Open Burning) Technical Submittal for Receiving SIP Credit for Reductions in Agricultural Burning
- December 16, 2021: Public scoping meeting for Rule 4550 (Conservation Management Practices)
- December 16, 2021: Public hearing for adoption of proposed amendments to Rule 4354 (Glass Melting Furnaces)
- December 16, 2021: Public hearing for adoption of proposed amendments to Rule 4352 (Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters)
- December 16, 2021: Public hearing for adoption of proposed amendments to Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
- February 1, 2022: Public scoping meeting for Rules 4460 (Petroleum Refinery Fence-Line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees)
- March 10, 2022: Public workshop for Rules 4401 (Steam-Enhanced Crude Oil Production Wells), 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities), 4455 (Components at Petroleum Refineries, Gas Liquid Processing Facilities, and Chemical Plants), 4623 (Storage of Organic Liquids), and 4624 (Transfer of Organic Liquid)
- April 15, 2022: Public scoping meeting for Rules 2201 (New and Modified Stationary Source Review Rule) and 2301 (Emission Reduction Credit Banking)
- April 26, 2022: Public workshop for Rules 4460 (Petroleum Refinery Fence-Line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees)
- June 28, 2022: Public workshop for Rules 4460 (Petroleum Refinery Fence-Line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees)
- June 29, 2022: Public workshop for Rules 2201 (New and Modified Stationary Source Review Rule) and 2301 (Emission Reduction Credit Banking)
- October 20, 2022: Public hearing for proposed amendments to Rules 4460 (Petroleum Refinery Fence-Line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees) and proposed *Rule 4460 Petroleum Refinery Fence-line Air Monitoring Guidelines*
- October 26, 2022: Public workshop for Rules 2201 (New and Modified Stationary Source Review Rule) and 2301 (Emission Reduction Credit Banking)
- November 7, 2022: Public workshop for Rule 4550 (Conservation Management Practices)

- December 13, 2022: Public scoping meeting for Rule 4402 (Crude Oil Production Sumps)
- February 15, 2023: Public workshop for Rules 1020 (Definitions), 2201 (New and Modified Stationary Source Review Rule), and 2301 (Emission Reduction Credit Banking)
- March 22, 2023: Public workshop for the Contingency Measure SIP Update, Rule 4901, and other potential amendments
- April 14, 2023: Public workshop for the Contingency Measure SIP Revision, Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), and Rule 8051 (Open Areas)
- April 17, 2023: Public workshop for Rules 4401 (Steam-Enhanced Crude Oil Production Wells), 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities), 4455 (Components at Petroleum Refineries, Gas Liquid Processing Facilities, and Chemical Plants), 4623 (Storage of Organic Liquids), and 4624 (Transfer of Organic Liquid)
- April 18, 2023: Public workshop for the *2023 Maintenance Plan for the Revoked 1-Hour Ozone Standard*
- April 20, 2023: Public hearing for proposed amendments to Rules 1020 (Definitions), 2201 (New and Modified Stationary Source Review Rule), and 2301 (Emission Reduction Credit Banking)
- June 15, 2023: Public hearing for adoption of proposed amendments to Rules 4401 (Steam-Enhanced Crude Oil Production Wells), 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities), 4455 (Components at Petroleum Refineries, Gas Liquid Processing Facilities, and Chemical Plants), 4623 (Storage of Organic Liquids), and 4624 (Transfer of Organic Liquid)
- June 12, 2023: Public hearing for the proposed *2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard*
- August 2, 2023: Public workshop for Rule 8051 (Open Areas)
- August 22, 2023: Public workshop for Refinery Community Air Monitoring
- September 21, 2023: Public hearing for proposed amendments to Rule 8051 (Open Areas)
- September 29, 2023: Public workshop for Rule 4402 (Crude Oil Production Sumps)
- December 21, 2023: Public hearing for proposed amendments to Rule 4402 (Crude Oil Production Sumps)
- February 13, 2024: Public workshop for Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
- March 21, 2024: Public hearing for proposed amendments to Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
- April 28, 2025: Public workshop for the *Maintenance Plan for the 1997 PM2.5 Standards*
- April 30, 2025: Public scoping meeting for Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters)

- Ongoing discussion and opportunities for comment and input at Environmental Justice Advisory Group (EJAG) meetings
- Ongoing discussion and opportunities for comment and input at Citizens Advisory Committee (CAC) meetings
- Ongoing public hearings of the District Governing Board

Throughout the development of recent attainment plans for PM2.5 and Ozone standards, the District received 15 comment letters from environmental justice organizations and considered all suggestions, incorporating additional analyses and adding multiple new plan commitments as a result.

For example, commenters stated that the District should evaluate opportunities to reduce emissions from agricultural dust from nut harvesters. The District has since taken significant steps towards reducing agricultural dust through the District's Low-Dust Nut Harvester Replacement Program, developed in partnership with CARB and USDA-Natural Resources Conservation Service through a comprehensive effort including technology advancement, field research, and deployment strategies. To date, the District has successfully obligated over $37.9 million to replace 333 pieces of nut-harvesting equipment with low-dust nut harvesting equipment, which has resulted in the reduction of more than 11,000 tons of PM10 and 1,400 tons of PM2.5. Most recently in May 2023, the District Governing Board accepted EPA's award under the Targeted Airshed Grant Program which included an additional $10,000,000 in funding to deploy this new equipment, which reflects the District's ongoing commitment and success in working with Valley agricultural stakeholders to accelerate the deployment of cleaner technologies through innovative locally-developed programs.

In addition, through these comment letters, the District received feedback regarding reducing emissions from open agricultural burning. Through historic data analysis, research of the cost and feasibility of various alternatives, and in consultation with CARB, other agencies, the interested public, and agricultural stakeholders, the District developed the *Supplemental Report and Recommendations on Agricultural Burning* (*2021 Supplemental Report*). On June 17, 2021, the District Governing Board took action to approve the report and recommendations, with CARB Board concurrence, establishing updated requirements for the near-complete phase-out of remaining agricultural open burning in the Valley by January 1, 2025.[14]

Other comments requested additional emission reductions from combustion equipment such as turbines, boilers, steam generators, and internal combustion engines. Although significant emission reductions had already been achieved from these categories through multiple generations of rules, the District committed in the *2018 PM2.5 Plan* to go beyond Most Stringent Measure (MSM) requirements and pursue additional reductions from these sources. Following an extensive rulemaking process involving comprehensive analyses and public engagement, the District amended Rules 4306

[14] SJVPACD. *Final 2024 Staff Report and Recommendations on Agricultural Burning*. November 14, 2024. Retrieved from: https://ww2.valleyair.org/media/hjgh03mb/2024-final-ag-burn-report.pdf

(Boilers, Steam Generators, and Process Heaters – Phase 3) and 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr) in December of 2020 to include lower NOx emissions limits for a variety of equipment classes and categories. In addition, on August 19, 2021, the District adopted amendments to Rule 4702 (Internal Combustion Engines) to lower emission limits for NOx and VOCs for several categories of engines and establish PM requirements for all categories of IC engines affected by the rule.

The District also received various comments regarding reducing emissions from residential wood burning, resulting in the District committing in the *2018 PM2.5 Plan* to advance the adoption and implementation of enhancements to the District's residential wood burning strategy. On June 20, 2019, the District adopted these enhancements, including amendments to Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) and the necessary related enhancements to the District's Burn Cleaner incentive grants, public outreach and education, enforcement, and air quality forecasting programs. Additionally, the District considered commenters suggestions and evaluated all potential opportunities to further reduce wood burning emissions as part of the *2024 PM2.5 Plan*, which resulted in a commitment to amend Rule 4901 to extend the wood burning curtailment season. The District recently held a public scoping meeting on April 30, 2025 to officially begin the amendment process.

Following commenters concerns regarding leaks from the oil and gas industry, the District conducted an aggressive rulemaking process for amendments to the District's leak detection and repair (LDAR) rules, a suite of five rules that apply to oil and gas production operations, petroleum refineries, natural gas processing plants, and organic liquid storage and transfer operations. This rulemaking process involved comprehensive technical analyses, an in-depth review of local, state, and federal regulations, a cost-effectiveness analysis, and a robust public process, to develop the amendments which were adopted by the District Governing Board on June 15, 2023. These amendments lowered leak thresholds within the rules, required quarterly inspections of all components, and shortened repair periods for certain types of leaks, further reducing emissions from the oil and gas sector, including 1.09 tons per day of volatile organic compounds (VOC).

As part of all attainment plan and rule development processes, the District conducts a robust and effective public process, strongly encouraging public participation by providing multiple opportunities for the public to provide input, comments, and suggestions. All comments received as part of these processes are carefully considered, and suggestions are incorporated into plans and rules as appropriate. The District appreciates all public participation and input as it helps to shape the District's overall strategy to reduce emissions in the Valley and improve public health.

District Stationary Source Rules

The District's current rules and regulations reflect technologies and methods that extend well beyond required control levels in other regions, as demonstrated in attainment

plans through the comprehensive analyses mentioned above. The stringent regulations adopted under the District's attainment plans are critical to attaining federal air quality standards and improving public health. Since 2016, many District rules have been adopted or amended to require stricter emissions controls for stationary sources, resulting in significant emissions reductions from Valley facilities, including the 27 sources listed in this document as evidenced in Table 1 above. Emissions at these facilities are expected to decrease further as various types of equipment in use at these facilities are subject to emission limits with compliance dates in 2024 and beyond, as presented in the table below.

Table 2 – Applicable NOx/PM2.5 District Rules Amended/Implemented Since 2016

District Rule	Action Date	Implementation Begins
Rule 4306/4320 (Boilers, Steam Generators and Process Heaters greater than 5.0 MMBtu/hr)	2020	2024
Rule 4311 (Flares)	2020	2024
Rule 4352 (Solid Fuel Fired Boilers, Steam Generators and Process Heaters)	2021	2024
Rule 4354 (Glass Melting Furnaces)	2021	2024, 2030
Rule 4702 (Internal Combustion Engines)	2021	2024, 2030
Rule 9510 (Indirect Source Review)	2017	Ongoing
Regulation VIII	2023	Ongoing

Rules 4306/4320 (Boilers, Steam Generators, and Process Heaters >5 MMBtu/hr): Like many stationary sources, boilers, steam generators, and process heaters were regulated by federal requirements including New Source Standards of Performance (NSPS) prior to the District's inception in 1992. The 1987 NSPS for Industrial-Commercial-Institutional Steam Generating Units set emission limits for these units across the nation with NOx limits as high as 0.80 lb NOx/MMBtu (~700 parts per million by volume, or ppmv), depending on the fuel type of the unit.[15]

The District first adopted Rule 4305 in December 1993, to limit NOx emissions from boilers, steam generators, and process heaters with rated heat input greater than 10 MMBtu/hr and implement the best available retrofit control technology (BARCT) for gaseous and liquid fired units. The District later adopted Rule 4351 (Boilers, Steam Generators, and Process Heaters – Phase 1) in October 1994, to limit NOx emissions from units with rated heat input greater than 5 MMBtu/hr to levels consistent with reasonably available control technology (RACT), establishing NOx limits that ranged from 95-194 ppmv (0.10-0.25 lb/MMBtu).

This rule was later succeeded by Rules 4306 and 4320, which limited emissions from this source category even further as better control technology continued to

[15] *52 FR 47826.* *https://tile.loc.gov/storage-services/service/ll/fedreg/fr052/fr052241/fr052241.pdf#page=147*

develop. Rules 4306 and 4320 continue to control emissions from boilers, steam generators, and process heaters from a wide range of industries, including but not limited to electrical utilities, cogeneration, oil and gas production, petroleum refining, manufacturing and industrial processes, food and agricultural processing, and service and commercial facilities.

The District Governing Board adopted amendments to Rules 4306 and 4320 in December 2020 to include a new tier of emission limits for this source category, with the majority of unit types subject to NOx limits between 2.5-15 ppmv (0.003-0.018 lb/MMBtu). The amendments also established dates for the submission of required emission control plans, authority to construct applications, and final compliance deadlines. Overall, based on the emissions inventory used in the *2018 PM2.5 Plan*,[16] the amendments to Rule 4306 achieved emission reductions of 0.19 tons per day (tpd) NOx in 2024, and will achieve an additional 0.03 tpd NOx by 2030; a 16.4% reduction of NOx in this source category. The adopted amendments to Rule 4320 achieved an additional 0.45 tpd of NOx emission reductions in 2024; an additional 46% reduction from this category.[17] Rules 4306 and 4320 currently provide for the maximum degree of emission reduction that has been required or achieved from this source category that can feasibly be implemented in the Valley, and therefore meet or exceed BACM and MSM requirements.

