



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



FINAL DRAFT STAFF REPORT

Proposed Amendments to
Rule 2201 (New and Modified Stationary Source Review Rule)
Rule 2301 (Emission Reduction Credit Banking)
Rule 2520 (Federally Mandated Operating Permits)

July 15, 2019

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July 15, 2019

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I. SUMMARY

The amendments proposed in this action are limited in scope and do not impact the District's methods of analyzing permitting proposals. The first action is to provide clarity to Rule 2201 language and to address areas of potential concern of oversight agencies. The second amendment is to enable the District to publish notices of permitting and emission reduction credit actions on the District's website, rather than in the various newspapers across the Valley. Finally, Appendix E of this staff report is a scientific demonstration of the contribution of increased ammonia emissions to Valley PM_{2.5} concentrations, leading to a conclusion that ammonia is not a significant precursor to PM_{2.5} concentrations in the Valley for the purposes of new source review permitting.

A. Routine Replacement Emissions Unit / Federal Major Modification / Temporary Replacement Emissions Unit Definitions (District Rule 2201)

The District adopted amendments to District Rule 2201 on February 18, 2016, as a requirement for the District's reclassification from moderate to serious nonattainment for the 1997 and 2006 National Ambient Air Quality Standards (NAAQS, or standards) for particulate matter with an aerodynamic diameter of less than 2.5 microns (PM_{2.5}). In addition to the requirements for the reclassification, at that time the District took the opportunity to amend the rule to address a comment from EPA about the definition of "Routine Replacement". The amendments in February 2016, replaced the name "Routine Replacement" with "Replacement Emissions Unit" and removed the term "routine" from the definition in Section 3.35 of Rule 2201 (see Appendix A for the staff report associated with these changes).

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After the District's adoption of the February 18, 2016, amendments, the California Air Resources Board (ARB) reviewed the amendments further and commented that removing the term "routine" from the Routine Replacement definition that was replaced by Replacement Emissions Unit could potentially result in a relaxation of the District's New Source Review (NSR) Rule that would not be allowed by California Health and Safety Code Sections 42500 through 42507 – *Protect California Air Act of 2003, Senate Bill 288 (SB 288)*. Therefore, ARB did not submit the rule to EPA for inclusion into the State Implementation Plan (SIP). In response to ARB's concern, the District is proposing to amend District Rule 2201, Section 3.35, by reintroducing the term "routine" and changing the name from "Replacement Emissions Unit" to "Routine Replacement Emissions Unit".

In addition, the District is proposing amendments to the definitions of Federal Major Modification and Temporary Replacement Emissions Unit in Rule 2201, Sections 3.18 and 3.41 respectively to clarify these requirements in response to comments received from EPA. The proposed amendments to Sections 3.18, 3.35, and 3.41 do not change the District's longstanding interpretation and implementation, are consistent with the current SIP-approved Rule 2201 (amended April 21, 2011), and satisfy both the original comment from EPA and the recent comments from EPA and ARB.

These proposed rule amendments, and the other minor changes discussed below, are considered supplemental to the amendments that were originally adopted by the District's Governing Board on February 18, 2016. For reference, the Final Staff Report with appendices for the February 18, 2016, amendments is included as Appendix A of this staff report.

B. Enhancement of Public Notice Procedures (District Rules 2201, 2301, and 2520)

The District is proposing to amend District Rules 2201, 2301, and 2520 to enhance public notice procedures for District actions that trigger public notification requirements under existing provisions of these rules. The current rules each require the District to publish public notices for the required actions in a newspaper of general circulation.

For District Rules 2201, 2301, and 2520, the specific requirement for publication of notices in a newspaper is not currently mandated by state or federal law. For District Title V actions under District Rule 2520, the federal Clean Air Act (CAA) under 40 CFR Part 70 previously mandated that the required notices be published in a newspaper of general circulation, but US EPA took action in the federal register¹ on October 18, 2016, to issue a final rule that requires electronic notification (e-notice) in place of newspaper publication for EPA actions and for actions performed by other permitting authorities implementing federal permitting rules for several federal programs, including public notices for New Source Review (NSR) and Title V permitting. The US EPA action also removed the mandatory newspaper notice

¹ Revisions to Public Notice Provisions in Clean Air Act Permitting Programs; Final Rule. 81 Federal Register 201, pp. 71613-71629 (2016 October 18). <https://www.gpo.gov/fdsys/pkg/FR-2016-10-18/pdf/2016-24911.pdf>

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requirement for permitting authorities with their own EPA-approved rules for Title V permitting and endorsed e-notice in lieu of newspaper notice for permitting actions by these agencies.

E-noticing will increase opportunities for public participation by facilitating greater public access compared to newspaper notice. E-notice will also allow the District to enhance its public notice process by making available a higher quality of information in the form of more detailed notices and project related documents on the District's website. The assessment that e-notice will provide opportunities to improve the public notice process has also been supported by EPA and ARB. In issuing its e-notice rule, EPA indicated that e-notice will enable permitting authorities to communicate permitting and other actions to the public more quickly and efficiently and will expand public access to permit-related documents. In June 2018, ARB issued an advisory to California air districts and other interested parties concerning air district New Source Review rules and electronic notice.² In its advisory, ARB determined that modernizing public notice requirements of local air district NSR rules to be consistent with federal rules does not violate the Protect California Air Act of 2003 (California Senate Bill 288) and further indicated that ARB believes that e-notice of projects subject to NSR requirements, performed consistent with federal rules and the ARB advisory "will result in a more widely served and better informed public and will increase the opportunity for meaningful public participation as intended by the Clean Air Act." Therefore, based on EPA's action to update the public notice requirements for Title V actions by requiring or allowing e-notice, the District is proposing to amend District Rule 2520 to enhance the public notice process by requiring e-notice, consistent with federal requirements.

With the proposed amendment to District Rule 2520, the District recognizes the opportunity to also enhance the public notice process for actions under District Rules 2201 and 2301 by creating a consistent noticing procedure for actions under the three rules as allowed under the newly adopted federal requirement. Therefore, the District is proposing to amend District Rules 2201 and 2301 to enhance the public notice process by requiring public notices be published electronically on the District's website rather than in a newspaper. In addition, as suggested in discussions with ARB and consistent with federal requirements for e-notice, the proposed amendments to District Rules 2201 and 2520 will also specifically state that copies of the proposed permits will also be posted on the District's website when public notice is required.

These proposed amendments do not change the standards that trigger public notification requirements under District Rules 2201, 2301, and 2520.

² California Air Resources Board (ARB) Advisory to California Air Districts and Other Interested Parties, Advisory 299: Air District New Source Review Rules Regarding Electronic Notice. (June 2018).
<https://www.arb.ca.gov/enf/advs/advs299.pdf>

C. PM_{2.5} Precursor Demonstration (District Rule 2201)

As part of the staff report for the February 18, 2016, amendments to Rule 2201, the District completed a PM_{2.5} precursor demonstration based on previous EPA guidance for addressing requirements for PM_{2.5} precursors pursuant to Subpart 4. This PM_{2.5} precursor demonstration that was performed by the District in accordance with previous EPA guidance demonstrated that reductions in ammonia emissions would not result in significant reductions in PM_{2.5} concentrations in the San Joaquin Valley. However, in August of 2016, EPA released their 2016 PM_{2.5} Implementation Rule³ which requires a specific type of air quality modeling to assess the significance of precursor pollutant emissions under Subpart 4. EPA published their final guidance on nonattainment NSR PM_{2.5} precursor modeling in May 2019, enabling the District to complete its PM_{2.5} precursor modeling analysis that demonstrates that ammonia emissions are not a significant PM_{2.5} precursor in the San Joaquin Valley (see Appendix E).

II. DESCRIPTION OF CURRENT DISTRICT RULES

A. District Rule 2201 – New and Modified Stationary Source Review Rule

District Rule 2201 was adopted on September 19, 1991, and was last amended on February 18, 2016. The Rule provides a regulatory mechanism for allowing continued economic growth while minimizing the amount of emission increases due to this growth. District Rule 2201 applies to all new stationary sources and all modifications to existing stationary sources that are subject to District permit requirements. For smaller sources of emissions, there are certain permitting exemptions identified in District Rule 2201 and District Rule 2020 (Exemptions).

The District's NSR program is designed to meet both the state and federal NSR requirements for nonattainment areas and applies to new and modified stationary sources of NO_x, VOC, particulate matter with an aerodynamic diameter of less than 10 microns (PM₁₀), PM_{2.5}, SO_x, CO, and other pollutants subject to District permitting requirements pursuant to District Rule 2010 (Permits Required).

Key features of District Rule 2201 include:

- Best Available Control Technology (BACT): mandates emission controls to minimize emission increases above a de minimis value for each affected pollutant;
- Emission offsets: requires emissions above specified offset threshold levels to be mitigated with either concurrent reductions or past reductions which have been banked as emission reduction credits (ERC);

³ Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements; Final Rule; 81 Federal Register 164. pp. 58010-18162. (2016 August 24). <https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf>

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- Public notification: a 30 or 45 day notice period prior to issuance of an Authority to Construct (ATC) to garner comments on projects that result in emissions above specified levels; and
- Required elements for Authority to Construct, Permit to Operate, and administrative requirements for the processing of NSR applications.

As previously mentioned and as will be discussed in Section III of this staff report, the District is proposing to:

- Amend the definitions of Routine Replacement Emissions Unit, Federal Major Modification, and Temporary Replacement Emissions Unit,
- Amend the rule to enhance public notice procedures, and
- Submit a new PM2.5 precursor demonstration.

Since this rule contains definitions and public notice requirements that need to be modified, it is affected by the proposed amendments and is included in this rule-amending project.

B. District Rule 2301 – Emission Reduction Credit Banking

District Rule 2301 was adopted on September 19, 1991, and was last amended on January 19, 2012. The purpose of the rule is to:

- Provide a regulatory mechanism for sources to store ERCs for later use as offsets where allowed by District, state, and federal rules and regulations;
- Provide a regulatory mechanism for sources to transfer ERCs to other sources for use as offsets as allowed by District Rule 2201 (New and Modified Stationary Source Review Rule), or state and federal rules and regulations; and
- Define eligibility standards, quantitative procedures, and administrative practices to ensure that ERCs are real, permanent, quantifiable, surplus, and enforceable.

The current rule applies to all transactions involving the storage, transfer, or use of ERCs of affected pollutants and greenhouse gases (GHGs). Other provisions contained in the rule include eligibility requirements, ERC Certificate application procedures, registration of ERC Certificates, and administrative requirements.

As previously mentioned and as will be discussed in Section III of this staff report, the District is proposing only one change to this rule, specifically to enable the District to utilize electronic public notice procedures.

C. District Rule 2520 – Federally Mandated Operating Permits

District Rule 2520 was adopted on June 15, 1995, and was last amended on June 21, 2001. The purpose of the rule is to provide for the following:

- An administrative mechanism for issuing operating permits for new and modified sources of air contaminants in accordance with requirements of 40 CFR Part 70;
- An administrative mechanism for issuing renewed operating permits for sources of air contaminants in accordance with requirements of 40 CFR Part 70;
- An administrative mechanism for revising, reopening, revoking, and terminating operating permits for sources of air contaminants in accordance with requirements of 40 CFR Part 70;
- An administrative mechanism for incorporating requirements authorized by preconstruction permits issued under District Rule 2201 (New and Modified Stationary Source Review) in a Part 70 permit as administrative amendments, provided that such permits meet procedural requirements substantially equivalent to the requirements of 40 CFR 70.7 and 70.8, and compliance requirements substantially equivalent to those contained in 40 CFR 70.6; and
- The applicable federal and local requirements to appear on a single permit.

As previously mentioned and as will be discussed in Section III of this staff report, the District is proposing only one change to this rule, specifically to enable the District to utilize electronic public notice procedures.

III. DISCUSSION OF PROPOSED RULE AMENDMENTS

A. Routine Replacement Emissions Unit / Federal Major Modification / Temporary Replacement Emissions Unit (District Rule 2201)

1. Background

District Rule 2201 has long defined a Routine Replacement and contained requirements that are applicable only to routine replacement actions. The specific rule items that are applicable only to routine replacement actions include exemption from BACT requirements and an Application Shield for certain routine replacement actions.

With the February 18, 2016, amendments to District Rule 2201, the District took the opportunity to amend Section 3.35 of District Rule 2201 to remove the term “routine” from the definition and replace the name “Routine Replacement” with “Replacement Emissions Unit”. These changes were made in response to an EPA request to change the Routine Replacement definition because “Routine Replacement” has a different definition under the federal CAA. The changes were made solely in response to EPA’s request and did not result in any change to the District’s interpretation or implementation of the Routine

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Replacement provisions in Rule 2201.

After adoption of the February 18, 2106, amendments to District Rule 2201, ARB further reviewed the amended rule and raised a concern that removing the term “routine” could allow more units to be exempt from BACT requirements. This could cause a violation of SB 288 which mandates that districts’ NSR rules cannot be made less stringent, in a variety of specified areas, than the rules that existed on December 30, 2002. In light of this concern, ARB did not submit the adopted rule amendments to EPA for inclusion in the SIP.

While the District was working on supplemental rule amendments to address ARB concerns, EPA provided additional comments on the rule and requested the District further amend District Rule 2201 to clarify that “netting out” is not allowed when determining the applicability of Federal Major Modification requirements for VOC and NOx emissions in the Valley. Since the District is designated as an extreme nonattainment area for the 1997⁴ and 2008⁵ 8-hour ozone standards, the District has long interpreted and implemented the Federal Major Modification requirements for VOC and NOx consistent with paragraphs 51.165(a)(1)(v)(F) and (a)(8) of the federal CAA and has only counted VOC and NOx emissions increases, not decreases, in determining whether Federal Major Modification requirements are triggered, and therefore has not allowed “netting out” when determining the applicability of Federal Major Modification requirements for VOC and NOx. Therefore, this proposed amendment is a clarification of the District’s longstanding practice that will not result in any changes regarding implementation.

Along with its comment about the definition for Federal Major Modification, EPA took the opportunity to also comment on the Rule 2201 definition for Temporary Replacement Emissions Unit (TREU) in Section 3.41 of the rule. EPA requested the District add language to the rule to ensure a TREU may only replace an existing emissions unit with a valid District Permit to Operate (PTO). While the existing definition in Section 3.41 of the District’s NSR Rule does not contain this specific requirement, the additional language requested by EPA is consistent with the District’s longstanding interpretation of requirements for a TREU and will not result in any changes regarding the implementation of these requirements.

2. Proposed Amendments to District Rule 2201

- *Sections 3.35, 3.35.1 and 3.35.5 – Replacement Emissions Unit Definition*

The District is proposing to amend District Rule 2201, Section 3.35 to rename “Replacement Emissions Unit” as “Routine Replacement Emissions Unit” and also

⁴ Designation of Areas for Air Quality Planning Purposes; California; San Joaquin Valley, South Coast Air Basin, Coachella Valley, and Sacramento Metro 8-Hour Ozone Nonattainment Areas; Reclassification. 75 Federal Register 86, pp. 24409-24421. (2010 May 5). (to be codified 40 CFR Part 81), <http://www.gpo.gov/fdsys/pkg/FR-2010-05-05/pdf/2010-9599.pdf>

⁵ Air Quality Designations for the 2008 Ozone National Ambient Air Quality Standards, 77 Federal Register 98, pp. 30088-30160. (2012 May 21). (to be codified 40 CFR Parts 50, 51, and 81) <http://www.gpo.gov/fdsys/pkg/FR-2012-05-21/pdf/2012-11618.pdf>

to reintroduce the term “routine” within the definition of Routine Replacement Emissions Unit.

- *Sections 3.25.1.2 and 3.25.3.4 – Modification Definition*
- *Section 4.2.6 – BACT Exemption for Routine Replacement Emissions Units*
- *Sections 8.0, 8.1, and 8.1.1 – Application Shield*

The District is also proposing to amend applicable rule Sections to update the name to “Routine Replacement Emissions Unit”.

- *Section 3.18.1 – Federal Major Modification Definition*

To clarify the District’s longstanding interpretation and implementation of the applicability of Federal Major Modification requirements, the District is proposing to amend Section 3.18.1 of District Rule 2201 to include additional rule language. The proposed additional language ensures that “netting out” is not applied when determining the applicability of Federal Major Modification requirements for VOC and NOx emissions in the Valley.

- *Section 3.41 – TREU Definition*

The District is proposing to amend Section 3.41 of District Rule 2201 to include language consistent with the current definition for Routine Replacement Emissions Unit. The proposed additional language ensures that the existing unit being replaced must have a valid District PTO.

- *Section 4.2.5 – BACT Exemption for a TREU*
- *Section 4.6.5 – Offset Exemption for a TREU*

The District is also taking this opportunity to make minor typographical corrections to the rule.

While these amendments/clarifications are important for addressing ARB and EPA comments and ensuring consistent interpretation and implementation of District NSR rule requirements, the proposed amendments do not change the District’s interpretation or actual implementation of either the April 21, 2011, or February 18, 2016, versions of District Rule 2201 and as such are considered minor. See Section IV of this report for the proposed amended rule language.

B. Enhancement of Public Notice Procedures (District Rules 2201, 2301, and 2520)

1. Background

Consistent with longstanding federal CAA public participation requirements, District Rules

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2201, 2301, and 2520 have long included requirements for public notification as a means to solicit public participation and comments on certain District actions. Pursuant to CAA requirements in 40 CFR Part 70 for federal operating permits, District Rule 2520 requires the District to publish notices issued under the rule in a newspaper of general circulation.

On October 18, 2016, US EPA took action in the Federal Register and issued a final rule⁶ which requires EPA and permitting authorities implementing the federal permitting rules to e-notice Title V permitting actions in lieu of requiring newspaper publications. Additionally, the Federal Register action says *“For permits issued by other permitting authorities—specifically, agencies that implement an approved program meeting the requirements of 40 CFR parts 51 or 70—we proposed that those permitting authorities would have the option to adopt either e-notice or retain the newspaper noticing method.”* EPA’s action specifically affects the underlying public notification requirements of District Rule 2520.

District Rules 2201 and 2301 also currently contain requirements that notices issued under the rules be published in a newspaper of general circulation. The requirement for newspaper publication in these two rules is not mandated by federal or state law. As the newly adopted federal requirement allows for either newspaper or electronic noticing, the District is also using this action as an opportunity to enhance the public notification requirements outlined in District Rules 2201 and 2301 by requiring public notices be published electronically on the District’s website rather than in a newspaper.

2. Benefits of Electronic Notification (E-Notice)

While the CAA requires permitting authorities to offer the opportunity for public participation in the processing of air permits and other actions, it does not specify the best or preferred method for providing notice to the public. When the District was newly formed, newspaper advertisement was the most commonly accepted method for providing notice of permit actions to the public.

Over the years, however, the availability of and access to the Internet and other forms of electronic media have increased significantly. One effect of this development is that circulation of newspapers and other print media has declined, making printed newspaper notice less effective in providing widespread public notice of permit actions in many cases. Meanwhile, many permitting authorities, including the District, already electronically post permit notices on their agency websites. Such electronic notice mechanisms provide an effective, convenient and cost-efficient way to communicate permitting-related information to the majority of the public. EPA and ARB have both indicated that e-notice provides opportunities to improve the public notice process compared to newspaper notice. In issuing its e-notice rule, EPA indicated that e-notice will enable permitting authorities to communicate permitting and other actions to the public more quickly and efficiently and

⁶ Revisions to Public Notice Provisions in Clean Air Act Permitting Programs; Final Rule. 81 Federal Register 201, pp. 71613-71629 (2016 October 18). <https://www.gpo.gov/fdsys/pkg/FR-2016-10-18/pdf/2016-24911.pdf>

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will expand public access to permit-related documents while being more cost-effective than newspaper notice. In ARB's June 2018 advisory to California air districts concerning local air district NSR rules and electronic notice,⁷ ARB stated that e-notice of projects subject to NSR requirements, performed consistent with federal rules and the ARB advisory *"will result in a more widely served and better informed public and will increase the opportunity for meaningful public participation as intended by the Clean Air Act."*

E-notice will allow the District to enhance the public notice process by making available a higher quality of information in the form of more detailed notices on the District's website in both English and Spanish combined with project related documents (regulatory analyses, draft permits, and other supporting documents) accessible on the same website for the entire duration of the comment period. Consistent with federal requirements for e-notice, the proposed amendments to District Rules 2201 and 2520 will specifically state that copies of proposed permits will be posted on the District's website when public notice is required, thereby guaranteeing that the public has a new and convenient method to access and review the proposed permits, a significant improvement over publishing a notice in the newspaper without immediate access to the permit.

Public notices and project documents will be available 24 hours a day and 7 days a week for the entire duration of the public comment period allowing a greater opportunity for the public to access public notices and review project documents. Under the current newspaper notice method, the public has only a single day to be informed of District actions triggering public notice.

Newspaper notices require regular viewing of the government notices section of the newspaper in order to find notices relevant to the reader, while e-notices are accessible 24 hours a day and 7 days a week for the entire duration of the public comment period, at a minimum. With the availability of e-notices on the District's website, the public may perform a search of the website for public notices that meet their criteria (e.g., a specific facility or region) and immediately obtain the supporting information related to the project; resulting in significantly greater access to District public notice projects and associated documents.

Under the current newspaper notice method, when a member of the public is interested in receiving notice-related documents, the interested stakeholder needs to contact the District during regular business hours to obtain the associated documents for review. Under the new proposed e-notice, members of the public will be able to immediately obtain supporting documents related to the project on the website, any time of the day. In addition, the District has developed an automated notification system allowing English and Spanish speakers to receive electronic notification. This automated notification system also allows a stakeholder to proactively request to be notified about permitting actions for a specific project, a specific facility, a specific region of the District, or all public notices for all projects

⁷ California Air Resources Board (ARB) Advisory to California Air Districts and Other Interested Parties, Advisory 299: Air District New Source Review Rules Regarding Electronic Notice. (June 2018).
<https://www.arb.ca.gov/enf/advs/advs299.pdf>

in the District.

With this proactive approach to make public notices and related documents available electronically 24-hours a day and for the entire duration of the public comment period, the District is providing a more comprehensive notice package and is significantly improving the opportunity for the public to participate in District actions under District Rules 2201, 2301, and 2520. The proposed amendments will formalize the District's commitment to enhance and extend public outreach and participation through e-notice and electronic access.

3. Proposed Amendments to District Rules 2201, 2301, and 2520

a. District Rule 2201 – New and Modified Stationary Source Review Rule

Sections 5.5.1, 5.5.5, and 5.9.1.1 – Public Notification and Publication Actions

The District is proposing to amend Sections 5.5.1, 5.5.5, and 5.9.1.1 of Rule 2201 to improve and strengthen the District's public notice procedures by requiring e-notice in place of the requirement for newspaper publication of public notices.

Note that replacing newspaper notice with e-notice is a change to an administrative requirement and does not represent a change to the determination of applicability of public notice requirements under this rule. See Section IV of this report for the proposed amended rule language.

b. District Rule 2301 – Emission Reduction Credit Banking

Section 8.0 – Administrative Requirements

The District is proposing to amend Section 8.4 of District Rule 2301 to improve and strengthen the District's public notice procedures by requiring e-notice in place of the requirement for newspaper publication of public notices.

Note that replacing newspaper notice with e-notice is a change to an administrative requirement and does not represent a change to the determination of applicability of public notice requirements under this rule. See Section IV of this report for the proposed amended rule language.

c. District Rule 2520 – Federally Mandated Operating Permits

Section 11.1.4.1 – Public Notification

Section 11.1.10 – Notification and Publication of Final Action

Section 11.3.1.1 – Public Notification

Section 11.3.5 – Notification and Publication of Final Action

As required in EPA's final rule, the District is proposing to amend District Rule 2520, Sections 11.1.4, 11.1.10, 11.3.1.1, and 11.3.5 to replace the requirement for newspaper notice with e-notice for federal permitting actions.

With this approach to make notices and documents available electronically 24-hours a day and for the entire duration of the public comment period, the District is providing a more comprehensive notice package and is improving the public notice process by providing a greater opportunity for public participation in public notice actions under Rule 2520.

Note that replacing newspaper notice with e-notice is a change to an administrative requirement and does not represent a change to the determination of applicability of public notice requirements under these rules. See Section IV of this report for the proposed amended rule language.

C. Submittal of New PM_{2.5} Precursor Demonstration (District Rule 2201)

1. Background

EPA previously implemented PM_{2.5} requirements under the general nonattainment provisions Subpart 1. As a result of a court decision that required EPA to evaluate PM_{2.5} requirements under both Subpart 1 and the specific requirements for PM nonattainment areas of Subpart 4, the District is required to evaluate NO_x, SO_x, VOC, and ammonia (NH₃) (the four PM_{2.5} precursor pollutants) under the presumption that each is a significant PM_{2.5} precursor pollutant. This differs from the previous requirements of Subpart 1, under which all precursors were presumed not to be significant precursors unless they were demonstrated to be so. With the presumption that all PM_{2.5} precursors are significant, all control requirements applicable to PM_{2.5} major sources must also apply to major sources of PM_{2.5} precursors. However, Subpart 4 allows the District to demonstrate that a presumed PM_{2.5} precursor pollutant is not a significant PM_{2.5} precursor in order for that pollutant not to be subject to PM_{2.5} control requirements in the District's NSR program.

On February 18, 2016, the District adopted amendments to its NSR rule and lowered the PM_{2.5} major source threshold from 100 tons per year to 70 tons per year consistent with federal CAA requirements for a PM_{2.5} serious nonattainment area. The District also completed a PM_{2.5} precursor demonstration as required under Subpart 4 and following EPA guidance at the time. The PM_{2.5} precursor demonstration performed by the District in accordance with previous EPA guidance demonstrated that reductions in ammonia emissions would not result in significant reductions in PM_{2.5} concentrations in the San Joaquin Valley.

However, the February 18, 2016, amendments to the District's NSR rule were not approved by ARB and were therefore not forwarded for EPA approval. In August of 2016, EPA released their 2016 PM_{2.5} Implementation Rule, long-awaited regulations on

implementing the PM_{2.5} standards in NSR rules. The EPA rule requires a specific type of air quality modeling to assess the significance of precursor pollutant emissions. As a result, the EPA has indicated that they would not be able to approve an NSR rule that does not address this new modeling requirement. Therefore, the District has completed a new PM_{2.5} precursor demonstration as part of this rule amendment project.

2. EPA's PM_{2.5} Precursor Demonstration Guidance

On May 30, 2019, EPA released the Final "PM_{2.5} Precursor Demonstration Guidance."⁸ This final guidance provides a non-prescriptive approach for determining if a precursor pollutant is considered a significant contributor to PM_{2.5} concentrations. The guidance document provides criteria that all precursor demonstrations must include unless justification is provided why a given criteria was not used. In the guidance, EPA outlined three optional approaches for demonstrating that a particular precursor is not a significant PM_{2.5} precursor. These three precursor demonstrations are:

- a) Comprehensive precursor demonstration for an attainment plan;
- b) Major stationary source precursor demonstration for an attainment plan; and
- c) Nonattainment NSR (NNSR) precursor demonstration.

Pursuant to 40 CFR 51.1006(3)(i), an NNSR demonstration may be used to demonstrate that new major sources and major modifications of a particular precursor do not need to be controlled under the District's NNSR program. The NNSR precursor demonstration must evaluate the sensitivity of PM_{2.5} levels in the nonattainment area to increases in emissions for a particular precursor to determine whether the resulting air quality changes are significant.

The NNSR precursor demonstration differs from the other two demonstrations (comprehensive and major source precursor demonstrations), which are attainment plan tests. These two other precursor demonstrations examine air quality change that result from emissions reductions from existing sources. In contrast, an NNSR program manages major source growth (new major stationary sources and major modifications) in the nonattainment area by addressing increases of emissions. Thus, the PM_{2.5} Implementation Rule mandates that NNSR precursor demonstrations be based on an analysis involving potential increases of emissions.

Therefore, the NNSR demonstration is a sensitivity-based increase test used to demonstrate that a precursor pollutant is not a significant PM_{2.5} precursor and that control requirements for PM_{2.5} under NNSR permitting programs (e.g., District Rule 2201) do not apply to sources of that specific PM_{2.5} precursor pollutant.

⁸ PM_{2.5} Precursor Demonstration Guidance. EPA-454/R-19-004. (May 2019).
https://www.epa.gov/sites/production/files/2019-05/documents/transmittal_memo_and_pm25_precursor_demo_guidance_5_30_19.pdf

3. District's New PM2.5 Precursor Demonstration

The District has selected to perform an NNSR precursor demonstration as the optional approach for demonstrating that ammonia is not a significant contributor to ambient PM2.5 levels that exceed the standard in a particular area (i.e., not a significant PM2.5 precursor) and to exempt new major stationary sources and major modifications of a particular precursor from the control requirements for PM2.5 in 40 CFR 51.165.

The District's demonstration evaluated the effect of emission increases from major stationary sources of a particular precursor at hypothetical new and existing locations within the Valley. This demonstration differs from the District's February 18, 2016, demonstration since this analysis models increases in the particular PM2.5 precursors where the previous precursor demonstration modeled the effect on PM2.5 concentrations from reductions of the PM2.5 precursor.

a. NOx and SOx Contribution to PM2.5 Concentrations

NOx and SOx are presumed to be significant PM2.5 precursors under EPA's PM2.5 standard implementation regulation, unless a nonattainment area demonstrates otherwise. District Rule 2201 currently identifies NOx and SOx as PM2.5 precursor pollutants and identifies control requirements equal to or more stringent than control for PM2.5 and its precursors from 40 CFR 51.165.

Specifically, current District Rule 2201 contains the following NOx and SOx control requirements:

- BACT (equivalent to federal Lowest Achievable Emission Rate (LAER)) is triggered for NOx and SOx for any new major sources and federal major modifications.
- NOx offset ratio of 1.5 to 1 and SOx offset ratio of 1 to 1 which is equal to or more stringent than the federal offset ratio of 1.0 to 1 for PM2.5 and its precursors.
- NOx major source threshold of 20,000 lb/year (10 tons per year (TPY)) and SOx major source threshold of 140,000 lb/year (70 TPY) which is equal to or more stringent than the federal major source threshold of 140,000 lb/year (70 TPY) for PM2.5 serious nonattainment areas.
- NOx federal major modification threshold of 0 lb/year and SOx federal major modification threshold of 80,000 lb/year (40 TPY) which is equal to or more stringent than the federal threshold of 80,000 lb/year (40 TPY) for PM2.5 precursors.

Since the current rule (both the April 21, 2011, and February 18, 2016, versions) includes

control requirements for NO_x and SO_x emissions meeting or exceeding federal requirements for PM_{2.5} and its precursors, District Rule 2201 contains all the necessary requirements for NO_x and SO_x for the PM_{2.5} NAAQS under Subpart 4 of the CAA.

b. VOC Contribution to PM_{2.5} Concentrations

VOC is also presumed to be significant PM_{2.5} precursors under EPA's PM_{2.5} standard implementation regulation, unless a nonattainment area demonstrates otherwise. District Rule 2201 currently identifies control requirements for VOC that are more stringent than or equivalent to control requirements for VOC as a PM_{2.5} precursor. The level to which major and non-major sources of VOC are controlled with the District's current NSR rule (both the April 21, 2011, and February 18, 2016, versions) is extensive since the Valley is classified as an extreme nonattainment area for the 1997 and 2008 ozone standards and VOC is a precursor pollutant for ozone.

Specifically, current District Rule 2201 contains the following VOC control requirements:

- BACT (equivalent to federal Lowest Achievable Emission Rate (LAER)) is triggered for VOC for any new major sources and federal major modifications.
- VOC offset ratio of 1.5 to 1 which is more stringent than the federal offset ratio of 1.0 to 1 for PM_{2.5} and its precursors.
- VOC major source threshold of 20,000 lb/year (10 tons per year (TPY)) which is more stringent than the federal major source threshold of 140,000 lb/year (70 TPY) for PM_{2.5} serious nonattainment areas.
- VOC federal major modification threshold of 0 lb/year which is more stringent than the federal threshold of 80,000 lb/year (40 TPY) for PM_{2.5} precursors.

Since the current rule (both the April 21, 2011, and February 18, 2016, versions) includes control requirements for VOC emissions meeting or exceeding federal requirements for PM_{2.5} and its precursors (as demonstrated above), District Rule 2201 contains the necessary requirements for VOC as a PM_{2.5} precursor.

c. Ammonia Contribution to PM_{2.5} Concentrations

Ammonia is also presumed to be significant PM_{2.5} precursors under EPA's PM_{2.5} standard implementation regulation, unless a nonattainment area demonstrates otherwise. As discussed above, EPA's PM_{2.5} precursor demonstration guidance requires that modeling be conducted to demonstrate that emissions of any precursor, such as ammonia, from new major sources or future modifications to existing major sources would contribute significantly to PM_{2.5} concentrations in the Valley.

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EPA recommends using the following thresholds for the NNSR PM_{2.5} precursor demonstration:

- 0.2 µg/m³ for the annual PM_{2.5} NAAQS, and
- 1.5 µg/m³ for the 24-hour PM_{2.5} NAAQS.