Rule 4311 (Flares): Prior to the adoption of District Rule 4311, flares were subject to operating and administrative requirements established by federal regulations.[18,19] These regulations contained design and operational requirements, but did not contain specific emission limits. Originally adopted June 20, 2002, District Rule 4311 was developed to implement RACT requirements for “major sources” of volatile organic compounds (VOCs) and NOx, with NOx limits that ranged as high as 0.5240 lb NOx/MMBtu, while steam assisted units had a NOx limit of 0.068 lb/MMBtu. The rule has since been amended several times to further control emissions from flares.

In December 2020, the District Governing Board amended Rule 4311 to expand the rule’s applicability to include non-major source facilities and landfill facilities, and to establish requirements for the installation of ultra-low NOx control systems for flares used in oil and gas operations, at landfills, and at wastewater treatment facilities. Operators were required to reduce flaring below applicable thresholds, or to install ultra-low NOx flare technology by 2024. The emission limits for flares at oil and gas, chemical, landfill, digester, or organic liquid loading operations are between 0.018-0.060 lb NOx/MMBtu. Operators must submit an initial flare minimization plan which includes technical specifications of equipment, detailed diagrams of equipment, evaluation of measures to reduce flaring, among other items; as well as submit an

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[16] CEPAM v. 1.05
[17] SJVAPCD. *Final Draft Staff Report for Rules 4306 and 4320*. (December 17, 2020). Retrieved from: https://ww2.valleyair.org/media/rzxj4tmn/13.pdf
[18] 40 CFR *§65.147 Flares* and
[19] 40 CFR 60.18 *General Control Device Requirements*

updated plan every five years. Based on the emissions inventory used in the *2018 PM2.5 Plan*,[20] the amendments to Rule 4311 achieved emission reductions of 0.19 tpd NOx, 0.03 tpd PM2.5, and 0.39 tpd VOCs by 2024; a 37.2% reduction of NOx, 19.4% reduction of PM2.5, and 30.4% reduction of VOC, from this source category.[21] Rule 4311 currently provides for the maximum degree of emission reduction that has been required or achieved from this source category that can feasibly be implemented in the Valley, and therefore meets or exceeds BACM and MSM requirements.

Rule 4352 (Solid Fuel Fired Boilers, Steam Generators, and Process Heaters): Rule 4352 was originally adopted on September 14, 1994 to establish federally enforceable NOx RACT standards for solid fuel fired boilers, steam generators, and process heaters operated by a major NOx source. Rule 4352 established NOx limits of 200 ppmv at 12% CO2 for municipal solid waste facilities (MSW), 0.35 lb/MMBtu for multiple hearth furnace fired with biomass fuels, and 0.20 lb/MMBtu for all other solid fuel fired units.

In the most recent amendment on December 16, 2021, the District Governing Board adopted revisions to Rule 4352 to include even more stringent NOx emission limits for solid fuel fired boilers, steam generators, and process heaters operating in the Valley, as well as establish particulate matter (PM) and SOx emission limits. This amendment lowered NOx limits for municipal solid waste units from 154 ppmv to 110 ppmv of NOx, and for biomass units from 90 ppmv to 65 ppmv of NOx, as well as established new limits ranging from 0.03-0.04 lb PM10/MMBtu and 0.02-0.035 lb SOx/MMBtu, depending on the fuel type used. The compliance schedule was phased in over two years, with full compliance with the emissions limits required by January 1, 2024. Based on the emissions inventory used in the *2018 PM2.5 Plan*,[22] the amendments to Rule 4352 reduced 0.28 tpd of PM2.5 and 0.71 tpd NOx in 2024; a reduction of 28% of PM2.5 emissions and 15% of NOx emissions in this source category.[23] As stated earlier in this document, two of the facilities that were subject to this rule have since shut down their operations, resulting in additional emissions reductions. Rule 4352 currently provides for the maximum degree of emission reduction that has been required or achieved from this source category that can feasibly be implemented in the Valley, and therefore meets or exceeds BACM and MSM requirements.

Rule 4354 (Glass Melting Furnaces): Prior to the adoption of Rule 4354, glass melting furnaces were subject to federal NSPS requirements for glass manufacturing

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[20] CEPAM v. 1.05
[21] SJVAPCD. *Final Draft Staff Report for Rule 4311.* (December 17, 2020). Retrieved from: https://ww2.valleyair.org/media/xdrjftc0/12.pdf
[22] CEPAM v. 1.05
[23] SJVAPCD. *Final Draft Staff Report for Rule 4352*. (December 16, 2021). Retrieved from: https://ww2.valleyair.org/media/4fklam4x/12.pdf

plants.[24] While this NSPS had particulate matter standards, there were no direct limits on NOx emissions. To further reduce NOx emissions from glass melting furnaces, Rule 4354 was adopted in 1994 and subsequently amended seven times, and has become the most stringent rule in the nation for controlling emissions from industrial glass manufacturing plants that make flat glass (window and automotive windshields), container glass (bottles and jars), and fiberglass (insulation). The first version of the rule limited emissions based on control technology available at that time, and included a multi-tiered approach that required NOx limits up to 5.5 lbs of NOx/ton of container or fiberglass, and up to 9.2 lbs NOx/ton of glass for flat glass. The subsequent amendments to Rule 4354 have continually lowered these limits to reduce emissions from this source category significantly.

On December 16, 2021, the District Governing Board adopted amendments to Rule 4354 to include even more stringent NOx, SOx, and PM10 emission limits for glass melting facilities operating in the Valley. The most recent amendment removed the multi-tier NOx limit approach and was replaced with a single NOx limit for each type of glass furnace. These NOx limits were significantly lower than the limits allowed across the nation by the *Good Neighbor Plan for the 2015 Ozone NAAQS*, which allows up to 7.0 lbs NOx/ton of glass, compared to the District's current NOx limits that range from 0.75-3.7 lbs NOx/ton of glass produced.[25] The amended rule includes a phased-in compliance schedule which, based on the emissions inventory used in the *2018 PM2.5 Plan*,[26] will result in emission reductions of 0.13 tpd PM2.5 and 1.67 tpd NOx by 2030; a reduction of 58% of PM2.5 emissions and 43% of NOx emissions in this source category.[27] Rule 4354 currently provides for the maximum degree of emission reduction that has been required or achieved from this source category that can feasibly be implemented, and therefore meets or exceeds BACM and MSM requirements.

Rule 4702 (Internal Combustion Engines): Rule 4701 (Internal Combustion Engines – Phase 1) was adopted on May 21, 1992 and has been subsequently amended seven times to further limit emissions from IC engines, which are used in a variety of different Valley operations including, but not limited to, schools, agriculture, oil and gas production, petroleum refining, and electrical power generation. Llimits in District Rule 4701 for IC engines were as high as 600 ppmv NOx in 2002. In August 2003, the District adopted Rule 4702, which established a new set of even more stringent standards for IC engines. Rule 4702 has been subsequently amended seven times to further limit emissions.

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[24] *40 CFR 60 Subpart CC - Standards of Performance for Glass Manufacturing Plants*. Retrieved from: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-CC
[25] EPA. *Federal "Good Neighbor Plan" for the 2015 Ozone National Ambient Air Quality Standards*. June 5, 2023. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2023-06-05/pdf/2023-05744.pdf
[26] CEPAM v. 1.05
[27] SJVAPCD. *Final Draft Staff Report for Rule 4354.* (December 16, 2021). Retrieved from: https://ww2.valleyair.org/media/ulsmc1ij/11.pdf

The most recent amendment to Rule 4702 occurred on August 19, 2021, when the District Governing Board adopted amendments to Rule 4702 to lower emission limits for NOx and VOCs for several categories of engines, establish PM requirements for all categories of IC engines affected by the rule, and establish SOx control requirements for agricultural engines. This amendment lowered the NOx limits for various engine types from as high as 150 ppmv to as low as 11 ppmv. The VOC limits were also lowered from 750 ppmv to 90 ppmv or 150 ppmv, depending on engine type. Compliance with certain lower emission limits was required by 2024, with full compliance occurring in 2030. Based on the emissions inventory used in the *2018 PM2.5 Plan*,[28] the amendments result in emission reductions of 0.62 tpd NOx by 2024, and 0.70 tpd NOx by 2030; a 43% reduction of NOx by 2024 and a 49% reduction of NOx by 2030 for this source category. Rule 4702 currently provides for the maximum degree of emission reduction that has been required or achieved from this source category that can feasibly be implemented in the Valley, and therefore meets or exceeds BACM and MSM requirements.

Rule 9510 (Indirect Source Review): District Rule 9510, adopted December 15, 2005, was the first rule of its kind in the state of California and throughout the nation that applies to new development projects, including residential and commercial development projects, and transportation and transit projects. Most recently in December 2017, the District amended Rule 9510 to expand the applicability of the rule to ensure that all large development projects are subject to the ISR rule and that the rule applies consistently and equitably throughout the San Joaquin Valley. The District's rule is recognized as the benchmark, or best available control, for regulating these indirect sources of emissions. The rule requirement is to reduce a development project's construction NOx and PM10 emissions by 20% and 45%, respectively, as well as reduce a development project's operational NOx and PM10 emissions by 33.3% and 50%, respectively, when compared to unmitigated project baseline emissions. This is achieved by encouraging clean air designs to be incorporated into the development project, or, if insufficient emissions reductions can be designed into the project, by paying a mitigation fee used to fund off-site emissions reduction projects.

Regulation VIII (Fugitive PM10 Prohibitions): The Regulation VIII rules were adopted in November 2001, and subsequently amended in 2004 to incorporate more stringent requirements. These rules reduce fugitive dust from construction sites, earthmoving activities, parking and staging areas, open areas, agricultural operations, carryout and trackout, paved and unpaved roads, and material storage sites.

The District has also recently amended Rule 8051 (Open Areas) on September 21, 2023, to include a contingency measure for federal PM2.5 standards that would further strengthen the rule should the District need additional emission reductions.

[28] CEPAM v. 1.05

Notably, this rule and the encompassing package was the first to receive EPA approval as meeting the new contingency measure guidance from EPA.

The District continues to evaluate the latest technological advancements and emission reduction opportunities through ongoing review of Best Available Retrofit Control Technology (BARCT), Reasonably Available Control Technology (RACT), Best Available Control Measures (BACM), Most Stringent Measures (MSM), Best Available Control Technology (BACT), Lowest Achievable Emission Rate (LAER), and other standards as described in sections below.

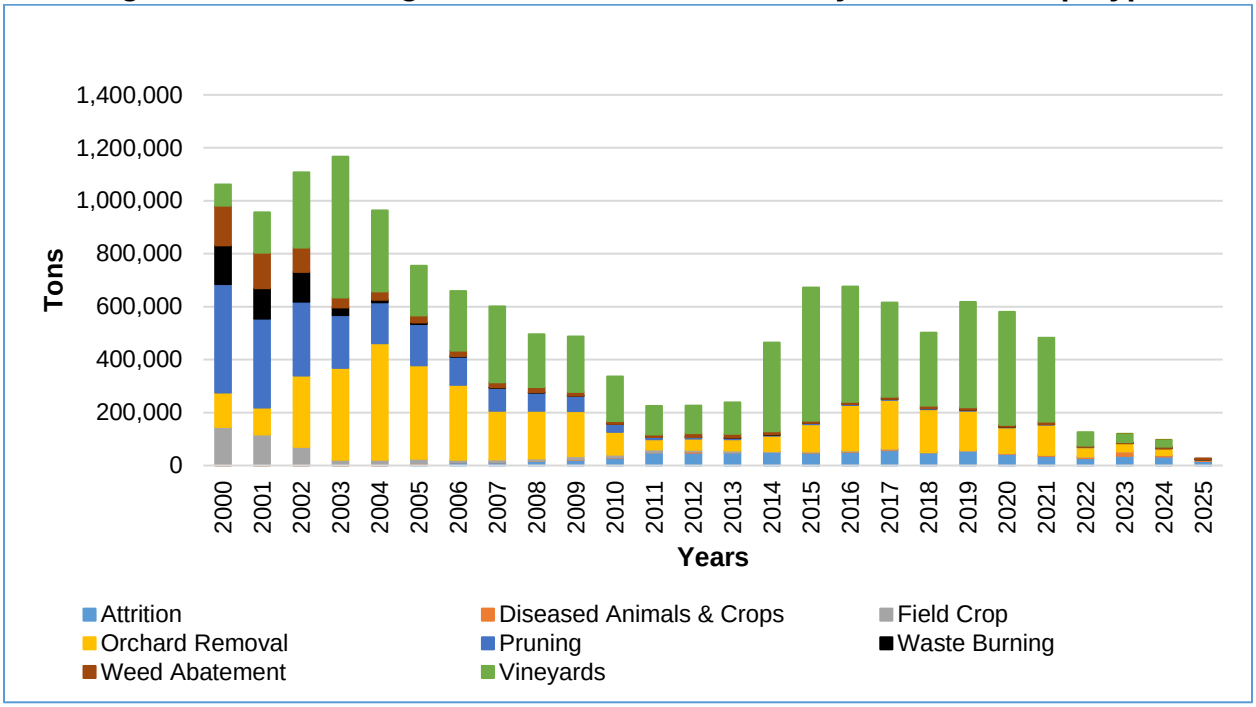
Phase-Out of Open Agricultural Burning

The San Joaquin Valley is the only region in California and the nation with stringent requirements to phase out agricultural open burning. Through the implementation of state law under SB 705, the District has adopted prohibitions that have significantly reduced open burning, supported by continued efforts to identify and demonstrate new alternatives to reduce open burning. As the most recent activity in this ongoing effort, the District, in collaboration with CARB, adopted a final phase-out strategy in 2021 for remaining agricultural burning by the end of 2024.[29]

Through the implementation of the final phase-out strategy, the amount of agricultural material being open burned through the District's Smoke Management System process has continued to decrease. As illustrated in the below figure, the amount of agricultural material open burned in 2024 was approximately 99,000 tons, significantly less than the previous year total of 122,000 tons burned in 2023, and over 1,000,000 tons burned per year historically. The reductions in agricultural open burning and use of alternatives mark record levels for the Valley since the institution of agricultural burning restrictions, highlighting the early success of the District's agricultural open burning emission reduction strategy.

[29] SJVAPCD. *Final Supplemental Report and Recommendations on Agricultural Burning.* (June 17, 2021). Retrieved from: https://ww2.valleyair.org/media/aldmsd0b/final-supplemental-report-and-recommendations-on-agricultural-burning.pdf

Figure 6 – Tons of Agricultural Material Burned by Year and Crop Type



To support the Valley's ongoing phase-out of agricultural open burning, in 2018, the District's Governing Board authorized the creation of the Ag Burn Alternatives Grant Program.[30] This program was initially allocated with $25 million of funding in 2018, and due to the programs demand and success was later allocated an additional $178 million dollars in 2021, and $20 million in 2024, to allow the program to continue to fund alternatives to open burning of agricultural waste. The program has resulted in the deployment of alternative practices at nearly 258,000 acres of orchard and vineyard removals, for nearly 6,990,000 tons of agricultural materials, resulting in the reduction of 13,638 tons of NOx, 25,310 tons of PM and 21,541 tons of ROG emissions as compared to open burning.

As highlighted above, the District's agricultural open burning phase-out strategy, along with the Ag Burn Alternatives Grant Program, are working effectively. New alternatives to open burning have emerged and are being implemented, and Valley growers are utilizing the incentive program at a high rate. Incentives continue to play an essential role in order to provide cost-effective alternatives to agricultural burning. Towards that end, the District continues to collaborate with the agricultural sector, CARB, USDA-NRCS, and Valley stakeholders in supporting initiatives to develop and support the deployment of new alternatives to open burning.

[30] District Ag Burn Alternatives Grant Program. Retrieved from: https://ww2.valleyair.org/grants/ag-burn-alternatives-grant-program/

District Implementation of the State's Community Air Protection Program

California Assembly Bill (AB) 617, signed into law in July 2017, requires CARB and air districts to develop and implement additional emissions reporting, monitoring, reduction plans and measures in an effort to reduce air pollution exposure in disadvantaged communities. The District has been working closely with four Valley communities – South Central Fresno, Shafter, Stockton, and Arvin/Lamont – to focus resources and implement community-identified clean air measures to reduce air pollution and increase community engagement at the local level. The District holds regular community meetings to receive feedback from residents, businesses, community-based organizations, and other stakeholders from these communities, then uses this input to further control emissions from sources discussed. Additionally, the District established the EJAG to work collaboratively to educate the public and stakeholders about current District activities and air quality awareness, and to review and provide feedback on overarching District programs and strategies, including air quality regulations that impact environmental justice communities.

As required under AB 617, the District's Governing Board adopted the South Central Fresno and Shafter Community Emissions Reduction Programs (CERPs) in September 2019, the Stockton CERP in March 2021, and the Arvin/Lamont CERP in June 2022. Since adoption, the District has been working closely with the Community Steering Committees (CSC), local partners, and state agencies to implement a variety of clean air CERP measures designed to reduce air pollution and exposure, enhance enforcement efforts, and provide outreach and education in the selected communities.

In addition to CERP implementation efforts, each community was also selected to develop and implement a Community Air Monitoring Plan (CAMP). The District has worked diligently to implement the CAMPs, in consultation with the CSCs across all four selected communities. Extensive air monitoring has been conducted, regular updates and data analysis shared at CSC meetings and on the District's community-specific air monitoring webpages. In response to community concerns, the District has also deployed enhanced mobile monitoring beyond the CAMPs, including targeted monitoring near stationary sources.

Throughout the CERP development process, the District engaged with CSCs across the four communities on stationary sources and strategies and partnership opportunities to reduce emissions. As a key step, the District worked with CARB to present the stationary source inventory within each community boundary and collaborated with CSCs to identify measures to address stationary sources, focusing on community-identified sources of concern, such as biomass facilities, glass manufacturing and petroleum storage facilities. This process resulted in a broad range of CERP strategies including incentive programs to reduce emissions, enhanced enforcement of stationary sources, expedited evaluation of BACT/BARCT, and expedited facility risk assessment under AB 2588. Throughout the CERP implementation process, the District also committed to engaging with the CSCs on planning and rule development processes,

providing regular updates at meetings and sharing public workshop opportunities for further engagement.

In the South Central Fresno community, the District worked closely with the CSC to provide regular updates on stationary sources in the boundary, with community concerns leading to enhanced enforcement and permitting efforts at a community-identified source of concern. In Stockton, the CSC and District established a Regulatory and Enforcement Subcommittee, led by a resident CSC member, which met regularly to discuss stationary source facility operations, engineering controls, permitting process, relevant district rules, recent violations and emissions inventory history. In addition to stationary sources, the subcommittee was also interested in discussing mobile on & off-road sources, the highest sources of community emissions, which was done in coordination with CARB. In the Arvin/Lamont community, the CSC expressed interest in engaging in ongoing agency efforts to address impacts from idle, orphaned and abandoned wells in the community. In response, a CERP measure was developed, and the Oil and Gas Subcommittee was formed to coordinate with the California Geologic Energy Management (CalGEM). This collaboration contributed to a broader statewide effort through the Methane Task Force, a joint effort by CalGEM, CARB and air districts, which conducted joint inspections of oil infrastructure, repaired leaking wells when found and issued violations where applicable. These efforts were prioritized in AB 617 communities across the state. In Arvin/Lamont, the District also continued working with stationary sources to enhance control technology, particularly in response to enforcement actions. In the Shafter community, the District and CSC worked closely to implement one of the highest priority CERP measures, vegetative barriers, and partnered with a local business to install barriers across three different sites in the boundary to reduce emissions near sources of concern.

As the District implements the Community Air Protection Program, there continues to be significant investment in communities historically and disproportionately burdened by air pollution across the Valley. To date, over $328 million in total CAP funding has been invested in clean air projects in priority communities across the Valley, including $146 million allocated through the CERPs in the District's four Valley AB 617 communities that are estimated to reduce over 5,000 total tons of emissions, providing for significant emissions reductions and public health benefits for residents that need it the most. In addition to the substantial funding investments in the AB 617 communities, the District has also worked to enhance enforcement efforts, conducting enhanced inspections of stationary sources and proactive surveillance to ensure compliance with District rules, and conducting an extensive rule evaluation, which led to the amendment of 8 District rules, resulting in 256 tons of NOx reductions and 622 tons of VOC reductions yearly. To ensure meaningful engagement with community members, the District also provides enhanced outreach efforts across the four Valley communities, through attending community events, direct mailer campaigns to share air quality information, and targeted outreach to schools to engage with parents and school administrators. The

impacts of these investments are summarized in a new progress report from CARB[31] highlighting how critical the AB 617 program is for improving air quality in California's most air quality impacted communities.

Other Statewide Collaboration and Efforts

Statewide Technology Clearinghouse: Assembly Bill 617 (AB 617) legislation directed the state and local air districts to focus on reducing exposure in state-selected communities that are disproportionally impacted by air pollution. In order to facilitate the development of emerging technologies, CARB has established and maintains a statewide Technology Clearinghouse[32] that identifies the best technologies for reducing emissions, namely best available control technology (BACT), best available retrofit control technology (BARCT), and related technologies for the control of toxic air contaminants (T-BACT). The District worked closely with CARB staff to compile all of the BACT guidelines and BACT determinations the District publishes and provided that information for publication on this new statewide technology clearinghouse. District staff also collaborated with CARB to populate the next generation technology tool with new and emerging technologies that produce less emissions than technologies currently being used.

Expedited BARCT Review under AB 617: Specifically, AB 617 legislation mandated air districts in non-attainment areas to adopt, by January 1, 2019, an expedited schedule to implement the most current BARCT limits on industrial sources that are subject to the AB 32 Cap-and-Trade program by December 31, 2023. Unlike many other air districts, the District has adopted BARCT rules on an ongoing basis to reduce emissions from existing sources of particular source categories. The District conducted a series of public meetings to solicit input from stakeholders regarding the District's proposed methodology to address the AB 617 requirement to adopt an expedited BARCT analysis schedule. For all rules where further analysis was required to determine whether a District rule met BARCT, the District engaged in a robust public process to assess specific air pollution control technologies associated with each rule, taking into account the local public health and clean air benefits to the community, the air quality and attainment benefits of each control option, and the cost effectiveness of each control option. Based on the BARCT assessment, the District proceeded with any necessary rule amendments through additional public processes to implement BARCT.

Criteria Pollutant and Toxics Emissions Reporting (CTR): AB 617 required the state to develop the CTR regulation to report criteria air pollutant and toxic air contaminant emissions data from facilities. In conjunction with the criteria pollutant emissions inventory as posted in CEIDARS, the District collaborates with CARB to ensure the

[31] CARB. *Community Air Protection Program Annual Progress Report*. July 2025. Retrieved from: https://ww2.arb.ca.gov/sites/default/files/2025-06/OCAP_APR2024_Final.pdf
[32] CARB. Technology Clearinghouse Tools. Retrieved from: https://ww2.arb.ca.gov/capp/cst/tch/technology-clearinghouse-tools

information submitted by the facilities to the District is accurate and the emissions data is posted online and made available to the public.

CARB Review of Permitting Determinations: CARB also provides critical oversight review of control measure analyses conducted through the ongoing development of attainment plans and of certain permitting determinations that trigger public notification requirements under the District's New and Modified Source Review Rule (Rule 2201). If/when CARB staff has comments or questions regarding control measures or a permitting project, District staff collaboratively communicates with CARB to provide any additional information to answer their questions and/or address their comments.

III. Summary of District's Stationary Source Regulatory Program

Any person building, altering or replacing any operation or equipment which may emit air contaminants has to first submit an application and obtain an Authority to Construct (ATC) permit from the District. The ATC permit must be obtained before construction commences or the equipment is modified, and can only be obtained once the District has determined that the proposal complies with all applicable rules and regulations.