The fundamental approach for analyzing changes in emissions pursuant to the NNSR precursor demonstration involves the use of a photochemical model to project the air quality changes associated with various potential emissions increases from hypothetical new major stationary sources or major modifications. The District conducted the modeling in accordance with the requirements of EPA's PM_{2.5} Precursor Demonstration Guidance document and incorporated additional measures requested by EPA in suggested methods to increase the conservative nature of the District's modeling protocol. The modeling that was performed evaluated the sensitivity of ambient PM_{2.5} concentrations in the San Joaquin Valley to hypothetical, and unrealistically large, increases in NH₃ emissions within the San Joaquin Valley. See Appendix E for a thorough description of the District's conservative implementation of EPA's PM_{2.5} precursor demonstration guidance with respect to ammonia emissions increases in the San Joaquin Valley.

4. PM_{2.5} Precursor Modeling Results for Ammonia

The table below summarizes the precursor modelling results, showing increases in PM_{2.5} concentrations in the San Joaquin Valley due to ammonia increases (see Appendix E for detailed analysis).

NAAQS	Maximum Modeled Change	Precursor Guidance Threshold	Is the Change significant?
Relative Analysis			
24-Hour	0.394	1.5	No
Annual	0.039	0.2	No

5. PM_{2.5} Precursor Demonstration Conclusion

As discussed above, NO_x is considered a significant PM_{2.5} precursor pollutant in the San Joaquin Valley. SO_x emissions have a much smaller impact on PM_{2.5} concentrations in the San Joaquin Valley, but are also considered to be a significant PM_{2.5} precursor pollutant in the District's NSR Rule. In accordance with the requirements of Subpart 4, VOC is also presumed to be a significant PM_{2.5} precursor pollutant. As discussed above, Rule 2201 contains adequate regulatory language to ensure that federal requirements for significant precursors are addressed for all new major sources or major modifications.

As demonstrated through extensive modeling, and as captured in the report in Appendix E,

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ammonia is not considered a significant PM_{2.5} precursor pollutant because it does not contribute significantly to PM_{2.5} concentrations in the San Joaquin Valley based on EPA guidance threshold levels. Since ammonia is not a significant PM_{2.5} precursor, no additional control requirements are required in the District's NSR rule for ammonia as a PM_{2.5} precursor pollutant.

IV. PROPOSED RULE AMENDMENTS

The proposed amendments to District Rules 2201, 2301, and 2520 are outlined below.

A. District Rule 2201 (New and Modified Stationary Source Review Rule)

- Section 3.18.1: Revise the “Less-Than-Significant Emissions Increase Exclusion” paragraph to clarify the requirements for VOC and NO_x increases in extreme ozone nonattainment areas. The proposed amended paragraph does not change the District's interpretation or implementation of the rule, and reads as follows:

3.18.1 Less-Than-Significant Emissions Increase Exclusion: Except for VOC and NO_x, an emissions increase for the project, or a net emissions increase for the project (as determined pursuant to 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, as defined in 40 CFR 51.165, is not a federal major modification for that pollutant. For VOC and NO_x, an emissions increase for the project (as determined pursuant to 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)) that is not significant, as defined in 40 CFR 51.165, is not a federal major modification for that pollutant.
- Sections 3.25.1.2 and 3.25.3.4: Revise each section to include the new name “Routine Replacement Emissions Unit” in place of the previous name “Replacement Emissions Unit”. The proposed amended sections do not change the District's interpretation or implementation of the rule, and read as follows:

3.25.1.2 Any structural change or addition to an existing emissions unit which would necessitate a change in permit conditions. A Routine Replacement Emissions Unit shall not be considered to be a structural change.

3.25.3.4 A Routine Replacement Emissions Unit where the replacement part is the same as the original emissions unit in all respects except for the serial number.
- Sections 3.35, 3.35.1, and 3.35.5: Revise the definition for Replacement Emissions Unit to include the term “routine” and rename the definition as “Routine Replacement

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Emissions Unit". The proposed amended sections do not change the District's interpretation or implementation of the rule, and read as follows:

3.35 Routine Replacement Emissions Unit: routine replacement in whole or in part of any article, machine, equipment, or other contrivance with a valid District Permit to Operate provided that all of the following conditions are met:

3.35.1 There is no increase in permitted emissions from the replacement unit(s). For replacements at major sources, "no increase in permitted emissions" as used in this definition also means no significant emissions increase according to the applicability calculations of 40 CFR 51.165(a)(2)(ii)(C). For the purposes of this definition, a Routine Replacement Emissions Unit is an existing emissions unit.

3.35.5 When the entire emissions unit is replaced as a routine replacement action, the emissions unit shall either have been addressed by a BARCT rule or shall be equipped with a control device capable of at least 85% emission control.

- Section 3.41: Amend the definition of Temporary Replacement Emissions Unit (TREU) to clarify that the existing emissions unit must have a valid District Permit to Operate. The proposed amended section does not change the District's interpretation or implementation of the rule, and reads as follows:

3.41 Temporary Replacement Emissions Unit (TREU): an emissions unit which is at a Stationary Source for less than 180 days in any twelve month period and replaces an existing emissions unit, with a valid District Permit to Operate which is shut down for maintenance or repair.

- Sections 4.2.5 and 4.2.6: Clarify the Best Available Control Technology (BACT) exemption categories for TREU and Routine Replacement Emissions Unit. The proposed amended sections do not change the District's interpretation or implementation of the rule, and read as follows:

4.2.5 A Temporary Replacement Emissions Units;

4.2.6 A Routine Replacement Emissions Units; or

- Section 4.6.5: Clarify the Emission Offsets Exemptions category for TREU. The proposed amended section does not change the District's interpretation or implementation of the rule, and reads as follows:

4.6.5 A Temporary Replacement Emissions Units;

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- Sections 5.5.1, 5.5.5, 5.5.6, and 5.9.1.1: Revise each section to replace the requirement for newspaper publication of public notices with the requirement for electronic publication of public notices. The proposed amended sections read as follows:
 - 5.5.1 Within ten (10) calendar days following the preliminary decision the APCO shall electronically publish in at least one newspaper of general circulation in the District a notice on the District's website, including a copy of the draft permit, stating the preliminary decision, noting how pertinent information can be obtained, and inviting written public comment for a 30 day period following the date of publication.
 - 5.5.5 The APCO shall provide written notice of the final action to the applicant and the ARB, and shall electronically publish such notice on the District's website in a newspaper of general circulation, except that for an application not subject to Section 5.4, the APCO shall not be subject to this section. In such a case, the applicant shall receive notification as provided in Rule 2040 (Applications). For new Major Sources, Federal Major Modifications, and SB 288 Major Modifications, the APCO shall also transmit written notice of the final action to the EPA.
 - 5.5.6 No later than the time of notice of final action is published on the District's website, the APCO shall make available for public inspection at the District offices a copy of the notice submitted for publication and all supporting documents.
 - 5.9.1.1 Public Notification: The APCO shall provide a written notice of the proposed permit and, upon request, copies of the APCO analysis to interested parties. Interested parties shall include affected states, ARB and persons who have requested in writing to be notified. The notice shall also be given by electronic publication the District's website~~publication in a newspaper of general circulation in the District~~ and by any other means if necessary to assure adequate notice to the affected public. The public shall be given 30 days from the date of publication to submit written comments on the APCO's proposed action.
- Sections 8.0, 8.1, and 8.1.1: Revise each section to include the new name "Routine Replacement Emissions Unit" in place of the previous name "Replacement Emissions Unit". The proposed amended sections do not change the District's interpretation or implementation of the rule, and read as follows:
 - 8.0 Application Shield for Routine Replacement Emissions Units and Temporary Replacement Emissions Units (TREUs)

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- 8.1 For a Routine Replacement Emissions Unit or a TREU, for which an Authority to Construct is required, the permitted source may continue to operate under an application shield, provided that all of the following conditions are met.
 - 8.1.1 An application for the Routine Replacement Emissions Unit or TREU has been submitted within seven calendar days of completing the construction or installation of the replacement.

B. District Rule 2301 (Emission Reduction Credit Banking)

- Section 8.4: Revise this section to replace the requirement for newspaper publication of public notices with the requirement for electronic publication of public notices. The proposed amended section reads as follows:

- 8.4 Upon acceptance of a complete application, the APCO shall have 60 days to perform an initial assessment of the application. Upon completion of this initial assessment the District shall provide written notice of such to the applicant and shall also provide written notice of acceptance to ARB and EPA and electronically publish notice on the District's website~~in a newspaper of local and general circulation in the District~~. The notice shall specify the applicant and the quantity of emission reductions requested and a statement of the initial assessment.

Publication of the notice shall commence a 30 day public comment period during which the APCO shall accept written comments on the merits of the ERC Certificate application. Upon conclusion of this 30 day period, the APCO shall have 30 days to render a decision as to whether the APCO approves, conditionally approves, or denies the application. This decision shall be promptly supplied in writing to the applicant and published electronically on the District's website~~in a newspaper of local circulation~~.

The noticing requirements period shall be waived by the APCO if the emission reductions have already been subject to ARB, EPA and public comment. Noticing requirements shall not be waived for emissions reductions which were not formally banked and which occurred prior to January 1, 1988.

C. District Rule 2520 (Federally Mandated Operating Permits)

- Sections 11.1.4, 11.1.10, 11.1.11, 11.3.1.1, 11.3.5, and 11.3.6: Revise each section to replace the requirement for newspaper publication of public notices with the requirement for electronic publication of public notices. The proposed amended sections read as follows:

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- 11.1.4.1 The APCO shall provide a written notice of the proposed permit and, upon request, copies of the District analysis to interested parties. Interested parties shall include affected states, ARB and persons who have requested in writing to be notified. The notice shall also be given by electronic publication on the District's website ~~in a newspaper of general circulation in the District~~ and by any other means if necessary to assure adequate notice to the affected public. The public shall be given 30 days from the date of publication to submit written comments on the District's proposed action.

A copy of the District analysis and the proposed permit shall be made available at District offices for public review and comment during normal business hours and shall also be made available on the District's website. The District analysis shall include a statement that sets forth the legal and factual basis for the proposed permit conditions, including references to the applicable statutory and regulatory provisions.

11.1.10 Notification and Publication of Final Action

Written notification of the final decision shall be sent to the EPA, the ARB and any person and affected state that submitted comments during the public comment period. The APCO shall submit a copy of the model general permit or model general permit template as issued to the EPA and provide a copy to any person or agency requesting a copy. The APCO shall electronically publish such notice on the District's website ~~in a newspaper of general circulation~~.

11.1.11 Public Inspection of Final Action Documents

No later than at the time that notice of final action is published on the District's website, the APCO shall make available for public inspection at the District offices a copy of the notice submitted for publication and all supporting documents. Information submitted which contains trade secrets shall be handled in accordance with Rule 1030 (Confidential Information) of these Rules and Regulations, with section 6254.7 of the Government Code, and with relevant sections of the Administrative Code of the State of California. The contents of a permit issued under the requirements of this rule may not be considered a trade secret.

- 11.3.1.1 The APCO shall provide a written notice of the proposed permit and, upon request, copies of the District analysis to interested parties. Interested parties shall include affected states, ARB and persons who have requested in writing to be notified. The notice, including a copy of the

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proposed permit, shall also be given by electronic publication on the District's website ~~in a newspaper of general circulation in the District~~ and by any other means if necessary to assure adequate notice to the affected public. The public shall be given 30 days from the date of publication to submit written comments on the District proposed action.

11.3.5 Notification and Publication of Final Action

Written notification of the final decision shall be sent to the EPA, the ARB and any person and affected state that submitted comments during the public comment period. The APCO shall submit a copy of the permit as issued to the EPA and provide a copy to any person or agency requesting a copy. The APCO shall electronically publish such notice on the District's website ~~in a newspaper of general circulation~~.

11.3.6 Public Inspection of Final Action Documents

No later than at the time that notice of final action is published on the District's website, the APCO shall make available for public inspection at the District offices a copy of the notice submitted for publication and all supporting documents. Information submitted which contains trade secrets shall be handled in accordance with Rule 1030 (Confidential Information) of these Rules and Regulations, with section 6254.7 of the Government Code, and with relevant section of the Administrative Code of the State of California. The contents of a permit issued under the requirements of this rule may not be considered a trade secret.

V. SENATE BILL 288 – PROTECT CALIFORNIA AIR ACT OF 2003

California Health and Safety Code (CH&SC) Sections 42500 through 42507 (SB 288) mandates that a district's NSR rules cannot be made less stringent, in a variety of specified areas, than the rules that existed on December 30, 2002. This legislation was crafted and signed into law specifically to prevent Districts from implementing any Federal NSR reforms that would have relaxed California's stringent NSR requirements.

The state ARB has provided guidance on the implementation of SB 288 (California Air Resources Board Guidance, *New Source Review and Senate Bill 288* (August 2004, as amended April 2006)), and has concluded that there are four components of NSR that are affected by SB 288:

1. NSR applicability determinations;
2. The definitions of "modification", "major modification", "routine maintenance", and "repair or maintenance";

3. The calculation methodology, thresholds, or other procedures of new source review. ARB further interprets this to apply to baseline determinations, calculating emissions changes, offset amounts required, and major source and major modification thresholds; and
4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets⁹.

Per the ARB guidance, each of these four components apply on an individual source basis (except for offsets, as seen in 4 above), as well as on a programmatic basis. The proposed amendments to District Rule 2201 do not include any changes that would make the District's NSR rule less stringent than the rule that existed on December 30, 2002. Since the submittal of the New PM_{2.5} Precursor Demonstration does not result in any changes that would make the District's NSR rule less stringent than the rule that existed on December 30, 2002, this item is not subject to SB 288 provisions.

Each of the proposed amendments to Rule 2201 are evaluated below to determine if there could be a relaxation of the NSR requirements for these four components.

- Routine Replacement Emissions Unit Definition
- Federal Major Modification Definition
- Temporary Replacement Emissions Unit (TREU) Definition
- Public Notification Procedure Enhancement

A. Proposed Amendment to Routine Replacement Emissions Unit Definition

As discussed in Section III.A above, the District is proposing to reintroduce the term "routine" within the definition of Routine Replacement Emissions Unit and to amend Section 3.35 of Rule 2201 to rename "Replacement Emissions Unit" as "Routine Replacement Emissions Unit". These proposed amendments respond to a concern that removing the term "routine" from Section 3.35 could have allowed for a misinterpretation of the rule resulting in more units being exempt from BACT requirements. The following is an analysis of the SB 288 implications of the proposed amendments compared to the December 30, 2002, version of Rule 2201.

1. NSR applicability determinations are not relaxed:

Reintroducing the term "routine" results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District's longstanding application of Section 3.35 of the Rule. This proposed amendment does not relax any NSR applicability determinations.

⁹ While the District believes that this final component is an overly broad legal interpretation of the legislation, and inconsistent with the development and intent of the legislation, we believe the District's proposed amendments are complying with ARB's interpretation on this issue. However, we will reserve our right to challenge ARB on this issue at a later date, or if ARB uses this interpretation to contravene any of the District's proposed NSR amendments.

2. The definitions of “modification”, “major modification”, “routine maintenance”, and “repair or maintenance” are not relaxed:

Reintroducing the term “routine” results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District’s longstanding application of Section 3.35 of the Rule. This proposed amendment does not change the District’s longstanding interpretation or implementation of the definitions of “modification”, “major modification”, “routine maintenance”, and “repair or maintenance” and does not relax any NSR requirements.

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed:

Reintroducing the term “routine” results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District’s longstanding application of Section 3.35 of the Rule. This proposed amendment does not change any calculation methodology, thresholds, or any other procedures of NSR (namely BACT, offsets, and public notice).

An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

a. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification. Section 4.2.6 allows a Routine Replacement Emissions Unit to be exempt from BACT requirements. Reintroducing the term “routine” results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District’s longstanding application of Section 3.35 of the Rule. Therefore, this proposed amendment does not change or relax any requirements for BACT.

b. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds. Reintroducing the term “routine” results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District’s longstanding application of Section 3.35 of the Rule. Therefore, this proposed amendment does not change or relax any requirements for offsets.

c. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4 lists the five thresholds which, if exceeded, will trigger a public notification. Reintroducing the term “routine” results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District’s longstanding application of Section 3.35 of the Rule. Therefore, this proposed amendment does not change or relax any public notification requirements.

4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets, are not relaxed:

Reintroducing the term “routine” results in eliminating a potential misinterpretation of this definition and ensures there is no change in the District’s longstanding application of Section 3.35 of the Rule. Therefore, this proposed amendment does not relax any definitions or requirements (namely BACT, offsets, and public notice) of the District’s NSR Rule or the requirement to obtain offsets on a project specific or program wide basis.

Based on the discussion above, this proposed change does not relax any NSR requirements and does not result in a relaxation under SB 288.

B. Proposed Amendment to Federal Major Modification Definition

As discussed in Section III.A above, the District is proposing to amend Section 3.18.1 of Rule 2201 to include additional rule language in Section 3.18.1 to clarify the District’s longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas. The additional rule language is consistent with provisions in 40 CFR 51.165 that prohibit “netting out” of Federal Major Modification requirements for VOC and NOx emissions increases in an extreme ozone nonattainment area. The following is an analysis of the SB 288 implications of the proposed amendments compared to the December 30, 2002, version of Rule 2201.

1. NSR applicability determinations are not relaxed:

Including additional rule language in Section 3.18.1 to clarify the District’s longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas does not change the District’s determination of the applicability of Federal Major Modification requirements. Therefore, this proposed amendment does not relax any NSR applicability determinations.

2. The definitions of “modification”, “Major Modification”, “routine maintenance”, and “repair or maintenance” are not relaxed:

Including additional rule language in Section 3.18.1 to clarify the District’s longstanding

interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas does not change the District's longstanding interpretation or implementation of the definitions of "modification", "major modification", "routine maintenance", and "repair or maintenance" and does not relax any NSR requirements.

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed:

Including additional rule language in Section 3.18.1 to clarify the District's longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas does not change any calculation methodology, thresholds, or any other procedures of NSR (namely BACT, offsets, and public notice).

An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

a. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification. Including additional rule language in Section 3.18.1 to clarify the District's longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas does not change or relax any requirements for BACT.

b. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds. Including additional rule language in Section 3.18.1 to clarify the District's longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas does not change or relax any requirements for offsets.

c. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4.1 requires public notice for New Major Sources, Federal Major Modifications, and SB 288 Major Modifications. Including additional rule language in Section 3.18.1 to clarify the District's longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone

nonattainment areas does not change or relax any public notification requirements.

4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets, are not relaxed:

Including additional rule language in Section 3.18.1 to clarify the District's longstanding interpretation of the applicability of Federal Major Modification requirements for VOC and NOx emissions in extreme ozone nonattainment areas does not relax any definitions and requirements (namely BACT, offsets, and public notice) of the District's NSR Rule or the requirement to obtain offsets on a project specific or program wide basis.

Based on the discussion above, this proposed change does not relax any NSR requirements and does not result in a relaxation under SB 288.

C. Proposed Amendment to Temporary Replacement Emissions Unit (TREU) Definition

As discussed in Section III.A above, the District is proposing to amend Section 3.41 of Rule 2201 to clarify that the existing unit being replaced by a Temporary Replacement Emissions Unit (TREU) must have a valid District Permit to Operate (PTO). The following is an analysis of the SB 288 implications of the proposed amendments compared to the December 30, 2002, version of Rule 2201.

1. NSR applicability determinations are not relaxed:

Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition by only allowing a TREU to replace an existing unit with a valid PTO. This proposed amendment does not result in any change in the District's longstanding application of Section 3.41 of the Rule and does not relax any NSR applicability determinations.

2. The definitions of "modification", "major modification", "routine maintenance", and "repair or maintenance" are not relaxed:

Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition by only allowing a TREU to replace an existing unit with a valid PTO. This proposed amendment does not result in any change in the definitions of "modification", "major modification", "routine maintenance", or "repair or maintenance" and does not relax any NSR requirements.

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed:

Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition by only allowing a TREU to replace an existing unit with a

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valid PTO and does not change any calculation methodology, thresholds, or any other procedures of NSR (namely BACT, offsets, and public notice).

An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

a. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification. Section 4.2.5 allows a TREU to be exempt from BACT requirements. Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition and does not change or relax any requirements for BACT.

b. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds. Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition and does not change or relax any requirements for offsets.

c. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4.1 requires public notice for New Major Sources, Federal Major Modifications, and SB 288 Major Modifications. Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition and does not change or relax any public notification requirements.

4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets, are not relaxed:

Specifying the existing unit must have a valid District PTO results in eliminating a potential misinterpretation of this definition and does not relax any definitions or requirements (namely BACT, offsets, and public notice) of the District's NSR Rule or the requirement to obtain offsets on a project specific or program wide basis.

Based on the discussion above, this proposed change does not relax any NSR requirements and does not result in a relaxation under SB 288.

D. Proposed Amendment to Enhance Public Notification Procedure

As discussed in Section III.B above, the District is proposing to amend Rule 2201 to

enhance the public notification procedures by requiring e-notice for permitting actions that trigger public notification per existing requirements in the rule. This proposed amendment improves and strengthens the District's public notice process by providing anytime access, through the District's website, to bilingual public notices and associated project documents. Providing notices and project documents electronically results in an increased opportunity for the public to participate in District NSR actions that trigger public notice per existing requirements in Rule 2201.

In ARB's June 2018 advisory to California air districts and other interested parties concerning air district New Source Review rules and electronic notice,¹⁰ ARB determined that modernizing public notice requirements of local air district NSR rules to be consistent with federal rules does not violate SB 288 (the Protect California Air Act of 2003) and further indicated that ARB believes that e-notice of projects subject to NSR requirements, performed consistent with federal rules and the ARB advisory *"will result in a more widely served and better informed public and will increase the opportunity for meaningful public participation as intended by the Clean Air Act."* The proposed amendment to enhance the public notice procedures of District 2201 by requiring e-notice in place of newspaper notice is consistent with federal rules and the ARB advisory and, therefore, complies with the requirements of SB 288.

The following is an analysis of the SB 288 implications of the proposed amendments compared to the December 30, 2002, version of Rule 2201.

1. NSR applicability determinations are not relaxed:

Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201 and is not a change to the determination of the applicability of public notice requirements. Therefore, the proposed amendment does not change or relax any NSR requirement (namely BACT, offsets, and public notice).

2. The definitions of "modification", "major modification", "routine maintenance", and "repair or maintenance" are not relaxed:

Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201. The proposed amendment does not change the definitions of "modification", "major modification", "routine maintenance", and "repair or maintenance" and does not relax any NSR requirements.

¹⁰ California Air Resources Board (ARB) Advisory to California Air Districts and Other Interested Parties, Advisory 299: Air District New Source Review Rules Regarding Electronic Notice. (June 2018).
<https://www.arb.ca.gov/enf/advs/advs299.pdf>

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed:

Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201 and is not a change to the determination of the applicability of public notice requirements. Therefore, the proposed amendment does not change or relax any calculation methodology, any thresholds, or any other procedures of NSR (namely BACT, offsets, and public notice).

An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

a. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase in emissions over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification. Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201 and does not change or relax any requirements for BACT.

b. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds. Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201. This proposed change does not affect any calculation methodology or threshold for offsets. Therefore, this proposed amendment does not change or relax any requirements for offsets.

c. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4 lists the five thresholds, which, if exceeded, will trigger a public notification. Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201.

As discussed in Section III.B above, the use of e-notice results in greater access to notices and project documents for public review which increases the public's opportunity to comment on District NSR actions. The proposed amendment strengthens the District's NSR public notice process as a result of the increased opportunity for the public to participate in District NSR permitting actions that trigger public notice per existing

provisions in Rule 2201. Therefore, this proposed amendment does not relax any requirements for public notice.

4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets, are not relaxed:

Enhancing the public notice process by requiring e-notice is a change to an administrative requirement for projects that already trigger public notice per existing provisions in Rule 2201. This proposed amendment does not relax any definitions or requirements (namely BACT, offsets, and public notice) of the District's NSR Rule or the requirement to obtain offsets on a project specific or program wide basis.

Based on the discussion above, this proposed change does not relax any NSR requirements and does not result in a relaxation under SB 288.

VI. RULE DEVELOPMENT PROCESS

This rule development process is principally focused on enhancing the effectiveness of public notice requirements in District Rules 2201, 2301, and 2520 by replacing the requirement for newspaper publication with a requirement for e-notice of public notices. In addition to the e-notice amendments, the District is proposing minor changes to District Rule 2201 in response to comments from ARB and EPA. The minor changes are considered supplemental to the District Rule 2201 amendments that were adopted by the District's Governing Board on February 18, 2016.

The February 18, 2016, amendments were adopted by the District's Governing Board to address the District's reclassification from moderate to serious nonattainment for the 1997 and 2006 PM_{2.5} standards. After the amendments were adopted, ARB further commented that the changes to the definition for Routine Replacement in Section 3.35 of District Rule 2201 potentially violated SB 288 and ARB therefore did not forward the amended Rule to EPA for inclusion in the SIP. To meet the requirement to submit an approvable rule to EPA, the District is proposing to amend District Rule 2201 to satisfy comments from ARB.

As previously discussed, with ARB not approving the February 18, 2016, amendments to District Rule 2201, EPA took the opportunity to provide additional comments to the District. Thus, the District is proposing minor changes to language in District Rule 2201 for the purpose of clarifying the District's longstanding interpretation and implementation of definitions for Federal Major Modification and Temporary Replacement Emissions Unit (TREU). These amendments to address comments from ARB and EPA on District Rule 2201 are considered minor and do not change the District's longstanding interpretation or implementation of any of the rule requirements.

In addition to the above specific amendments to District Rules 2201, 2301, and 2520, the

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District is taking this opportunity to submit the amended District Rule 2201 and this staff report as state implementation plan revisions for the 1997 and 2006 PM_{2.5} NAAQS. The amended District Rule 2201 satisfies federal NNSR requirements for each standard and includes the necessary regulatory elements for approval, as demonstrated by this staff report.

A. Public Workshops

The District hosted a public workshop on July 26, 2016 and also hosted a second public workshop on April 15, 2019 to present the draft amendments to District Rules 2201, 2301, and 2520 and receive public comments. The District received no comments on the proposed amendments to the rules during the public comment periods following these workshops.

B. Public Hearing

In accordance with CH&SC Section 40725, the proposed amendments to District Rules 2201, 2301, and 2520 and the final draft staff report will be publicly noticed and made available at least thirty days prior to the Governing Board public hearing to consider adoption of the proposed amendments, which is scheduled for August 15, 2019. The public is invited to provide comments to District staff at any time up to, and during, the Governing Board public hearing. Any comments received during the public comment period will be evaluated and incorporated into the rules as appropriate. Upon adoption, District Rules 2201, 2301, and 2520 will be forwarded to the state ARB which will forward the rule to EPA for inclusion in the SIP.

VII. ANALYSES

A. Cost Effectiveness and Socioeconomic Analyses

Pursuant to CH&SC Section 40920.6(a), the District is required to analyze the cost effectiveness of new rules or rule amendments that implement Best Available Retrofit Control Technology (BARCT). The proposed amendments do not add BARCT requirements and therefore are not subject to the cost effectiveness analysis mandate.

Additionally, CH&SC Section 40728.5(a) requires the District to analyze the socioeconomic impacts of any proposed rule amendment that significantly affects air quality or strengthens an emission limitation. The proposed amendments have neither effect; therefore, the proposed amendments are not subject to the socioeconomic analysis mandate.

B. Environmental Impact Analysis

The District is proposing to amend existing District Rule 2201 (New and Modified Stationary Source Review Rule), District Rule 2301 (Emission Reduction Credit Banking), and District Rule 2520 (Federally Mandated Operating Permits). The Purpose of this rule amendment project is to address comments from the California ARB and US EPA on the Districts' February 18, 2016 amendments to District Rule 2201, which were adopted by the District's Governing Board. The amendments will also address the federal NNSR requirements for PM_{2.5} under Subpart 4 of the CAA, and to enhance District public notification requirements in place of the newspaper requirements for District Rules 2201, 2301, and 2520. The proposed amendments include clarifications to the name and definition for Routine Replacement Emission Units, the definition for Federal Major Modification, and the definition for Temporary Replacement Emission Unit (TREU).

There are no other actions or rule requirements associated with this project. Based on the District's investigation, substantial evidence supports the District's conclusion that the amendments will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment, and as such is not a "project" as that term is defined under the California Environmental Quality Act (CEQA) Guidelines § 15378. In addition, substantial evidence supports the District's conclusion that, if one assumes the amendment is a "project" under CEQA in spite of our conclusion to the contrary, it will not have any significant adverse effects on the environment.

In addition, the amendments to District Rule 2201, 2301, and 2520 is an action taken by a regulatory agency, the San Joaquin Valley Air District, as authorized by state law to assure the maintenance, restoration, enhancement, or protection of air quality in the San Joaquin Valley where the regulatory process involves procedures for protection of air quality.

California Environmental Quality Act (CEQA) Guidelines §15308 (Actions by Regulatory Agencies for Protection of the Environment), provides a categorical exemption for "actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. Construction activities and relaxation of standards allowing environmental degradation are not included in this exemption." No construction activities or relaxation of standards are included in this project. Therefore, the rule amendment project is exempt from CEQA.

Finally, according to Section 15061 (b)(3) of the CEQA Guidelines, a project is exempt from CEQA if, "(t)he activity is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." As such, for this additional reason, the District finds that the rule

amendment project is exempt from CEQA.

C. Rule Consistency Analysis

Pursuant to CH&SC Section 40727.2(g), a rule consistency analysis of the proposed rules is required if the proposed rules strengthen emission limits or impose more stringent monitoring, reporting, or recordkeeping requirements. The proposed rules do not strengthen emission limits or impose more stringent monitoring, reporting, or recordkeeping requirements; therefore, a rule consistency analysis is not required.

APPENDIX A

Final Staff Report with Appendices for 2/18/2016 Amendments to Rule 2201

July 15, 2019

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Appendix A: 2/18/2016 Rule 2201 Final Staff Report

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FINAL STAFF REPORT

Proposed Amendments to Rule 2201 (New and Modified Stationary Source Review Rule)

February 18, 2016

Prepared by: Robert Gilles, Air Quality Engineer

Reviewed by: Errol Villegas, Permit Services Manager
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Dave Warner, Deputy Air Pollution Control Officer

I. SUMMARY

The San Joaquin Valley Air Pollution Control District (District) is proposing to amend District Rule 2201 (New and Modified Stationary Source Review (NSR) Rule) to address the District's reclassification from Moderate to Serious nonattainment for the 1997 and 2006 National Ambient Air Quality Standards (NAAQS, or standards) for particulate matter with an aerodynamic diameter of less than 2.5 microns (PM_{2.5}).

To comply with federal requirements for serious nonattainment areas, the District is proposing to amend District Rule 2201 to lower the PM_{2.5} Major Source Emission Threshold from 100 tons per year to 70 tons per year. In addition, the District will address Clean Air Act Section 189(e) precursor requirements for major stationary sources of PM_{2.5}.

Further, the District is proposing to amend District Rule 2201 to clarify in the definition of PM_{2.5} that PM_{2.5} includes the condensable portion of particulate pollution.

In addition, the District is taking this opportunity to add certain types of Temporary Replacement Emissions Units (TREUs) to the application shield provisions of District Rule 2201, Section 8.

Also, the reference to the offset threshold for carbon monoxide (CO) – nonattainment areas in Section 4.5.3, Table 4-1 will be removed, as there are no nonattainment areas in the Valley.

II. DESCRIPTION OF RULE 2201 (NEW AND MODIFIED STATIONARY SOURCE REVIEW RULE)

The District's NSR Rule provides a regulatory mechanism for allowing continued economic growth while minimizing the amount of emission increases due to this growth. District Rule 2201 applies to all new stationary sources and all modifications to existing stationary sources that are subject to District permit requirements. For smaller sources of emissions, there are certain permitting exemptions identified in District Rule 2201 and District Rule 2020 (Exemptions).

The District's NSR program is designed to meet both the state and federal NSR requirements for nonattainment areas and applies to new and modified stationary sources that emit nitrogen oxides (NO_x), volatile organic compounds (VOC), particulate matter with an aerodynamic diameter of less than 10 microns (PM₁₀), PM_{2.5}, sulfur oxides (SO_x), CO, and other pollutants subject to District permitting requirements pursuant to District Rule 2010 (Permits Required).

Key features of Rule 2201 include:

- Best Available Control Technology (BACT): mandates emission controls to minimize emission increases above de minimis values;
- Emission offsets: requires emissions above specified offset threshold levels to be mitigated with either concurrent reductions or past reductions which have been banked as emission reduction credits (ERC);
- Public notification: a 30 or 45 day notice period prior to issuance of an Authority to Construct (ATC) to garner comments on projects that result in emissions above specified levels;
- Required elements for Authority to Construct, Permit to Operate and administrative requirements for the processing of NSR applications.

III. BACKGROUND AND DISCUSSION OF PROPOSED RULE AMENDMENTS

A. Major Source and Federal Major Modification Thresholds

Major Source and Federal Major Modification are for federal nonattainment new source review (NSR), which is applicable to pollutants for which the District is classified as nonattainment of the corresponding NAAQS.

The federal NSR permitting program relies on emissions thresholds to determine when requirements apply to new stationary sources and to modifications of existing stationary sources. If a new or modified facility will emit target air pollutants in amounts greater than the major source emission threshold, the facility is considered a major

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source. If emissions increases of target air pollutants from a new facility or modified facility are greater than the federal major modification significance threshold, the increase is considered significant and the project will be a major modification pursuant to 40 CFR Part 51.165.