Due to the nonattainment status of the Valley Air Basin for the criteria pollutants of fine particulate matter (serious nonattainment) and ozone (extreme nonattainment), under EPA and CARB oversight, the District requires that permitted facilities implement the most stringent control measures feasible for implementation to control criteria pollutants and associated precursor emissions.

The District also administers the federally-mandated operating permit program for major sources of air pollution, known as Title V. The Title V program is intended to ensure proper recordkeeping, monitoring, and reporting. Title V is intended to provide:

- EPA veto authority over permit issuance
- Greater opportunity for federal and citizen enforcement
- Enhanced public participation during the permit issuance process
- Clearer determination of applicable requirements
- Improved enforceability of applicable requirements

District New and Modified Stationary Source Review

Beyond District rules that apply to specific categories of stationary sources, District Rule 2201 (New and Modified Stationary Sources Review) applies to all new stationary sources and all modifications to existing stationary sources that are subject to District permit requirements. District Rule 2201, and the associated permitting process, ensure that new or modified stationary sources of air pollution are subject to the most effective emissions controls feasible for implementation; that emissions from the project do not create a public health risk (including a modeled analysis of cancer risks resulting from the project and possible health hazard risks resulting from both acute and chronic exposure to emissions for nearby residences and worksites); and that the project does

not increase the potential for a violation of State or National Ambient Air Quality Standards.

Under Rule 2201 and other applicable rules, new facilities or facilities modifying equipment must obtain an ATC permit prior to construction, and are subject to stringent requirements, including:

- Best Available Control Technology (BACT)
- Risk Management Review (RMR)
- Toxic Best Available Control Technology (T-BACT)
- Ambient Air Quality Analysis (AAQA)
- Public Notice
- Offsets

Best Available Control Technology (BACT): This requirement mandates the most stringent emissions limitation or control technique that is achieved-in-practice or technologically feasible and cost-effective. With technology constantly evolving and new controls being developed, the District performs project-specific and periodic proactive BACT analyses to ensure the most up-to-date and effective control technology is identified and implemented. District staff collaborates with other air districts, CARB, and EPA to determine if new BACT guidelines have been developed and/or if revisions have been made to existing guidelines. Additionally, the District will communicate with equipment manufacturers and technology vendors to stay abreast of emerging equipment/controls that are being developed.

Risk Management Reviews: The District conducts Risk Management Reviews to ensure that the public exposure to toxic air contaminants from projects required to obtain an ATC is less than significant. Very complex computer models and the most conservative assumptions are used to assess the project's maximum impact on residents' health. Projects resulting in estimated significant health risk for the public are not approved.

Toxic Best Available Control Technology (T-BACT): When T-BACT is triggered under a Risk Management Review analysis, the District conducts a T-BACT analysis to ensure the most stringent control technique is utilized resulting in reduced public exposure to toxic air contaminants. Project applications resulting in a potential significant health risk for the public are not approved.

Ambient Air Quality Analysis (AAQA): EPA and CARB have established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), respectively, for numerous pollutants. For Public Notice projects under Rule 2201, the District conducts AAQAs to ensure that project-related emissions would not cause or make worse a violation of the State or National ambient air quality standard. This analysis ensures that the public exposure to certain criteria air pollutants is less than the maximum allowed concentration in outdoor air without harm to public.

Public Notice: When project related emissions exceed certain thresholds as identified in District Rule 2201, Section 5.4, a 30-day public notice is required before the District makes a final decision over the project. Additionally, when certain Title V projects are submitted by facilities, a 30 or 45-day EPA/public notice is also required prior to the District issuing any Title V permits. As part of this public process, the District offers to the public the opportunity to review and comment on proposed permitting actions, prior to the District issuing or denying the permit.

The public may also request to be notified of when the District makes initial and final decisions prior to issuing or denying a proposed ATC application(s) for a project subject to public notice and occurring at a specific facility, or for all projects subject to public notice and occurring at any facility within the District or within a Region of the District.

Offsets: When project related emissions exceed certain thresholds, offsets are required to mitigate those increases with either concurrent reductions or past reductions which have been banked as emission reduction credits (ERCs).

Point Source Emissions Inventory

The District has long been a statewide leader in developing comprehensive and accurate emissions inventories, and serves as a resource to other districts, CARB, EPA, and other stakeholders. Each year, the District undergoes a comprehensive process to collect emissions inventories from point sources that have a valid permit to operate with the District. Data on the source's annual usage rates (such as material throughput, product usage, fuel usage, etc.) and operation schedule are collected from each facility annually through the emission survey process and used to estimate the facility's point source emissions. The District collects and maintains this emission information in a database for each point source that submits data. Currently, the District's point source emissions database contains emission information for thousands of facilities located throughout the San Joaquin Valley, which is reported to CARB annually for review and incorporation into the statewide emissions inventory database (CEIDARS).

AB 617 required CARB to develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants for certain categories of stationary sources. In order to implement these reporting requirements, CARB developed the "Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants" (CTR) to implement statewide annual reporting of criteria air pollutant and toxic air contaminant emissions data from facilities. The District implements this regulation for Valley permitted facilities on behalf of the state through the District's annual emission inventory and air toxics processes.

District Compliance and Enforcement Activities

The District's Compliance Department performs a full suite of enforcement and compliance assistance related activities to ensure compliance with District, state, and federal rules and regulations. The program objectives for the Compliance

Department are set forth in federal and state law and the District's air quality attainment plans. In order to meet these program objectives, District staff annually perform inspections at thousands of permitted facilities, including agricultural operations, responds to thousands of public complaints annually, and verifies emissions reductions at thousands of locations where emission reduction incentive projects have been implemented.

Inspections of Stationary Sources: The District performs thousands of comprehensive on-site inspections each year to ensure compliance with District requirements for a variety of reasons including regular inspections of operations to verify compliance with District issued permit conditions, start-up inspections of new or modified equipment, observation of third-party source tests of combustion fired equipment and particulate matter controlled equipment, public complaint investigations, and fugitive dust inspections. Due to the geographic size, number of permit units, and complexity of the equipment used, this means that District staff are regularly at these sites each year performing these tasks. These inspections play a key role in helping to meet clean air requirements and are required by the United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) as part of Federal Title V, EPA 105 Grant, and State Subvention requirements.

As technology to measure and see emissions from sources has advanced, the District has prioritized the purchase and utilization of this equipment to perform inspections. Examples of this equipment includes exhaust gas analyzers to obtain real-time emissions measurements from combustion sources such as boilers, internal combustion engines, turbines, etc. Staff also use forward looking infrared cameras and toxic vapor analyzers to detect volatile organic compound emissions from sources like oil and gas, gasoline storage and dispensing, landfills, and wineries. Compliance staff receive extensive training on the proper use and maintenance of the equipment providing significant assurance that any issues discovered are correct and accurate. These tools enhance the effectiveness and thoroughness of our inspections, allowing us to measure emissions from sources in real-time and whenever issues are discovered, allows the District to facilitate corrective action with the owner/operator to achieve a return to compliance as expeditiously as possible.

In review of the sources of concern, we found that the vast majority are Title V sources. The federal Title V Operating Permit Program was created under the 1990 Clean Air Act Amendments to clarify, and enforce air quality compliance for major stationary sources of air pollution. It requires large or otherwise significant emission sources to obtain an operating permit that consolidates all applicable Clean Air Act (CAA) requirements into a single, comprehensive document. The Title V permit requires extensive reporting and documentation beyond what is normally required. Title V permit holders are required to submit three types of reports, deviation reports, Reports of Required Monitoring, and Annual Compliance Certifications. All Title V facilities are required to promptly report any deviations from permit requirements to

the District. Reports are to be submitted within 10 days of discovery and must include a description of the permit requirement deviation, the probable cause, and any corrective action or preventive measures taken. The second is the Report of Required Monitoring which is required to be submitted every six months and must clearly define all instances of deviations from permit monitoring requirements that happened during the reporting period. The third is the Annual Compliance Certification, which certifies compliance status for each federally enforceable condition on their permit including emission limits, standards, and work practices. The certification shall also report whether compliance was continuous or intermittent, the methods used for determining the compliance status, and any other facts required by the District to determine the compliance status of the source. The Compliance Certification is to be submitted annually to the District, and a copy is to be submitted to EPA.

Complaint Investigations: The District receives thousands of complaints each year for which timely responses and investigations of alleged sources of non-compliance are top priorities. Inspectors are on-call 24 hours per day, seven days a week and use automated voicemail and computer systems to facilitate the timely response to complaints in order to abate potential public nuisances. Along these same lines, the District added the ability to easily submit complaints, including video and photographs, online via the District's website and through the District's mobile smartphone applications. The District has a dedicated bilingual (Spanish-English) telephone complaint line, in addition to the online complaint portal that is available in multiple languages and the smart phone application that is also available in Spanish. Lastly, the District also information brochures and materials in English and Spanish and utilize interpretation services to ensure that all communities and groups within the Valley are properly served.

Compliance Assistance

Since its inception, the Compliance Assistance program has emphasized an educational approach to help Valley residents and businesses comply with a variety of air pollution regulations. The District understands that one of the most effective means of ensuring compliance is to make sure that residents and businesses subject to District requirements are made aware, in advance, of requirements they are subject to and providing the tools and means to comply. Making sure residents and businesses throughout the Valley are provided with is information is a priority and towards this end, the District utilizes a variety of means to distribute this information. This includes Compliance staff educating operators about our email list servs that they can sign up to receive updates on specific equipment and operations when new, pertinent information is available. District staff also maintain copies of information to hand out when in the field and are equipped with smart phones to be able to email or text links to information needed to help them comply with requirements. Examples of the assistance the District provides includes:

- Individualized Assistance
    - Personalized, one-on-one help is provided to thousands of residents and businesses to ensure they understand the District's requirements.
- Compliance Assistance Bulletins
    - Active evaluation of upcoming rule compliance dates and analyzing compliance rates for various requirements to develop assistance bulletins that are then distributed and made available online for affected groups including, but not limited to, Valley residents, building departments, contractors, industrial and commercial facilities, farmers; and local, state, and federal agencies.
- Compliance School
    - Training classes provide information on the topics of open burning, gasoline vapor recovery, and wood burning fireplaces and heaters with the intended purpose of reducing potential non-compliance through increased knowledge.
- Gasoline Station Tester Training
    - Ongoing training for contractors is provided for those wishing to perform vapor recovery testing within the District. A District rule requires testers be certified and ensures an adequate pool of qualified contractors from which stakeholders can select.
- Asbestos Training
    - Comprehensive assistance on asbestos regulations is provided to the public, building industry, building departments, fire departments, and realtors. Staff continues to spend considerable time providing one-on-one assistance, in addition to group trainings, to the regulated community.
- Rule 4901 (Fireplace and Wood Burning Heater) Education
    - Staff responds to public inquiries concerning the program, including providing compliance assistance brochures and one-on-one assistance to explain the rule requirements and steps needed to comply. When the District receives complaints in regards to smoke from a residence, District staff immediately follow up with the reporting party and will begin the investigation process, including a site visit. When non-compliance is discovered, the District provides information about the District's woodsmoke reduction strategy and provides them with the ability to attend an informative two-hour training program to receive information on the importance of the strategy and actions they can take to reduce emissions.
- Regulation VIII (Fugitive Dust) Education
    - Staff organizes and conducts classroom training for all groups required to submit Dust Control Plans (DCPs) for construction activities and provides ongoing training as needed.
- Prescribed Burning Outreach
    - The District meets periodically with other agencies and land managers including the USDA Forest Service, National Park Service, US Fish and Wildlife Service, Bureau of Land Management, and the California

Department of Forestry and Fire Protection in order to minimize impacts of smoke from prescribed burns and wildfires. Compliance staff participate on the daily "1 O'clock Call" during fire season to keep abreast of wildfires, prescribed burn activities, and smoke impacts throughout the valley air basin.

- Access to Compliance Policies
  - Compliance policies are available on the District's website for stakeholders to review, comment on, and use to assist them with complying with District requirements. The District website is updated regularly with new or modified policies to ensure availability of current information.
- Permit Stakeholder Meetings
  - The District's Compliance Department continues to attend and give updates at these meetings as another way of providing compliance assistance. The District identifies upcoming rule requirements, provides clarification on rule and policy requirements, responds to industry inquiries, and provides updates in the meetings.