Sources in a serious nonattainment area are defined as major sources for nonattainment NSR provisions if they have a potential to emit 70 or more tons per year of PM_{2.5}. An increase in PM_{2.5} emissions is considered significant if it exceeds 20,000 pounds per year of direct PM_{2.5} emissions or if the increase exceeds 80,000 pounds per year of a significant precursor pollutant.

Currently, District Rule 2201 has a PM_{2.5} major source threshold of 200,000 pounds per year (100 tons per year), and this proposed amendment will lower this threshold to 140,000 pounds per year (70 tons per year) due to the District's classification as a Serious nonattainment area for PM_{2.5}. District Rule 2201 also lists NO_x and SO_x as significant precursors to PM_{2.5}. The current rule lists a federal major modification threshold of zero pounds per year for NO_x, as it is also a significant precursor to ozone, and 80,000 pounds per year for SO_x. As these thresholds meet requirements for serious PM_{2.5} nonattainment areas, they will not be changed, as detailed further below.

B. PM_{2.5} Precursors

Ambient PM_{2.5} is comprised of many different constituents, and as a result, there are multiple precursor pollutants, such as NO_x, SO_x, VOC and ammonia, that may lead to PM_{2.5} formation. Pursuant to the federal Clean Air Act (CAA) Section 189(e), control requirements applicable to major sources of PM_{2.5} must also apply to major sources of PM_{2.5} precursors, except where such sources do not contribute significantly to PM_{2.5} levels that exceed the standard in the area. As required by Subpart 4 of the CAA, all precursors are presumed to be significant, unless demonstrated they are not. An evaluation of the four PM_{2.5} precursor pollutants is below.

1. NO_x and SO_x Contribution to PM_{2.5} Concentrations

District Rule 2201 currently lists NO_x and SO_x as significant precursors to PM_{2.5} with a federal major modification threshold of 80,000 pounds per year, and no changes for these pollutants are proposed.

2. Ammonia Contribution to PM_{2.5} Concentrations

In the Valley, there is extensive scientific research and technical analysis demonstrating that ammonia reductions do not contribute significantly to PM_{2.5}

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attainment. As detailed in Chapter 4 of the *2012 PM_{2.5} Plan*¹ and Chapter 2 of the 2015 Plan for the 1997 PM_{2.5} Standard (*2015 PM_{2.5} Plan*)², ammonium nitrate is the predominant secondary PM_{2.5} species, and is formed from nitric acid and ammonia. The plans go on to demonstrate that there is a relative abundance of ammonia compared to nitric acid, and that nitric acid (i.e. NO_x) is the limiting factor in forming ammonium nitrate.

Due to this extensive body of science that clearly shows that reducing NO_x emissions is very effective in reducing PM_{2.5} values, while reducing ammonia emissions is not effective, ammonia reductions have not historically been considered a significant precursor to PM_{2.5} formation in the Valley.

a. Major Source Contribution

There are only a few major stationary sources of ammonia emissions in the Valley, and the ammonia major stationary sources contribute only a small portion of the total ammonia inventory from all sources in the Valley (including stationary and mobile sources). Ammonia major sources include power plants with Selective Catalytic Reduction (SCR) systems, which rely on the use of ammonia as a reagent for the control system, and a few agricultural operations (one large dairy and 4 large poultry operations). The following table compares the major source ammonia emissions from the District's 2014 emissions inventory to the total inventory of ammonia emissions within the San Joaquin Valley³.

Major Source Emission Contribution			
Pollutant	Total Inventory (tons/day)	Major Source Inventory (tons/day)	Major Source Contribution
Ammonia	334.2	2.32	0.69%

As shown in the preceding table, ammonia emissions from ammonia major sources are just 0.69% of the total ammonia inventory in the Valley. As such, existing major stationary sources of ammonia emissions do not contribute significantly to PM_{2.5} levels that exceed the 1997 and 2006 NAAQS in the San Joaquin Valley.

b. Minimizing Growth in Stationary Source Ammonia Emissions

As the existing major sources of ammonia represent a very small fraction of the Valley's total ammonia inventory, any future growth in major source ammonia emissions will also be a small part of the overall growth in the inventory. As

¹ http://www.valleyair.org/Air_Quality_Plans/PM25Plan2012/CompletedPlanbookmarked.pdf

² http://www.valleyair.org/Air_Quality_Plans/docs/PM25-2015/2015-PM2.5-Plan_Bookmarked.pdf

³ CEPAM San Joaquin Valley 2015 MSM PM_{2.5} SIP Planning Inventory v.1.01

shown in Appendix B of the *2015 PM_{2.5} Plan*, the expected growth in ammonia emissions from all sources in the Valley from 2014 to 2020 is 21.8 tons per day. As the major sources of ammonia comprise 0.69% of the total inventory, their contribution to the growth would only be 0.15 tons per day by 2020, an insignificant portion of the projected inventory of over 350 tons per day in 2020.

Additionally, Rule 2201 does provide for the regulation of ammonia through the District's BACT requirements. Any new and modified ammonia sources in the Valley require BACT if increases in daily emissions exceed 2 pounds. District BACT is at least as stringent as federal Lowest Achievable Emission Rate (LAER), which is more stringent than federal BACT. Under federal NSR, ammonia as a precursor would not be regulated unless the increase was at least 40 tons per year. Therefore, District Rule 2201 currently controls ammonia growth at levels far below the federal NSR threshold. As such, new and modified major stationary sources of ammonia emissions will not contribute significantly to PM_{2.5} levels that exceed the 1997 and 2006 NAAQS in the San Joaquin Valley.

c. Sensitivity Analysis of Ammonia Contribution to PM_{2.5} Concentration

A sensitivity analysis was conducted as part of the *2012 PM_{2.5} Plan* to evaluate the effectiveness of reducing PM_{2.5} precursors, including ammonia, compared to reducing direct PM_{2.5} emissions. As the District's major sources of ammonia are spread throughout the Valley, the valley-wide modeling sensitivity analysis conducted for the *2012 PM_{2.5} Plan* is appropriate. Of the PM_{2.5} monitoring sites in the Valley, the Bakersfield-California site has the highest PM_{2.5} design value, and will be the last site to reach attainment of the PM_{2.5} NAAQS: as this is the worst site, it will be used as the basis of this analysis.

As detailed in Appendix G of the *2012 PM_{2.5} Plan*, reductions in ammonia emissions achieve insignificant reductions in the 2019 PM_{2.5} design values:

- A 1 ton per day reduction in the Valley's total direct PM_{2.5} emissions reduces the Bakersfield-California PM_{2.5} design value by 0.34 µg/m³
- A 1 ton per day reduction in the Valley's total NO_x emissions reduces the Bakersfield-California PM_{2.5} design value by 0.08 µg/m³
- A 1 ton per day reduction in the Valley's total ammonia emissions reduces the Bakersfield-California PM_{2.5} design value by a mere 0.008 µg/m³

Relative to the other pollutants, ammonia emission reductions at the Bakersfield-California site are only 2.3% as effective as directly emitted PM_{2.5} emission reductions, and only 10% as effective as NO_x emission reductions. It

would take an unreasonable tonnage of ammonia reductions to reduce a significant amount of PM_{2.5} mass. If all ammonia emissions from all major ammonia sources in the Valley were completely eliminated (2.32 tons per day), this would only reduce the PM_{2.5} design value by 0.019 µg/m³.

While the District believes this Valley-wide sensitivity analysis is the appropriate approach, some may argue for an analysis of the effects of reducing PM_{2.5} and precursor emissions in the areas with the highest monitored PM_{2.5} levels, historically the Bakersfield-California site. Therefore, a similar sensitivity analysis was focused on the effect that localized reductions would have on the Bakersfield-California site. The following were the findings of that analysis:

- A 1 ton per day reduction in Kern County's total direct PM_{2.5} emissions reduces the Bakersfield-California PM_{2.5} design value by 1 µg/m³
- A 1 ton per day reduction in Kern County's total NO_x emissions reduces the Bakersfield-California PM_{2.5} design value by 0.12 µg/m³
- A 1 ton per day reduction in Kern County's total ammonia emissions reduces the Bakersfield-California PM_{2.5} design value by only 0.02 µg/m³

Only six of the seventeen ammonia major sources in the Valley are located in Kern County, representing 0.775 tons per day of emissions. If the ammonia emissions from these six sources were completely eliminated, the PM_{2.5} design value would decrease by only 0.0155 µg/m³, even less than the reduction of 0.019 µg/m³ achieved by completely eliminating all major ammonia source emissions in the entire Valley.

Thus, controlling major source ammonia emissions in the San Joaquin Valley does not significantly contribute to attainment of the 1997 and 2006 PM_{2.5} NAAQS.

As demonstrated above, ammonia emissions from major sources do not contribute significantly to PM_{2.5} nonattainment in the SJV. Therefore, ammonia need not be addressed as a precursor to PM_{2.5} in the District's NSR program.

3. VOC Contribution to PM_{2.5} Concentrations

In the Valley, there is extensive scientific research and technical analysis demonstrating that VOC reductions do not contribute to PM_{2.5} attainment. In both the *2012 PM_{2.5} Plan* and the *2015 PM_{2.5} Plan*, the District discusses the importance of NO_x controls and demonstrates that NO_x controls are the most effective approach to reduce PM_{2.5} nitrate concentrations in the Valley. Modeling

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also shows that once NO_x controls are taken into consideration, VOC emissions reductions produce essentially no benefit in reducing PM_{2.5} concentrations.

As such, the Valley's VOC emissions do not need to be reduced to address EPA's PM_{2.5} standard. In 80 FR 1826, January 13, 2015, EPA concurs with the conclusion that VOC emissions do not contribute significantly to the formation of PM_{2.5} as stated in their proposed approval of the District's 2012 PM_{2.5} plan to address the 2006 PM_{2.5} standard: *"Based on a review of the information provided by the District and other information available to EPA, we propose to determine that at this time VOC emissions do not contribute significantly to ambient PM_{2.5} levels..."*⁴

The role of VOCs in the Valley's PM_{2.5} concentrations is discussed in detail in Chapter 4 and Appendix F (Modeling Protocol) of the *2012 PM_{2.5} Plan*, and is summarized here.

For the *2012 PM_{2.5} Plan*, the effectiveness of reducing PM_{2.5} precursors, including VOCs, was compared to reducing direct PM_{2.5} emissions and was quantified using inter-pollutant equivalency ratios⁵. Sensitivity analysis was performed for 10% reductions of primary PM_{2.5} as well as for each precursor separately. The results of the modeling runs are plotted on isopleth diagrams (also referred to as carrying capacity diagrams). These carrying capacity diagrams show the level of emissions that the atmosphere can "carry" and still demonstrate attainment. The carrying capacity diagrams presented in Chapter 4 of the *2012 PM_{2.5} Plan* (Figures 4-15 through 4-24)⁶ show that NO_x and directly-emitted PM_{2.5} are the most effective precursors to reduce to improve 24-hour PM_{2.5} design values, while additional VOC reductions do not correspond to improvements in PM_{2.5} design values.

This modeling showed that once NO_x controls are taken into consideration, VOC emission reductions produce essentially no benefit. In fact, in some instances, VOC emissions reductions may actually lead to an increase in PM_{2.5} nitrate formation. Nitrogen-containing molecules such as PAN can act as temporary sinks for NO₂. When VOCs are controlled, the reduced availability of certain radicals which are generated from VOCs reduces the amount of NO₂ that is sequestered, thereby increasing the availability of NO₂ and enhancing ammonium nitrate formation⁷.

⁴ *Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; San Joaquin Valley Moderate Area Plan and Reclassification as Serious Nonattainment for the 2006 PM_{2.5} NAAQS; Proposed Rule*, 80 Federal Register 8. Pp. 1816-1846. (p. 1826) (2015, January 13).

⁵ *2012 PM_{2.5} Plan* Appendix F (Modeling Protocol), p 127. <http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/16%20Appendix%20F%20Modeling%20Protocol.pdf>

⁶ *2012 PM_{2.5} Plan* Chapter 4, p 4-31 through 4-40. <http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/04%20Chapter%204%20Sci%20Foundation%20and%20Modeling.pdf>

⁷ Meng, Z., Dabdub, D., and Seinfeld, J.H., 1997, Chemical Coupling Between Atmospheric Ozone and Particulate

Although VOC is not a significant contributor to PM_{2.5} in the Valley, Rule 2201 provides for the regulation of VOC as a precursor to ozone. The level to which major sources of VOC are controlled in the District's NSR rule is extensive, since the Valley is classified as an extreme nonattainment area for ozone. VOC sources in the Valley are major sources at 10 TPY, have an emission offset threshold of 10 TPY, have a distance offset ratio of 1.5 to 1, require BACT if daily emissions exceed 2 pounds, require public notification if emission increases exceed either 100 lb/day for new sources or 20,000 lb/year for modified sources, and have a significance threshold of zero for federal major modifications. Therefore, VOC as an ozone precursor is controlled through the District's NSR rule at levels much lower than if they would be controlled as a PM_{2.5} precursor.

As demonstrated above, VOC emissions from major sources do not contribute significantly to PM_{2.5} nonattainment in the SJV. Therefore, VOC need not be addressed as a precursor to PM_{2.5} in the District's NSR program.

C. PM_{2.5} Definition Pertaining to Condensable Particulates

PM_{2.5} is comprised of both filterable and condensable particulate matter. Filterable PM_{2.5} is either a solid or liquid and is generally stable in the atmosphere, while condensable PM_{2.5} is a vapor or gas at stack temperature, but at ambient conditions, the matter condenses to liquid or solid.

In EPA's Clean Air Fine Particulate Implementation Rule (72 FR 20586, April 25, 2007) and Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM_{2.5}) rule (73 FR 28321, May 16, 2008), EPA explicitly included condensable matter in their PM_{2.5} definition for purposes of federal NSR applicability, citing the Consolidated Emissions Reporting rule (67 FR 39602, June 10, 2002), where it was first included for PM_{2.5}.

The District has historically included condensable particulate emissions in its definition of total particulate emissions, well ahead of federal and other states' efforts to address this issue, and PM_{2.5} condensable emissions are treated as a part of total PM_{2.5} emissions under the District's rules and are not excluded for the purposes of triggering any federal new source review requirements. Rule 2201 currently defines PM_{2.5} as "*particulate matter with an aerodynamic diameter smaller than or equal to a nominal 2.5 microns*," and Rule 1020 (Definitions) defines Particulate Matter as "*any material except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions*." Since condensable particulate matter is, by definition, matter which condenses to a particulate form at ambient conditions, the District sees no way to read its regulations other than to conclude that PM_{2.5} includes condensable PM_{2.5}.

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This has included establishing permit requirements for various emissions sources that include condensable particulates as part of total particulate emissions limitations and associated emissions testing requiring that condensable particulates be measured (including utilizing an EPA-approved modified test method ahead of EPA's official test method, Method 202)⁸.

While the District is currently following federal regulations by accounting for the PM2.5 and PM10 condensable portions in its permitting process, the District will revise the definition for PM2.5 in Rule 2201 to clarify that condensable particulates are included.

D. Application Shield for Temporary Replacement Emissions Units

NOTE: The federal EPA provided late verbal comments on the appropriateness of the District's Application Shield provisions and the definition of "Routine Replacement". The District's responses to these comments are contained in Appendix A of this staff report, and changes have been made to the rule as a result of EPA's comments. These changes are also captured in Appendix A, but are not detailed below. The changes are consistent with District interpretation and implementation of the rule and with existing federal law, and are therefore not significant.

District Rule 2201 contains an application shield for routine replacements, as defined in the Rule (Section 3.35), to allow them to be installed without first applying for an Authority to Construct (ATC), provided the application is submitted to the District within 7 calendar days of completing the installation of the replacement and the source operates with no increased emissions or throughput and complies with other applicable requirements detailed in the Rule as discussed further below. A routine replacement is a permanent replacement of an existing emissions unit, so the application shield provides no benefit to situations where a unit is brought in to temporarily replace the main unit while the main unit is repaired. The result of this incongruity is that a temporary replacement faces tougher regulatory hurdles than a permanent replacement before installation. The District believes that temporary replacements should also benefit from this application shield and, if certain precautions are taken, no impact on air quality will result.

Currently, when a unit must be shut down for repair or maintenance and the source wants to use a Temporary Replacement Emissions Unit (TREU) in place of the shutdown unit, they must first obtain an ATC before the TREU can be installed and utilized. It has been a longstanding frustration for sources in the Valley that these temporary operations that really need this shield are precluded from using it. While the District expedites issuance of TREU ATCs (with a commitment to issue the ATC within 7 days of the receipt of the complete application for a TREU), this doesn't allow the source to install a TREU as quickly as they can have it delivered to the site, as could a

⁸ <http://www.epa.gov/ttn/emc/methods/method202.html>

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routine replacement. Because facilities are quite often relying on these temporary replacements to restart their business or operation, any delay can be devastating. To alleviate this frustration while still ensuring the requirements of District Rule 2201 are met and no negative impact on air quality is created, this proposed amendment would allow certain TREUs to enjoy the application shield of Section 8.

The table below captures the current application shield requirements for routine replacements and demonstrates that the proposed TREU application shield requirements are equivalent. For both types, there is no increase in emissions allowed compared to the replaced unit and there must not be a change in function. The application shield for TREUs is also limited by Section 8 to those with the same limitations on design capacity and Best Available Retrofit Control Technology (BARCT) applicability. In addition, TREUs utilizing this application shield cannot, due to their temporary nature, constitute a Reconstructed Source.

Routine Replacements and TREUs eligible for application shield	
Routine Replacements	TREUs
No increase in potential to emit - (3.35.1)	No increase in potential to emit - (3.41.1, 8.1.3.2)
Allowed increase in design capacity up to 10% with no increase in potential to emit or throughput - (3.35.2)	Allowed increase in design capacity up to 10% with no increase in potential to emit or throughput - (8.1.3.1, 8.1.3.2)
Replacement performs same function -(3.35.3)	Replacement performs same function - (3.41, 8.1.3.3)
Replacement will not constitute a Reconstructed Source (3.34) or Reconstruction (40 CFR 60.15) – (3.35.4)	As a temporary replacement, the original emissions unit will be put back into service; therefore the TREU is not a Reconstructed Source or Reconstruction – (3.41.3)
If entire unit replaced, replacement is addressed by BARCT rule or equipped with control device capable of 85% control – (3.35.5)	Temporary replacement must be addressed by BARCT rule or equipped with control device capable of 85% control – (8.1.3.4)

Please note that the District is taking this opportunity to also clarify Section 8.1.1 to make it consistent with rule intent and District past practice. Since this section provides a pre-construction application shield, the application is due within seven calendar days of completing the construction or installation of the replacement unit.

E. CO Nonattainment Area Offset Threshold

Prior to 1998, some areas of the Valley were not in attainment for the Federal CO NAAQS, while the rest of the Valley was in attainment. As a result of this situation, early versions of Rule 2201 listed two different offset thresholds for CO emissions: 30,000 pounds per year for nonattainment areas and 200,000 pounds per year for attainment areas. Since 1998, all areas of the District have been classified as

attainment for the CO NAAQS⁹. Therefore, for the past 17 years the nonattainment area offset threshold for CO has no meaning or applicability. For this reason, the District is proposing to remove the CO offset threshold for nonattainment areas. Although no CO attainment problems are anticipated due to the significantly cleaner mobile source fleet in California, and similar reductions from stationary sources, if the District is found to be in nonattainment for CO in the future, the District will be required to adopt appropriate NSR revisions in a timely manner.

F. PM2.5 Annual Offset Equivalency Tracking

The District uses several innovative NSR program provisions, such as more certainty and flexibility in the use of Emission Reduction Credits (ERCs) and enhanced offsetting requirements, which were designed to make the permitting process less burdensome and more certain and transparent for both affected industry and the District while still maintaining compliance with federal NSR requirements. As part of an agreement between the EPA and the District to allow this rule flexibility, the District is tracking the ERCs collected under its NSR program and must make an annual demonstration that these ERCs are equivalent to both the amount of surplus ERCs, and the total amount of ERCs, to those which would be collected under a federal NSR offsetting program.

Section 7 of Rule 2201 specifies the tracking and reporting actions involved with the annual equivalency demonstration and steps to be taken to correct any ERC shortfalls. This section also details the required actions to be taken if an ERC shortfall occurred. Rule 2201 has a self-implementing offset shortfall remedy procedure which entails following the federal offsetting requirements directly, until the shortfall is eliminated. The system is designed to be invisible to permittees unless equivalency cannot be demonstrated and the indicated remedies must be implemented.

As currently written, Rule 2201, Section 7, is pollutant neutral. It requires the appropriate tracking and demonstrations for all pollutants for which federal offsetting requirements are triggered. Therefore, Section 7 fully addresses the use of PM2.5 offsets and requires the appropriate tracking and annual demonstration without any change in rule language. To date, there have been no new major sources of PM2.5 and only one federal major modification project that required the use of PM2.5 offsets in the San Joaquin Valley.

G. Proposed Rule Amendments

NOTE: The federal EPA provided late verbal comments on the appropriateness of the District's Application Shield provisions and the definition of "Routine Replacement". The District's responses to these comments are contained in Appendix A of this staff report, and changes have been made to the rule as a

⁹ EPA designated the Valley as attainment for the CO NAAQS on 3/31/1998, effective 6/1/1998 (73 Fed. Reg. 66759-66775).

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result of EPA's comments. These changes are also captured in Appendix A, but are not detailed below. The changes are consistent with District interpretation and implementation of the rule and with existing federal law, and are therefore not significant.

The proposed amendments in Draft Rule 2201 are outlined below:

- Section 3.24: Revise the Major Source Emission Threshold for PM_{2.5} in Table 3-3 to lower it from 200,000 lb/year to 140,000 lb/year. The proposed amended table reads as follows:

POLLUTANT	THRESHOLD (POUNDS PER YEAR)
VOC	20,000
NOx	20,000
CO	200,000
PM _{2.5}	140,000 ~~200,000~~
PM ₁₀	140,000
SOx	140,000

- Section 3.28: Expand the definition of PM_{2.5} to clarify that the condensable portion of particle pollution is included in PM_{2.5}. In response to EPA comments as discussed in Appendix A, the District is revising the proposed definition of PM_{2.5} and the amended PM_{2.5} definition reads as follows:

3.28 PM_{2.5}: particulate matter with an aerodynamic diameter smaller than or equal to a nominal 2.5 microns, including gaseous emissions which condense to form particulate matter at ambient temperatures.

- Section 4.5.3: Remove the reference to CO (nonattainment areas) in Table 4-1 as there are no nonattainment areas in the Valley, and remove the phrase (attainment areas) from the CO (attainment areas) line. The proposed amended table reads as follows:

POLLUTANT	SSPE2 (POUNDS / YEAR)
VOC	20,000
NOx	20,000
CO (non-attainment areas)	30,000
CO (attainment areas)	200,000
SOx	54,750
PM ₁₀	29,200

- Section 7.1.1: In response to EPA comments as discussed in Appendix A, include the words "increase" and "and modified" to the existing section to clarify some of the federally required offsets that must be tracked pursuant to 40 CFR

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51.165, and Title I part D of the Clean Air Act (CAA). The proposed amended section reads as follows:

7.1.1 The quantity of offsets that would have been required for new major sources and federal major modifications in the District had the federal new source review requirements, codified in 40 CFR 51.165, and Title I part D of the Clean Air Act (CAA), been applied to these sources. These requirements include offsetting the full emissions increase from new and modified major sources, using actual emissions baselines when required under 40 CFR 51.165, and providing offsets necessary to meet the CAA offset ratio requirements and provide a net air quality benefit.

- Section 8: Allow certain Temporary Replacement Emissions Units to utilize the temporary application shield provided for in Section 8. The proposed amended sections reads as follows:

8.0 Application Shield for Routine Replacement and Temporary Replacement Emissions Unit (TREU)

8.1 For a Routine Replacement or a TREU for which an Authority to Construct is required, the permitted source may continue to operate under an application shield, provided that all of the following conditions are met.

8.1.1 An application for the Routine Replacement or TREU has been submitted within seven calendar days of completing the construction or installation of the routine or temporary replacement.

8.1.2 The source operates in compliance with all applicable requirements of the federal, state, and District rules and regulations.

8.1.3 For a TREU, all of the following conditions must be met:

8.1.3.1 The TREU results in no increase in design capacity, unless a replacement unit of the same or lower design capacity is not available, in which case the replacement can result in a design capacity increase of up to 10%.

8.1.3.2 The TREU results in no change to the permitted throughput or emissions due to a change in the design capacity as part of the replacement.

8.1.3.3 The TREU performs the same function as the equipment being replaced.

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8.1.3.4 The TREU either is addressed by a BARCT rule or is equipped with a control device capable of at least 85% emission control.

8.2 When the application has been deemed complete by the APCO, the application shield shall be made effective retroactive from the date of application submittal until the application is either approved or denied.

8.2.1 The application shield is not applicable if the District's final action is delayed due to the failure of the applicant to submit timely information requested by the District. The source must also submit additional information for any requirements that become applicable after a complete application is submitted, but before a PTO is issued.

8.3 The application shield does not exempt the operator from any applicable requirements.

8.4 The application shield applies only to ~~an applications~~ for a Routine Replacements, and TREUs meeting the requirements of 8.1.3.1 through 8.1.3.4, and does not authorize any increases to the permitted throughput or emissions due to a change in design capacity as part of a Routine Replacement or a TREU.

8.5 For a TREU that is removed from the Stationary Source within seven calendar days of completing the installation of the TREU, the application requirements of Section 8.1.1 shall not apply, provided the permittee submits, within seven calendar days of completing the installation of the TREU, a report to the District demonstrating compliance with the requirements of Section 8.

IV. PROTECT CALIFORNIA AIR ACT OF 2003 - SENATE BILL 288

California Health and Safety Code sections 42500 through 42507 (SB 288) mandates that a district's New Source Review (NSR) rules cannot be made less stringent, in a variety of specified areas, than the rules that existed on December 30, 2002. This legislation was crafted and signed into law specifically to prevent Districts from implementing any Federal NSR reforms that would have relaxed California's stringent NSR requirements.

The state Air Resources Board (ARB) has provided guidance on the implementation of SB 288 (California Air Resources Board Guidance, *New Source Review and Senate Bill 288* (August 2004, as amended April 2006)), and has concluded that there are four components of NSR that are affected by SB 288:

1. NSR applicability determinations;

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2. The definitions of “modification”, “major modification”, “routine maintenance”, and “repair or maintenance”;
3. The calculation methodology, thresholds, or other procedures of new source review. ARB further interprets this to apply to baseline determinations, calculating emissions changes, offset amounts required, and major source and major modification thresholds; and
4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets¹⁰.

Per the ARB Guidance, each of these four components apply on an individual source basis (except for offsets, as discussed in 4. above), as well as on a programmatic basis. The proposed amendments to District Rule 2201 do not include any changes to the applicability of the District’s NSR requirements (except for lowering the PM2.5 Major Source threshold). Each of the proposed amendments to Rule 2201 will be evaluated below to determine if there could be a relaxation of the NSR requirements for these four components.

A. Changing the Major Source Definition

District Rule 2201, Section 3.24 is being amended to revise the PM2.5 major source emission threshold from 200,000 pounds per year (100 tons per year) to 140,000 pounds per year (70 tons per year) as a result of reclassification to serious nonattainment for the 1997 and 2006 PM2.5 standards.

The following is an analysis of the SB 288 implications of this proposed change:

1. NSR applicability determinations are not relaxed:

Changing the Major Source definition to lower the PM2.5 major source threshold will result in more major sources of PM2.5 emissions compared to the current threshold. This proposed change will result in a more stringent requirement and will not relax the applicability of any NSR requirements.

2. The definitions of “modification”, “major modification”, “routine maintenance”, and “repair or maintenance” are not relaxed:

Changing the Major Source definition will not change the definitions of “modification”, “major modification”, “routine maintenance”, or “repair or maintenance”. Therefore, this proposed change will not relax the definitions of

¹⁰ While the District believes that this final component is an overly broad legal interpretation of the legislation, and inconsistent with the development and intent of the legislation, we believe the District’s proposed amendments are complying with ARB’s interpretation on this issue. However, we will reserve our right to challenge ARB on this issue at a later date, or if ARB uses this interpretation to contravene any of the District’s proposed NSR amendments.

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“modification”, “major modification”, “routine maintenance”, or “repair or maintenance”.

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed:

The proposed change to the Major Source definition is to lower the PM_{2.5} Major Source threshold, which will result in more major sources of PM_{2.5} emissions and will more frequently trigger the various NSR requirements related to PM_{2.5} major sources, resulting in a more stringent rule without relaxation of any requirements.

An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

- a. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification.

Lowering the PM_{2.5} major source threshold will not relax these BACT thresholds.

- b. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds.

Lowering the PM_{2.5} major source threshold will not relax any offset thresholds or any calculation methods for determining offset requirements. PM_{2.5} offsets will now be required for new sources at 70 tons per year rather than 100 tons per year due to the new Major Source threshold.

- c. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4 lists the five thresholds which, if exceeded, will trigger a public notification.

Lowering the PM_{2.5} major source threshold will not relax any public notice thresholds. In fact, with more major sources of PM_{2.5} emissions, more projects may be subject to public notification requirements by virtue of more projects being Federal Major Modifications.

4. The definitions and requirements of NSR regulations, including, on a program-wide

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basis, the requirement to obtain offsets, are not relaxed:

The proposed change to the Major Source definition lowers the PM2.5 Major Source threshold, which will strengthen NSR requirements. This proposed change will not relax the requirement to obtain offsets, on a project specific or program wide basis. Instead, the rule revisions will require additional offsets as more PM2.5 major sources will now have to provide offsets. Therefore, this proposed change is not a relaxation of any definition or requirements of NSR regulations or the requirement to obtain offsets.

This proposed change will result in the strengthening of certain NSR requirements since the proposed 70 tons per year PM2.5 Major Source threshold is more stringent than the current 100 tons per year threshold. This proposed change will not relax any NSR requirements and will not be a relaxation under SB 288.

B. Clarifying the PM2.5 Definition

District Rule 2201, Section 3.28 was originally being amended to include the definition of Particulate Matter from District Rule 1020 to address CAA requirements for PM2.5 and clarify that PM2.5 includes the condensable portion of particle pollution. However, based on EPA comments, the District has revised the proposed definition to make it consistent with EPA's published definition of PM2.5. Since this proposed amendment is to make it consistent with EPA's published definition of PM2.5 and clarify that PM2.5 includes the condensable portion of particle pollution, this proposed change will not relax any existing NSR requirements and will not be a relaxation under SB 288.

C. Clarifying Offset Tracking System requirements

District Rule 2201, Section 7.1.1 is being amended to, address EPA comments and clarify some of the federally required offsets that must be tracked pursuant to 40 CFR 51.165. The District currently implements the Offset Tracking System exactly as EPA has specified in their comments and the proposed amendments simply clarify those requirements. Therefore, this proposed change will not relax any existing NSR requirements and will not be a relaxation under SB 288.

D. Adding Application Shield for Temporary Replacement Emissions Units

The proposed amendments to District Rule 2201, Section 8 are to allow certain types of Temporary Replacement Emission Units (TREUs), as discussed previously, to utilize the application shield that Section 8 offers to Routine Replacements.

The following is an analysis of the SB 288 implications of this proposed change:

1. NSR applicability determinations are not relaxed:

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Including certain TREUs in the Section 8 application shield is not a relaxation to an NSR applicability determination. TREUs will continue to be subject to all the same NSR requirements to which TREUs are currently subject. As noted above, the proposed application shield addresses the nonsensical situation that allowed a permanent replacement to proceed without an application while requiring TREUs, often required to address emergency breakdowns or malfunction situations, to obtain a permit before installation. Also note that, for a source to take advantage of the application shield in Section 8, a TREU must meet all the same requirements as a Routine Replacement.

2. The definitions of “modification”, “major modification”, “routine maintenance”, and “repair or maintenance” are not relaxed:

The proposed changes to Section 8 will not change the definitions of “modification”, “major modification”, “routine maintenance”, or “repair or maintenance”. Therefore, this proposed change will not relax the definitions of “modification”, “major modification”, “routine maintenance”, or “repair or maintenance”.

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed:

The sole purpose of the application shield is to allow a source to voluntarily complete the installation of a Routine Replacement, or certain TREUs, without first submitting the required Authority to Construct (ATC) permit application. The application shield does not relieve the source from complying with all other applicable requirements of the District’s NSR program.

For those TREUs removed within 7 days of installation, the required submission of the report demonstrating compliance with the requirements of Section 8 serves as the functional equivalent to an Authority to Construct, while removing unnecessary paperwork from the process. Permittees violating any of the application shield requirements of Section 8 lose the application shield and will be subject to enforcement action and full compliance with NSR requirements of Rule 2201. Therefore, the proposed changes to Section 8 will not relax any NSR requirements.

An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

1. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification.

TREUs are currently exempt from BACT per Section 4.2.5, and the proposed changes to Section 8 will not change the existing exemption.

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2. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds.

TREUs are currently exempt from offsets per Section 4.6.5, and the proposed changes to Section 8 will not change the existing exemption.

3. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4 lists the five thresholds over which a project will trigger a public notification if exceeded.

As a TREU cannot operate at the same time as, and cannot result in greater emissions than the unit being replaced, like a Routine Replacement, a TREU does not trigger the public notification requirements of Rule 2201. Since the requirements for a TREU will not be changed with this proposed rulemaking action, there will be no relaxation to the public notification requirements as a result of this proposed change.

4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets, are not relaxed:

This proposed change will not affect the requirement to obtain offsets since TREUs are exempt from offsets. Therefore, this proposed change is not a relaxation of any definition or requirements of NSR regulations or the requirement to obtain offsets on a project specific or program wide basis.

As outlined above, this proposed change will only serve to include in the Section 8 application shield a TREU that would meet all the same requirements as a Routine Replacement. A TREU that qualifies for the application shield will be subject to all applicable NSR requirements that a TREU is currently subject to; therefore, this proposed change will not relax any NSR requirements and will not be a relaxation under SB 288.

E. Removing the CO Nonattainment Area Offset Threshold

As discussed previously, all areas of the Valley were classified as attainment for the CO ambient air quality standard in 1998. Therefore, the CO nonattainment area offset threshold in Rule 2201 has not been relevant for the past 17 years. The proposed amendments to District Rule 2201, Section 4.5.3 (Table 4-1) consist of removing the offset threshold for CO in nonattainment areas, and specifying that the existing offset threshold for CO in attainment areas applies throughout the Valley.

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The following is an analysis of the SB 288 implications of this proposed change:

1. NSR applicability determinations are not relaxed:

Removing the CO (nonattainment areas) offset threshold will result in no changes to the offset requirements because there are no CO nonattainment areas in the Valley, and therefore, no offset requirements have been or will be triggered in the San Joaquin Valley for CO nonattainment areas. Also note that the entire Valley was designated as attainment for CO in 1998, well before the SB 288 NSR Rule comparison date of December 30, 2002. Therefore, removing the CO (nonattainment areas) offset threshold will not relax any applicable requirements of the District's NSR program.

2. The definitions of "modification", "major modification", "routine maintenance", and "repair or maintenance" are not relaxed:

Removing the CO (nonattainment areas) offset threshold will not change the definitions of "modification", "major modification", "routine maintenance", or "repair or maintenance". Therefore, this proposed change will not relax the definitions of "modification", "major modification", "routine maintenance", or "repair or maintenance".

3. The calculation methodology, thresholds, or other procedures of new source review are not relaxed. An analysis of the BACT, offsets, and public notification requirements of Rule 2201 is provided below:

a. Requirements for BACT are not relaxed:

Rule 2201, Section 4.1 requires BACT for any increase over 2.0 lb/day and for any SB 288 Major Modification or Federal Major Modification.

This change is to remove an existing, irrelevant offset threshold. It will not change the existing BACT thresholds or requirements.

b. Requirements for offsets are not relaxed:

Rule 2201, Section 4.5 requires emission offsets to mitigate new or increased emissions above specific thresholds and any emission increase for stationary sources which already exceed the offset thresholds.

Removing the CO (nonattainment areas) offset threshold will result in no changes to the offset requirements because there are no CO nonattainment areas in the Valley, and therefore, no offset requirements have been or will be triggered in the San Joaquin Valley for CO nonattainment areas. Also note that

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the entire Valley was designated as attainment for CO in 1998, well before the SB 288 NSR Rule comparison date of December 30, 2002. Therefore, removing the CO (nonattainment areas) offset threshold will not relax any applicable offset requirements of the District's NSR program.

c. Requirements for public notice are not relaxed:

Public Noticing is required for significant new or modified sources of emissions. Rule 2201, Section 5.4 lists the five thresholds over which a project will trigger a public notification if exceeded.

Public notification requirements are triggered at various thresholds. For instance, public notification is required when an existing source proposes a modification that increases their allowed emissions from below to above an offset threshold or when a new source proposes emissions above an offset threshold. Removing the CO (nonattainment areas) offset threshold will result in no changes to the public noticing requirements because there are no CO nonattainment areas in the Valley, and therefore, no public noticing requirements have been or will be triggered in the San Joaquin Valley for CO nonattainment areas. Also note that the entire Valley was designated as attainment for CO in 1998, well before the SB 288 NSR Rule comparison date of December 30, 2002. Therefore, removing the CO (nonattainment areas) offset threshold will not relax any applicable public noticing requirements of the District's NSR program.

4. The definitions and requirements of NSR regulations, including, on a program-wide basis, the requirement to obtain offsets, are not relaxed:

Removing the CO (nonattainment areas) offset threshold will result in no changes to the offset requirements because there are no CO nonattainment areas in the Valley, and therefore, no offset requirements have been or will be triggered in the San Joaquin Valley for CO nonattainment areas. Also note that the entire Valley was designated as attainment for CO in 1998, well before the SB 288 NSR Rule comparison date of December 30, 2002. Therefore, removing the CO (nonattainment areas) offset threshold will not relax any applicable project specific or program wide offset requirements of the District's NSR program.

Since this proposed amendment is to remove an irrelevant provision that cannot apply to any source, this proposed action will not relax existing NSR requirements and will not be a relaxation under SB 288.

V. RULE DEVELOPMENT PROCESS

EPA's Final Rule requires states to submit an approvable NSR program for the PM2.5

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standard within 12 months after reclassification as serious nonattainment. Thus, for this requirement, EPA mandates that our NSR program needs to be submitted to EPA for inclusion into the SIP before May 7, 2016 (80 FR 18528).

A. Public Workshop

District staff hosted a public workshop on November 10, 2015 and the draft proposed amendments to the rule were presented at the public workshop in the form of a power point presentation. The focus of the public workshop was to present the proposed amendments to the rule and to solicit public feedback. At the public workshop, District staff presented the objectives of the rule-amending project, explained the District's rule development process for this project, solicited feedback from affected stakeholders, and informed all interested parties of the comment period and project milestones. The public workshop was held via video teleconferencing in all three District offices and was also live-streamed using the webcast.

The Draft Staff Report and Draft Rule were made available on the District's website prior to the public workshop, and a three week comment period followed the public workshop. Comments received during the public workshop or during the three week comment period that followed the public workshop are addressed in Appendix A of this staff report. None of the comments resulted in significant changes to the proposed rule. As such, it was also determined that there is no need to hold a future workshop.

B. Public Hearing

In accordance with California Health and Safety Code (CH&SC) Section 40725, the proposed amendments to Rule 2201 and the final draft staff report were publicly noticed and made available prior to the January 21, 2016 Governing Board public hearing to consider adoption of the proposed rule amendments. The public was invited to provide comments to District Governing Board members during the public hearing. At the public hearing the Governing Board approved the revised rule, but postponed the final adoption of the rule to provide opportunity for public comment until the next regularly scheduled Governing Board public hearing meeting, on February 18, 2016.

Because changes were made to the rule as a result of EPA's comments, the public is again invited to provide comments to the District Governing Board at the public hearing on February 18, 2016. Upon adoption, Rule 2201 will be forwarded to ARB which will forward to EPA for inclusion into the SIP.

VI. COST EFFECTIVENESS AND SOCIOECONOMIC IMPACT ANALYSIS

Pursuant to CH&SC Section 40920.6(a), the District is required to analyze the cost effectiveness of new rules or rule amendments that implement Best Available Retrofit

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Control Technology (BARCT). The proposed amendments do not add BARCT requirements and therefore are not subject to the cost effectiveness analysis mandate.

Additionally, CH&SC Section 40728.5 (a) requires the District to analyze the socioeconomic impacts of any proposed rule amendment that significantly affects air quality or strengthens an emission limitation. The draft amendments will have neither effect; therefore, the draft amendments are not subject to the socioeconomic analysis mandate

VII. RULE CONSISTENCY ANALYSIS

Pursuant to CH&SC Section 40727.2(g) a rule consistency analysis of the proposed rule is required if the proposed rule strengthens emission limits or imposes more stringent monitoring, reporting, or recordkeeping requirements. The proposed rule does not strengthen emission limits or impose more stringent monitoring, reporting, or recordkeeping requirements; therefore, a rule consistency analysis is not required.

VIII. ENVIRONMENTAL ASSESSMENT

The purpose of this rule-amending project is to add the federal PM_{2.5} new source review requirements under subpart 4 of the CAA. The proposed amendments include expanding the PM_{2.5} definition to clarify that PM_{2.5} includes condensable particulate pollution, addressing PM_{2.5} precursor pollutant applicability, and revising the PM_{2.5} major source emission threshold from 100 TPY to 70 TPY. Further, the proposed amendments include removing the CO (nonattainment area) offset threshold, clarifying offset tracking system requirements, and including certain categories of Temporary Replacement Emissions Units (TREUs) to the application shield provisions of the Rule.

According to the California Environmental Quality Act (CEQA) statutes and pursuant to Section 15061 of the CEQA Guidelines, the District investigated the possible environmental impacts of the amendments to Rule 2201. Based on the District's investigation and lack of evidence to the contrary, the District has concluded that the rule amendments will not have any significant adverse effects on the environment. As such, the rule amendments are exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061 (b)(3)). Therefore pursuant to Section 15062 of the CEQA Guidelines, Staff will file a Notice of Exemption upon Governing Board approval of amendments to Rule 2201.

APPENDIX A

**Summary of Significant Comments and Responses
For Amendments to Rule 2201**

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**SUMMARY OF SIGNIFICANT COMMENTS
RULE 2201 (NEW AND MODIFIED STATIONARY SOURCE REVIEW RULE)**

The San Joaquin Valley Unified Air Pollution Control District (District) held a public workshop to present, discuss, and hear comments on the draft amendments to Rule 4905 and draft staff report on October 16, 2014. Summaries of significant comments received since the public workshop are summarized below.

EPA REGION IX COMMENTS:

COMMENT: EPA believes that the proposed definition of PM_{2.5} is problematic because it suggests that only materials that are a liquid or solid at standard conditions AND are less than 2.5 microns while in this state, are included in the definition. Instead all of the gaseous emissions that condense at ambient conditions are included.

EPA's proposed changes are as follows:

- 3.28 PM_{2.5}: particulate matter, ~~including any material except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions,~~ with an aerodynamic diameter smaller than or equal to a nominal 2.5 microns, including gaseous emissions which condense to form particulate matter at ambient temperatures.

RESPONSE: The District has incorporated EPA's comment, so as to make the PM_{2.5} definition consistent with EPA's published definition of PM_{2.5}. It should be noted that this change has no impact on applicability of PM_{2.5} requirements nor does it impact the methods used to measure PM_{2.5} for the purposes of demonstrating compliance with Rule 2201 requirements: gaseous emissions that condense to form particulate matter at ambient temperatures were already included in the District's proposed definition, as they are, at those conditions, no longer gaseous and become "a liquid or solid".

Revised rule language will read as follows:

- 3.28 PM_{2.5}: particulate matter with an aerodynamic diameter smaller than or equal to a nominal 2.5 microns, including gaseous emissions which condense to form particulate matter at ambient temperatures.

COMMENT: EPA proposed new language to Section 7.1.1 of the rule, to clarify some of the federally required offsets that must be tracked pursuant to 40 CFR 51.165, and Title I part D of the Clean Air Act (CAA).

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EPA's proposed changes are as follows:

- 7.1.1 The quantity of offsets that would have been required for new major sources and federal major modifications in the District had the federal new source review requirements, codified in 40 CFR 51.165, and Title I part D of the Clean Air Act (CAA), been applied to these sources. These requirements include offsetting the full emissions increase from new and modified major sources, using actual emissions baselines when required under 40 CFR 51.165, offsets required for Highly-Utilized, Fully-Offset and Clean Emission Units, and providing offsets necessary to meet the CAA offset ratio requirements and provide a net air quality benefit.

RESPONSE: The District currently implements the Offset Tracking System exactly as EPA has specified in their comments. We believe the addition of the words “increase” and “and modified” are appropriate clarifications. However, we believe that adding the phrase “offsets required for Highly Utilized, Fully Offset and Clean Emissions Units” is unnecessary and redundant with the sentence in which EPA asks that it be inserted. Specifically, the requirement that the District demonstrate equivalency with federal offsetting requirements and 40 CFR 51.165 already fully addresses EPA's intent that the District include in all such demonstrations any situations in which the Highly Utilized, Fully Offset and Clean Emissions Units provisions were utilize. In other words, Section 7.1 already includes all applicable requirements under 40 CFR 51.165 as validated with EPA's approval of the rule on 9/17/2014¹.

Revised rule language will read as follows:

- 7.1.1 The quantity of offsets that would have been required for new major sources and federal major modifications in the District had the federal new source review requirements, codified in 40 CFR 51.165, and Title I part D of the Clean Air Act (CAA), been applied to these sources. These requirements include offsetting the full emissions increase from new and modified major sources, using actual emissions baselines when required under 40 CFR 51.165, and providing offsets necessary to meet the CAA offset ratio requirements and provide a net air quality benefit.

COMMENT: EPA believes that Section 8.0 of Rule 2201 is not consistent with 40 CFR 51.160(b) of the Clean Air Act, as they believe that the District would not have the opportunity to deny a Routine Replacement or a TREU (as the proposed rule amendments include) if the source utilized the Application Shield allowed under Section 8.0 and the change resulted in a violation of the Act or a NAAQS.

¹ <https://www.gpo.gov/fdsys/pkg/FR-2014-09-17/pdf/2014-22019.pdf>

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Additionally, EPA has compared the proposed amendments to Section 8.0 of Rule 2201 to proposed amendments submitted by Clark County, Nevada for their local New Source Review Rule that included a “notice and go” provision, which would have allowed a source to notify the agency of a proposed action, and then to implement it after a stated timeframe, with no action required by the agency. EPA further references comments made several years ago regarding the Clark County proposal. EPA provided the following excerpt from EPA’s comments to Clark County:

The triggering of a new applicable requirement should always require review by (the permitting authority) to assure all necessary terms and conditions are included to ensure compliance.

Our second concern is one of enforcement. It is not clear what would happen and what the enforcement liability would be for a source if they began construction after the seven day period

Ultimately, to be approvable under 40 CFR part 51, the program must contain “legally enforceable procedures that enable the State or local agency to determine whether the construction or modification of [the source/project] will result in (1) A violation of applicable portions of the control strategy; or (2) Interference with attainment or maintenance of a [NAAQS]...” The program must also enable the permitting agency to “prevent construction” when it determines that either of these will occur. 40 CFR 51.160(b)

RESPONSE: First, it’s important to point out that Section 8.0 of Rule 2201 has been in the rule for over a decade and has been repeatedly approved by EPA into the State Implementation Plan during that timeframe, most recently in 2014. The proposed amendments are only adding an allowance for Temporary Replacement Emission Units to use the longstanding application shield that has historically only applied to non-temporary routine replacements. We are not creating a new application shield section; we are only expanding the existing section that applies to permanent replacements so that it equally applies to temporary replacements. There should be no question about the appropriateness of the original SIP-approved language.

Second, the regulation cited by EPA, 40 CFR 51.160(b), requires that an agency have the “means...to prevent...construction or modification if – (1) it will result in a violation of applicable portions of the (SIP) control strategy; or (2) it will interfere with the attainment or maintenance of a national standard.”

EPA expressed the belief that a pre-construction permit must be issued to comply with this section, and in general, the District does require pre-construction permits before allowing installation of emitting equipment. However, in this limited case of allowing replacement equipment with no increase in emissions and no increase in capacity, the District’s analysis concludes that, if the requirements of Section 8 of

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the rule are complied with, taking advantage of the 7-day application shield cannot result in violation of the SIP or interference with attainment or maintenance of any standard. Therefore, the proposed rule itself contains the appropriate conditional language to prevent such construction or modification.

Next, the rule requires permit applications or other information to be filed with the District within 7 days of construction that fully justifies the permittee's use of the application shield to replace equipment. If such information is not provided, or is does not justify the use of the application shield, the District will take appropriate enforcement action. The permitting action is delayed, but not avoided. In the one special case in which a temporary replacement is removed prior to the 7-day permit application deadline, all appropriate information must be submitted within the same 7-day timeline, and compliance with the section 8 application shield requirements will be determined by the District.

So, these requirements are "legally enforceable" and do allow the District to determine, in advance (through the conditions of approval that are contained in the rule), whether the construction or modification will result in violations of control strategies or interfere with attainment or maintenance of a NAAQS. We have determined, in advance, that such projects will NOT result in violations of control strategies or interfere with attainment or maintenance of a NAAQS. And it is illegal for construction to proceed if those enforceable requirements are not met, so this "prevents construction" of any proposal that doesn't meet those requirements.

In fact, enforcement would be handled exactly as any other violation of the CAA. If a permittee improperly claims the application shield, the District would treat it as construction without a required permit, and would take enforcement action accordingly. Any use of the application shield is fully examined via the District's review of the subsequent permit application (or report, if a temporary replacement has already been removed prior to the application deadline). This assures that any violations are uncovered and that any appropriate enforcement ensues.

The San Joaquin Valley Air District recognizes the realities of the business world that sometimes require very quick action to avoid economic catastrophes. This section applies only to a specific subset of those urgent business scenarios in a way that provides important relief from lengthy permitting timelines, without allowing an increase in emissions or a change a facility's capacity, but without avoiding a full permit review and compliance analysis. Given that this effort at common sense governance cannot result in increases in emissions or any sidestepping of clean air requirements, we believe EPA should approve of the addition of Temporary Replacement Emission Units to this longstanding, SIP-approved, application shield that has historically only applied to non-temporary routine replacements.

COMMENT: EPA submitted additional verbal comments in early January 2016, specifically that the Routine Replacement Application Shield of Section 8 was not

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permissible for NO_x and VOC permitting actions, because the Valley's "extreme" nonattainment designation prevents it from using the "netting" provisions in federal NSR calculations for increases in emissions.

RESPONSE: First, the District fully recognizes that extreme nonattainment areas for ozone cannot use the netting provisions of the Clean Air Act to determine whether projects are major modifications for ozone precursors. However, replacements are recognized by the federal Clean Air Act and EPA implementing regulations published in title 40, part 51 of the Code of Federal Regulations as "existing units". In other words, EPA regulations treat a replacement as a modification of the unit being replaced. Therefore, there is no netting used in any District calculations related to Section 8, as it applies only to replacements.

In fact, no replacement project that takes advantage of the Section 8 application shield can possibly be a major project. Section 8 projects are limited to those that do not increase emissions or capacity, and because modifications to existing units use the "actual-to-future-projected-actual" emissions increase calculation methodology, the emissions increase calculated will always be zero. Therefore, such projects can never be major projects.

COMMENT: EPA also expressed concern during subsequent verbal conversations that "routine replacements" that are exactly the same as the unit being replaced (except for serial number) cannot be exempted from the definition of "modification", as is currently the case in section 3.35 of District Rule 2201. EPA commented that the "WEPCO" court case forbid such an exemption. EPA extends this same concern to the application shield of Section 8, specifically, that the shield should not be available to major modifications. Finally, EPA recommends, due to potential conflicts with EPA definitions of "Routine Replacements," that we change our rule's term from "Routine Replacement" to "Replacement Emissions Unit."

RESPONSE: Addressing the final issue first, the change in definition title from "Routine Replacement" to "Replacement Emissions Unit" does not impact the rule's applicability or requirements in any way, and so the District has proposed to implement EPA's suggestion, and changed the term appropriately throughout the rule.

The District believes that the current definition addresses all concerns of the WEPCO case, most notably that the replacements cannot increase emissions or capacity (and secondarily, that the replacement cannot constitute a "reconstructed source", among other requirements). However, as noted in the response above, we agree that federal requirements do not allow major modifications to take advantage of the modification exemption of section 3.35 and the application shield of section 8. Therefore, we have agreed to EPA's request to codify these federal requirements by adding rule language to specifically prohibit federal major modifications from being exempted from the definition of "modification" and from using the replacement

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unit application shield. The newly proposed language is underlined in the following sections:

3.35 ~~Routine~~-Replacement Emissions Unit: ~~routine~~ replacement in whole or in part of any article, machine, equipment, or other contrivance with a valid District Permit to Operate provided that all of the following conditions are met:

3.35.1 There is no increase in permitted emissions from the replacement unit(s). For replacements at major sources, “no increase in permitted emissions” as used in this definition also means no significant emissions increase according to the applicability calculations of 40 CFR 51.165(a)(2)(ii)(C). For the purposes of this definition, a Replacement Emissions Unit is an existing emissions unit.

8.5 For replacements at major sources, the application shield applies only to Replacement Emissions Units that result in no significant emissions increase according to the applicability calculations of 40 CFR 51.165(a)(2)(ii)(C), “Actual-to-projected actual applicability test for projects that only involve existing emissions units”. For the purposes of this section, a Replacement Emissions Unit is an existing emissions unit. A copy of the emission calculations used to determine that the Replacement Emissions Unit did not result in a significant emissions increase must be included with the application required by Section 8.1.1.

These changes were reviewed with EPA, and EPA expressed no remaining concerns.

ARB COMMENTS:

No comments were received from ARB.

PUBLIC COMMENTS:

Comments were received from the following:

Manufacturers Council of the Central Valley (MCCV)
California Construction & Industrial Materials Association (CalCIMA)

COMMENT: The Draft Report includes several pages discussing PM2.5 precursors showing certain pollutants as not being significant PM2.5 precursors. Upon review, we did not see the information in this analysis reflected in the language used in the draft Rule.

To avoid misinterpretations, please consider adding clarification on this point, for example, adding the word “significant” before the word “precursors” in line three of Section 3.4 of the Rule. (MCCV)

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RESPONSE: The term “significant” as it is used in the staff report is not an official Clean Air Act term. Rather, it is merely a convenient shorthand way to reference the importance of the contribution of the precursor to the nonattainment status in the District. In addition, it would not be appropriate to add the term “significant” to the rule language because while a pollutant may not be a significant contributor to one ambient air quality standard it may be significant for another air quality standard, as explained in the staff report. Therefore, the rule proposed for adoption by District staff does not incorporate the proposed changes.

COMMENT: While the association had no comments on the proposed amendments to Rule 2201, they did propose changes to existing sections (3.25 “Modification” and 3.35 “Routine Replacement”) “to facilitate positive changes to facilities without longer review times.” Their proposed changes are as follows:

- 3.25.3.4 Routine replacement of a whole or partial emissions unit where the replacement part does not result in a net emissions increase. ~~is the same as the original emissions unit in all respects except for the serial number.~~
- 3.35.2 There is no increase in design capacity, unless an old part is no longer available, or the replacement results in a reduction of greenhouse gases, in which case the replacement can result in a design capacity increase of up to 10%. No change to the permitted throughput or emissions is authorized due to a change in design capacity as part of routine replacement. Such changes shall require application for permit modification. (CalCIMA)

RESPONSE: Proposed revisions in the above comment would constitute a potential relaxation of the rule and therefore may be illegal under SB 288, the “Protect California Air Act of 2003”. In addition, greenhouse gas control requirements are not included in Rule 2201, the District’s criteria pollutant New Source Review rule. In fact, the District’s longstanding policy is to avoid allowing or encouraging situations that would trade greenhouse gas emissions reductions for potential criteria pollutant increases. Such situations have the potential to create local criteria or toxic pollutant hotspots, and may exacerbate the difficult attainment challenges faced in the San Joaquin Valley. Therefore, the rule proposed for adoption by District staff does not incorporate the proposed changes.

APPENDIX B

Proposed Rule 2201

July 15, 2019

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

Appendix B: Proposed Rule 2201

July 15, 2019

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RULE 2201 NEW AND MODIFIED STATIONARY SOURCE REVIEW RULE (Adopted September 19, 1991; Amended March 11, 1992; Amended October 29, 1992; Amended December 17, 1992; Amended October 21, 1993; Amended June 15, 1995; Amended August 20, 1998; Amended June 21, 2001, but not effective until August 20, 2001; Amended April 25, 2002; Amended December 19, 2002; Amended April 20, 2005; Amended December 15, 2005; Amended September 21, 2006; Amended December 18, 2008, but not in effect until June 10, 2010; Amended April 21, 2011; Amended February 18, 2016; Amended [date of adoption])

1.0 Purpose

The purpose of this rule is to provide for the following:

- 1.1 The review of new and modified Stationary Sources of air pollution and to provide mechanisms including emission trade-offs by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards; and
- 1.2 No net increase in emissions above specified thresholds from new and modified Stationary Sources of all nonattainment pollutants and their precursors.

2.0 Applicability

This rule shall apply to all new stationary sources and all modifications to existing stationary sources which are subject to the District permit requirements and after construction emit or may emit one or more affected pollutant. The requirements of this rule in effect on the date the application is determined to be complete by the Air Pollution Control Officer (APCO) shall apply to such application.

3.0 Definitions

- 3.1 Actual Emissions: emissions having occurred from a source, based on source test or monitoring data, actual fuel consumption, and process data. If source test or monitoring data is not available, other appropriate, APCO-approved, emission factors may be used.
- 3.2 Actual Emissions Reduction (AER): the decrease of actual emissions, compared to the Baseline Period, from an emissions unit and selected for use as emission offsets or ERC banking. AER shall meet the following criteria:
 - 3.2.1 Shall be real, enforceable, quantifiable, surplus, and permanent.
 - 3.2.2 To be considered surplus, AER shall be in excess, at the time the application for an Emission Reduction Credit or an Authority to Construct authorizing such reductions is deemed complete, of any emissions reduction which:

- 3.2.2.1 Is required or encumbered by any laws, rules, regulations, agreements, orders, or
 - 3.2.2.2 Is attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or
 - 3.2.2.3 Is proposed in the APCO's adopted air quality plan pursuant to the California Clean Air Act.
- 3.2.3 Emissions reductions attributed to a proposed control measure, which are excluded pursuant to Section 3.2.2.2 and 3.2.2.3 may be re-eligible as AER if the control measures identified in the District Air Quality Plan or State Implementation Plan (SIP), are determined not to be necessary for attainment or maintenance of Ambient Air Quality Standards and the APCO and United States Environmental Protection Agency (EPA) have approved amendments to the plan or SIP to reflect this determination.
- 3.3 Administrative Change: a change to an existing permit that:
 - 3.3.1 Corrects typographical errors; or
 - 3.3.2 Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source; or
 - 3.3.3 Changes the components of emissions monitoring equipment or other components, which have no effect on the quantity of emissions from an emissions unit; or
 - 3.3.4 Allows for the change of ownership or operational control of a source where the APCO determines that no other change is necessary.
- 3.4 Affected Pollutants: those pollutants for which an Ambient Air Quality Standard has been established by the EPA or by the California Air Resources Board, (ARB), and the precursors to such pollutants, and those pollutants regulated by the EPA under the Federal Clean Air Act or by the ARB under the Health and Safety Code including, but not limited to, VOC, NO_x, SO_x, PM_{2.5}, PM₁₀, CO, and those pollutants which the EPA, after due process, or the ARB or the APCO, after public hearing, determine may have a significant adverse effect on the environment, the public health, or the public welfare.
- 3.5 Agricultural Source: equipment or operations that emit air contaminants and that are used in the production of crops or the raising of fowl or animals.
- 3.6 Air Quality Improvement Deduction: a 10 percent discount factor applied to Actual Emission Reductions (AER) before the AER is eligible for banking.

- 3.7 Ambient Air Quality Standards: include State and National Ambient Air Quality Standards. (In the inclusion of this rule in the State Implementation Plan, all references in this rule to Ambient Air Quality Standards shall be interpreted as National Ambient Air Quality Standards.)
- 3.8 Baseline Emissions (BE): for a given pollutant, shall be equal to the sum of:
 - 3.8.1 The pre-project Potential to Emit for:
 - 3.8.1.1 Any emissions unit located at a non-Major Source,
 - 3.8.1.2 Any Highly-Utilized Emissions Unit, located at a Major Source, provided that if the unit has a Specific Limiting Condition (SLC), all units combined under the SLC have an average combined annual Actual Emissions during the two consecutive years immediately prior to filing of an application for an Authority to Construct equal to or greater than 80% of the units' pre-project SLC limit,
 - 3.8.1.3 Any Fully-Offset Emissions Unit, located at a Major Source, provided that if the unit has a SLC, all units under the SLC also qualify as Fully Offset Emissions Units, or
 - 3.8.1.4 Any Clean Emissions Unit, located at a Major Source, provided that if the unit has a SLC, all units under the SLC also qualify as Clean Emissions Units.
 - 3.8.2 The Historic Actual Emissions (HAE) for emissions units not specified in Section 3.8.1.
- 3.9 Baseline Period: a period of time equal to: ~~either~~
 - 3.9.1 The two consecutive years of operation immediately prior to the submission date of the Complete Application; or
 - 3.9.2 At least two consecutive years within the five years immediately prior to the submission date of the Complete Application if determined by the APCO as more representative of normal source operation; or
 - 3.9.3 A shorter period of at least one year if the emissions unit has not been in operation for two years and this represents the full operational history of the emissions unit, including any replacement units; or
 - 3.9.4 Zero years if an emissions unit has been in operation for less than one year (only for use when calculating AER).

- 3.10 Best Available Control Technology (BACT): is the most stringent emission limitation or control technique of the following:
 - 3.10.1 Achieved in practice for such category and class of source;
 - 3.10.2 Contained in any State Implementation Plan approved by the Environmental Protection Agency for such category and class of source. A specific limitation or control technique shall not apply if the owner of the proposed emissions unit demonstrates to the satisfaction of the APCO that such a limitation or control technique is not presently achievable; or
 - 3.10.3 Contained in an applicable federal New Source Performance Standard; or
 - 3.10.4 Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found by the APCO to be cost effective and technologically feasible for such class or category of sources or for a specific source.
- 3.11 Biomass-fired power facility: a facility generating electrical power and fueled exclusively on biomass fuels consisting of at least 90% of one or more of the following constituents: alfalfa, barley, bean straw, corn, oats, wheat, orchard and vineyard pruning, and forest residues. Grape stems, grape pumice, almond and walnut shells, construction wood waste, urban wood waste, and lawn trimmings are not considered biomass fuels.
- 3.12 Cargo Carriers: trains dedicated to a specific Stationary Source and vessel dockside activities as defined in 45 Federal Register 52696 (August 7, 1980) for vessels dedicated to a specific Stationary Source. Motor vehicles, as defined by the Vehicle Code of the State of California, are not considered Cargo Carriers.
- 3.13 Clean Emissions Unit: for a given pollutant, an emissions unit that meets one of the following criteria:
 - 3.13.1 The unit is equipped with an emissions control technology with a minimum control efficiency of at least 95% (or at least 85% for lean-burn, internal combustion engines); or
 - 3.13.2 The unit is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.
- 3.14 Complete Application: an application for an Emission Reduction Credit or an Authority to Construct for a new or modified emissions unit which has been evaluated and found to include all information necessary to determine compliance with applicable rules and requirements.

- 3.15 Contiguous or Adjacent Property: a property consisting of two or more parcels of land with a common point or boundary, or separated solely by a public roadway or other public right-of-way.
- 3.16 Daily Emissions Limitation (DEL): one or more permit conditions which restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. A daily emissions limitation must be:
 - 3.16.1 Contained in the latest Authority to Construct and contained in or enforceable by the latest Permit to Operate for the emissions unit; and
 - 3.16.2 Enforceable, in a practical manner, on a daily basis.
- 3.17 Emissions Unit: an identifiable operation or piece of process equipment such as a source operation which emits, may emit, or results in the emissions of any affected pollutant directly or as fugitive emissions.
- 3.18 Federal Major Modification: same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not federal major modifications if they meet the criteria of one of the following exclusions:
 - 3.18.1 Less-Than-Significant Emissions Increase Exclusion: Except for VOC and NO_x, an emissions increase for the project, or a net emissions increase for the project (as determined pursuant to 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, as defined in 40 CFR 51.165, is not a federal major modification for that pollutant. For VOC and NO_x, an emissions increase for the project (as determined pursuant to 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)) that is not significant, as defined in 40 CFR 51.165, is not a federal major modification for that pollutant.
 - 3.18.1.1 To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
 - 3.18.1.2 To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
 - 3.18.1.3 If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).

- 3.18.1.4 Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in Table 3-1 of this rule.

Table 3-1, Significance Thresholds

POLLUTANT	THRESHOLD (POUNDS PER YEAR)
VOC	0
NO _x	0
PM _{2.5}	20,000 of direct PM _{2.5} emissions or
	80,000 of sulfur dioxide emissions or
	80,000 of nitrogen oxide emissions
PM ₁₀	30,000
SO _x	80,000

- 3.18.2 Plantwide Applicability Limit (PAL) Exclusion: An SB 288 major modification that does not cause facility-wide emissions to exceed a pre-established PAL, as defined in 40 CFR 51.165 (f)(2)(v), for the respective pollutant, is not a federal major modification for that pollutant. PAL exclusions shall not be allowed for either NO_x or VOC pollutants.

- 3.18.2.1 For the purposes of this exclusion, a PAL must be established by a permitting action prior to the SB 288 major modification permitting action.

- 3.18.2.2 All PALs shall be established according to the provisions of 40 CFR 51.165 (f)(1) through (15).

- 3.18.2.3 All PALs shall comply with the requirements under 40 CFR 51.165 (f)(1) through (15) to either maintain, renew or retire the PAL.

- 3.19 Fugitive Emissions: emissions that could not reasonably pass through a vent, chimney, stack, or other functionally equivalent opening. Emissions that are not vented through a stack but can reasonably be captured and vented through a stack are not considered Fugitive. Fugitive emissions shall be included in all calculations, except as provided for in Section 3.24 and as allowed in the applicable 40 CFR Part 51.165.