Emissions Testing

District inspectors directly oversee hundreds of source tests conducted at stationary sources for the purpose of measuring air pollutants. District staff have three main tasks when overseeing source tests at stationary sources. First, District staff review the protocols to ensure proper testing procedures and methods will be performed, and that the source test contractor has the proper equipment and certifications to conduct the testing. This service is beneficial to the source as it ensures the proper test is performed and eliminates the chance for additional testing due to improper testing methods or lack of proper tester certification. The second task is to witness the test to ensure the source test contractor follows the correct test methods and procedures. Lastly, District staff reviews the source test results to ensure the data is properly reported, and to act promptly on any compliance issues related to the testing.

In addition, the District utilizes its monitoring van and portable exhaust gas analyzers to assess the emissions from internal combustion engines, boilers, and other combustion devices to ensure they are operating according to specifications and complying with all requirements. This service can alert sources to compliance issues and result in prompt resolution.

The source testing program has expanded to include continuous long-term testing of new technology to verify it can meet strict air quality regulations. This service is invaluable for the development of new regulatory requirements and will assist industry in determining which control strategies work best.

Continuous Emission Monitoring System Polling

Many stationary sources of air pollutants throughout the District are required to monitor their emissions with instruments known as Continuous Emissions Monitoring

Systems (CEMS). While these instruments are invaluable in ensuring the facilities operate properly, it is very time consuming for inspectors to travel to each facility to review the records of the emissions. In an effort to better utilize existing resources, the District maintains an electronic CEMS polling system. The District utilizes its computer systems to automatically gather daily emissions data from each facility with an operating CEMS. Internal systems have been designed to evaluate received CEMS data and immediately notify inspectors of potential excess emissions or polling problems. In addition to the polling systems, each operator of the equipment are required to provide regular reports of the information collected, maintenance performed, and other required quality assurance and quality control conducted.

Gasoline Station Inspection and Testing Program

Gasoline stations, in aggregate, are one of the largest potential sources of volatile organic compounds in the valley. A comprehensive and effective permitting, inspection, and testing program is important to ensure the vapor recovery systems operate as designed and the valley realizes the emission reductions anticipated in Rule 4621 (Gasoline Transfer Into Stationary Storage Containers, Delivery Vessels and Bulk Plants) and Rule 4622 (Gasoline Transfer into Motor Vehicle Fuel Tanks).

District staff continues to inspect gasoline station vapor recovery systems on a routine basis looking for torn hoses, damaged nozzles, and missing parts. Over the years there have been numerous changes in vapor recovery technology and state laws, such that the simple visual inspections are no longer sufficient. More emphasis is now being placed on the District's oversight of certified third-party performance tests that ensure the effectiveness of gasoline station emission control equipment. As a result, the District implemented a gasoline dispensing tester certification and training program to ensure qualified third-party contractors are available for operators of this equipment.

Prescribed Burning

Prescribed burning by land management agencies is another activity regulated by the District. In accordance with Title 17 of the California Code of Regulations, the District reviews burn plans, provides burn authorizations, and monitors the fires. District staff also have an ongoing dialogue with land management agencies and other air districts to improve communication and cooperation among all parties. To this end, the District continues to lead state-wide efforts to establish communication protocols between air districts and the land management agencies to ensure the smoke is well managed and its impact upon air quality and public health is reduced to the maximum extent feasible.

Additionally, District Staff coordinate with Land Management Agencies to deploy portable PM2.5 monitors to inundated areas and ensure communities have online access to the evolving smoke impacts. These communication protocols are vital due to changes in federal policy on wildfire management. The District is concerned that wildfires managed under the new federal policy may have greater impacts on valley residents. To address the concern over this potential, the District will have a greater

presence during the fire season to help minimize smoke impacts. Staff will continue to conduct inspections and coordinate closely with land managers.

Residential Wood Burning Heater and Fireplace Program

Further reducing residential wood smoke emissions is a high priority under the District's Residential Woodsmoke Reduction Strategy, given the significant localized health impacts associated with residential wood smoke. Scientific studies show that prolonged inhalation of wood smoke contributes to lung disease, pulmonary arterial hypertension, and pulmonary heart disease, which can eventually lead to heart failure. The rule is designed to improve public health by reducing toxic wood smoke emissions in valley neighborhoods during the peak PM2.5 winter season (November through February).

Since 2004, the District has had a robust enforcement program for designated wood burning curtailment days to ensure the District is achieving the expected emission reductions as a result of the requirements of the rule. This includes having a significant portion of field staff assigned to conduct proactive observations each day in counties with declared wood burning curtailments. These proactive efforts are also conducted on days that District offices are closed, and at night-time during the peak PM2.5 winter season.

Fugitive Dust Regulations

District fugitive dust rules require the submittal of Dust Control Plans (DCPs) for residential developments when there will be ten acres or more of disturbed surface area, for non-residential developments when there will be five acres or more of disturbed surface area, or if more than 2,500 cubic yards of earth will be moved on at least 3 days. To ensure that construction operators are able to comply with dust control requirements, District staff provides training classes for those required to submit DCPs, and reviews each plan prior to the start of construction. A minimum of one field inspection is also required for each site.

Permit-Exempt Equipment Registration

The District has developed and implemented an innovative Permit-Exempt Equipment Registration (PEER) rule, designed to minimize the overall workload required to achieve the emissions reductions expected of permit-exempt equipment through a streamlined registration processes that fits well with the typically smaller and lower-emitting equipment to which it applies. District staff routinely inspects the hundreds of permit-exempt equipment registrations issued each year, typically alongside other permitted or regulated processes, to efficiently ensure compliance with the emissions standards stipulated by District rules and registration conditions.

Conservation Management Practices Plans

The District, with strong coordination and cooperation with the Valley's agricultural representatives, as demonstrated by the implementation of its innovative and nation-leading Conservation Management Practices (CMP) plan program, are now responsible for regulating and updating thousands of CMP plans, which are

designed to decrease dust emissions from agricultural operations on farms, dairies, and other confined animal operations. Along with issuing and modifying the plans, the District performs inspections of agricultural facilities with CMPs to verify that they are complying with the management practices the operator selected, and that they are recording and maintaining the necessary documentation.

Emission Reduction Incentive Program Inspections

To ensure that the emission reduction projects funded by the District's incentive programs are real and permanent, the District monitors the pre-contract and post-contract guideline adherence of grant recipients. Thousands of field inspections are conducted to verify that equipment is appropriately controlled or replaced, that it is adequately maintained, and verification that older equipment has been properly disposed of. Incentive projects requiring compliance inspections include the replacement of older, higher polluting equipment and vehicles with cleaner options, including heavy-duty diesel trucks, school buses, locomotives, tractors, fork lifts, Ag UTVs, emissions controls on trucks, electric vehicle charging infrastructure, and other related control strategies. Each of these funded projects have inspection requirements, with some requiring multiple inspections at various stages of the project to assure emission reductions are realized as intended.

Enhanced Public Notification/Engagement Procedures

Consistent with the District's core value of conducting all of the business through open and transparent public processes that provide meaningful opportunities for public input and are responsive to all public inquiries. While the District currently provides extensive information online to the public, the District has continued to increase public accessibility of District programs and information through enhanced public outreach and expanded online availability of information on District programs.

On January 1, 2023, the District launched a web-based Public Permits Information Portal.[33] The portal provides the public access to view and download finalized Authority to Construct permits and active Permits to Operate. The use of the portal has been increasing since it was launched, and has been utilized for more than 80,000 permit searches. In addition, the District's portal compliments the District's Public Records Act program by streamlining public access to permits.

The stationary source regulatory programs administered by local air districts is a complex subject that involves air quality specific terms, acronyms, and processes/procedures that can vary depending on where in California you are located. In September 2021, Environmental Justice representatives from across the state met with CARB to share questions related to the stationary source permitting process. This effort resulted in over 160 unique questions that ranged from requests to provide clear definitions of commonly used terms to clarifying the original intent of complex regulatory programs. In collaboration with CARB and the California Air Pollution Control Officers

[33] SJVAPCD. *Public Permits Information Portal*. https://apps.valleyair.org/PublicPermits

Association (CAPCOA), the District assisted in creating a webpage[34] to help the public understand how stationary source air quality permitting is conducted in California.

IV. Comprehensive Evaluation of the 27 Sources

The District has conducted an analysis of the NOx and PM2.5 sources and associated emissions for the 27 identified stationary sources, including the emissions reductions achieved based on the above strategies, and a summary of the applicable rules, installed controls, and analysis of additional controls for each type of equipment.

Evaluation of Emissions

To evaluate the emissions at each of the 27 sources, the District first compiled the NOx and PM2.5 emissions reported at each facility for 2016 and 2023, as summarized in Table 1 above. To better understand emissions at these facilities, the District evaluated the data reported to CEIDARS to identify the types of equipment in use at each facility and their respective emissions. The table below summarizes the total emissions at all 27 sources reported for 2016 and 2023, broken down by equipment type.

Table 3 – Emissions Reductions at 27 Sources by Equipment Type

Equipment Type	NOx (tpy)		% Change	PM2.5 (tpy)		% Change
	2016	2023		2016	2023	
Abrasive Blasting	0.00	0.00	-	0.19	0.54	184%
Biomass Rec/Unload	0.00	0.00	-	10.06	9.46	-6%
Boiler	6.55	2.60	-60%	4.62	4.13	-11%
Cooling Tower	0.00	0.00	-	27.74	16.54	-40%
Dryer	0.50	1.71	241%	2.90	6.76	133%
Fiberglass Fiberizer	0.00	0.00	-	5.60	11.10	98%
Flare	71.45	32.94	-54%	17.41	6.79	-61%
Glass Melting Furnace	1,118.62	791.42	-29%	97.82	116.87	19%
IC Engine	165.95	16.62	-90%	8.03	4.47	-44%
Other	34.84	12.71	-64%	52.08	31.49	-40%
Powder Coating Oven	0.01	0.03	-	0.00	0.00	-
Process Heater	31.41	27.93	-11%	9.98	9.18	-8%
Solid Fuel Boiler	482.70	368.03	-24%	58.15	68.40	18%
Steam Generator	678.74	349.40	-49%	717.58	165.13	-77%
Thermal Oxidizer	2.70	2.97	10%	3.24	2.55	-21%
Turbine	865.19	512.46	-41%	433.26	198.92	-54%
TOTAL	**3,459**	**2,119**	**-39%**	**1,449**	**652**	**-55%**

Over the last several decades, the District's control strategies, including nearly 700 regulatory actions and adoption of the most stringent rules in the nation, have been

[34] California Air Resources Board. *Stationary Source Permitting – Community Questions*. https://ww2.arb.ca.gov/capp/cst/tch/stationary-source-permitting-community-questions

instrumental in reducing emissions from these source categories. These stringent District rules cover a wide range of equipment types, and as shown in the table above, significant emission reductions have been achieved across many categories of equipment in use at the 27 facilities. Emissions at these facilities are expected to decrease further as various types of equipment in use at these facilities are subject to emission limits with future compliance dates.

Following the identification of the types of equipment at these facilities and their respective emissions, the District reviewed permitting information to identify the types of emissions controls currently installed, and any potential opportunities for additional emissions controls. Notably, through the development of past plans and rules, the District has conducted many iterations of control technology evaluations for these types of equipment, with the most recent conducted in 2024 for the *2024 PM2.5 Plan* and ongoing evaluations occurring**.**

Additionally, many of the District rules that are applicable to these sources have been recently amended to ensure the most stringent controls are required. Many of the following sections include summaries of analyses that were conducted for the recent *2024 PM2.5 Plan*, which included a comprehensive evaluation of potential control opportunities. More detail on these analyses is available for review within Appendix C of the *2024 PM2.5 Plan*, as linked in the following sections.

Equipment Type:

Abrasive Blasting Operations (Confined/Unconfined)

Applicable District Rule(s):

- California Code of Regulations, Title 17, Subchapter 6, Sections 92000-92540

Control Technologies in Current Operations:

PM2.5 Control Technologies:

- Baghouse
- Dust Collector
- Abrasive Material Requirements

Further Control Technologies Evaluated:

Operations are under state authority. No additional controls have been evaluated.