- 3.20 Fully Offset Emissions Unit: for a given pollutant, an emissions unit for which

- 3.20.1 Offsets have been provided for the unit's full potential to emit; or

- 3.20.2 Offsets have been provided for the entire stationary source's potential to emit in excess of the offset trigger level; or

- 3.20.3 Offsets have previously been provided for the stationary source's NSR balance as calculated pursuant to the NSR rule in effect at the time of the offset action, and the emissions unit was installed after the County baseline date as indicated below:

Table 3-2, County Baseline Dates

COUNTY	BASELINE DATE
San Joaquin County	May 29, 1979
Stanislaus County	June 19, 1979
Merced, Madera, or Kings County	May 21, 1979
Fresno County Oil Fields	September 20, 1983
Fresno County all other sources	January 1, 1977
Tulare County	June 26, 1979
Kern County Heavy Oil Production	September 12, 1979
	June 22, 1987 for heavy oil production operations with negative cumulative net emissions change as of June 22, 1987
Kern County all other sources	December 28, 1976

- 3.21 Heavy Oil: crude oil having an American Petroleum Institute gravity of 20 degrees or less as determined by test method ASTM 287-82.
- 3.22 Highly Utilized Emissions Unit: for a given pollutant, an emissions unit for which the average annual Actual Emissions during the two consecutive years immediately prior to filing of an application for an Authority to Construct were equal to or greater than 80% of the unit's pre-project Potential to Emit. The unit must have been in operation for at least two years and, during that entire period, the unit must have complied with all applicable emission limits and performance standards.
- 3.23 Historical Actual Emissions (HAE): Actual Emissions occurring during the Baseline Period, after discounting for:
- 3.23.1 Any emissions reductions required or encumbered by any laws, rules, regulations, agreements, orders, or permits; and
 - 3.23.2 Any emissions reductions attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, and
 - 3.23.3 Any emissions reductions proposed in the District air quality plan for attaining the annual reductions required by the California Clean Air Act, and

- 3.23.4 Any Actual Emissions in excess of those required or encumbered by any laws, rules, regulations, orders, or permits. For units covered by a Specific Limiting Condition (SLC), the total overall HAE for all units covered by SLC must be discounted for any emissions in excess of that allowed by the SLC.
- 3.24 Major Source: for each pollutant, a Stationary Source with post-project emissions or a post-project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values.
- 3.24.1 For determining major source status, fugitives shall only be included for calculating the air pollutant post-project emissions or SSPE2 if the source is included in the list of source categories identified in the major source definition in 40 CFR Part 70.2, or when determining if a stationary source is a major air toxics source as defined in Rule 2520.

Table 3-3, Major Source Emission Thresholds

POLLUTANT	THRESHOLD (POUNDS PER YEAR)
VOC	20,000
NO _x	20,000
CO	200,000
PM _{2.5}	140,000
PM ₁₀	140,000
SO _x	140,000

- 3.24.2 For the purpose of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. This ERC quantity includes all ERC held as certificates and all emission reduction credits that have been sold or transferred.
- 3.25 Modification:
- 3.25.1 An action including at least one of the following items:
- 3.25.1.1 Any change in hours of operation, production rate, or method of operation of an existing emissions unit, which would necessitate a change in permit conditions.
- 3.25.1.2 Any structural change or addition to an existing emissions unit which would necessitate a change in permit conditions. A Routine Replacement Emissions Unit shall not be considered to be a structural change.

- 3.25.1.3 An increase in emissions from an emissions unit caused by a modification of the Stationary Source when the emissions unit is not subject to a daily emissions limitation.
 - 3.25.1.4 Addition of any new emissions unit which is subject to District permitting requirements.
 - 3.25.1.5 A change in a permit term or condition proposed by an applicant to obtain an exemption from an applicable requirement to which the source would otherwise be subject.
- 3.25.2 A reconstructed Stationary Source shall be treated as a new Stationary Source and not as a modification.
- 3.25.3 Unless previously limited by a permit condition, the following shall not be considered a modification:
 - 3.25.3.1 A change in ownership of an existing emissions unit with valid Permit to Operate provided that the APCO determines that all applicable offset provisions required by the Permit to Operate will be met;
 - 3.25.3.2 A change in ownership of an entire existing Stationary Source with a valid Permit to Operate;
 - 3.25.3.3 A change which consists solely of a transfer of location of an emissions unit within a Stationary Source; or
 - 3.25.3.4 A Routine Replacement Emissions Unit where the replacement part is the same as the original emissions unit in all respects except for the serial number.
- 3.26 Offsets: emission reductions recognized by the APCO in the form of Emission Reduction Credits that are issued in accordance with the provisions of Rule 2301 (Emission Reduction Credit Banking), or other Actual Emissions Reductions that may be used to mitigate an emission increase as part of the same Stationary Source Project in accordance with the provisions of this rule.
- 3.27 Potential to Emit: the maximum capacity of an emissions unit to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including pollution control equipment and restrictions in hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is incorporated into the applicable permit as an enforceable permit condition.

- 3.28 PM2.5: particulate matter with an aerodynamic diameter smaller than or equal to a nominal 2.5 microns, including gaseous emissions which condense to form particulate matter at ambient temperatures.
- 3.29 PM10: particulate matter with an aerodynamic diameter smaller than or equal to a nominal ten microns, as defined in District Rule 1020, Definitions.
- 3.30 Pre-baseline ERCs: Emission Reduction Credits that were banked prior to the baseline year for a given District-adopted and EPA-approved Attainment Plan.
- 3.31 Precursor: a directly emitted air contaminant that, when released into the atmosphere, forms or causes to be formed or contributes to the formation of a secondary air contaminant for which an Ambient Air Quality Standard has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more Ambient Air Quality Standards. The following precursor-secondary air contaminant relationships shall be used for the purposes of this rule:

Table 3-4, Precursors

PRECURSOR	SECONDARY AIR CONTAMINANT
Volatile Organic Compounds	a. Photochemical oxidants (Ozone) b. The organic fraction of PM10
Nitrogen Oxides	a. Nitrogen dioxide b. The nitrate fraction of PM2.5 c. The nitrate fraction of PM10 d. Photochemical oxidants (Ozone)
Sulfur Oxides	a. Sulfur dioxide b. Sulfates c. The sulfate fraction of PM2.5 d. The sulfate fraction of PM10

- 3.32 Quarter: for a non-Seasonal Source, this is defined as a calendar quarter. For a Seasonal Source, a quarter is defined as the entire operating season.
- 3.33 Reasonable Further Progress: as defined by the federal Clean Air Act, Section 182(c)(2)(b).
- 3.34 Reconstructed Source: any Stationary Source undergoing reconstruction where the fixed capital cost of the new components exceeds 50% of the fixed capital cost of a comparable, entirely new Stationary Source. Fixed capital cost is the capital needed to provide depreciable components. Reconstructed Source cost shall include only the cost of all emission-producing equipment and associated integral activities at the stationary source. A reconstructed Stationary Source shall be considered a new Stationary Source and not as a modification of an existing Stationary Source.

- 3.35 Routine Replacement Emissions Unit: routine replacement in whole or in part of any article, machine, equipment, or other contrivance with a valid District Permit to Operate provided that all of the following conditions are met:
- 3.35.1 There is no increase in permitted emissions from the replacement unit(s). For replacements at major sources, “no increase in permitted emissions” as used in this definition also means no significant emissions increase according to the applicability calculations of 40 CFR 51.165(a)(2)(ii)(C). For the purposes of this definition, a Routine Replacement Emissions Unit is an existing emissions unit.
 - 3.35.2 There is no increase in design capacity, unless an old part is no longer available in which case the replacement can result in a design capacity increase of up to 10%. No change to the permitted throughput or emission limits is authorized due to a change in design capacity as part of a replacement. Such changes shall require application for permit modification.
 - 3.35.2.1 Permitted throughputs are throughput limits upon which emission calculations are, or could be, based.
 - 3.35.2.2 If there are no throughput limiting conditions, permitted throughput shall be a throughput rate which affects emissions.
 - 3.35.3 The replacement equipment performs the same function as the equipment being replaced.
 - 3.35.4 The replacement does not constitute a Reconstructed Source (as defined by this rule) or Reconstruction (as defined by any applicable New Source Performance Standard). Reconstructed Source cost shall include only the cost of all emission-producing equipment and associated integral activities at the stationary source.
 - 3.35.5 When the entire emissions unit is replaced as a routine replacement action, the emissions unit shall either have been addressed by a BARCT rule or shall be equipped with a control device capable of at least 85% emission control.
- 3.36 SB 288 Major Modification: as defined in 40 CFR Part 51.165 (as in effect on December 19, 2002) and part D of Title I of the CAA (as in effect on December 19, 2002). For the purposes of this definition, the SB 288 major modification thresholds for existing major sources are listed as follows:

Table 3-5, SB 288 Major Modification Thresholds

POLLUTANT	THRESHOLD (POUNDS PER YEAR)
VOC	50,000
NO _x	50,000
PM ₁₀	30,000
SO _x	80,000

- 3.37 Seasonal Source: any Stationary Source with more than 90% of its annual emissions occurring within a consecutive 120-day period.
- 3.38 Specific Limiting Condition (SLC): permit terms or conditions, which can be enforced in a practical manner, contained in Authorities to Construct and Permits to Operate and established pursuant to New Source Review provisions that restrict the total overall permitted emissions from two or more emissions units.
- 3.39 Stationary Source: any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which:
- 3.39.1 Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and
 - 3.39.2 Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and
 - 3.39.3 Are located on one or more contiguous or adjacent properties; or
 - 3.39.4 Are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Fields or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil production, heavy oil production, and gas production shall constitute separate Stationary Sources.
- 3.40 Stationary Source Project: a single permitting action involving the modification, addition or shutdown of one or more emissions units. If any increase in emissions from a new or modified emissions unit is permitted based on emission reductions from one or more emissions units included in the stationary source project, the following condition must also be met:
- 3.40.1 The modification or shutdown resulting in the necessary emission reductions shall occur not later than the date of initial operation of the new

or modified emissions unit. If the new or modified emissions unit is, in whole or in part, a replacement for an existing emissions unit at the same stationary source, the APCO may allow a maximum of 90 days as a start up period for simultaneous operation of the existing emissions unit and the unit being replaced.

3.41 Temporary Replacement Emissions Unit (TREU): an emissions unit which is at a Stationary Source for less than 180 days in any twelve month period and replaces an existing emissions unit, with a valid District Permit to Operate, which is shut down for maintenance or repair.

3.41.1 The Potential to Emit from a TREU must not exceed the Potential to Emit from the existing emissions unit.

3.41.2 If a TREU is used to replace a TREU, the combined time at the Stationary Source for the two TREU shall not exceed a total of 180 days in any twelve-month period.

3.41.3 An emissions unit not removed from the Stationary Source within 180 days is not a TREU.

4.0 Source Requirements

4.1 Best Available Control Technology (BACT): BACT requirements shall be triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless exempted pursuant to Section 4.2, BACT shall be required for the following actions:

4.1.1 Any new emissions unit or relocation from one Stationary Source to another of an existing emissions unit with a Potential to Emit exceeding 2.0 pounds in any one day;

4.1.2 Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding 2.0 pounds in any one day;

4.1.3 Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined in this rule.

4.2 BACT Exemptions: BACT shall not be required for the following:

4.2.1 CO emissions from a new or modified emissions unit at a Stationary Source with a post project Stationary Source Potential to Emit (SSPE2) of less than 200,000 pounds CO per year;

- 4.2.2 Cargo Carriers;
- 4.2.3 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from Best Available Control Technology for all air pollutants, provided all of the following conditions are met:
 - 4.2.3.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
 - 4.2.3.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;
 - 4.2.3.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
 - 4.2.3.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons per year of CO.
 - 4.2.3.5 The project shall not constitute a federal major modification.
- 4.2.4 New emissions unit or modification of an existing emissions unit for voluntary reduction in emissions, for the sole purpose of generating emission reduction credits. This exemption applies only to the pollutant for which emission reduction credits are obtained. BACT may be required for other affected pollutants;
- 4.2.5 A Temporary Replacement Emissions Units;
- 4.2.6 A Routine Replacement Emissions Units; or
- 4.2.7 Transfer of location of emissions units within the same stationary source.
- 4.3 Adjusted Increase in Permitted Emissions (AIPE) Calculations: Adjusted Increase in Permitted Emissions shall be calculated as:

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where:

AIPE = Adjusted Increase in Permitted Emissions, pounds per day

PE2 = the emissions units post project Potential to Emit, pounds per day

HAPE = the emissions unit's Historically Adjusted Potential to Emit, pounds per day

- 4.4 Historically Adjusted Potential to Emit (HAPE) Calculations: Historically Adjusted Potential to Emit shall be calculated as

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

Where:

PE1 = The emissions unit's Potential to Emit prior to modification or relocation

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

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

- 4.5 Emission Offset Requirements:

4.5.1 If emission offset requirements are triggered pursuant to Section 4.5.3, emission offsets shall be provided for net emissions increases resulting from a project. Offset quantities shall be calculated pursuant to Section 4.7.

4.5.2 For Stationary Sources with a quarterly Potential to Emit which remain constant throughout the year, the amount shall be calculated in pounds per year. For Stationary Sources with quarterly Potential to Emit that is not constant throughout the year, and for Seasonal Sources the amount shall be calculated in pounds per quarter.

4.5.3 Offset requirements shall be triggered on a pollutant-by-pollutant basis. Unless exempted pursuant to Section 4.6, offsets shall be required if the post-project Stationary Source Potential to Emit (SSPE2) equals or exceeds the following offset threshold levels:

Table 4-1, Emissions Offset Threshold Levels

POLLUTANT	SSPE2 (POUNDS /YEAR)
VOC	20,000
NO _x	20,000
CO	200,000
SO _x	54,750
PM ₁₀	29,200

4.5.4 Offsets shall be required for PM_{2.5} and PM_{2.5} precursor emission increases for such increases that constitute new major sources or federal major modifications.

- 4.6 Emission Offset Exemptions: Emission offsets shall not be required for the following:
- 4.6.1 Increases in carbon monoxide in attainment areas if the applicant demonstrates to the satisfaction of the APCO, that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards;
 - 4.6.2 Emergency equipment that is used exclusively as emergency standby equipment for electric power generation or any other emergency equipment as approved by the APCO that does not operate more than 200 hours per year for non-emergency purposes and is not used pursuant to voluntary arrangements with a power supplier to curtail power. Equipment exempted by this section shall maintain a written record of hours of operation and shall have permit conditions limiting non-emergency operation;
 - 4.6.3 Portable equipment which is registered as such in accordance with the provisions of Rule 2280 (Portable Equipment Registration) or the Statewide Portable Equipment Registration Program (California Code of Regulation Title 13, Article 5, Sections 2450-2465), or equipment registered in accordance with the provisions of Rule 2250 (Permit-Exempt Equipment Registration);
 - 4.6.4 On-site soil or groundwater decontamination performed by, under the jurisdiction of, or pursuant to the requirements of an authorized health officer, agricultural commissioner, fire protection officer, or other authorized government officers, provided emissions do not exceed 4,000 pounds per year of any affected pollutant from all emissions units associated with decontamination project;
 - 4.6.5 A Temporary Replacement Emissions Units.
 - 4.6.6 A transfer of location of an entire Stationary Source within the District, under the same owner and provided:
 - 4.6.6.1 The Potential to Emit of any affected pollutant will not be greater at the new location than at the previous location when all emissions units are operated at the same permitted conditions; and
 - 4.6.6.2 BACT is applied to all emissions units with a Potential to Emit exceeding 2.0 pounds per day; and
 - 4.6.6.3 The transferred Stationary Source is not added to an existing Stationary Source.

- 4.6.7 A transfer of location of an emissions unit from one Stationary Source to another within the District, under the same owner and provided:
 - 4.6.7.1 The Potential to Emit of any affected pollutant will not be greater at the new location than at the previous location when all emissions units are operated at the same permitted conditions, and
 - 4.6.7.2 The offsets that would be otherwise required for the unit at the new location have been provided for the emissions unit previously.
- 4.6.8 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from offset requirements for all air pollutants provided all of the following conditions are met:
 - 4.6.8.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
 - 4.6.8.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;
 - 4.6.8.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
 - 4.6.8.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons per year of CO.
- 4.6.9 Agricultural Sources, for criteria pollutants for that source if emissions reductions from that source would not meet the criteria for real, permanent, quantifiable, and enforceable emission reductions.
 - 4.6.9.1 In no case shall the offset exemption in Section 4.6.9 apply to an agricultural source that is also a major stationary source for the pollutant for which the offset exemption is sought.

4.7 Emission Offset Quantity Calculations:

4.7.1 For pollutants with a pre-project Stationary Source Potential to Emit (SSPE1) greater than the emission offset threshold levels, emission offsets shall be provided for:

4.7.1.1 All increases in Stationary Source emissions, calculated as the sum of differences between the post-project Potential to Emit (PE2) and the Baseline Emissions (BE) of all new and modified emissions units, plus

4.7.1.2 All increases in Cargo Carrier emissions.

4.7.2 For pollutants with a pre-project Stationary Source Potential to Emit (SSPE1) less than or equal to the offset threshold levels, emission offsets shall be provided for:

4.7.2.1 All increases in Stationary Source emissions above the offset trigger levels, calculated as the difference between the SSPE2 and the offset trigger level, plus

4.7.2.2 All increases in Cargo Carrier emissions.

4.7.3 The quantity of offsets calculated pursuant to Sections 4.7.1 and 4.7.2 shall be multiplied by the appropriate Distance Offset Ratio to determine the final quantity of offsets required.

4.7.4 PM10 Emissions: In determining the quantity of required PM10 offsets, the Total Suspended Particulate Matter (TSP) emissions for which full offsets have been previously provided shall not be recalculated as PM10.

4.8 Distance Offset Ratio: For offset calculations, the distance offset ratio shall be as shown below:

4.8.1 For NO_x and VOC offsets for new major sources and federal major modifications, the distance offset ratio shall be 1.5;

4.8.2 For PM_{2.5} and PM_{2.5} precursor offsets for new major sources and federal major modifications, the offset ratio shall be 1.0;

4.8.3 The requirements of Section 4.8.1 shall not apply if the District demonstrates to the satisfaction of the federal Environmental Protection Agency that all major sources of NO_x and VOC in the District are equipped with federal BACT, as defined in CAA Section 169(3). After EPA approval of such a demonstration, the standard distance offset ratios listed in Table 4-2 shall apply for new major sources and federal major modifications,

except that where the original location of the offsets is at the same stationary source as the new or modified emissions unit, the distance offset ratio shall be 1.2.

- 4.8.4 For all other projects not specified above, the standard distance offset ratio shall be as shown in Table 4-2:

Table 4-2, Standard Distance Offset Ratio

ORIGINAL LOCATION OF EMISSION OFFSETS	OFFSET RATIO
at the same Stationary Source as the new or modified emissions unit	1.0
within 15 miles of the new or modified emissions unit's Stationary Source	1.2 for Non-Major Sources 1.3 for Major Sources
15 miles or more from the new or modified emissions unit's Stationary Source	1.5

- 4.9 Pre-project Stationary Source Potential to Emit (SSPE1) shall be calculated, on a pollutant-by-pollutant basis, as the sum of the following:

- 4.9.1 The Potential to Emit from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source.

4.9.1.1 For a unit with both a valid ATC and a PTO or a unit with multiple valid ATC, use the ATC or PTO with the highest potential emissions.

4.9.1.2 For units subject to an SLC, the Potential to Emit shall be based on the overall Potential to Emit limit for all units covered by the SLC and not the sum of the individual Potential to Emit of each emissions unit.

- 4.9.2 The quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. This quantity includes all ERC held as certificates and all emission reduction credits that have been sold or transferred. Reductions shall be added to the SSPE1 as positive values.

- 4.10 Post-project Stationary Source Potential to Emit (SSPE2) shall be calculated, on a pollutant-by-pollutant basis, as the sum of the following:

- 4.10.1 The Potential to Emit from all units with valid Authorities to Construct or Permits to Operate at the Stationary Source, except for emissions units proposed to be shut down as part of a Stationary Source Project.

- 4.10.1.1 The Potential to Emit of the post-project Authority to Construct will be used for new or modified units, provided that the ATC will include new conditions canceling the existing ATC or PTO for those units, otherwise use the ATC or PTO with the highest potential emissions.
 - 4.10.1.2 For units subject to an SLC, the Potential to Emit shall be based on the overall Potential to Emit limit for all units covered by the SLC and not the sum of the individual Potential to Emit of each emissions unit.
- 4.10.2 The quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. This quantity includes all ERC held as certificates and all emission reduction credits that have been sold or transferred. Reductions shall be added to the SSPE2 as positive values.
- 4.11 Calculations involving PM10 emissions
 - 4.11.1 For existing Stationary Sources for which particulate matter emissions have been calculated as Total Suspended Particulate (TSP), the PM10 emissions shall be recalculated from TSP values using PM10 emission factors or speciation data.
 - 4.11.2 In the absence of PM10 emissions factors or speciation data, assume 50% of the total suspended particulates is PM10.
 - 4.11.3 If the applicant has previously provided full offsets for total suspended particulate matter emissions, those total suspended particulate matter emissions need not be recalculated as PM10, for the purpose of determining the quantity of offsets.
- 4.12 Actual Emissions Reductions (AER) Calculations: Actual Emissions Reductions shall be calculated, on a pollutant-by-pollutant basis, as follows:

$$\text{AER} = \text{HAE} - \text{PE2}$$

Where:

HAE = Historic Actual Emissions

PE2 = Post-project Potential to Emit

- 4.12.1 Prior to banking, AER shall be discounted by 10 percent (10%) for Air Quality Improvement Deduction, and shall comply with all applicable provisions of Rule 2301 (Emission Reduction Credit Banking).

- 4.13 Additional Offset Requirements: Offsets obtained subject to this rule shall comply with the following provisions:
 - 4.13.1 Major Source shutdowns or permanent curtailments in production or operating hours of a Major Source may not be used as offsets for emissions from a Major Source, a Federal Major Modification, or an SB 288 Major Modification, unless the ERC, or the emissions from which the ERC are derived, has been included in an EPA-approved attainment plan.
 - 4.13.2 Offsets from another district may be used only if the source of the offsets is within 50 miles of the proposed emissions increases and the APCO has reviewed the permit conditions issued by the district in which the proposed offsets are obtained and certifies that such offsets meet the requirements of this rule and CH&SC Section 40709.6.
 - 4.13.3 Interpollutant offsets:
 - 4.13.3.1 Interpollutant offsets may be approved by the APCO on a case-by-case basis, provided that the applicant demonstrates to the satisfaction of the APCO, that the emission increases from the new or modified source will not cause or contribute to a violation of an Ambient Air Quality Standard. In such cases, the APCO shall, based on an air quality analysis, impose offset ratios equal to or greater than the requirements of this rule.
 - 4.13.3.1.1 In no case shall exempt compounds or the other compounds excluded from the definition of VOC be used as offsets for VOC.
 - 4.13.3.1.2 Interpollutant offsets between PM₁₀ and PM₁₀ precursors may be allowed.
 - 4.13.3.1.3 PM₁₀ emissions shall not be allowed to offset NO_x or reactive organic compound emissions in ozone nonattainment areas, nor be allowed to offset SO₂ emissions in sulfate nonattainment areas.
 - 4.13.3.1.4 Interpollutant offsets between NO_x and VOC may be allowed.
 - 4.13.3.2 Interpollutant offsets between PM_{2.5} and PM_{2.5} precursors are allowed at specific ratios as established by US EPA, or as approved into the State Implementation Plan by the US EPA.

- 4.13.4 Actual Emissions Reductions (AER) used as offsets must have occurred during the same calendar quarter as the emissions increases being offset except as allowed pursuant to Sections 4.13.6 through 4.13.9.
- 4.13.5 AER used as offsets for a Seasonal Source must have occurred during the same time period as the proposed source will operate except as allowed pursuant to Sections 4.13.6 through 4.13.9.
- 4.13.6 AER used as offsets for a biomass-fired power facility may have occurred during any quarter.
- 4.13.7 AER for PM that occurred from October through March, inclusive, may be used to offset increases in PM during any period of the year.
- 4.13.8 AER for NO_x and VOC that occurred from April through November may be used to offset increases in NO_x and VOC during any period of the year.
- 4.13.9 AER for CO that occurred from November through February may be used to offset increases in CO during any period of the year.
- 4.13.10 AER used as offsets for new and modified Major Sources must be obtained from an area:
 - 4.13.10.1 That has a nonattainment classification that is equal to or higher than the area in which the new or modified Major Source is located, and
 - 4.13.10.2 Where emissions contribute to a violation of a national Ambient Air Quality Standard in the area in which the new or modified Major Source is located.
- 4.13.11 Offsets required as a condition of an Authority to Construct or a Permit to Operate shall commence not later than the date of initial operation of the new or modified emissions unit.
 - 4.13.11.1 If the new or modified emissions unit is, in whole or in part, a replacement for an existing emissions unit at the same stationary source, the APCO may allow a maximum of 90 days as a start-up period for simultaneous operation of the existing emissions unit and the unit being replaced.
- 4.13.12 Nothing in this rule shall be construed as requiring ERC used as NSR offsets to be discounted at time of use, except for the additional offsets as required by Sections 4.8, 4.13.3, and as described in Section 7.0.

4.14 Ambient Air Quality Standards:

4.14.1 Emissions from a new or modified Stationary Source shall not cause or make worse the violation of an Ambient Air Quality Standard. In making this determination, the APCO shall take into account the increases in minor and secondary source emissions as well as the mitigation of emissions through offsets obtained pursuant to this rule. Modeling used for the purposes of this rule shall be consistent with the requirements contained in the most recent edition of EPA's "Guideline on Air Quality Models" unless the APCO finds such model is inappropriate for use. After making such a finding, the APCO may designate an alternative model only after allowing for public comments and only with the concurrence of the ARB or the EPA.

4.14.1.1 At the discretion of the APCO, a new or modified source which is not subject to the public noticing requirements of Section 5.4 shall be exempted from the requirements of Section 4.14.1.

4.15 Additional Requirements for new Major Sources and Federal Major Modifications

4.15.1 Alternative siting: For those sources for which an analysis of alternative sites, sizes, and production processes is required under Section 173 of the Federal Clean Air Act, the applicant shall prepare an analysis functionally equivalent to the requirements of Division 13, Section 21000 et. seq. of the Public Resources Code.

4.15.2 Compliance by Other Owned, Operated, or Controlled Source: The owner of a proposed new Major Source or federal major modification shall demonstrate to the satisfaction of the APCO that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California which are subject to emission limitations are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

5.0 Administrative Requirements

The administrative requirements of Sections 5.1 through 5.7, inclusive, shall be applied to all applications for a new or modified emissions unit except for power plants proposed to be constructed in the District and for which a Notice of Intention (NOI) or Application for Certification (AFC) has been accepted by the California Energy Commission. For such power plants, the administrative requirements of Section 5.8 shall apply.

- 5.1 Complete Application: The APCO shall determine whether the application is complete not later than 30 days after receipt of the application, or after such longer time as both the applicant and the APCO may agree.
 - 5.1.1 If the APCO determines that the application is not complete, the applicant shall be notified in writing of the decision specifying the information required. Upon receipt of any resubmittal of the application, a new 30-day period to determine completeness shall begin.
 - 5.1.2 Completeness of an application or resubmitted application shall be evaluated on the basis of the information requirements set forth in the District Rules and Regulations as they exist on the date on which the application or resubmitted application is received.
 - 5.1.3 Upon determination that the application is complete, the APCO shall notify the applicant in writing.
 - 5.1.4 The APCO may, during the processing of the application, request an applicant to clarify, amplify, correct, or otherwise supplement the information submitted in the application.
- 5.2 Preliminary Decision: Following acceptance of an application as complete, the APCO shall perform the evaluations required to determine compliance with this rule and make a preliminary written decision as to whether an Authority to Construct should be approved, conditionally approved, or disapproved.
 - 5.2.1 The APCO shall deny any Authority to Construct if the APCO finds that the subject of the application would not comply with the standards set forth in this rule or any other District rule.
 - 5.2.2 The decision shall be supported by a succinct, written analysis.
- 5.3 Final Action: Within 180 days after acceptance of an application as complete, or within 180 days after the lead agency has approved the project under the California Environmental Quality Act, whichever occurs later, the APCO shall take final action on the application after considering all written comments.
- 5.4 Public Notification and Publication Requirements: The APCO shall provide public notification and publication for the following types of applications:
 - 5.4.1 New Major Sources, Federal Major Modifications, and SB 288 Major Modifications.
 - 5.4.2 Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one affected pollutant;

- 5.4.3 Modifications that increase the Stationary Source Potential to Emit (SSPE1) from a level below the emissions offset threshold level to a level exceeding the emissions offset threshold level for one or more pollutants;
 - 5.4.4 New Stationary Sources with post-project Stationary Source Potential to Emit (SSPE2) exceeding the emissions offset threshold level for one or more pollutants;
 - 5.4.5 Any permitting action resulting in a Stationary Source Project Increase in Permitted Emissions (SSIPE) exceeding 20,000 pounds per year for any one pollutant.
- 5.5 Public Notification and Publication Actions: For the types of applications listed in Section 5.4, the APCO shall perform the following actions:
- 5.5.1 Within ten (10) calendar days following the preliminary decision the APCO shall electronically publish in at least one newspaper of general circulation in the District a notice on the District's website, including a copy of the draft permit, stating the preliminary decision, noting how pertinent information can be obtained, and inviting written public comment for a 30 day period following the date of publication.
 - 5.5.2 No later than the date of publication, the APCO shall transmit to the applicant its preliminary written decision, the analysis, and a copy of the notice submitted for publication.
 - 5.5.3 No later than the date of publication, the APCO shall transmit to the ARB and to any person who requests such information, its preliminary written decision, the analysis, and a copy of the notice submitted for publication. For new Major Sources, Federal Major Modifications, and SB 288 Major Modifications, the APCO shall also transmit the preliminary written decision and supporting documents to the EPA.
 - 5.5.4 No later than the time the notice of the preliminary decision is published, the APCO shall make available for public inspection at the District office the information submitted by the applicant and the analysis.
 - 5.5.5 The APCO shall provide written notice of the final action to the applicant, and the ARB, and shall electronically publish such notice on the District's website~~in a newspaper of general circulation~~, except that for an application not subject to Section 5.4, the APCO shall not be subject to this section. In such a case, the applicant shall receive notification as provided in Rule 2040 (Applications). For new Major Sources, Federal Major Modifications, and SB 288 Major Modifications, the APCO shall also transmit written notice of the final action to the EPA.

- 5.5.6 No later than the time of notice of final action is published on the District's website, the APCO shall make available for public inspection at ~~the District offices~~ a copy of the notice submitted for publication and all supporting documents.

5.6 Authority to Construct (ATC) - General Conditions

- 5.6.1 An ATC shall not be issued unless the new or modified source complies with the provisions of this rule and all other applicable District Rules and Regulations.
- 5.6.2 An ATC shall require that the new or modified source be built according to the specifications and plans contained in the application.
- 5.6.3 An ATC shall include all those conditions which the APCO deems necessary to assure construction and operation in the manner assumed in making the analysis to determine compliance with this rule.
- 5.6.4 An ATC shall include all those conditions relating to the satisfaction of the offset requirements of this rule.
- 5.6.5 An ATC issued for an emissions unit that relies on reduction in emissions from other units included in the Stationary Source Project, must include a condition that requires initiating and completing construction on those units that provide the reduction prior to commencing operation of the unit with increase in emissions.
 - 5.6.5.1 If the new or modified emissions unit is, in whole or in part, a replacement for an existing emissions unit at the same stationary source, the APCO may allow a maximum of 90 days as a start-up period for simultaneous operation of the existing emissions unit and the unit being replaced.

5.7 Permit to Operate (PTO) - General Conditions

- 5.7.1 A PTO shall require that the new source or modification be operated in the manner assumed in making the analysis to determine compliance with this rule and as conditioned in the Authority to Construct.
- 5.7.2 A PTO shall include daily emissions limitations and other enforceable conditions which reflect applicable emission limits including the offset requirements.
- 5.7.3 The APCO shall determine if the applicant has complied with all the conditions in the ATC. The APCO may allow conditions which have not been met at the time the PTO is issued to be incorporated into the Permit to

Operate, provided that compliance with that condition is demonstrated by a specified date.

5.7.4 Any source which provides offsets shall be subject to enforceable permit conditions containing specific operational and emissions limitations, which ensure that the emissions reductions will be provided in accordance with the provisions of this rule and shall continue for the reasonably expected life of the proposed source. Where the source of offsets is not subject to a permit, a written contract shall be required between the applicant and the owner of such source, which contract, by its terms, shall be enforceable by the APCO. The permit and contract shall be submitted to the ARB to be forwarded to the EPA as part of the State Implementation Plan. A violation of the emission limitation provisions of any such contract shall be chargeable to the applicant.

5.7.5 Offsets required as a condition of an ATC or a PTO shall commence not later than the date of initial operation of the new or modified source,

5.7.5.1 If a new or modified Stationary Source is, in whole or in part, a replacement for an existing Stationary Source on the same or contiguous property the APCO may allow a maximum of 90 days as a start-up period for simultaneous operation of the existing Stationary Source and the new or replacement source.

5.8 Power plants which will be licensed by the California Energy Commission: The administrative requirements of this section shall be applied to all power plants proposed to be constructed in the District and for which a Notice of Intention (NOI) or Application for Certification (AFC) has been accepted by the California Energy Commission. The APCO may apply for reimbursement of all costs incurred, including lost fees, in order to comply with the provisions of this section.

5.8.1 Intent to Participate and Preliminary Report: Within 14 days of receipt of a NOI, the APCO shall notify the ARB and the California Energy Commission of the APCO's intent to participate in the NOI proceeding. If the APCO chooses to participate in the NOI proceeding, the APCO shall prepare and submit a report to the ARB and the California Energy Commission prior to the conclusion of the nonadjudicatory hearings specified in Section 25509.5 of the Public Resources Code. The report shall include at least:

5.8.1.1 A preliminary specific definition of BACT for the proposed facility.

5.8.1.2 A preliminary discussion of whether there is substantial likelihood that the requirements of this rule and all other District rules can be satisfied by the proposed facility.

- 5.8.1.3 A preliminary list of conditions which the proposed facility must meet in order to comply with this rule or any other applicable District rules. The preliminary determinations contained in the report shall be as specific as possible within the constraints of the information contained in the NOI.
- 5.8.2 Equivalency of Application for Certification to Application for Authority to Construct: The APCO shall consider an Application for Certification (AFC) to be equivalent to an application for an Authority to Construct, and subject, as such, to all definitions and requirements of this rule.
- 5.8.3 Upon receipt of an AFC for a power plant, the APCO shall conduct a Determination of Compliance review. This review shall determine whether an AFC is complete, and within 20 calendar days of receipt of the AFC, the APCO shall so inform the California Energy Commission and the applicant in writing.
 - 5.8.3.1 If the APCO determines that the application is not complete, the information required shall be specified, and the AFC shall be returned to the applicant for resubmittal. Upon receipt of any resubmittal of the application, a new 20 day period to determine completeness shall begin.
 - 5.8.3.2 Completeness of an application or resubmitted application shall be evaluated on the basis of the information requirements set forth in District Rules and Regulations as they exist on the date on which the application or resubmitted application is received.
- 5.8.4 The APCO may request from the applicant any information necessary for the completion of the Determination of Compliance review. If the APCO is unable to obtain the information, the APCO may petition the presiding Commissioner of the California Energy Commission for an order directing the applicant to supply such information.
- 5.8.5 Within 180 days of accepting an AFC as complete, the APCO shall make a preliminary written decision as to whether a Determination of Compliance Certification should be approved, conditionally approved, or disapproved. The APCO shall deny any Determination of Compliance Certification if the APCO finds that the subject of the application would not comply with the standards set forth in this rule or any other District rule. The decision shall be supported by a succinct, written analysis.
- 5.8.6 Notification and Publication actions shall be conducted according to the requirements of Section 5.5.

5.8.7 Within 240 days after acceptance of an application as complete, the APCO, after considering all written comments, shall take final action on the application, which action shall consist of the following:

5.8.7.1 The APCO, if all requirements of this rule are met, shall issue and submit to the California Energy Commission a Determination of Compliance, or advise the Commission that a Determination of Compliance cannot be issued.

5.8.7.2 Public inspection of final action documents shall be provided for in accordance with Section 5.5.6.

5.8.8 Equivalency of Determination of Compliance to Authority to Construct: A Determination of Compliance shall confer the same rights and privileges as an Authority to Construct provided that the California Energy Commission approves the Application for Certification and the certificate granted by the Commission includes all conditions of the Determination of Compliance.

5.8.9 The APCO shall issue a Permit to Operate to any applicant receiving a certificate from the California Energy Commission pursuant to this rule provided that the construction or modification is in compliance with all conditions of the certificate and of the Determination of Compliance, and provided that the Permit to Operate includes the conditions prescribed in Section 5.7.

5.9 Enhanced Administrative Requirements

Application for a certificate of conformity with the procedural requirements of 40 CFR Part 70 shall be subject to the following enhanced administrative requirements in addition to any other applicable administrative requirements of Section 5.0:

5.9.1 New Sources and Significant Permit Modifications

5.9.1.1 Public Notification: The APCO shall provide a written notice of the proposed permit and, upon request, copies of the APCO analysis to interested parties. Interested parties shall include affected states, ARB and persons who have requested in writing to be notified. The notice shall also be given by electronic publication on the District's website~~publication in a newspaper of general circulation in the District~~ and by any other means if necessary to assure adequate notice to the affected public. The public shall be given 30 days from the date of publication to submit written comments on the APCO's proposed action.

5.9.1.2 The notice shall provide the following information:

5.9.1.2.1 The identification of the source, the name and address of the permit holder, the activities and emissions change involved in the permit action;

5.9.1.2.2 The name and address of the APCO, the name and telephone number of District staff to contact for additional information;

5.9.1.2.3 The availability, upon request, of a statement that sets forth the legal and factual basis for the proposed permit conditions;

5.9.1.2.4 The location where the public may inspect the Complete Application, the APCO's analysis, the proposed permit, and all relevant supporting materials;

5.9.1.2.5 A statement that the public may submit written comments regarding the proposed decision within at least 30 days from the date of publication and a brief description of commenting procedures; and

5.9.1.2.6 A statement that members of the public may request the APCO or his designee to preside over a public hearing for the purpose of receiving oral public comment, if a hearing has not already been scheduled. The APCO shall provide notice of any public hearing scheduled to address the proposed decision at least 30 days prior to such hearing.

5.9.1.3 The APCO shall provide written response to persons or agencies that submitted written comments which are postmarked by the close of the public notice and comment period. All written comments and responses to such comments shall be kept on file at the District office and made available upon request.

5.9.1.4 A copy of the Complete Application, the APCO's analysis and the proposed permit shall be made available at District offices for public review and comment during normal business hours. The APCO's analysis shall include a statement that sets forth the legal and factual basis for the proposed permit conditions, including references to the applicable statutory and regulatory provisions.

- 5.9.1.5 The APCO shall provide written notice to the EPA of the proposed decision along with copies of the proposed permit, the APCO's analysis, the public notice submitted for publication, and all necessary supporting information.
- 5.9.1.6 If the EPA does not object pursuant to Section 5.9.1.9, the APCO shall issue the final permit.
- 5.9.1.7 If the EPA does not object in writing to the APCO's preliminary decision during the EPA's 45 day review period, any person may petition the EPA within 60 days after the expiration of the EPA's 45 day review period. Any such petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates to the EPA that it was impracticable to raise such objections within such period, or unless grounds for such objections arose after such period. Petitions shall be based on the compliance of the permit provisions with applicable requirements.
- 5.9.1.8 Within 180 days after acceptance of an application as complete, or within 180 days after the lead agency has approved the project under the California Environmental Quality Act, whichever occurs later, the APCO shall take final action on the application after considering all written comments.
- 5.9.1.9 The APCO shall not issue a permit if the EPA objects to its issuance in writing within 45 days of receipt of the APCO's notice of preliminary decision on the proposed permit.
 - 5.9.1.9.1 Any EPA objection shall include a statement of the EPA's reasons for objection and a description of the terms and conditions that the permit must include to respond to the objections. The EPA shall provide the permit applicant a copy of the objection.
 - 5.9.1.9.2 If the APCO fails, within 90 days after the date of EPA's objection, or within 180 days from the date the application was deemed complete plus any extension allowed by the state law, whichever is sooner, to revise and submit a proposed permit in response to the objection, the APCO shall not issue a certification on conformity to Title V.
 - 5.9.1.9.3 If the EPA objects to the permit as a result of a public petition, the APCO shall not issue the permit until

EPA's objection has been resolved, except that a petition for review does not stay the effectiveness of a permit or its requirements if the permit was issued after the end of the 45-day review period and prior to an EPA objection. If the APCO has issued a permit prior to receipt of an EPA objection, the EPA will modify, terminate, or revoke such permit, and shall do so consistent with procedures in Section 70.7(g)(4) or (5)(i) and (ii) of the 40 CFR regulations, and the APCO may thereafter reissue only a revised permit that satisfies EPA objection.

- 5.9.1.9.4 EPA objection shall be limited to compliance with applicable requirements and the requirements of 40 CFR Part 70.

5.9.2 Minor Permit Modifications

- 5.9.2.1 Within 5 working days after the receipt of a Complete Application for a minor permit modification, the APCO shall provide notification of the proposed permit modification to the EPA, affected states, and interested parties pursuant to Section 5.9.1.1.
- 5.9.2.2 The APCO shall not issue a final permit modification until after a 45-day period review of the proposed permit modification by EPA or until EPA has notified the APCO that EPA will not object to issuance of the permit modification, whichever is first.
- 5.9.2.3 Within 90 days after APCO's receipt of an application for a minor permit modification or 15 days after the end of the EPA's 45-day review, whichever is later, the APCO shall do one of the following:
 - 5.9.2.3.1 Issue the permit as proposed;
 - 5.9.2.3.2 Deny the permit modification application;
 - 5.9.2.3.3 Determine that the requested modification does not meet the minor permit modification criteria and should be reviewed pursuant to the administrative requirements for significant permit modifications; or
 - 5.9.2.3.4 Revise the draft permit modification and transmit the new proposed permit modification to EPA and the affected states.

6.0 Certification of Conformity

A new or modified source subject to the requirements of Rule 2520 may choose to apply for a certificate of conformity with the procedural requirements of 40 CFR Part 70. A certification of conformity will allow changes authorized by the Authority to Construct to be incorporated into the Part 70 permit as administrative permit amendments.

- 6.1 The APCO will issue a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8, and with the compliance requirements of 40 CFR 70.6(8)(c), if the following conditions are met:
 - 6.1.1 The Authority to Construct is issued in conformance with the Enhanced Administrative Requirements of this rule;
 - 6.1.2 The content of the Authority to Construct issued by the APCO complies with the requirements set forth in Section 9.0 of District Rule 2520 (Federally Mandated Operating Permits);
 - 6.1.3 An application for a certificate of conformity with the requirements of 40 CFR Part 70 is submitted with the application for Authority to Construct. The content of application for the certificate of conformity must comply with the requirements of Sections 7.1 of District Rule 2520 (Federally Mandated Operating Permits);
 - 6.1.4 The Authority to Construct contains a statement of conformity with the requirements of Title V and 40 CFR Part 70;
 - 6.1.5 EPA has not objected to the issuance of the Authority to Construct, or EPA's objections have been resolved to the satisfaction of EPA administrator; and
 - 6.1.6 The Part 70 operating permit being issued will contain the federally enforceable requirements contained in the Authority to Construct.
- 6.2 The certificate of conformity with the procedural requirements of 40 CFR Part 70 is valid as long as the Authority to Construct with which it was issued is valid.
- 6.3 Modifications to an Authority to Construct for which a certificate of conformity has been issued are subject to the administrative requirements of Section 11.0 of District Rule 2520 that apply to permit modifications and changes, as well as the requirements of all District Rules that apply to modifications of Authorities to Construct.

7.0 Annual Offset Equivalency Demonstration and Pre-baseline ERC Cap Tracking System

7.1 Offset Tracking System

The APCO shall implement a system for tracking the following for each permitting action:

7.1.1 The quantity of offsets that would have been required for new major sources and federal major modifications in the District had the federal new source review requirements, codified in 40 CFR 51.165, and Title I part D of the Clean Air Act (CAA), been applied to these sources. These requirements include offsetting the full emissions increase from new and modified major sources, using actual emissions baselines when required under 40 CFR 51.165, and providing offsets necessary to meet the CAA offset ratio requirements and provide a net air quality benefit.

7.1.2 The quantity of offsets actually required for all new and modified sources in the District pursuant to the requirements of this rule, and, for the purposes of the Pre-baseline ERC Cap Tracking System outlined in any District-adopted and EPA-approved attainment plan.

7.1.3 The surplus value of creditable emission reductions used as offsets by stationary sources.

7.1.3.1 The surplus value shall be determined at the time of ATC issuance for the sources using the emission reductions to satisfy offset requirements of this rule.

7.1.3.2 The determination of surplus value shall specify all requirements that apply to the offsets being reviewed, the methodology used to calculate the impact of these requirements, and all calculations performed in arriving at the final surplus value.

7.1.4 For purposes of the requirements of Section 7.0, surplus value shall be defined as the quantity of actual emission reductions achieved by a source in excess of the following requirements:

7.1.4.1 Any emission reduction required by a stand-alone federal requirement or regulation, including, but not limited to, Acid Rain, New Source Performance Standard, Reasonably Available Control Technology, and Maximum Achievable Control Technology, whether or not the requirements are part of the State Implementation Plan (SIP) or a local attainment plan.

7.1.4.2 Any emission reduction relied upon by a permitting authority for attainment purposes, such as through an attainment plan, including

emission reductions relied upon for Reasonable Further Progress calculations.

7.1.4.3 Any emission reduction achieved by shutting down an existing source or curtailing production or operating hours below baseline levels whose original emission is not included in the District's emission inventory.

7.1.4.4 Any emission reduction based on a source-specific or source category-specific SIP provision used to comply with CAA requirements.

7.1.4.5 Any emission reduction required by a condition of a permit issued to comply with CAA New Source Review requirements, except that any emission reduction required by a permit condition, which was placed on a permit solely to assure compliance with a state or local requirement, which is not on its own federally enforceable, shall not be included in this class.

7.1.4.6 Any emission reduction based on a source-specific emission limitation resulting from an EPA enforcement case.

7.1.5 For purposes of the requirements of Section 7.0, creditable shall be defined as emission reductions are real, surplus, quantifiable, enforceable and permanent. The creditability of a given emission reduction may be subject to review by the EPA.

7.2 Annual Demonstration Report

The APCO shall annually prepare a report with the following demonstrations to be provided to the public, the ARB and the EPA in accordance with the dates specified in Section 7.3. The District shall also make available to the public, the ARB and the EPA the data used to prepare the demonstrations.

7.2.1 Demonstration on Equivalency of Offset Requirements

7.2.1.1 The report shall include a comparison of the annual quantity of federal offsets that would have been required (as tracked pursuant to Section 7.1.1) to the annual quantity of offsets actually required under this rule, including any excess offsets required from previous reporting years (as tracked pursuant to Section 7.1.2).

7.2.1.2 The report shall also describe any additional emission reductions retired to address a shortfall in required offsets as specified in Section 7.4.1.1. Such description shall, at a minimum, specify the emission reductions used and the surplus value of those

reductions. The surplus value of these reductions may also be used in demonstrating equivalency under Section 7.2.2.

7.2.2 Demonstration on Creditability of Emission Reductions

7.2.2.1 The report shall include a comparison of the annual quantity of federal offsets that would have been required (as tracked pursuant to Section 7.1.1) to the surplus value of creditable emission reductions used as offsets during the year (as tracked pursuant to Section 7.1.3).

7.2.2.2 For purposes of the demonstration described in Section 7.2.2, the comparison may also include the surplus value of additional creditable emission reductions that have not been used as offsets and have been banked or have been generated as a result of permitting actions. The surplus value of these reductions may also be used to remedy any shortfall as specified under Section 7.4.1.1.

7.2.2.2.1 The surplus value of these additional credits shall be determined as of the date of the issuance of the Authority to Construct utilizing such reductions in demonstration described in this subsection.

7.2.2.2.2 Any such additional emission reductions used in this demonstration shall be permanently retired and shall not be used to meet any offset or netting requirements and shall not be used in future demonstrations required by Section 7.0.

7.2.2.2.3 Additional emission reductions described in Section 7.2.2.2 shall only be included in the comparison to the extent the annual quantity of federal offsets that would have been required (as tracked pursuant to Section 7.1.1) exceeds the surplus value of creditable emission reductions used as offsets (as tracked pursuant to Section 7.1.3).

7.2.2.2.4 Any additional emission reductions described in Section 7.2.2.2 that are not included in the demonstration required by this subsection, may be used in future demonstrations in accordance with this subsection.

7.3 Reporting Schedule

7.3.1 The report shall cover the period August 20 to August 19 of each year. For

the Initial report, the District shall track offset requirements for new and modified sources for which a complete application for Authority to Construct was submitted after August 20, 2001. Additional emission reductions, other than banked emission reductions, may be used in the equivalency demonstration only if the reduction occurred after August 20, 2001.

7.3.2 For each reporting period, the APCO shall submit the report and data described in Section 7.2 to ARB and the EPA no later than November 20 of each year. In addition, the APCO shall release the report to the public and shall present it to the District Governing Board, each year, at the first Board meeting following its submittal to the EPA.

7.3.3 All documents created and/or used in implementing the requirements of Section 7.0 shall be kept and maintained by the APCO for no less than five years from the date of their creation and/or use.

7.4 Remedy for Emission Offset Shortfalls

7.4.1 Failure to Demonstrate Equivalency in Offset Requirements

7.4.1.1 If the comparison described in Section 7.2.1 does not show, or EPA determines the comparison erroneously shows, that the annual quantity of offsets actually required under this rule (as tracked pursuant to Section 7.1.2) equals or exceeds the annual quantity of federal offsets that would have been required (as tracked pursuant to Section 7.1.1), the District shall retire additional creditable emission reductions that have not been used as offsets and have been banked or have been generated as a result of permitting actions such that the surplus value of these emission reductions satisfies any shortfall.

7.4.1.1.1 The surplus value of these additional credits shall be determined as of the date of the issuance of the Authority to Construct utilizing such reductions in demonstration described in this subsection.

7.4.1.1.2 Any such additional emission reductions used in this demonstration shall be permanently retired and shall not be used to meet any offset or netting requirements and shall not be used in future demonstrations required by Section 7.0.

7.4.1.2 If the District does not have sufficient additional creditable emission reductions to satisfy the shortfall described in 7.4.1.1, all ATCs issued after the report deadline for that year shall comply

with the offset requirements of 40 CFR 51.165, and part D of Title I of the CAA, for each pollutant for which there is a shortfall, until the applicability and offset requirements of this rule are revised to comply with the federal new source review requirements and approved into the SIP by EPA.

- 7.4.1.3 If the APCO fails to submit a report meeting the requirements of Section 7.2.1, all ATCs issued after the report deadline and until the APCO submits to ARB, EPA and the public a report complying with the requirements of Section 7.2.1 shall comply with the offset requirements of 40 CFR 51.165, and part D of Title I of the CAA.

7.4.2 Failure to Demonstrate Adequate Creditable Emission Reductions

- 7.4.2.1 If the comparison described in Section 7.2.2 does not show, or EPA determines the comparison erroneously shows, that the surplus value of creditable emission reductions used as offsets during the year (as tracked pursuant to Section 7.1.3) combined with additional emission reductions as described in Section 7.2.2.2 equals or exceeds the annual quantity of federal offsets that would have been required (as tracked pursuant to Section 7.1.1), all ATCs issued, for new major sources or federal major modifications, for each pollutant for which there is a shortfall, after the report deadline shall ensure that emission reductions used to satisfy offset requirements are creditable and that the surplus value of those credits is determined at the time of ATC issuance.
- 7.4.2.2 The requirements of Section 7.4.2.1 shall remain in effect until this rule is revised to require offset discounting at time of use and such revision is approved into the SIP by EPA, or until a subsequent annual report prepared in accordance with Section 7.2.2 demonstrates that the surplus value of creditable emission reductions used as offsets (as tracked pursuant to Section 7.1.3) combined with additional emission reductions as described in Section 7.2.2.2 equals or exceeds the annual quantity of federal offsets that would have been required (as tracked pursuant to Section 7.1.1).
- 7.4.2.3 If the APCO fails to submit a report meeting the requirements of Section 7.2.2, all ATCs issued for new major sources or federal major modifications after the report deadline and until the APCO submits to ARB, EPA and the public a report complying with the requirements of Section 7.2.1 shall ensure that emission reductions used to satisfy offset requirements are creditable and that the

surplus value of those credits is determined at the time of ATC issuance.

7.5 Pre-Baseline ERC Usage Caps from District Attainment Plans

7.5.1 ERCs that were banked prior to the baseline year for a given District-adopted and EPA-approved Attainment Plan shall not be used to offset emissions increases under the provisions of this rule if the usage of such credits during the effective period of the plan exceeds the respective pollutant's Pre-Baseline ERC Usage Cap in the plan.

7.5.2 Such caps on pre-baseline ERC usage remain in effect until the end of the plan's effective period, or until such time as EPA approves revised caps through an Attainment Plan revision process or a Rate of Progress update.

8.0 Application Shield for Routine Replacement Emissions Units and Temporary Replacement Emissions Units (TREUs)

8.1 For a Routine Replacement Emissions Unit or a TREU, for which an Authority to Construct is required, the permitted source may continue to operate under an application shield, provided that all of the following conditions are met.

8.1.1 An application for the Routine Replacement Emissions Unit or TREU has been submitted within seven calendar days of completing the construction or installation of the replacement.

8.1.2 The source operates in compliance with all applicable requirements of the federal, state, and District rules and regulations.

8.1.3 For a TREU, all of the following conditions must be met:

8.1.3.1 The TREU results in no increase in design capacity, unless a replacement unit of the same or lower design capacity is not available, in which case the replacement can result in a design capacity increase of up to 10%.

8.1.3.2 The TREU results in no change to the permitted throughput or emission limits due to a change in the design capacity as part of the replacement.

8.1.3.3 The TREU performs the same function as the equipment being replaced.

8.1.3.4 The TREU either is addressed by a BARCT rule or is equipped with a control device capable of at least 85% emission control.

- 8.2 When the application has been deemed complete by the APCO, the application shield shall be made effective retroactive from the date of application submittal until the application is either approved or denied.
- 8.2.1 The application shield is not applicable if the District's final action is delayed due to the failure of the applicant to submit timely information requested by the District. The source must also submit additional information for any requirements that become applicable after a complete application is submitted, but before a PTO is issued.
- 8.3 The application shield does not exempt the operator from any applicable requirements.
- 8.4 The application shield applies only to applications for Routine Replacement Emissions Units, and TREUs meeting the requirements of 8.1.3.1 through 8.1.3.4, and does not authorize any increases to the permitted throughput or emissions due to a change in design capacity as part of a Routine Replacement Emissions Unit or a TREU.
- 8.5 For replacements at major sources, the application shield applies only to Routine Replacement Emissions Units that result in no significant emissions increase according to the applicability calculations of 40 CFR 51.165(a)(2)(ii)(C), "Actual-to-projected actual applicability test for projects that only involve existing emissions units". For the purposes of this section, a Routine Replacement Emissions Unit is an existing emissions unit. A copy of the emission calculations used to determine that the Routine Replacement Emissions Unit did not result in a significant emissions increase must be included with the application required by Section 8.1.1.
- 8.6 For a TREU that is removed from the Stationary Source within seven calendar days of completing the installation of the TREU, the application requirements of Section 8.1.1 shall not apply, provided the permittee submits, within seven calendar days of completing the installation of the TREU, a report to the District demonstrating compliance with the requirements of Section 8.

APPENDIX C

Proposed Rule 2301

July 15, 2019

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

Appendix C: Proposed Rule 2301

July 15, 2019

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PROPOSED

July 15, 2019

RULE 2301 EMISSION REDUCTION CREDIT BANKING (Adopted September 19, 1991; Amended March 11, 1992; Amended December 17, 1992; Amended January 19, 2012; Amended [date of adoption])

1.0 Purpose

The purposes of this rule are to:

1.1 For affected pollutants:

- 1.1.1 Provide an administrative mechanism for sources to store emission reduction credits for later use as offsets where allowed by District Rules and Regulations or State and Federal Rules and Regulations.
- 1.1.2 Provide an administrative mechanism for sources to transfer emission reduction credits to other sources for use as offsets as allowed by Rule 2201 (New and Modified Stationary Source Review Rule) or State and Federal Rules and Regulations.
- 1.1.3 Define eligibility standards, quantitative procedures and administrative practices to ensure that emission reduction credits (ERCs) are real, permanent, quantifiable, surplus, and enforceable.

1.2 For greenhouse gasses:

- 1.2.1 Provide an administrative mechanism for sources to bank voluntary greenhouse gas emission reductions for later use.
- 1.2.2 Provide an administrative mechanism for sources to transfer banked greenhouse gas emission reductions to others for any use.
- 1.2.3 Define eligibility standards, quantitative procedures and administrative practices to ensure that banked greenhouse gas emission reductions are real, permanent, quantifiable, surplus, and enforceable.

2.0 Applicability

The provisions of this rule apply to all transactions involving the storage, transfer, or use of emission reduction credits of affected pollutants and greenhouse gases.

3.0 Definitions

Unless otherwise defined, terms as used in this rule are defined in Rule 2201 (New and Modified Stationary Source Review Rule).

- 3.1 Actual Emission Reductions: as defined in Rule 2201 (New and Modified Stationary Source Review Rule). If the reductions are authorized by an Authority to Construct, the adjustments made to the actual emissions reductions as defined in Rule 2201 (New and Modified Stationary Source Review Rule), shall be based on the rules, plans, workshop notices at the time the application for such Authority to Construct was deemed complete.
- 3.2 Affected Pollutant: as defined in Rule 2201 (New and Modified Stationary Source Review Rule), except for the purposes of this rule greenhouse gases shall not be considered affected pollutants.
- 3.3 Bankable Emission Reductions: emission reductions of affected pollutants and their precursors for which ambient air quality standards exist, and greenhouse gases, which reductions meet the provisions of this rule. Such reductions may be deposited in the District's ERC Bank. Once banked and certified, the emission reductions become ERCs.
- 3.4 Banking: the District's system of quantifying, certifying, recording, and storing ERCs for future use or transfer. This system shall be called the District's Emission Reduction Credit Bank (herein referred to as the ERC Bank).
- 3.5 Banking Register: the document that records all ERC deposits, withdrawals, transfers, and transactions.
- 3.6 Baseline Period: the same period as defined in Rule 2201 (New and Modified Stationary Source Review Rule).
- 3.7 Carbon Dioxide Equivalent (CO₂E): the mass of carbon dioxide (CO₂) that would have the same global warming potential as a given mass of another greenhouse gas. Conversions between GHGs and CO₂Es shall be made using the conversion factors in Table 1.

Table 1
Conversion factors between GHGs and CO₂E

GHG metric ton	CO ₂ E metric ton
CO ₂	1
CH ₄	21
N ₂ O	310
HFC-23 (hydrofluorocarbons)	11,700
HFC-32	650
HFC-125	2,800
HFC-134a	1,300
HFC-143a	3,800

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HFC-152a	140
HFC-227ea	2,900
HFC-236fa	6,300
HFC-4310mee	1,300
CF ₄ (perfluorocarbons)	6,500
C ₂ F ₆	9,200
C ₄ F ₁₀	7,000
C ₆ F ₁₄	7,400
SF ₆ (sulfur hexafluoride)	23,900

- 3.8 Emission Reduction Credits (ERCs): reductions of actual emissions of affected pollutants or greenhouse gas emissions from emission unit recognized by the District as available for use as tradeoffs, offsets, CEQA mitigation, or for other purposes, in accordance with the requirements of this rule. To be eligible for certification as ERCs, emissions reductions must be real, surplus, permanent, quantifiable and enforceable. All emission reductions meeting these requirements may be certified as ERCs.
- 3.9 ERC Certificate: a document certifying title to a defined quantity and type of ERCs issued by the District to the owner(s) identified on the Certificate.
- 3.10 Greenhouse gas (GHG): carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).
- 3.11 Non-inventoried Emissions: those emissions of an air pollutant into the atmosphere from any source which has not been recorded on the District emission inventory.
- 3.12 Non-permitted Emissions: those emissions of an air pollutant into the atmosphere from non-permitted emission sources that are not required to have air pollution permits. Non-permitted emissions may include emissions from agricultural waste burning, mobile source emissions, exempt emissions units, and sources that were never subject to the requirements of Rule 2201 (New and Modified Stationary Source Review Rule).
- 3.13 Offset: the use of an ERC to mitigate emission increases of an affected pollutant from a new or modified source subject to the requirements of Rule 2201 (New and Modified Stationary Source Review Rule).
- 3.14 Shutdown: shall mean either the earlier of the permanent cessation of emissions from an emitting unit or the surrender of that unit's operating permit. If, prior to the surrender of the operating permit, the APCO determines that:

3.14.1 the unit has been removed or fallen into an inoperable and unmaintained condition such that startup would require an investment exceeding 50% of the current replacement cost; and

3.14.2 the owner cannot demonstrate to the satisfaction of the APCO that the owner intended to operate again, then the APCO may cancel the permit and deem the source shutdown as of the date of last emissions. Evidence of an intent to operate again may include valid production contracts, orders, other agreements, or any economically based reasons which would require the operation of the emitting unit after initial cessation of emissions.

3.15 Transfer: the conveyance of an ERC from one entity to another.

4.0 Eligibility of Emission Reductions

4.1 Affected Pollutant Emissions Reductions Occurring Before September 19, 1991

For the purpose of this section District means the San Joaquin Unified Air Pollution Control District (SJVUAPCD) or any former county Air Pollution Control District that is now included in the SJVUAPCD.

Upon application and approval by the APCO, the following emissions reductions occurring prior to September 19, 1991 may receive Emissions Reduction Banking Certificates:

4.1.1 Emission reductions occurring after January 1, 1988 and prior to the date of adoption of this rule which have been recognized by the District pursuant to a banking rule or pursuant to a formal internal tracking mechanism shall be deemed eligible emission reductions, provided:

4.1.1.1 the APCO determines that such emission reductions comply with the definition of AER;

4.1.1.2 the reductions are real, surplus, permanent, quantifiable, and enforceable; and

4.1.1.3 they have not been used for approval of an Authority to Construct or used as offsets.

4.1.2 Emissions reductions occurring prior to January 1, 1988 which have been recognized by the District pursuant to a banking rule or were formally recognized in writing by the District as available for offsets shall be eligible for emissions reductions banking certificates provided:

- 4.1.2.1 the APCO determines that such emissions reductions comply with the definition of AER, and such reductions are real, surplus, permanent, quantifiable, and enforceable;
 - 4.1.2.2 the reductions have not been used for the approval of an Authority to Construct or used as offsets;
 - 4.1.2.3 the reductions are included in or have been added to the 1987 emissions inventory, or will be accounted for in subsequent revisions to the 1991 AQAP and will be included in the Plan's annual tracking of emissions reductions.
 - 4.1.2.4 a banking application is filed prior to June 17, 1993 in accordance with the requirements of Section 6.0, and the applicable requirements of Section 8.0 are met.
- 4.1.3 Except for reductions listed below, emission reductions for NO_x, VOC, and CO (in non-attainment areas for CO) occurring prior to January 1, 1988 shall not be eligible for use as offsets, netting, or in any way mitigating an increase in emissions until the District, through rulemaking, has adopted an appropriate discounting or other mitigation measures to show progress towards air quality attainment. The restrictions shall not apply to the following reductions:
 - 4.1.3.1 Reductions for which the District issued an Emissions Reduction Certificate according to a banking rule prior to December 17, 1992.
 - 4.1.3.2 Reductions for which the District has accepted a banking application in accordance with the provisions of this rule prior to December 17, 1992.
 - 4.1.3.3 Reductions authorized by the District for use as offsets, or as mitigation for new or modified emissions units prior to December 17, 1992.
- 4.1.4 Under no circumstances shall any emissions reductions occurring before September 19, 1991, other than as described in sections 4.1.1 or 4.1.2 be eligible for emissions reduction credit banking certificates.
- 4.2 Affected Pollutant Emissions Reductions Occurring After September 19, 1991

For emission reductions occurring after September 19, 1991, the following criteria must be met in order to deem such reductions eligible for banking:

- 4.2.1 The emission reductions are real, surplus, permanent, quantifiable, and enforceable;
- 4.2.2 AERs are calculated in accordance with the calculation procedures of Rule 2201 (New and Modified Stationary Source Review Rule) and comply with the definition of AERs of Rule 2201 (New and Modified Stationary Source Review Rule). Adjustment to emissions reductions for the Community Bank shall be made at the time the reductions are quantified pursuant to Rule 2201 (New and Modified Stationary Source Review Rule).
- 4.2.3 An application for ERC has been filed no later than 180 days after the emission reductions occurred.
- 4.2.4 For non-permitted emission units, emissions must have been included in the 1987 emissions inventory and the source creating ERCs shall apply for and acquire a Permit to Operate subject to enforceable permit conditions which ensures that the emission reductions will be provided in accordance with the provisions of this rule, and shall continue for the reasonably expected life of the proposed stationary source. If the district, pursuant to state laws, is prohibited to permit the emission unit, the stationary source creating ERCs shall execute a legal binding contract with the District which ensures that the emission reductions will be provided in accordance with the provisions of this rule, and shall continue for the reasonably expected life of the proposed source.
- 4.3 A stationary source which provided offsets for increase in permitted emissions pursuant to Rule 2201 (New and Modified Stationary Source Review Rule) and has been issued an Authority to Construct since January 1, 1988 may apply to bank such offsets pursuant to section 4.2 if the Authority to Construct is voluntarily surrendered, expires or is canceled or if the Permit to Operate resulting from such Authority to Construct is voluntarily modified, surrendered or is revoked.
- 4.4 The following affected pollutant emission reductions are not eligible as ERCs for banking:
 - 4.4.1 Emission reductions from the shutdown or curtailment of gasoline dispensing operations, or dry cleaning operations.
 - 4.4.2 Emission reductions occurring at a fossil fuel-fired power plant as the result of the operation of a cogeneration facility.
 - 4.4.3 Emission reductions occurring from the shutdown or curtailment of a stationary source for which the District originally provided the required offsets.

- 4.4.4 Emission reductions occurring from the shutdown or curtailment of a stationary source for which the offsets originally provided are no longer enforceable by the District such as reductions in open burning of agricultural waste used to offset emissions from a resource recovery project.