Equipment Type:

Biomass Receiving/Unloading Operations

Applicable District Rule(s):

- Regulation VIII – Fugitive PM10 Prohibitions
- District Rule 4201 (Particulate Matter Concentration)

Control Technologies in Current Operations:

PM10/PM2.5 Control Technologies:

- Fogging Dust Controls
- Windscreen
- Dust Suppression Techniques

Further Control Technologies Evaluated:

Facilities are subject to strict dust control requirements as stated above. Emissions from these operations have also further decreased as two additional facilities have recently shut down. No additional controls have been identified/evaluated.

Equipment Type:

Boilers, Steam Generators, Process Heaters (greater than 5 MMBtu/hr)

Applicable District Rule(s):

- District Rule 4306 (Boilers, Steam Generators, Process Heaters – Phase 3)
- District Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, Process Heaters Greater than 5.0 MMBtu/hr)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- Selective Catalytic Reduction (SCR)[35]
- Low NOx Burner
- Ultra-Low NOx Burner

PM2.5 Control Technologies:

- Scrubber
- Electrostatic Precipitator (ESP)

Further Control Technologies Evaluated:

- **Installation of SCR Systems for Oilfield Steam Generators**

  Oilfield steam generators are significantly different than industrial boilers due to the higher operating efficiency and lower exhaust temperatures. Due to a variety of technical factors, SCR technology has not been utilized as a NOx emission control technology for oilfield steam generators. Notwithstanding, the District has conducted extensive research, including engaging with industry and technology vendors, to evaluate the feasibility of using SCR to further reduce emissions from oilfield steam generators.

  The temperature required for SCR to work (400-800 F) is higher than the temperature that of oilfield steam generator exhaust (~250 F). The gas temperature entering the SCR must be maintained above the temperature at which ammonium bisulfate forms (less than 400 F). The formation of ammonium

[35] SCR is not installed on any oilfield steam generators in the Valley.

bisulfate degrades the SCR's NOx removal efficiency resulting in shorter catalyst life. Therefore, to operate the SCR system properly, steam generators would have to be cut open to retrofit SCR into the convection section of the steam generator to operate the SCR system at the correct temperatures (400-800 F). This would cause heat loss, preventing the production of the steam necessary for the oil field operation rendering this control option infeasible.

Additionally, feasibility limitations associated with the installation of SCR for oil field steam generators include space limitations within installed infrastructure, and concerns with the storage of anhydrous ammonia in the remotely located, unsecured oil fields where these types of units operate. Unlike industrial boilers that are located in a building/facility where maintenance staff is nearby and can respond to any upset conditions in a short amount of time, oilfield steam generators are not always located nearby and can take additional time to arrive to the units. As the emission limits continue to decrease, the tolerances for upset conditions continue to tighten and the advancement of control and monitoring technologies increases. Having units located at remote locations with these tight operating conditions will also increase the operating costs of the facilities as they will need to employ additional qualified staff to monitor critical parameters and when necessary, respond and fix upset conditions.

Due to the reasons stated above, specifically the infeasibility of installing SCR, the District determined SCR is not a technologically feasible option for oilfield steam generators.

More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 47-48), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

- **Retrofit with New Burner Capable of Reducing NOx Emissions to 5 ppmv**

  Newer burners have the ability to reduce NOx emissions to as low as 5 ppmv; however, in some situations, a complete replacement of the boiler, steam generator, or process heater may be required to meet 5 ppmv. There are many factors that go into determining the type of control needed to meet this limit. The District conducted a cost-effectiveness evaluation that included a range of costs, between $88,823 - $280,971 per ton of NOx reduced, determining that use of these emission control technologies to control NOx emissions from steam generators is not cost effective.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 48-54), which includes the emissions inventory from this source

category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

- **Installation of Baghouses, Wet/Dry ESPs, and/or Venturi Scrubbers**

  Boilers/steam generators are fired on natural gas, which has an extremely low sulfur content resulting in very little PM2.5 emissions per unit. The typical exhaust PM2.5 concentration from natural gas-fired boilers and steam generators is significantly below the recommended range of inlet loading concentrations for all of the PM2.5 emission control technologies assessed. Further, with the exception of wet ESP and Venturi Scrubbers, these control technologies offer poor control of condensable PM2.5 and therefore poor control of total PM2.5 emissions from natural gas-fired boilers and steam generators. Despite these issues, the District conducted a cost effectiveness analysis of these control technologies, ranging from $494,482 – $6,783,207 per ton of PM2.5 reduced, and found that they are not cost effective.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 54-66), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

- **Electrification of Units**

  Electric boilers and process heaters are becoming more commercially available but not for all sizes and applications. The cost to operate on electricity is much higher than on natural gas. The District found that the electricity generation required to operate units larger than 5 MMBtu/hr would produce more NOx than units operating at the NOx limits in Rule 4306. For example, a 5 MMBtu/hr fire tube boiler would cost nearly seven times as much to operate on electricity compared to natural gas, and the NOx emitted from the electric utility grid to operate the unit would be twice as much as a natural gas fired unit operating at 7 ppmv NOx. Currently, there are no electric steam generators capable of meeting the demands of conventional steam generators. One of the largest electric generators produces 4,882 lb/hr @ 135 pounds per square inch gauge (psig). This flow rate is only 1/10 of the rate needed from one conventional steam generator and the pressure rating of 135 psig is far below the needed pressure of 800-900 psig.

Furthermore, a typical conventional natural gas-fired steam generator is rated (designed) to burn up to 62.5 million Btu/hr of natural gas and consumes approximately 50 million Btu/hr (i.e., 80% firing rate). This will require, on average, 13.75 MW of electricity to replace one conventional steam generator. Therefore, the electricity needs to replace one conventional steam generator with electric steam generation would be the equivalent electricity demand of over 10,000 homes. To replace conventional steam generators operating in the Valley with electric steam generation would require approximately 5,160 MW, which would be the equivalent electricity demand of 3,800,000 homes. The immense amount of power needed to electrify all steam generators in the District would require significant infrastructure upgrades to California's power grid. Therefore, electric steam generators are not feasible at this time.

More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 66-67), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

- **Solar Powered Oilfield Steam Generation**

  In the Valley, pilot projects were conducted at Berry Petroleum Company, Chevron, and Aera Energy to demonstrate the feasibility of solar powered steam generation technologies. These projects identified a number of feasibility issues with solar powered steam generators, including significant heat loss, space restraints, inconsistent steam quality, unreliable power, and high costs. Based on review of this technology, the District determined that solar powered oilfield steam generation is not technologically or economically feasible.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 67-69), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Notably, the District amended District Rules 4306 and 4320 (Boilers, Steam Generators, and Process Heaters, Greater than 5.0 MMBu/hr) in 2020 to require the best available control technology available, and the District's rules are far more stringent than analogous rules in any other region.

Equipment Type:

Cooling Towers

Applicable District Rule(s):

- District Rule 7012 (Hexavalent Chromium – Cooling Towers)

Control Technologies in Current Operations:

PM2.5 Control Technologies:

- Drift/Mist Eliminator

Further Control Technologies Evaluated:

The District's rules currently require the best available control technology feasible. The District searched for all available opportunities to further reduce emissions from this source category and did not identify any additional controls to be evaluated.

Equipment Type:

Dryers, Dehydrators, and Ovens

Applicable District Rule(s):

- District Rule 4309 (Dryers, Dehydrators, and Ovens)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

- Electrostatic Precipitator (ESP)
- Baghouse
- Cyclone
- Scrubber
- Low-NOx Burners

Further Control Technologies Evaluated:

- **Zero-Emission Technology**

  The District evaluated all available opportunities for reducing emissions from this source category and did not identify any available zero-emission technologies to be installed as a replacement for any of these industrial-type dryers, dehydrators, or ovens.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 102-109), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Equipment Type:

Fiberglass Fiberizer

Applicable District Rule(s):

- District Rule 4201 (Particulate Matter Concentration)
- District Rule 4202 (Particulate Matter - Emission Rate)

Control Technologies in Current Operations:

PM2.5 Control Technologies:

- Electrostatic Precipitator (ESP)
- Dust Collector/Baghouse
- Scrubber

Further Control Technologies Evaluated:

The District's rules currently require the best available control technology for this source category. The District searched for all available opportunities in addition to those identified above to further reduce emissions from this source category and did not identify any additional controls to be evaluated.

Equipment Type:

Flares

Applicable District Rule(s):

- District Rule 4311 (Flares)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- Ultra-Low NOx Flares
- Flare Minimization Plans

Further Control Technologies Evaluated:

- **Zero-Emission Technology**

  The District evaluated all available opportunities for reducing emissions from this source category and did not identify any available zero-emission technologies to be installed as a replacement for a flare. Notably, the District amended District Rule 4311 (Flares) in 2020 to require the utilization of ultra-low NOx flares, which represents the best available control technology available, and the District's rule is far more stringent than analogous rules in any other region.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 110-117), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Equipment Type:

Glass Melting Furnace

Applicable District Rule(s):

- District Rule 4354 (Glass Melting Furnaces)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- Hybrid electric glass melting furnace
- Oxy-fuel Combustion Technology
- Selective Catalytic Reduction (SCR)
- Selective Non-Catalytic Reduction (SNCR)

PM2.5 Control Technologies:

- Hybrid electric glass melting furnace
- Sorbent Injection
- Scrubber
- Electrostatic Precipitator (ESP)
- Ceramic Filter Technology

Further Control Technologies Evaluated:

- **Electric Glass Melting Furnaces**

  All of the container glass furnaces within the District utilize hybrid electric glass melting furnaces, where electric heating is used to supplement the heating supplied by the primary gas-fired burners to melt the glass. The District evaluated the use of fully-electric container and fiber glass furnaces and determined that the use of these furnaces is not currently feasible nor cost effective due to the high electricity consumption required to operate the furnaces and the lack of utility grid power available at these plants. Furthermore, electric furnaces have much smaller maximum capacities than the capacities of the gas-fired container glass furnaces located within the District, fully-electric furnaces require more frequent rebuilds than gas-fired furnaces, and the infrastructure required to generate the additional electricity required by the fully-electric furnace could have significant criteria pollutant emissions associated with it.

The District also evaluated the use of fully-electric glass furnaces on flat glass operations and determined that fully-electric furnaces are not currently technologically feasible for these types of glass manufacturing operations. Notably, the District amended District Rule 4354 (Glass Melting Furnaces) in 2021 to require the best available control technology on the market, and the District's rule is far more stringent than analogous rules in any other region.

More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 129-133), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Equipment Type:

Internal Combustion (IC) Engines (Greater than 50 bhp)

Applicable District Rule(s):

- District Rule 4702 (Internal Combustion Engines)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- Selective Catalytic Reduction (SCR)
- Non-Selective Catalytic Reduction (NSCR)

Further Control Technologies Evaluated:

- **Installation of SCR Systems for Lean-Burn Agricultural IC Engines**

  The District has conducted extensive analyses of the feasibility of additional potential controls for lean-burn agricultural engines in recent years, which have demonstrated that both technological and economic feasibility challenges persist with regards to retrofitting or replacing these engines with controls to achieve lower NOx limits, including engine power losses from additional controls, potential engine overhaul required, difficulty of meeting lower emission levels due to narrower margin of compliance, custom design needed for control systems, errors generated during control system installation, potential damage to an engine from retrofitting, potential damage to the control system by an engine, compliance costs, and remote location of engines.

  Similar to SCR for oilfield steam generators, there are significant concerns with the storage of anhydrous ammonia in the remotely located, unsecured agricultural fields where these types of units operate. Unlike industrial IC engines that are located in a building/facility where maintenance staff is nearby and can respond to any upset conditions in a short amount of time, ag IC engines are not always located nearby and can take additional time to arrive to the units. As the emission limits continue to decrease, the tolerances for upset conditions continue to tighten and the advancement of control and monitoring technologies increases. Having units located at remote locations with these tight operating conditions will also increase the operating costs of the agricultural operations as

they will need to employ additional qualified staff to monitor critical parameters and when necessary, respond and fix upset conditions.

- **Electrification of Units**

  The District has long pursued feasible opportunities to transition agricultural IC engines to electric alternatives and has found great success through effective incentive-based approaches. In 2005, the District partnered with Pacific Gas and Electric Company and Southern California Edison to provide greater incentives for ag customers to replace their diesel pump engines with electric motors. Over the course of this program, nearly 2,300 agricultural IC engines were electrified throughout the San Joaquin Valley. More recently, the District has facilitated the voluntary replacement of thousands of high-polluting diesel agricultural irrigation pump engines with cleaner, zero or near-zero emission technology through the Agricultural Irrigation Pump Engine Repower Program.

  Through the efforts described above, the District has been successful in transitioning agricultural engines to electric where feasible. However, there are significant challenges to electrifying the diesel engines that remain, including a lack of existing electric infrastructure in many areas of the Valley. There would be considerable costs and time associated with the line extension and other technology necessary to gain access to electricity in these remote locations.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 157-168), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Notably, the District amended District Rule 4702 (Internal Combustion Engines) in 2021 to require the best available control technology available, and the District's rule is far more stringent than analogous rules in any other region.

Equipment Type:

Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters

Applicable District Rule(s):

- District Rule 4352 (Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- Selective Catalytic Reduction (SCR)

PM2.5 Control Technologies:

- Multiclone
- Scrubber
- Electrostatic Precipitator (ESP)

Further Control Technologies Evaluated:

- **Installation of SCR, Gore De-NOx, Covanta LN with SCR, and Covanta LN with Gore De-NOx**

  The cost-effectiveness analysis performed as part of the District's *2024 PM2.5 Plan* did not demonstrate that any of the alternative control technologies were cost-effective. Notably, many of these units were operated at facilities that have since shutdown operation. The remaining solid fuel boilers are already equipped with SCR systems.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 120-128), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Notably, the District amended District Rule 4352 (Solid Fuel Fired Boilers) in 2022 to require the best available control technology available, and the District's rule is far more stringent than analogous rules in any other region.

Equipment Type:

Thermal Oxidizers

Applicable District Rule(s):

- District Rule 4301 (Fuel Burning Equipment)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- N/A

Further Control Technologies Evaluated:

Thermal oxidizers are not considered an “emissions unit” as defined in District Rule 2201; rather are considered as an emissions control or abatement device. District permit conditions include emission limits and specific operating conditions to ensure proper control efficiency to minimize pollutants. Therefore, no additional controls have been identified or evaluated for this equipment type.

- **Zero-Emission Technology**

  The District evaluated all available opportunities for reducing emissions from this source category and did not identify any available zero-emission technologies to be installed as a replacement for thermal oxidizers/incinerators.

Equipment Type:

Turbines

Applicable District Rule(s):

- District Rule 4703 (Turbines)

Analogous District Rules Comparison:

As presented in Appendix C of the *2024 PM2.5 Plan*, the District did a comprehensive evaluation and comparison to analogous rules from other air districts, and concluded the District rules for this source category are as stringent as or more stringent than any other region.

Control Technologies in Current Operations:

NOx Control Technologies:

- Dry Low NOx
- Selective Catalytic Reduction (SCR)

Further Control Technologies Evaluated:

- **Expansion or Replacement of SCR Systems to Achieve Lower NOx Limits**

  Almost all of the gas turbines in the Valley are already equipped with SCR systems to reduce NOx emissions, and cannot modify existing controls to achieve lower NOx emission limits. Additional catalyst beds and upgraded ammonia injection systems are needed to ensure continuous compliance with significantly lower NOx limits. In discussions with operators and vendors, many facilities are unable to add more catalyst beds due to existing constraints with their catalyst reactor housing. In cases where the SCR unit is able to accommodate more catalyst beds, the ammonia injection system would need to be redesigned to be capable of handling the additional injection capacity and to ensure optimal reagent dispersion throughout the catalyst media to achieve optimal NOx control, which also poses significant feasibility issues.

  Based on these factors, existing SCR systems serving turbine installations would need to be completely replaced with a new SCR system to reliably comply with the lower NOx limits, which was determined to be not cost effective, with a range of $141,116 - $770,965 per ton of NOx reduced.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (pp. 169-185), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission

reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

- **Replacement of Turbines with Fuel Cells or Electrification of Facility Operations**

  The District did not identify any instances of any federal, state, or local rules/regulations requiring the installation of fuel cells in lieu of installing turbine units. While there can be specific projects where installing fuel cells can supplement power generation; fuel cells are very expensive and have been found to not be cost-effective for existing turbine installations.

  Additionally, the majority of larger turbine installations are sited for power generation purposes, generating up to hundreds of kilowatts of power per facility. Therefore, it is not reasonable to expect to remove the turbines and electrify the facility when turbines are the electricity-generating equipment. However, the District will continue to closely track the development of new zero-emissions technologies and control measures for this source category. In response to the state's power crisis, in recent years, the state has developed and implemented more aggressive plans for the deployment of additional electrical capacity. As part of this statewide effort, the San Joaquin Valley and other regions of the state have seen the deployment of new solar microgrid energy installations, often to serve as peaker plants. Over time, this transition by the state will continue to support the deployment of zero-emissions power generation technology, balanced by the need to respond to growing energy demand.

  More detail on the District's analysis is available in Appendix C of the *2024 PM2.5 Plan* (p. 185), which includes the emissions inventory from this source category, an evaluation of federal, state, and local regulations (including a comparison to other district rules), an assessment of stringency compared to federal requirements (RACT, BACM, MSM), a summary of potential emission reduction opportunities identified and the associated analyses of such opportunities, and a summary of the evaluation findings.

Evaluation of Air Toxics Emissions

The District has spent nearly three decades implementing and integrating a wide variety of methods reducing air toxic emissions in the San Joaquin Valley. Based on the latest finalized California Toxics Inventory (CTI) available from CARB, 14% of all air toxics in the Valley are now emitted from stationary sources of pollution under the direct control and regulation of the District, while 52% comes from mobile sources such as cars and trucks, and the remaining 34% is emitted from area-wide sources like road dust, the use of consumer products, and fires. Mobile and area-wide sources of emissions are generally under the regulatory authority of the State of California and the federal government.

The District's integrated approach to addressing and reducing risks from toxic air contaminants has taken three main paths: reducing air toxic emissions from existing stationary sources of emissions; preventing the creation of new or modified stationary sources of significant risk; and finding creative and cooperative methods of reducing risk from emissions sources that the District does not typically regulate. This approach has resulted in dramatic reductions in emissions of air toxics from sources in the San Joaquin Valley.

Under Assembly Bill (AB) 2588 (Air Toxics Hot Spots Information and Assessment Act), the District works with existing facilities to quantify emissions of air toxics, determines the health risk to the public caused by those emissions, notifies the affected public of any significant risks, and as required, takes steps to reduce such risks. The goals of AB 2588 are:

- to identify facilities that release toxic air contaminants as a result of their day-to-day operations
- to collect and quantify emission data
- to identify facilities causing localized impacts
- to determine facility-wide health risks
- to notify nearby residents and businesses of significant risk facilities in their vicinity
- to require that significant-risk facilities reduce their risks below the level of significance in accordance with the provisions of the "Emissions Inventory Criteria and Guidelines Report" adopted by CARB

The District evaluates these facilities using complex computerized database and modeling programs. As part of this process, very conservative assumptions are utilized, with many safety factors built in to determine the worst-case health risk to possible receptors. The purpose of those safety factors is to ensure that the most sensitive receptors (children, elderly, pregnant women and people with weakened immune systems) are protected. The assessments take into consideration the concentration of toxics in the air, the potency (toxicity) of the chemical, and the length of exposure, how

the pollutant is emitted (stack height and direction, exit velocity and temperature of emissions), wind direction and speed, and distance to the receptor location. Based on CARB guidelines, facilities are categorized by health risk as follows:

Low: Facility conditionally exempt from further requirements

Intermediate: Facility is required to be evaluated on a quadrennial basis (every 4 years) under CARB guidelines

High: Facility is required to go through a public notification process

Risk Reduction: Facility is required to go through a public notification process and prepare a Risk Reduction Plan

As a result of these ongoing efforts, and the resulting emissions reductions, no Valley facility currently poses a significant health risk under this program. Note, the District re-assesses facilities under the state's Hot Spots program on an ongoing basis to ensure compliance with program requirements (see table below for the latest status of each facility).

Table 4 – AB 2588 Status by Facility (in Alphabetical Order by Facility Name)

Facility ID	Facility Name	Facility Status
C-1121	Aera Energy LLC	Intermediate
S-1135	Aera Energy LLC	Intermediate
S-1543	Aera Energy LLC	Intermediate
S-1547	Aera Energy LLC	Intermediate
S-1548	Aera Energy LLC	Intermediate
S-33	Alon Bakersfield Refining	Intermediate
S-34	Alon Bakersfield Refining	Intermediate
C-801	Ardagh Glass Inc	Intermediate; Under Re-Assessment
S-1246	Berry Petroleum Company LLC	Intermediate
S-1328	Berry Petroleum Company LLC	Intermediate
S-1330	Berry Petroleum Company LLC	Low
S-2265	Berry Petroleum Company LLC	Intermediate
S-3585	Berry Petroleum Company LLC	Intermediate
S-382	California Resources Elk Hills LLC	Intermediate
S-2234	California Resources Elk Hills LLC	Intermediate
S-40	California Resources Production Corp	Low
C-276	California Resources Production Corp	Low
S-1326	California Resources Production Corp	Intermediate; Under Re-Assessment
S-1327	California Resources Production Corp	Intermediate

Facility ID	Facility Name	Facility Status
S-1737	California Resources Production Corp	Low
S-1738	California Resources Production Corp	Intermediate
S-8282	California Resources Production Corp	Intermediate
S-8453	California Resources Production Corp	Intermediate
S-8454	California Resources Production Corp	Intermediate
C-261	Certainteed LLC	Intermediate
S-3317	Chevron Pipe Line Company	Low
S-49	Chevron USA Inc	Low
C-311	Chevron USA Inc	Low
S-1128	Chevron USA Inc	Intermediate
S-1129	Chevron USA Inc	Intermediate
S-1131	Chevron USA Inc	Intermediate; Under Re-Assessment
S-1141	Chevron USA Inc	Intermediate
S-3412	CXA La Paloma, LLC	Low
N-645	DTE Stockton, LLC	Intermediate*
S-3523	Elk Hills Power LLC	Low
N-1252	Foster Food Products	Intermediate
N-1662	Gallo Glass Company	Intermediate
C-598	Guardian Industries, LLC	Intermediate
C-817	Henry Company (MB Technologies)	Intermediate
C-705	J R Simplot Company	Low
S-37	Kern Energy (Kern Oil & Refining Co.)	Intermediate
S-4162	Kern Energy (Kern Oil & Refining Co.)	Low
S-88	Kern River Cogeneration Facility	Intermediate; Under Re-Assessment
C-2106	NAS Lemoore	Intermediate
S-1188	Nestle Purina Petcare Co	Low
S-3636	Pastoria Energy Facility LLC	Intermediate
N-2073	Reworld (Covanta) Stanislaus, Inc	Intermediate
C-1820	Rio Bravo Fresno	Intermediate
S-1372	Sentinel Peak Resources CA LLC	Intermediate; Under Re-Assessment
S-3746	Sunrise Power Co	Low
S-511	Sycamore Cogeneration Facility	Intermediate; Under Re-Assessment
C-948	Vitro Flat Glass LLC	Intermediate
N-7172	Walnut Energy Center Authority	Intermediate

**Health Risk Assessment submitted to Office of Environmental Health and Hazards Assessment (OEHHA) for final review*

The State's Hot Spots Act; however, is only one part of the District's comprehensive program to regulate air toxics. To achieve maximum efficiency and effectiveness, the District operates an integrated air toxics program that harmonizes local, state, and federal mandates wherever possible.

A number of regulations have also been adopted by the District, the state, and the federal government, and implemented through the District's integrated air toxics program, to directly reduce existing emissions from specific types of facilities and sources of air toxic contaminants. For example, toxic air emissions from sources like dry cleaners, chrome platers, gas stations, and diesel internal combustion engines have drastically decreased in the San Joaquin Valley since the implementation of the District's air toxic program.

In addition to the above efforts to minimize emissions, the District also performs comprehensive and conservative toxic emission evaluations and air dispersion modeling before issuing permits to new and modified stationary sources of emissions. This assures the District minimizes the increase those sources add to the existing toxic load and any potentially significant public health impacts associated with the release of those air toxics.