4.5 Greenhouse Gas Emission Reductions

The following criteria must be met in order to deem such reductions eligible for banking:

- 4.5.1 The greenhouse gas emission reduction must have actually occurred on or after January 1, 2005, except as allowed in specific CARB approved GHG emission reduction project protocols.
- 4.5.2 The greenhouse gas emission reductions must have occurred within the San Joaquin Valley Unified Air Pollution Control District.
- 4.5.3 The greenhouse gas emission reductions are real, surplus, permanent, quantifiable, and enforceable, except as provided in Section 4.5.5.
 - 4.5.3.1 Greenhouse gas emission reductions that occur at a facility subject to the CARB greenhouse gas cap and trade regulation on or after January 1, 2012 are not surplus.
 - 4.5.3.2 Greenhouse gas emission reductions that occur as a result of law, rule, or regulation that required the greenhouse gas emission reduction are not surplus.
 - 4.5.3.3 Greenhouse gas emission reductions that occur due to an action taken by a facility that is not the result of any greenhouse gas emission reduction requirement are surplus and additional of all greenhouse gas reduction requirements. Such emission reduction credit certificates shall be identified as specified in Section 6.15.2.
 - 4.5.3.4 Greenhouse gas emission reductions that occur due to an action taken by a facility that is not the result of any requirement, including any requirement that is not intended to control greenhouse gases, are surplus and additional of all requirements. Such emission reduction credit certificates shall be identified as specified in Section 6.15.3.
- 4.5.4 Greenhouse gas emission reductions are calculated as the difference between the historic annual average greenhouse gas emissions (as CO₂E) calculated

using the consecutive 24 month period immediately prior to the date the emission reduction occurred, or another consecutive 24 month period in the 60 months prior to the date the emission reduction occurred if determined by the APCO as being more representative of normal operations, and the potential greenhouse gas emissions (as CO₂E) after the project is complete, except as provided in section 4.5.5.

4.5.5 Greenhouse gas emission reductions proposed to be quantified using CARB approved emission reduction project protocols shall be calculated in accordance with the applicable protocol.

4.5.6 Emission reduction credits shall be made enforceable through permit conditions. If the district, pursuant to state laws, is prohibited from permitting the emission unit, the source creating the greenhouse gas emission reduction shall execute a legal binding contract with the District which ensures that the emission reductions will be generated in accordance with the provisions of this rule, and shall continue for the reasonably expected life of the proposed equipment, operation, or source.

5.0 ERC Certificate Application Procedures

5.1 Any entity which owns or operates a source at which an eligible emission reduction has occurred or will occur may apply for an ERC Certificate in accordance with the requirements of this rule.

5.2 The entity requesting the ERC Certificate shall make an application on forms supplied by the District.

5.3 An application shall be filed for each emission reduction. The application may be for reductions in one or more affected pollutant or greenhouse gas. The application shall contain sufficient information to allow for adequate evaluation of actual emission reductions from each emission unit.

5.4 In accordance with the provisions of Rule 1030 (Confidential Information) and Section 114(c) of the Federal Clean Air Act, applicants may claim confidentiality of information contained in the application.

5.5 Except for reductions covered under Sections 4.1.2 and 4.5.1, ERC Certificate applications for reductions shall be submitted within 180 days after the emission reduction occurs.

5.5.1 For reductions covered under Section 4.1.2, ERC Certificate applications shall be filed with the District by June 17, 1993.

- 5.5.2 For reductions covered under Section 4.5.1 that occurred prior to January 19, 2012 ERC Certificate applications shall be filed with the District by July 19, 2012. For reductions covered under Section 4.5.1 that occur on or after January 19, 2012 ERC Certificate applications shall be submitted within 180 days after the emission reduction occurs.
- 5.6 An entity that was previously issued an ERC for greenhouse gas emission reductions that was not quantified using a CARB approved emission reduction project protocol may subsequently submit an application to have the ERC re-issued pursuant a CARB approved emission reduction project protocol at such time that an applicable emission reduction project protocol is approved by CARB. Such an application must meet the requirements, including timeliness, of the CARB approved emission reduction project protocol.
- 5.7 Where appropriate, to confirm emission reductions claimed in conjunction with an application for an ERC Certificate, the District may require source tests, continuous monitoring, production records, fuel use records, or any other appropriate means of measurement.
- 5.8 The form of the ERC Certificate shall be established by the APCO.
- 5.9 ERC applicants for emission reductions derived from a single reduction at a single emitting unit may apply for and receive single or multiple ERC Certificates. Multiple ERC Certificates shall be issued for each owner's proportional share.
- 6.0 Registration of ERC Certificates
 - 6.1 The APCO may only grant an ERC Certificate after the emission reductions have actually occurred upon satisfaction of the following applicable provision(s):
 - 6.1.1 A revised Permit to Operate has been issued if the emission reductions were created as a result of greater operating efficiencies or from the application of more efficient control technology. This revised permit must include specific quantifiable emission limits reflecting the reduced emissions;
 - 6.1.2 If the emission reductions were created as a result of the shutdown of a permitted emissions unit, the relevant Permit(s) to Operate has been surrendered and voided.
 - 6.1.3 If the emission reductions from a permitted emissions unit were created by means of reducing production or production rates, the relevant Permit(s) to Operate have been modified to reflect the emission reductions.

- 6.1.4 If the emission reductions were created as a result of the application of greater operating efficiencies or from the application of a more efficient control technology to a then non-permitted source: Permit(s) to Operate has been obtained; or a written contract between the owner or operator of such source and the ERC applicant has been executed, which by its terms, shall be enforceable by the APCO. The referenced permit or contract shall include specific quantifiable emission limits reflecting reduced emissions. If the emissions reductions were created as a result of the modification of a non-permitted emissions unit, the stationary source shall be prohibited from operating a new emissions unit in the same source category without first obtaining Authority to Construct and Permit to Operate.
- 6.2 When all the requirements of this rule have been satisfied and the emission reduction has actually occurred, the APCO shall issue the ERC Certificate. Upon the APCO's determination to grant an ERC Certificate, title to such ERC shall be registered in the Banking Register. Such titles may be computerized and made available for public inspection.
- 6.3 All information concerning titles, interests, and other matters such as liens, encumbrances, and changes of record shall be identified in the District's ERC Banking Register, as well as pertinent date(s) concerning such information, until such time as the ERC Certificate is used, canceled, or nullified by operation of law.
- 6.4 Each ERC Certificate shall be numbered, bear the date of issuance, be signed by the District official charged with the responsibility of keeping the District's ERC Bank, and bear the seal of the District. One (1) copy of the ERC Certificate shall be retained by the District, and the original shall be delivered to the owner or party acting for the owner. The record of issued ERC Certificates shall be retained by the District, and this record may be in computer storage. Delivery by the District of an ERC Certificate to an owner shall be accomplished in person or by registered mail. The person accepting the ERC Certificate must sign a receipt therefor and provide such proof of identity as the APCO shall require.
- 6.5 At the option of joint owners of ERCs, such persons may receive one (1) ERC Certificate for the entirety or separate ERC Certificates reflecting each proportional share, provided that such ERCs are derived from a single reduction at a single emitting unit. The District's ERC Bank shall reflect the consolidation or separation of the ERCs, and the previous Certificate(s) shall be canceled upon the issuance of the new Certificate(s).
- 6.6 After receiving written notice from an owner that they have released their right of control of valid existing banked emission reductions, or if an owner fails to file an application for banking emission reductions in accordance with procedures outlined

in this rule, the APCO may place such emission reductions in the District's Community Bank without consent from the owner.

- 6.7 Adjustments to the quantity of banked ERCs shall be allowed without the owner's consent so long as the action to reduce the quantity of ERCs is consistent with applicable District, state, and federal rules and/or planning requirements, including Reasonable Further Progress. Actions to reduce the quantity of banked ERCs which are inconsistent with applicable District, state, or federal rules shall require the consent of the owner. Such adjustments shall only be made after public notice and hearing.
- 6.8 Prior to adjusting the estimated quantity or the conditions of deposit, use, or withdrawal of banked ERCs for any reason, the APCO shall notify the ERC Certificate owner in writing.
- 6.9 Except as provided in Section 6.7 of this rule, deposits are permanent until used by the depositor or any party to whom the ERC Certificate has been transferred. After issuance of the ERC Banking Certificate, subsequent changes in regulations to require the type of reduction which is banked shall not reduce or eliminate the deposit.
- 6.10 If the APCO determines that additional mandatory emission reductions will be necessary to achieve ambient air quality standards, the APCO may declare a full or partial moratorium on banked ERCs of the applicable contaminant. Prior to imposing any kind of moratorium, the APCO must provide public notice that the District has determined that sufficient emission reductions cannot be achieved through the imposition of controls on existing permitted or non-permitted emissions units. Should such a determination be made, a moratorium on deposits shall first be imposed. Should the APCO determine that a moratorium on withdrawals of banked ERCs is also necessary to attain applicable air quality standards, a public notice shall first be provided to this effect. Only after a public hearing resulting in the determination that a moratorium is needed and written notice to ERC Certificate owners of the applicable contaminant may any moratorium be imposed. Any such moratorium shall be lifted upon the determination by the APCO and public notice that Reasonable Further Progress can be demonstrated by the District.
- 6.11 Title to an ERC shall be deemed registered at the time the required information concerning the ERC is entered into the Register.
- 6.12 All dealings with ERCs or any interest therein, and all liens, encumbrances, and charges upon the same subsequent to the first registration thereof, shall be deemed to be subject to the terms of this regulation, and to such amendments and alterations as may hereafter be made.

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- 6.13 The APCO may reissue lost or destroyed ERC Certificates after the owner vouches that the original has been lost or destroyed.
 - 6.14 Greenhouse gas emission reductions shall be banked as metric tons of CO₂E per year, rounded to the nearest metric ton.
 - 6.15 Greenhouse gas emission reduction certificates shall include a notation that indicates how the emission reductions were quantified, as follows:
 - 6.15.1 Emission reductions quantified using a CARB approved protocol pursuant to Section 4.5.5 shall include a notation of the specific name and approval date of the protocol
 - 6.15.2 Emission reductions that are surplus of all greenhouse gas emission reduction requirements pursuant to Section 4.5.3.3 shall include the following notation “This emission reduction is surplus and additional to all applicable greenhouse emission reduction regulatory requirements.”
 - 6.15.3 Emission reductions that are surplus of any regulatory requirement pursuant to Section 4.5.3.4 shall include the following notation “This emission reduction is surplus and additional to all applicable regulatory requirements.”
 - 7.0 Withdrawal, Transfer, and Use of ERCs
 - 7.1 ERCs may be used at the time of, or anytime after deposit into the District's ERC Bank by the owner of the ERC Certificate to provide contemporaneous offsets for increase in onsite emissions from new or modified emission units.
 - 7.2 An ERC Certificate may be transferred or used in whole or in part and in accordance with provisions of this rule. Transfer in whole or in part of a registered ERC Certificate shall be done in accordance with application procedures of this rule. Upon payment of an application fee, a new ERC Certificate certifying the title or interest in the ERC, shall be issued and the last previous original(s) shall be canceled. Such cancellation shall be recorded in the Banking Register.
 - 7.3 Nothing in this rule prevents the lease or temporary transfer, in whole or in part of, ERCs represented by ERC Certificates. However, all transfers shall be considered permanent until modified by application which demonstrates to the satisfaction of the APCO that the emissions for which the ERCs were required have either ceased or other emission reductions have been secured.
 - 7.4 All emissions reductions to be used as offsets which are not contemporaneous with emissions increases shall be transferred by application pursuant to this rule.

Reductions to be used as offsets which are contemporaneous and meet the requirements of Rule 2201 (New and Modified Stationary Source Review Rule) and the requirements of this rule may take place without application for ERC.

- 7.5 This rule does not define or mandate any uses of banked greenhouse gas emission reductions.

8.0 Administrative Requirements

- 8.1 The APCO shall determine whether an ERC Banking Certificate application is complete not later than 30 calendar days following receipt of the application, or after a longer time period agreed upon in writing by both the applicant and the APCO.
- 8.2 If the APCO determines that the application is not complete, the applicant shall be notified in writing of the decision, specifying the additional information that is required. The applicant shall have 90 days to submit the requested information. Upon receipt of all requested information, the District shall have 30 days to determine completeness. If no data is submitted or the application is still incomplete, the APCO may cancel the ERC Banking Certificate application with written notification to applicant. Upon determination that the application is complete, the APCO shall notify the applicant in writing. Thereafter, only information to clarify, correct, or otherwise supplement the information submitted in the application may be requested.
- 8.3 Withdrawal of a banking application by an applicant shall result in cancellation of the application; any resubmittal shall be evaluated using a baseline calculated as of the date of resubmittal.
- 8.4 Upon acceptance of a complete application, the APCO shall have 60 days to perform an initial assessment of the application. Upon completion of this initial assessment the District shall provide written notice of such to the applicant and shall also provide written notice of acceptance to ARB and EPA and electronically publish notice on the District's website ~~in a newspaper of local and general circulation in the District~~. The notice shall specify the applicant and the quantity of emission reductions requested and a statement of the initial assessment.

Publication of the notice shall commence a 30 day public comment period during which the APCO shall accept written comments on the merits of the ERC Certificate application. Upon conclusion of this 30 day period, the APCO shall have 30 days to render a decision as to whether the APCO approves, conditionally approves, or denies the application. This decision shall be promptly supplied in writing to the applicant and published electronically on the District's website ~~in a newspaper of local circulation~~.

The noticing requirements period shall be waived by the APCO if the emission reductions have already been subject to ARB, EPA and public comment. Noticing requirements shall not be waived for emissions reductions which were not formally banked and which occurred prior to January 1, 1988.

- 8.5 The applicant or any other party may appeal the APCO's decision following provisions specified in the applicable rules in Regulation V (Procedure Before the Hearing Board).
- 8.6 The District shall maintain a Banking Register, which shall consist of a record of all deposit applications, deposits, withdrawals, and transactions with regard to the District's ERC Bank.

APPENDIX D

Proposed Rule 2520

July 15, 2019

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

Appendix D: Proposed Rule 2520

July 15, 2019

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**RULE 2520 FEDERALLY MANDATED OPERATING PERMITS (Adopted June 15, 1995;
Amended June 21, 2001; Amended [date of adoption])**

1.0 Purpose

The purpose of this rule is to provide for the following:

- 1.1 An administrative mechanism for issuing operating permits for new and modified sources of air contaminants in accordance with requirements of 40 CFR Part 70.
- 1.2 An administrative mechanism for issuing renewed operating permits for sources of air contaminants in accordance with requirements of 40 CFR Part 70.
- 1.3 An administrative mechanism for revising, reopening, revoking, and terminating operating permits for sources of air contaminants in accordance with requirements of 40 CFR Part 70.
- 1.4 An administrative mechanism for incorporating requirements authorized by preconstruction permits issued under District Rule 2201 (New and Modified Stationary Source Review) in a Part 70 permit as administrative amendments, provided that such permits meet procedural requirements substantially equivalent to the requirements of 40 CFR 70.7 and 70.8, and compliance requirements substantially equivalent to those contained in 40 CFR 70.6.
- 1.5 The applicable federal and local requirements to appear on a single permit.

2.0 Applicability

The provisions of this rule shall apply to the following sources:

- 2.1 Major air toxics sources,
- 2.2 Any stationary source that emits or has the potential to emit 100 tons per year of any air contaminant,
- 2.3 Any major source,
- 2.4 Any emissions unit, including an area source, subject to a standard or other requirement promulgated pursuant to section 111 (NSPS) or 112 (HAPs) of the CAA published after July 21, 1992 except as provided for in section 4.2 of this rule.
 - 2.4.1 For stationary sources, which are subject to Rule 2520 solely as a result of Section 2.4, only the emissions units within the a stationary source that are

subject to the section 111 or 112 standard or requirement shall be subject to the Part 70 permitting requirements;

- 2.5 A source with an acid rain unit for which application for an acid rain permit is required pursuant to Title IV of the CAA;
 - 2.6 Any source required to have a preconstruction review permit pursuant to the requirements of the prevention of significant deterioration (PSD) program under Title I of the Federal Clean Air Act;
 - 2.7 A solid waste incinerator subject to a performance standard promulgated pursuant to section 111 or 129 of the CAA; and
 - 2.8 Any source in a source category designated, pursuant to 40 CFR Part 70.3, by rule of the EPA.
 - 2.9 When calculating the potential to emit for the purpose of determining if the requirements of this rule are applicable, fugitive emissions must only be included for determining non-hazardous air pollutant emissions if the source is included in the list of source categories identified in the major source definition in 40 CFR part 70.2, or when determining if a stationary source is a major air toxics source.
- 3.0 Definitions
- 3.1 Acid Rain Unit: an acid rain unit is any fossil fuel-fired combustion device that is an affected unit under 40 CFR Part 72.6 and therefore subject to the requirements of Title IV (Acid Deposition Control) of the CAA.
 - 3.2 Administrative Permit Amendments: Administrative amendment is a permit amendment that:
 - 3.2.1 Corrects typographical errors;
 - 3.2.2 Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;
 - 3.2.3 Requires more frequent monitoring or reporting by the permittee; or
 - 3.2.4 Allows for a change in ownership or operational control of a source where the District determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the District; and

- 3.2.5 Incorporates other applicable requirements which the EPA has determined as part of an approved part 70 program to be similar to those in Sections 3.2.1 through 3.2.4.
- 3.2.6 Incorporates requirements from an Authority to Construct for a new or modified emissions unit pursuant to the provisions of District Rule 2201 (New and Modified Stationary Source Review) provided that a certificate of conformity with procedural requirements of 40 CFR part 70 has been issued in conjunction with the Authority to Construct.
- 3.3 Affected Source: a source that contains one or more affected units.
- 3.4 Affected Unit: an emissions unit subject to a requirement or limitation of Title IV of the Federal Clean Air Act.
- 3.5 Affected States: states that are within 50 miles of a permitted source, or states contiguous to California whose air quality may be affected by a Part 70 permitting action, renewal, or modification.
- 3.6 Applicable Requirements: any of the federally enforceable requirements listed in the definition of applicable requirements in 40 CFR part 70.2.
- 3.7 Certificate of Conformity: a written document issued by the District certifying that an Authority to Construct for the new or modified source issued under District Rule 2201 (New and Modified Stationary Source Review) has been issued in accordance with procedural requirements substantially equivalent to the requirements of 40 CFR 70.7 and 70.8, and compliance requirements substantially equivalent to those contained in 40 CFR 70.6(c).
- 3.8 Clean Air Act (CAA): refers to the Federal Clean Air Act as amended in 1990 (42 U.S.C. Section 7401 et seq.).
- 3.9 Designated representative: a responsible person or official authorized by the owner or operator of a unit at an affected source to represent the owner or operator in manners pertaining to emission allowances, permitting, and compliance plans.
- 3.10 District's Effective Date of Major Source Permitting Program: date of approval by EPA of the District's Title V operating permits program.
- 3.11 Emissions Unit: any part or activity of a stationary source which emits, may emit, or results in the emissions of any regulated pollutant or hazardous air pollutant.
- 3.12 Federally Enforceable: enforceable by the EPA or the public.

- 3.13 Final Permit: a permit that has completed all review requirements of Section 11 of this rule.
- 3.14 Fugitive Emissions: emissions that could not reasonably pass through a vent, chimney, stack, or other functionally equivalent opening.
- 3.15 General Permit: a Part 70 permit issued to sources qualifying for a model general permit. Permits issued under general permit provisions shall be subject to the same requirements of any Part 70 permit relating to renewal, revision, and permit term and content.
- 3.16 Hazardous Air Pollutant: pollutants listed pursuant to section 112(b) of the Federal Clean Air Act.
- 3.17 Initial Permits: the first permits issued to sources in accordance with the requirements of this rule for emissions units that were in existence and not exempted from the requirements of this rule on the District's effective date of major source permitting.
- 3.18 Major Air Toxics Source: a stationary source that emits or has the potential to emit, including fugitive emissions, 10 tons per year or more of a hazardous air pollutant, or 25 tons per year or more, including fugitive emissions, of a combination of hazardous air pollutants or such lesser quantity as the EPA may establish by rule. Emissions from any oil or gas production well, with its associated equipment, and emissions from any pipeline compressor station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major air toxic sources.
- 3.19 Major Source: same as that defined in District Rule 2201 (New and Modified Stationary Source); except that the reference to a threshold in tons per year of nitrogen oxides shall not apply with respect to any source for which the EPA Administrator has made a finding, under section 182(f)(1) or (2) of the CAA, that requirements under section 182(f) of the CAA do not apply.
- 3.20 Minor Permit Modifications: are permit modifications that:
 - 3.20.1 Do not violate requirements of any applicable federally enforceable local or federal regulations;
 - 3.20.2 Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;

- 3.20.3 Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
- 3.20.4 Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - 3.20.4.1 A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of title I of the Federal Clean Air Act, prevention of significant deterioration (PSD) provisions of the CAA, or EPA PSD regulations; and
 - 3.20.4.2 An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and
- 3.20.5 Are not Title I modifications as defined in this rule, modifications as defined in section 111 or 112 of the Federal Clean Air Act, or major modifications under the prevention of significant deterioration (PSD) provisions of Title I of the CAA or under EPA PSD regulations; and
- 3.20.6 Do not seek to consolidate overlapping applicable requirements.
- 3.21 Model General Permit: a model permit issued by the District after notice and opportunity for public participation provided under sections 11.1.4 and 11.1.5 of this rule covering numerous similar sources. Any general permit shall meet the requirements of 40 CFR 70.6(d). Any model general permit shall comply with all requirements applicable to other Part 70 permits and shall identify criteria by which sources may qualify for the general permit. A model general permit shall specify the necessary application content for sources applying for the general permit. General permits shall not be authorized for affected sources under the acid rain program unless otherwise provided in regulations promulgated by EPA under Title IV of the CAA.
- 3.22 Model General Permit Template: a list of conditions issued by the District after notice and opportunity for public participation provided under section 11.1.4 and 11.1.5 of this rule covering numerous similar sources that address general non-source-specific requirements applicable to a source category. A model general permit template shall specify the necessary application content, including the criteria

that must be met by the applicants in order to qualify for the template, for sources applying to include the general permit template in their Part 70 permit.

- 3.23 New Source: for the purpose of determining the applicable administrative requirements of Rule 2520, a new source is a source that commences operation after the District's effective date of the District's Part 70 permitting program.
- 3.24 Part 70 Permit: an operating permit that is issued pursuant to the requirements of this rule.
- 3.25 Permit Amendment: revision to a federally enforceable term or condition of a permit issued pursuant to the requirements of this rule.
- 3.26 Potential to Emit: the maximum capacity of an emissions unit to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including pollution control equipment and restrictions in hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is incorporated into the applicable permit as a federally enforceable permit condition, or is contained in an EPA approved State Implementation Plan (SIP). In addition, until 1/25/97 any physical or operational limitation on the capacity of the source to emit a pollutant, including pollution control equipment and restrictions in hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if such limitations are contained in a District permit, or a District SIP submittal on which EPA has not taken a final action.
- 3.27 Regulated Air Pollutant: A "regulated air pollutant" is any pollutant: 1) which is emitted into or otherwise enters the ambient air, and 2) for which the EPA has adopted an emission limit, standard, or other requirement. Regulated air pollutants include:
 - 3.27.1 Oxides of nitrogen and volatile organic compounds;
 - 3.27.2 Any pollutant for which a national ambient air quality standard has been promulgated pursuant to section 109 of the CAA;
 - 3.27.3 Any pollutant subject to a new source performance standard promulgated pursuant to section 111 of the CAA;
 - 3.27.4 Any ozone-depleting substance specified as a Class I (chlorofluorocarbons) or Class II (hydrofluorocarbons) substance pursuant to Title VI of the CAA; and

3.27.5 Any pollutant subject to a standard or requirement promulgated pursuant to section 112 of the CAA, including:

3.27.5.1 Any pollutant listed pursuant to section 112(r) of the CAA (Prevention of Accidental Releases) shall be considered a "regulated air pollutant" upon promulgation of the list.

3.27.5.2 Any hazardous air pollutant subject to a standard or other requirement promulgated by the U.S. EPA pursuant to section 112(d) or adopted by the District pursuant to 112(j) of the CAA shall be considered a "regulated air pollutant" for all sources or categories of sources: 1) upon promulgation of the standard or requirement, or 2) 18 months after the standard or requirement was scheduled to be promulgated pursuant to section 112(e)(3) of the CAA, whichever is earlier.

3.27.5.3 Any hazardous air pollutant subject to a District case-by-case emissions limitation determination for a new or modified source, prior to the EPA promulgation or scheduled promulgation of an emissions limitation shall be considered a "regulated air pollutant" when the determination is made pursuant to section 112(g)(2) of the CAA. In case-by-case emissions limitation determinations made pursuant to section 112(g) of the CAA, the hazardous air pollutant shall be considered a "regulated air pollutant" only for the individual source for which the emissions limitation determination was made.

3.28 Responsible Official: is one of the following:

3.28.1 For a corporation, the responsible official shall be a president, secretary, treasurer, or vice president in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation. The responsible official may be a duly authorized representative rather than any of the above if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit; and

3.28.1.1 the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million in 1980 dollars; or

3.28.1.2 the District has approved a petition from the original responsible person to delegate authority.

- 3.28.2 For a public agency the responsible official shall be either the principal executive officer or the ranking elected official. The principal executive officer, in the case of a federal agency, may be the executive officer having responsibility for a geographical unit.
 - 3.28.3 For a partnership or sole proprietorship, the responsible official is a general partner or the proprietor, respectively.
 - 3.29 Significant Permit Modification: Permit amendments that do not qualify as minor permit modifications or as administrative amendments.
 - 3.30 Stationary Source: same as that defined in District Rule 2201 (New and Modified Stationary Source Review)
 - 3.31 Title I Modification: same as that defined in District Rule 2201 (New and Modified Stationary Source Review).
- 4.0 Sources Exempt from Rule 2520

The following sources are exempt from obligation to obtain a Part 70 permit subject to the provisions of this rule or 40 CFR part 70:

- 4.1 Any source listed in section 2.0 of this rule that is not: 1) a major source; 2) a major air toxics source; 3) a stationary source with the potential to emit of 100 tons per year of any air contaminant, 4) affected source; 5) a source that EPA determines is required to obtain a Part 70 permit upon promulgation of a standard issued pursuant to section 111 or 112 of the CAA; or 6) a solid waste incineration unit required to obtain a Part 70 permit pursuant to section 129(e) of the CAA;
- 4.2 Non-major sources subject to a standard or other requirement under either section 111 (NSPS) or section 112 (HAPs) of the CAA after July 21, 1992 publication, if the EPA, at the time the new standard is promulgated, determines that such sources are deferred or exempt from the requirements to obtain a Part 70 permit under the provisions of this rule;
- 4.3 All sources and source categories that would be required to obtain a Part 70 permit solely because they are subject to 40 CFR part 60, Subpart AAA - Standards of Performance for New Residential Wood Heaters;
- 4.4 All sources and source categories that would be required to obtain a Part 70 permit solely because they are subject to 40 CFR part 61, Subpart M - National Emission Standard for Hazardous Air Pollutants for Asbestos, section 61.145, Standard for Demolition and Renovation; and

- 4.5 Permitting actions that do not involve a change to the federally enforceable terms or conditions of a Part 70 permit. The requirements of other applicable rules, such as Rule 2201 (New and Modified Stationary Source Review), apply to these permitting actions.
- 4.6 All sources exempted from the requirements of 40 CFR part 70 by District Rule 2530 (Federally Enforceable Potential to Emit) as approved by the EPA into the state implementation plan.

5.0 Requirements for Filing Timely Applications

The owner or operator of any source subject to the requirements of this rule shall file timely and complete applications in accordance with the following requirements:

5.1 Initial Permits

- 5.1.1 For sources subject to the requirements of this rule, and in existence prior to effective date of the District's Part 70 permitting program, no later than 12 months after the effective date of the District's Part 70 permitting program. To allow for an orderly transition, the District may establish an earlier application deadline for various sources or source categories. In no event shall applications be required prior to the effective date of the District's Part 70 permitting program.
- 5.1.2 For a source that becomes subject to the requirements of this rule, including a sources previously exempt from the requirements of Rule 2520 pursuant to section 5.2 of Rule 2530, no later than 12 months after the source becomes subject to the requirements of this rule. To allow for an orderly transition, the District may establish an earlier application deadline for various sources or source categories. The District may also receive applications for the purpose of determining applicability of the requirement to obtain a Part 70 permit.

5.2 Permit Renewals

The holder of a Permit to Operate issued subject to the provisions of this rule shall submit to the District an application for renewal at least six months, but not greater than 18 months, prior to the permit expiration date. Permits to operate for all emissions units at a stationary source shall undergo simultaneous renewal.

5.3 New and Modified Sources Subject to the Requirements of this Rule

5.3.1 New Sources

New Sources, or sources subject to section 5.2 of Rule 2530 shall submit an application for Permit to Operate that complies with the requirements of this rule within 12 months of commencing operations.

5.3.2 Minor or Significant Permit Modifications

Except when allowed by the operational flexibility provisions of section 6.4 of this rule, the permittee shall file an application for a permit modification prior to implementing the requested change. This also applies to sources not previously subject to the requirements of this rule that become subject to the requirements due to a minor or significant modification. Applications for permit amendments to conditions or limitations required under title IV (acid rain) must meet the requirements of 40 CFR part 72 of the Federal Clean Air Act and all applicable District rules.

5.3.3 A source applying for an Authority to Construct for a new or modified emissions unit pursuant to the provisions of District Rule 2201 (New and Modified Stationary Source Review) may apply simultaneously for a Part 70 permit, or a certificate of conformity in accordance with the deadlines specified in subsections 5.3.1 or 5.3.2 of this rule.

5.3.4 Administrative Permit Amendments

Except when allowed by the operational flexibility provisions of section 6.4 of this rule, the permittee shall file an application for administrative permit amendments prior to implementing the requested change.

6.0 Source's Ability to Make Changes

Except as provided by the application shield provisions of section 13.1 of this rule, or by the operational flexibility provisions of section 6.4 of this rule, a source's ability to implement changes shall be limited to the following:

6.1 Administrative Permit Amendments

The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request. Should the District or EPA ultimately reject the source's proposed amendments, the source shall be subject to enforcement proceedings for violation of any existing permit terms and conditions.

6.2 Minor Permit Modifications

The source may implement the changes addressed in the request for a minor permit modification immediately upon submittal of the request, provided that the modification has been authorized by an Authority to Construct if required by District Rule 2010. If the source implements the changes before its part 70 permit is amended, the source need not comply with the existing part 70 permit terms and conditions it seeks to modify. However, if the source fails to comply with its proposed permit terms and conditions, the existing permit terms and conditions it seeks to modify may be enforced against it. Should the District or EPA ultimately reject the source's proposed amendments, the source shall be subject to enforcement proceedings for violation of any existing permit terms and conditions.

6.3 Significant Permit Amendments

The source may implement the changes addressed in the request for a significant permit modification only after a final Part 70 permit amendment is issued by the District.

6.4 Operational Flexibility

The APCO shall allow specified changes in operations at a source without requiring a permit amendment. The source may gain operational flexibility through the use of the following options:

6.4.1 Contravening an Express Permit Term

The permittee may implement certain changes that contravene an express condition without triggering the requirements of this rule for permit modifications, if the following conditions are met:

- 6.4.1.1 At least 7 days prior to implementation of the proposed change the District and the EPA are notified in a written notice which includes a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change;
- 6.4.1.2 The District does not object in writing to the proposed change within the 7 day review period;
- 6.4.1.3 The proposed change is not a Title I modification, or a modification under section 111 or 112 of the CAA, or a major modification under the prevention of significant deterioration

(PSD) provisions of Title I of the CAA or EPA PSD regulations;

6.4.1.4 The change will not violate any applicable federal requirement;

6.4.1.5 The change will not contravene federally enforceable conditions for monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements; and

6.4.1.6 The proposed change will not result in emissions in excess of those allowed by the permit, including a work place standard or a federally enforceable emissions cap.

6.4.2 Alternative Operating Scenarios

The Part 70 permit may include alternative operating scenarios provided that:

6.4.2.1 Each alternative operating scenario is identified in the permit application;

6.4.2.2 The terms and conditions are approved in writing by the APCO;

6.4.2.3 The terms and conditions are incorporated into the permit; and

6.4.2.4 The terms and conditions are in compliance with all applicable District, state, and federal requirements.

6.4.2.5 Changes between operating scenarios must be recorded in a contemporaneous log.

6.4.3 Voluntary Emission Caps

The APCO shall issue a Part 70 permit that contains terms and conditions that allow for trading of emissions increases and decreases within the stationary source solely for the purpose of complying with a voluntary emissions cap established in the permit independent of otherwise applicable federal requirements provided that:

6.4.3.1 The requirements of subsections 6.4.2.1, 6.4.2.3, and 6.4.2.4 are met;

- 6.4.3.2 The terms and conditions are approved in writing by the APCO as quantifiable and enforceable;
- 6.4.3.3 The terms and conditions are consistent with the applicable Authority to Construct: and
- 6.4.3.4 At least 7 days prior to implementation of the proposed change the District and the EPA are notified in a written notice which includes when the change will occur, a brief description of the change in emissions that will occur, and how these increases and decreases in emissions will comply with the terms and conditions of the permit.