Under its integrated air toxics program, the District has also implemented numerous methods of reducing emissions from mobile sources and other sources of emissions that the District does not have the authority to regulate. For instance, the District developed the first Indirect Source Review rule in the nation, designed to reduce emissions from construction equipment and mobile sources associated with new land use development projects. The District also provides assistance and guidance to the cities and counties in the San Joaquin Valley so that they can be assured that land-use decisions are based on a full understanding of the potential for increasing emissions of air toxics, and new air toxics risks can be avoided. One of the most effective methods of reducing emissions of air toxics from emissions sources not directly regulated by the District has been the incentive grant programs that have leveraged billions of dollars in reducing emissions from diesel internal combustion engines on trucks, tractors and agricultural irrigation operations. To assist in reducing air toxic emissions throughout the Valley, more than $7.2 billion in public and private funding has been invested in clean-air projects through the District's voluntary incentive programs. In total, these programs have reduced more than 286,000 tons of harmful emissions. Carcinogenic diesel particulate matter (DPM) emissions have been significantly reduced in the Valley, where District voluntary incentives programs have provided critical funding toward replacing more than 37,000 older, high-polluting heavy-duty diesel engines with zero emission electric motors or cleaner burning engines equipped with the latest emissions control technologies. In addition, these incentive programs provide critical funding to replace older, higher-polluting school buses, light-duty passenger vehicles, residential wood burning devices, and numerous others.

V. District's Commitment to Seek Additional Emissions Reductions

The District's current control measures, coupled with the rule-strengthening commitments included in the *2024 PM2.5 Plan*, represent the most stringent measures feasible for stationary combustion sources. While the District's stringent control strategy significantly reduces emissions, technology progression continually allows for additional emission reduction opportunities and the District is committed to evaluating and pursuing these opportunities. The District has committed to evaluating the next generation of innovative control technologies, including zero-emission technologies, and seek additional emission reduction opportunities across a number of stationary and area source sectors, including residential and commercial heating, stationary NOx and PM sources, energy and climate change programs, clean landscaping equipment and practices, and other innovative measures to pursue additional emission reduction opportunities as technologies, practices, and policies evolve in the future. The District has committed to evaluating the following measures in the *2024 PM2.5 Plan*:

Residential and Commercial Heating Measures: Many appliances and devices, such as water heaters and furnaces, use natural gas or liquefied petroleum gas (fossil fuel) as a fuel source. The District enforces stringent requirements through District Rules 4308 (Boilers, Steam Generators, and Process Heaters – 0.075 MMBtu/HR to Less Than 2.0 MMBtu/HR), 4902 (Residential Water Heaters), and 4905 (Natural Gas-Fired, Fan-Type Central Furnaces), to reduce emissions from these source categories. In addition to reducing emissions from these source categories through regulatory requirements, the District offers incentives through the Fireplace and Woodstove Change-Out Program to purchase and install cleaner space-heating devices such as heat pumps.

Zero-NOx alternatives to natural gas-fired appliances are currently available through electric options such as the aforementioned heat pump space heaters, but also heat pump water heaters. However, a number of barriers have prevented widespread electrification throughout the Valley, state, and nation. Important factors that must be considered before implementing zero-NOx appliance standards include technical feasibility, costs and affordability, power supply and grid capacity, and consumer acceptance, adoption, awareness, and readiness. There are considerable economic barriers to adopting a zero-NOx appliance standard that would require electrification, particularly with respect to lower income households, given the significantly higher upfront costs associated with electrical infrastructure upgrades and the devices themselves. Infrastructure upgrades include new electrical panels with increased amperage breakers and heavier, lower gauge, wiring run through the structure to support the devices. Careful equity considerations must be taken into account as new measures are developed, and the District must evaluate the specific economic challenges that exist for Valley residents. Additionally, a concerted effort is needed across all levels of government, utilities, appliance manufacturers, developers, contractors, households, and businesses to achieve this goal successfully and equitably.

Over 70 California cities and counties have adopted local ordinances requiring varying degrees of electrification for new buildings. The first of these ordinances, passed in the City of Berkeley in August 2019, enacted a building code prohibiting natural gas piping into new buildings. However, this ordinance was invalidated when the U.S. Ninth Circuit Court of Appeals held that the ban on natural gas was preempted by federal energy efficiency laws, setting precedent that blocks local government from using similar bans.[36] Following the ruling, a number of cities and counties with adopted natural gas bans have suspended enforcement of their ordinances. Notably, on June 6, 2025, South Couth AQMD Governing Board voted to reject proposed amendments to Rule 1111 and 1112, which aimed to set zero-emissions standards for small gas appliances with electric alternatives, based on concerns over housing and energy costs. The District continues to evaluate other air district evaluations and challenges related to building decarbonization strategies.

In an effort to identify potential emission reduction opportunities, the District's *2024 PM2.5 Plan* included a further study commitment to evaluate current and upcoming work from CARB and other agencies related to reducing emissions from residential and commercial combustion sources, and to evaluate the feasibility of implementing a zero-NOx standard for these sources in the Valley. The District continues to closely track regulations being developed by CARB, South Coast Air Quality Management District (SCAQMD), Bay Area Air District (BAAD), and others.

Commercial Charbroiling Measures: District Rule 4692 reduces PM emissions by requiring catalytic oxidizers for chain-driven charbroilers, including those used in many typical fast-food restaurants. Rule 4692 is among the most stringent rules in the nation for controlling emissions from commercial charbroiling operations. The original rule, adopted in March 2002, reduced PM2.5 emissions from chain-driven charbroilers by 84%. The September 2009 rule amendment expanded rule applicability to more chain-driven charbroilers. Rule 4692 has been fully implemented since 2011.

In addition to the existing emissions reductions already achieved through control requirements for chain-driven commercial charbroilers, the District continues to seek to achieve additional emission reductions from commercial underfired charbroilers. While there are ongoing improvements in the technology available for commercial cooking emissions, many technological and economic challenges remain, specifically for underfired charbroilers, as detailed in Appendix C of the *2024 PM2.5 Plan*.

The need to reduce PM2.5 from commercial charbroiling continues to grow as EPA promulgates more stringent PM2.5 NAAQS. The lack of commercially available and feasibly demonstrated control technologies has been the primary barrier in moving forward with control strategies for reducing emissions from restaurants equipped

[36] U.S. Courts for the Ninth Circuit. California Restaurant Association v. City of Berkeley. Retrieved from: https://www.ca9.uscourts.gov/cases-of-interest/california-restaurant-association-v-city-of-berkeley/

with commercial charbroilers. Other air districts in California and other regions have encountered similar difficulties in identifying and requiring emissions control technologies for underfired charbroilers. Based on the importance of underfired charbroiling emissions as it relates to attainment of the federal PM2.5 standards in the future, collaborative work is needed to further understand the emissions from underfired charbroiling, including potential control strategy opportunities to reduce emissions from this category. The District has previously collaborated with other agencies including CARB, SCAQMD, and BAAD to evaluate and implement control strategies for underfired charbroilers. While significant work has been done, to date, barriers still exist to the commercial deployment of underfired charbroiler technology.

The District has recently formed the Charbroiler Collaborative Workgroup (CCW), consisting of the District, SCAQMD, BAAD, San Diego County Air Pollution Control District (SDCAPCD), and CARB, to assist in overcoming all obstacles, including costs and emissions control issues preventing widespread control of underfired charbroilers. The CCW goals aim advancing emissions control testing, developing a control technology clearinghouse and certification program, promoting outreach and technology demonstrations, engaging stakeholders, and improving emissions inventory data to support effective control strategies.

Stationary Combustion NOx Measures: The District's current NOx control measures, coupled with the rule-strengthening commitments included in the Plan, represent the most stringent measures feasible for stationary combustion sources in the Valley. The District's regulations have reduced NOx emissions from stationary sources by over 93%, and will continue to reduce NOx emissions that contribute to PM2.5 formation in the Valley.

Although the District is currently implementing stringent regulations for stationary combustion sources throughout the Valley, technology continues to evolve and improve, resulting in significant advancements in performance and NOx removal efficiencies. The District will continue to evaluate the feasibility and potential of emerging technologies, including zero-emission technologies, as they become available through the Plan's attainment year of 2030.

Stationary Source PM Measures: The District's current stationary source control program, further strengthened by the commitments included in the Plan, represents one of the most stringent stationary source control programs in the nation, including wide-ranging industrial control technologies for PM. The District will continue to evaluate the feasibility and potential of emerging technologies, including zero-emission technologies, as they become available through the Plan's attainment year of 2030.

Energy and Climate Change Programs: Federal, state, and local mandates and programs aim to reduce GHG emissions and energy usage, and improve energy efficiency. The District's traditional air quality strategies focus on regulatory measures to reduce emissions of criteria air pollutants (NOx, VOC, PM2.5, etc.).

However, in an effort to pursue all available opportunities, the District will continue to identify opportunities to gain co-benefits from existing and future programs related to greenhouse gas reductions, energy efficiency, energy usage, and other climate change initiatives, and seek opportunities to provide incentive funding to promote building decarbonization throughout the Valley. The District will collaborate with federal, state, and local air districts and other agencies to identify and evaluate opportunities, including advocating for incentives from state and federal sources.

Clean Landscaping Equipment and Practices: The District has long supported efforts to address emissions from the use of landscaping equipment, including through the deployment of clean zero-emissions equipment under the Clean Green Yard Machines (CGYM) Residential Rebate Program and Zero-Emission Landscaping Equipment (ZELE) Voucher Program, which provide funding for the replacement of old gas-powered lawn and garden equipment with new electric equipment. The Residential CGYM program, launched in 2001, provides rebates to San Joaquin Valley residents through a variety of options designed to meet residents' needs. This program has issued over 20,100 rebates for electric lawn care equipment for a total of over $3.6 million in funding.

In May 2019, the District launched the Commercial CGYM Program to assist commercial operators with the purchase of new electric landscaping equipment. To further support the program, the District applied for and was awarded over $6 million in state funding in 2022. With this additional funding, the Commercial CGYM program was relaunched as the ZELE Voucher program in May 2023 to streamline the administration of the program and align its implementation with state guidelines.

Through the ZELE Voucher program, funding is provided to commercial landscaping equipment operators through a voucher process. As part of the program requirements, applicants must replace their existing, in-use gas-powered landscaping equipment with zero-emission electric options, and the old equipment must be rendered permanently inoperable by a licensed dismantling facility. In addition to new equipment, ZELE vouchers can be used to purchase batteries and/or chargers necessary to ensure that the equipment is capable of operating a full day of work. Since the launch of the ZELE Voucher Program, the District has awarded 2,000 vouchers for a total of over $5.2 million in funding.

Existing CARB and EPA emission standards for small off-road engines (SORE), which primarily includes lawn and garden equipment, have led to substantial emission reductions in California. Since 2000, emissions of pollutants that contribute to ozone and PM2.5 formation from SORE have decreased by 50 percent. Even so, in California, SORE emit more NOx and reactive organic gases (ROG) than light-duty passenger cars, both in summer and annually. [37] However, recently

[37] CARB. *Staff Report: Initial Statement of Reasons for the Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions.* (October 12, 2021). Retrieved from: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/sore21/isor.pdf

amended SORE regulations approved by CARB in December 2021 require most newly manufactured SORE engines be zero-emission starting in 2024, which will help achieve further emission reductions from lawn and garden equipment. [38]

In light of new opportunities, the District will work with landscaping services and local jurisdictions to pursue options for accelerating the deployment of newly available commercial zero-emissions equipment, promoting landscaper training and green certification programs, and promoting best practices to reduce exposure through episodic and zoning recommendations (e.g., limiting leaf blower use around children during school hours, “green zones”).

Other Innovative Measures: The District will continue to evaluate innovative, out of the box measures to pursue additional emission reduction opportunities as technologies, practices, and policies evolve in the future. These measures could include enhancements to the District’s public outreach and communication strategy and continued support of enhanced forest management strategies for wildfire prevention in the context of enhanced funding and policies at the state and federal level.

[38] CARB. *CARB approves updated regulations requiring most new small off-road engines be zero emission by 2024.* (December 9, 2021). Retrieved from: https://ww2.arb.ca.gov/news/carb-approves-updated-regulations-requiring-most-new-small-road-engines-be-zero-emission-2024