6.4.4 Other Changes Not Requiring Permit Amendment

A permittee may implement changes, including the addition of new emission units, without triggering the permit modification or amendment requirements of this rule until the time of permit renewal, provided:

- 6.4.4.1 The changes meet all applicable District, state, and federal requirements;
- 6.4.4.2 Contemporaneous with implementation of the change, the District and the EPA are notified in a written notice which includes a brief description of the change, the date the change occurred, any change in emissions, the pollutants emitted, and any new applicable requirement as a result of the change;
- 6.4.4.3 The owner or operator of the source maintains records of the resulting emissions changes;
- 6.4.4.4 The changes are neither addressed nor prohibited in any existing permit term or condition;
- 6.4.4.5 The changes, either by themselves or in combination with all other changes that have occurred without permit amendment under the requirements of this rule since the most recent renewal, do not constitute a Title I modification or a major modification under the prevention of significant deterioration (PSD) provisions of Title I of the CAA; or
- 6.4.4.6 The changes do not constitute a modification as defined in Section 111 (NSPS) or section 112 (Hazardous Air Pollutants) of the Federal Clean Air Act; and

6.4.4.7 The change does not violate any terms or conditions of the existing permit.

6.4.5 Temporary Sources

The District may issue a single permit authorizing emissions from similar operations by the same source owner or operator at more than one location provided:

6.4.5.1 The source is not subject to the provisions of Title IV of the CAA;

6.4.5.2 The permit contains conditions that assure compliance with all applicable requirements at each location; and

6.4.5.3 The permit includes a requirement that the operator notifies the District in writing at least 10 days prior to changing locations.

6.4.5.4 The operation is temporary and involve at least one change of location during the term of the permit.

7.0 Application Content

7.1 Permit Applications

To be deemed complete, a Part 70 permit application must contain the following:

7.1.1 Identifying information, including company name and address (or plant name and address if different from the company name and address), owner's name and agent, and telephone number and names of plant site contact person.

7.1.2 A description of the source's processes and products (by Standard Industrial Classification Code), including any associated with each alternate scenario(s) proposed by the applicant.

7.1.3 The following emission-related information:

7.1.3.1 All emissions of pollutants, including fugitive emissions, for which the source is major, and all emissions of regulated air pollutants, including fugitive emissions, for which the source is subject to an underlying applicable requirement. A permit application shall describe all emissions of regulated air

pollutants emitted from any permitted emissions unit, and list the exempt categories from Rule 2020 which describe any insignificant equipment located at the facility. Applicant may submit quantification of actual emissions, except when potential emissions are needed to demonstrate compliance with an applicable requirement. As a demonstration of actual emissions, a source may submit the most recent emissions statement under Rule 1160, Emissions Statement, or emissions inventory report under Health and Safety Code 44300, to the extent that the statement addresses all regulated pollutants.

- 7.1.3.2 Information related to emissions of air pollutants needed by the District to verify which requirements are applicable to the source, and other information necessary to determine and collect the fees as prescribed in Regulation III of the District rules and regulations.
- 7.1.3.3 Identification and description of all points of emissions described in section 7.1.3.1 of this rule in sufficient detail to establish the basis for fees and applicable requirements.
- 7.1.3.4 Emissions rate in tons per year and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method.
- 7.1.3.5 The following information to the extent it is needed to determine or regulate emissions: fuels, fuel use, raw materials, process weight rate, production rates, and operating schedules.
- 7.1.3.6 Identification and description of air pollution control equipment and compliance monitoring devices or activities.
- 7.1.3.7 Limitations on source operation affecting emissions or any work practice standards, where applicable, for all regulated pollutants.
- 7.1.3.8 Other information required pursuant to any applicable requirement (including information related to stack height limitations developed pursuant to section 123 of the CAA).
- 7.1.3.9 Calculations on which the information in sections 7.1.3.1 through 7.1.3.8 of this rule is based.
- 7.1.4 The following air pollution control requirements:

- 7.1.4.1 Citation and description of all applicable requirements, and
- 7.1.4.2 Description of or reference to any applicable test method for determining compliance with each applicable requirement.
- 7.1.4.3 In addition to identifying all applicable requirements, an applicant may propose consolidation of overlapping requirements. The applicant shall provide information that demonstrates that the proposed consolidation of requirements, as a whole, is at least as stringent as, and assures compliance with, each individual requirement.
- 7.1.5 Other specific information that may be necessary to implement and enforce other applicable requirements of the CAA or of 40 CFR Part 70 or to determine the applicability of such requirements.
- 7.1.6 An explanation of any proposed exemptions from otherwise applicable requirements.
- 7.1.7 The applicant may submit copies of valid Permits to Operate issued by the District, to the extent that the information required under sections 7.1.1 through 7.1.6 is contained in those permits.
- 7.1.8 Additional information as determined to be necessary by the District to define alternative operating scenarios proposed by the source or to define other permit terms and conditions implementing the operational flexibility provisions of section 6.4 of this rule.
- 7.1.9 A compliance plan that contains all the following:
 - 7.1.9.1 A description of the compliance status of the source with respect to all applicable requirements.
 - 7.1.9.2 For applicable requirements with which the source is in compliance, a statement that the source will continue to comply with such requirements.
 - 7.1.9.3 For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis.

- 7.1.9.4 For requirements for which the source is not in compliance at the time of permit issuance, a narrative description of how the source will achieve compliance with such requirements.
- 7.1.9.5 A compliance schedule as follows:
 - 7.1.9.5.1 For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis. A statement that the source will meet in a timely manner applicable requirements that become effective during the permit term shall satisfy this provision, unless a more detailed schedule is expressly required by the applicable requirement.
 - 7.1.9.5.2 A schedule of compliance for a source that will not be in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will not be in compliance at the time of permit issuance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree, Hearing Board order or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.
- 7.1.9.6 For sources required to have a schedule of compliance to remedy a violation, a schedule for submission of certified progress reports no less frequently than every 6 months.
- 7.1.9.7 The compliance plan content requirements specified in this section shall apply and be included in the acid rain portion of a compliance plan for an affected source, except as specifically superseded by regulations promulgated under title IV of the CAA with regard to the schedule and method(s) the source will used to achieve compliance with the acid rain emissions limitations.
- 7.1.10 Requirements for compliance certification, including the following:

- 7.1.10.1 A certification of compliance with all applicable requirements by a responsible official consistent with requirements of section 10.0 of this rule and section 114(a)(3) of the CAA;
 - 7.1.10.2 A statement of methods used for determining compliance, including a description of monitoring, recordkeeping, and reporting requirements and test methods;
 - 7.1.10.3 A schedule for submission of compliance certifications during the permit term, to be submitted no less frequently than annually, or more frequently if specified by the underlying applicable requirement or by the District; and
 - 7.1.10.4 A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the CAA, which includes 40 CFR part 64 requirements under section 114(a)(3) of the CAA.
- 7.1.11 The use of nationally-standardized forms for acid rain portions of permit applications and compliance plans, as required by regulations promulgated under title IV of the Act.
 - 7.1.12 Corrected information shall be provided to the District when the responsible official becomes aware that incorrect or incomplete information has been submitted.
 - 7.1.13 Demonstration of applicability of the most stringent applicable requirement amongst multiple options can be made by a simple declaration of applicability by the applicant.

7.2 General Permit

The District may, in a model general permit, provide for permit applications that deviate from the application content requirements of section 7.1, provided that such applications meet the requirements of Title V of the CAA, and include all information necessary to determine qualification for, and to assure compliance with, the model general permit.

7.3 General Permit Template

The District may, in a model general permit template, provide for permit applications that deviate from the application content requirements of section 7.1, provided that such applications meet the requirements of Title V of the CAA, and

include all information necessary to determine qualification for, and to assure compliance with, the model general permit template. For applicable requirements not covered by the general permit template, an application shall include information required pursuant to section 7.1 of this rule.

8.0 Duration of a Permit to Operate

- 8.1 Each Permit to Operate, including model general permits and model general permit templates, shall be valid for up to five years, or twelve years for solid waste incineration units combusting municipal waste under section 129(e) of the Federal Clean Air Act unless revoked or suspended by the Air Pollution Control Officer, the EPA, or the District's Hearing Board. Any permit for solid waste incineration units combusting municipal waste under section 129(e) of the Federal Clean Air Act that has a permit term of more than 5 years shall be subject to review, including public notice and comment in accordance with section 11.3 of this rule, at least once every 5 years. The District shall also revoke, suspend, or modify a model general permit or a model general permit template when the sources described in the model permit become subject to additional applicable requirements.
- 8.2 The permit expiration date shall be specified on the Permit to Operate.
- 8.3 Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with the requirements of section 5.2 of this rule. Once a timely and complete renewal application has been submitted, all terms and conditions of the permit shall remain in effect until the renewal permit has been issued or denied.
- 8.4 Failure to pay the annual permit fees and other applicable fees as prescribed in Regulation III of these Rules and Regulations may result in revocation or suspension of the Permit to Operate.

9.0 Permit Content

Each permit issued under this rule, including model general permits and temporary source permits, shall include the following elements:

- 9.1 Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance.
 - 9.1.1 The permit shall specify and reference the origin of an authority for each term or condition, and identify any difference in form as compared to the applicable requirements upon which the term or condition is based.

9.1.2 The permit shall state that, where an applicable requirement of the CAA is more stringent than an applicable requirement or regulations promulgated under title IV of the CAA, both provisions shall be incorporated into the permit and shall be enforceable by the administrator.

9.1.3 If an applicable implementation plan allows a determination of an equivalent alternative emission limit to be made in the permit issuance, renewal, or significant modification process, any permit containing such equivalency determination shall contain provisions to ensure that any resulting emissions limit has been demonstrated to be quantifiable, accountable, enforceable, and based on replicable procedures.

9.2 The permit expiration date shall be specified on the Permit to Operate.

9.3 Monitoring Requirements

Each permit shall contain the following requirements with respect to monitoring:

9.3.1 All emissions monitoring and analysis procedures or test methods required under the applicable requirements, including any procedures and methods promulgated pursuant to sections 504(b) or 114(a)(3) of the CAA. Where standard test methods or procedures are used, a reference to the test method or procedure shall be sufficient;

9.3.2 Where applicable requirements do not require periodic testing or instrumental or non-instrumental monitoring, periodic monitoring to yield reliable data for the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to the requirements of section 9.5 of this rule. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with applicable requirement. Recordkeeping requirements may be sufficient to meet the requirements of this section; and

9.3.3 As necessary, requirements concerning the use, maintenance, and where appropriate, installation of monitoring equipment or methods.

9.4 Recordkeeping Requirements

The permit shall incorporate all applicable recordkeeping requirements and require, where applicable, the following:

9.4.1 Records of required monitoring that include the following:

- 9.4.1.1 The date, place as defined in the permit, and time of sampling or measurement;
- 9.4.1.2 The date(s) analyses were performed;
- 9.4.1.3 The company or entity that performed the analysis;
- 9.4.1.4 The analytical techniques or methods used;
- 9.4.1.5 The results of such analysis; and
- 9.4.1.6 The operating conditions as existed at the time of sampling or measurement;

9.4.2 Retention of records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, or report. Support information includes copies of all reports required by the permit and, for continuous monitoring instrumentation, all calibration and maintenance records and all original strip-chart recordings.

9.5 Reporting Requirements

The permit shall incorporate all applicable reporting requirements and require the following:

- 9.5.1 Submittal of reports of any required monitoring at least every six months unless a different frequency is required by an applicable requirement. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with requirement of section 10.0 of this rule.
- 9.5.2 Prompt reporting of deviations from permit requirements, including those attributable to upset conditions, as defined in the permit. The report shall include the probable cause of such deviations, and any corrective actions or preventive measures taken.

9.6 A permit condition prohibiting emissions exceeding any allowances that the source lawfully holds under title IV of the CAA or the regulation promulgated thereunder.

- 9.6.1 No permit amendment shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit amendment under any other applicable requirement and are not considered a modification

pursuant to District Rule 2201 (New and Modified Stationary Source Review).

- 9.6.2 No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.
- 9.6.3 Any such allowance shall be accounted for according to the procedures established in regulations promulgated under title IV of the CAA.
- 9.7 A severability clause to ensure the continued validity of the various permit requirements in the event of a challenge to any portion of the permit.
- 9.8 Provisions stating the following:
 - 9.8.1 The permittee must comply with all conditions of the permit. Any permit noncompliance constitutes a violation of the CAA, and the District Rules and Regulations, and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
 - 9.8.2 That it should not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
 - 9.8.3 The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
 - 9.8.4 The permit does not convey any property rights of any sort, or any exclusive privilege.
 - 9.8.5 The Permittee shall furnish to the District, within a reasonable time, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the District copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to EPA along with a claim of confidentiality.
- 9.9 Provisions to ensure payment of annual permit fees and other applicable fees as prescribed in Regulation III of these Rules and Regulations.

- 9.10 Terms and conditions for reasonably anticipated operating scenarios identified by the source in its application and approved by the District. Such terms and conditions:
- 9.10.1 Shall require the source, contemporaneous with making a change from one operating scenario to another, to record in a log at the permitted facility the scenario under which it is operating; and
 - 9.10.2 Meet all applicable requirements and the requirements of 40 CFR Part 70.
- 9.11 Terms and conditions, if the permit applicant requests them, for the trading of emissions increases and decreases in the permitted facility, to the extent that any applicable requirement provides for such trading without a case-by-case approval of each emissions trade, if the District is given 7 days advance notice. With regards to emissions reduction credits, this provision only applies to the transfer of emissions reduction credits from one entity to another. The banking or use of emission reduction credits requires case-by-case approval in accordance with District Rules 2201 and 2301. Such conditions:
- 9.11.1 Shall include all terms required to determine compliance with all applicable requirements; and
 - 9.11.2 Must meet all applicable requirements and requirements of 40 CFR Part 70.
- 9.12 Federally-enforceable requirements
- 9.12.1 All terms and conditions of a permit that are required pursuant to the CAA, including provisions designed to limit potential to emit, are enforceable by the EPA and Citizens under the CAA.
 - 9.12.2 Notwithstanding section 9.12.1 of this rule, the District shall specifically designate as not being federally enforceable under the Federal Clean Air Act any terms and conditions included in the permit that are not required under the CAA or under any of its applicable requirements. Terms and conditions so designated are not subject to the administrative requirements of this rule, but are still subject to the requirements of other District rules, when applicable.
- 9.13 Compliance Requirements

All permits, including model general permits and temporary source permits, shall contain the following elements with respect to compliance:

- 9.13.1 Compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit. Any report or document submitted under a permit requirement or a request for information by the District or EPA shall contain a certification by a responsible official of truth, accuracy, and completeness.
- 9.13.2 Inspection and entry requirements that require that, upon presentation of credentials and other documents that may be required by law, the permittee shall allow an authorized representative of the District to perform the following:
 - 9.13.2.1 Enter upon the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit;
 - 9.13.2.2 Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - 9.13.2.3 Inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under the permit; and
 - 9.13.2.4 Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
- 9.14 Compliance Schedules
 - 9.14.1 For sources in violation of any applicable requirement, a schedule of compliance approved by the District Hearing Board in accordance with the procedure outlined in District Rule 5050 and meeting the requirements of section 7.1.9.5.2 of this rule, or as contained in applicable requirement;
 - 9.14.2 For applicable requirements with which the source is in compliance, a statement that the source will continue to comply with such requirements; and
 - 9.14.3 For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis. A statement that the source will meet in a timely manner applicable requirements that become effective during the permit term shall satisfy this provision, unless a more detailed schedule is expressly required by the applicable requirement,

- 9.15 For sources in violation of any applicable requirement, progress reports consistent with the applicable schedule of compliance shall be submitted at least semiannually, or at a more frequent period if required by the District Hearing Board or any other applicable requirement. Such progress report shall contain the following:
- 9.15.1 Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were or will be achieved; and
 - 9.15.2 An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.
- 9.16 Requirements for compliance certification with terms and conditions contained in the permit, including emission limitations, standards, or work practices. Permits shall include each of the following:
- 9.16.1 The frequency (not less than annually or such more frequent periods as specified in applicable requirements or by the District) of submission of compliance certifications;
 - 9.16.2 A means for monitoring the compliance of the source with its emission limitations, standards, and work practices;
 - 9.16.3 A requirement that the compliance certification include the following:
 - 9.16.3.1 The identification of each term or condition of the permit that is the basis of the certification;
 - 9.16.3.2 The compliance status;
 - 9.16.3.3 Whether compliance was continuous or intermittent;
 - 9.16.3.4 The methods used for determining the compliance status of the source, currently and over the reporting period consistent with section 9.5 of this rule; and
 - 9.16.3.5 Such other facts as the District may require to determine the compliance status of the source.
 - 9.16.4 A requirement that all compliance certifications be submitted to the EPA as well as to the District; and
 - 9.16.5 Any additional requirements under sections 114(a)(3) and 504(b) of the CAA.

9.16.6 Other provisions to assure compliance with all applicable requirements, including applicable requirements with future compliance deadlines.

9.17 Part 70 permits utilizing one or more model general permit templates shall contain the terms and conditions of each template without any revisions.

9.18 Permit shield provisions indicating that compliance with the permit shall be deemed compliance with all other applicable provisions of the CAA, if the applicable requirements of such provisions are included in the permit or if the District, in acting on the permit, determines that other provisions are not applicable. A concise summary of this determination shall be included in the permit.

10.0 Certification Requirements

Any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification of truth, accuracy, and completeness by a responsible official. This certification and any other certification required under this rule shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

11.0 Administrative Requirements

11.1 Model General Permits and Model General Permit Templates

All model general permits and model general permit templates shall be issued subject to the following procedures:

11.1.1 The APCO may issue a model general permit or model general permit template on the APCO's own initiative or in response to a petition.

11.1.2 Any person may submit a written petition to the APCO requesting the issuance of a model general permit or model general permit template for a defined class of sources. The petition shall propose a particular class of facilities, list the expected number and size of sources in the proposed class, and include a description of the processes and operating conditions of the sources within the proposed class.

11.1.3 The APCO shall provide a written response to the petition within 60 days of receipt.

11.1.4 Public Notification

- 11.1.4.1 The APCO shall provide a written notice of the proposed permit and, upon request, copies of the District analysis to interested parties. Interested parties shall include affected states, ARB and persons who have requested in writing to be notified. The notice shall also be given by electronic publication on the District's website~~in a newspaper of general circulation in the District~~ and by any other means if necessary to assure adequate notice to the affected public. The public shall be given 30 days from the date of publication to submit written comments on the District's proposed action.

A copy of the District analysis and the proposed permit shall be made available at District offices for public review and comment during normal business hours and shall also be made available on the District's website. The District analysis shall include a statement that sets forth the legal and factual basis for the proposed permit conditions, including references to the applicable statutory and regulatory provisions.

The notice shall provide the following information:

- 11.1.4.1.1 The identification of the source categories, the activities and emissions change involved in the permitting action;
- 11.1.4.1.2 The name and address of the District, the name and telephone number of District staff to contact for additional information;
- 11.1.4.1.3 The availability, upon request, of a statement that sets forth the legal and factual basis for the proposed permit conditions;
- 11.1.4.1.4 The location where the public may inspect the complete application, the District analysis, the proposed permit, and all relevant supporting materials;
- 11.1.4.1.5 A statement that the public may submit written comments regarding the proposed decision within at least 30 days from the date of publication and a brief description of commenting procedures, and

11.1.4.1.6 A statement that members of the public may request the APCO or his designee to preside over a public hearing for the purpose of receiving oral public comment, if a hearing has not already been scheduled. The APCO shall provide notice of any public hearing scheduled to address the proposed decision at least 30 days prior to such hearing.

11.1.5 EPA Notification

The APCO shall provide written notice to the EPA of the proposed decision along with copies of the proposed permit, the District analysis, the public notice submitted for publication, and all necessary supporting information.

11.1.6 The APCO shall provide written response to persons or agencies that submitted written comments which are postmarked by the close of the public notice and comment period. All written comments and responses to such comments shall be kept on file at the District office and made available upon request.

11.1.7 For permit applications utilizing model general permit templates, public and agency comments on District's proposed actions shall be limited to the applicant's eligibility for the model general permit template, applicable requirements not covered by the model general permit template, and the applicable procedural requirements of this rule.

11.1.8 Changes to the Proposed Decision

Changes to the proposed decision shall be governed by the following procedure:

11.1.8.1 The APCO may modify or change the proposed decision, the proposed permit, or the District analysis on the basis of information set forth in the comments received during the public comment period provided pursuant to subsection 11.1.4 and 11.1.5, or due to further analysis by the APCO. The APCO shall forward any such modified proposed decision, the proposed permit, the District analysis, and all necessary supporting information to the EPA. EPA shall be given 45 days to review the District's revised decision.

11.1.8.2 If the EPA objects pursuant to section 11.7 of this rule, the APCO shall either not issue the model general permit or model

general permit template, or revise and submit a model permit which addresses the deficiencies identified by the EPA within 90 days.

11.1.9 Final Decision

If the EPA does not object pursuant to section 11.7 of this rule, the APCO shall issue the final model general permit or model general permit template.

11.1.10 Notification and Publication of Final Action

Written notification of the final decision shall be sent to the EPA, the ARB and any person and affected state that submitted comments during the public comment period. The APCO shall submit a copy of the model general permit or model general permit template as issued to the EPA and provide a copy to any person or agency requesting a copy. The APCO shall electronically publish such notice on the District's website~~in a newspaper of general circulation~~.

11.1.11 Public Inspection of Final Action Documents

No later than at the time that notice of final action is published on the District's website, the APCO shall make available for public inspection at the District offices a copy of the notice submitted for publication and all supporting documents. Information submitted which contains trade secrets shall be handled in accordance with Rule 1030 (Confidential Information) of these Rules and Regulations, with section 6254.7 of the Government Code, and with relevant sections of the Administrative Code of the State of California. The contents of a permit issued under the requirements of this rule may not be considered a trade secret.

11.1.12 Public Petitions to the EPA

If the EPA does not object in writing to the District's preliminary decision during the EPA's 45 day review period, any person may petition the EPA within 60 days after the expiration of the EPA's 45 day review period. Any such petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided in section 11.1.4 of this rule, unless the petitioner demonstrates to the EPA that it was impracticable to raise such objections within such period, or unless grounds for such objections arose after such period. Petitions shall be based on the compliance of the permit provisions with applicable requirements.

11.2 General Permits

- 11.2.1 For applications meeting the qualifications as specified in a model general permit, the APCO may issue a general permit containing the terms and conditions of the model general permit without repeating the public participation procedures required under section 11.1.4 of this rule.
- 11.2.2 The APCO shall submit a copy of the application to the EPA within 30 days of receipt of a complete application.
- 11.2.3 If the EPA does not object pursuant to section 11.7 of this rule, the APCO shall issue the final general permit.

11.3 Initial Permits, Permit Renewals, New Sources, and Significant Permit Modifications

Except for permitting actions that qualify as general permits, minor modifications, or administrative amendments, all permits shall be issued subject to the following procedures:

11.3.1 Public Notification

- 11.3.1.1 The APCO shall provide a written notice of the proposed permit and, upon request, copies of the District analysis to interested parties. Interested parties shall include affected states, ARB and persons who have requested in writing to be notified. The notice, including a copy of the proposed permit, shall also be given by electronic publication on the District's website in a newspaper of general circulation in the District and by any other means if necessary to assure adequate notice to the affected public. The public shall be given 30 days from the date of publication to submit written comments on the District proposed action.
- 11.3.1.2 The notice shall provide the following information:
 - 11.3.1.2.1 The identification of the source, the name and address of the permit holder, the activities and emissions change involved in the permit action;
 - 11.3.1.2.2 The name and address of the District, the name and telephone number of District staff to contact for additional information;

- 11.3.1.2.3 The availability, upon request, of a statement that sets forth the legal and factual basis for the proposed permit conditions;
 - 11.3.1.2.4 The location where the public may inspect the complete application, the District analysis, the proposed permit, and all relevant supporting materials;
 - 11.3.1.2.5 A statement that the public may submit written comments regarding the proposed decision within at least 30 days from the date of publication and a brief description of commenting procedures; and
 - 11.3.1.2.6 A statement that members of the public may request the APCO or his designee to preside over a public hearing for the purpose of receiving oral public comment, if a hearing has not already been scheduled. The APCO shall provide notice of any public hearing scheduled to address the proposed decision at least 30 days prior to such hearing.
- 11.3.1.3 The APCO shall provide written response to persons or agencies that submitted written comments which are postmarked by the close of the public notice and comment period. All written comments and responses to such comments shall be kept on file at the District office and made available upon request. The APCO shall notify the EPA and any affected State in writing of any refusal by the District to accept all recommendations for the proposed permit that the affected State submitted during the public or affected State review period. The notice shall include the District's reason for not accepting any such recommendation.
- 11.3.1.4 A copy of the complete application, the District analysis and the proposed permit shall be made available at District offices for public review and comment during normal business hours. The District analysis shall include a statement that sets forth the legal and factual basis for the proposed permit conditions, including references to the applicable statutory and regulatory provisions.

11.3.2 EPA Notification

The APCO shall provide written notice to the EPA of the proposed decision along with copies of the proposed permit, the District analysis, the public notice submitted for publication, and all necessary supporting information.

11.3.3 Changes to the Proposed Decision

Changes to the proposed decision shall be governed by the following procedure:

11.3.3.1 The APCO may modify or change the proposed decision, the proposed permit, or the District analysis on the basis of information set forth in the comments received during the public comment period provided pursuant to subsection 11.1.4 and 11.1.5, or due to further analysis by the APCO. The APCO shall forward any such modified proposed decision, the proposed permit, the District analysis, and all necessary supporting information to the EPA. EPA shall be given 45 days to review the District's revised decision.

11.3.3.2 If the EPA objects pursuant to section 11.7 of this rule, the APCO shall either not issue the permit, or revise and submit a permit which addresses the deficiencies identified by the EPA within 90 days.

11.3.4 Final Decision

If the EPA does not object pursuant to section 11.7 of this rule, the APCO shall issue the final permit.

11.3.5 Notification and Publication of Final Action

Written notification of the final decision shall be sent to the EPA, the ARB and any person and affected state that submitted comments during the public comment period. The APCO shall submit a copy of the permit as issued to the EPA and provide a copy to any person or agency requesting a copy. The APCO shall electronically publish such notice on the District's website~~in a newspaper of general circulation.~~

11.3.6 Public Inspection of Final Action Documents

No later than at the time that notice of final action is published on the District's website, the APCO shall make available for public inspection at ~~the~~ District offices a copy of the notice submitted for publication and all supporting documents. Information submitted which contains trade secrets shall be handled in accordance with Rule 1030 (Confidential Information) of these Rules and Regulations, with section 6254.7 of the Government Code, and with relevant section of the Administrative Code of the State of California. The contents of a permit issued under the requirements of this rule may not be considered a trade secret.

11.3.7 Public Petitions to the EPA

If the EPA does not object in writing to the District's preliminary decision during the EPA's 45 day review period, any person may petition the EPA within 60 days after the expiration of the EPA's 45 day review period. Any such petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided in section 11.3.1 of this rule, unless the petitioner demonstrates to the EPA that it was impracticable to raise such objections within such period, or unless grounds for such objections arose after such period.

- 11.3.8 For permit applications utilizing or model general permit templates, public and agency comments on District's proposed actions shall be limited to the applicant's eligibility for the model general permit template, applicable requirements not covered by the model general permit template, and the applicable procedural requirements of this rule.

11.4 Minor Permit Modifications

- 11.4.1 Within 5 working days after the receipt of a complete application for a minor permit modification, the District shall provide notice of the requested modification to the EPA pursuant to section 11.3.2 of this rule, and affected states pursuant to section 11.3.1.1 of this rule.

- 11.4.2 An application requesting the use of minor permit modification procedures shall meet the requirements of section 7.0 of this rule and shall include the following:

11.4.2.1 A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;

11.4.2.2 The source's suggested draft permit;

- 11.4.2.3 Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used.
- 11.4.3 The District shall not issue a final permit modification until after a 45-day period review of the proposed permit modification by EPA or until EPA has notified the District that EPA will not object to issuance of the permit modification, whichever is first.
- 11.4.4 Within 90 days after District's receipt of an application for a minor permit modification or 15 days after the end of the EPA's 45-day review, whichever is later, the District shall do one of the following:
 - 11.4.4.1 Issue the permit as proposed;
 - 11.4.4.2 Deny the permit modification application;
 - 11.4.4.3 Determine that the requested modification does not meet the minor permit modification criteria and should be reviewed pursuant to the administrative requirements for significant permit modifications; or
 - 11.4.4.4 Revise the draft permit modification and transmit the new proposed permit modification to EPA and the affected states.
- 11.5 Administrative Permit Amendments
 - 11.5.1 Within 60 days after receiving an application for an administrative change, the District shall do one of the following:
 - 11.5.1.1 Take final action on the request incorporating the requested administrative amendments in the Part 70 permit; or
 - 11.5.1.2 Determine that the requested amendments do not meet the Administrative Permit Amendment criteria and should be reviewed pursuant to the administrative requirements for minor or significant permit modifications.
 - 11.5.2 A copy of the permit revised by administrative amendments shall be sent to the EPA within 10 days of the date that final action is taken.

- 11.5.3 Administrative amendments to permit conditions related to Title IV requirements shall be consistent with the requirements of 40 CFR part 72 and any District rule that implements the requirements of 40 CFR part 72.

11.6 Application Processing Deadlines

11.6.1 Completeness Determination

For all permitting actions except for applications for administrative amendments, the APCO shall determine whether the application is complete not later than 60 days after receipt of the application. If the APCO determines that the application is incomplete, the applicant shall be notified in writing of the decision specifying the information required. Unless the APCO requests additional information or otherwise notifies the applicant of incompleteness within 60 days of receipt of an application, the application shall be deemed complete. Upon receipt of any resubmittal of the application, a new 60-day period to determine completeness shall begin. Completeness of an application or resubmitted application shall be evaluated on the basis of the information requirements set forth in the District Rules and Regulations as they exist on the date on which the application or resubmitted application is received. Upon determination that the application is complete, the APCO shall notify the applicant in writing. The APCO may, during the processing of the application, request an applicant to clarify, amplify, correct, or otherwise supplement the information submitted in the application. The APCO shall submit a copy of the complete application to the EPA within five working days of the determination. The APCO need not provide notification for applications from sources that are not major sources when the EPA waives such requirements for a source category by regulation or at the time of approval of the District Part 70 permitting program.

11.6.2 Final Action

The APCO shall act on a complete application and take final action within the following time frames:

- 11.6.2.1 For an initial permit for a source subject to this rule on the date the rule becomes effective, no later than three years after the date the rule becomes effective.
- 11.6.2.2 For an initial permit for a source that becomes subject to this rule after the date the rule becomes effective, no later than 18 months after the complete application is received;

- 11.6.2.3 For a permit renewal, no later than 18 months after the complete application is received;
- 11.6.2.4 For a significant permit modification, no later than 18 months after the complete application is received;
- 11.6.2.5 For a minor permit modification, within 90 days after the application is received or 60 days after written notice to the EPA on the proposed decision, whichever is later; or
- 11.6.2.6 For any permit application with early reductions pursuant to section 112(i)(5) of the CAA, within 9 months after the complete application is received;
- 11.6.2.7 For applications for administrative amendments, no later than 60 days from receipt of the application.

11.7 EPA Objection

- 11.7.1 If the EPA objects in writing to the District's proposed decision within 45 days of being notified of the decision, the APCO shall not issue the permit.
- 11.7.2 Any EPA objection shall include a statement of the EPA's reasons for objection and a description of the terms and conditions that the permit must include to respond to the objections. The EPA shall provide the permit applicant a copy of the objection.
- 11.7.3 If the District fails, within 90 days after the date of EPA's objection to revise and submit a proposed permit in response to the objection, the EPA will issue or deny the permit in accordance with requirements of 40 CFR Part 70.
- 11.7.4 If the EPA objects to the permit as a result of a public petition, the APCO shall not issue the permit until EPA's objection has been resolved, except that a petition for review does not stay the effectiveness of a permit or its requirements if the permit was issued after the end of the 45-day review period and prior to an EPA objection. If the District has issued a permit prior to receipt of an EPA objection, the EPA will modify, terminate, or revoke such permit, and shall do so consistent with procedures in section 70.7(g)(4) or (5)(i) and (ii) of the 40 CFR regulations, and the District may thereafter reissue only a revised permit that satisfies EPA objection.

- 11.7.5 For applications for a Part 70 permit, EPA objection shall be limited to the compliance with applicable requirements and the requirements of 40 CFR part 70.
- 11.7.6 For applications utilizing model general permit templates, EPA's objection shall be limited to the applicant's eligibility for the model general permit template, applicable requirements not covered by the model general permit template, and the applicable procedural requirements of this rule.
- 11.7.7 For applications for general permits, EPA's objection shall be limited to the applicant's eligibility for the model general permit and the applicable procedural requirements of this rule.

12.0 Reopening of Permits for Cause

- 12.1 Each issued permit shall include provisions specifying the conditions under which the permit will be reopened prior to the expiration of the permit. A permit shall be reopened and revised under any of the following circumstances:
 - 12.1.1 The source becomes subject to additional applicable requirements and there is at least three years remaining on the permit term.
 - 12.1.2 Additional requirements become applicable to Phase II acid rain facilities under the acid rain program. Upon approval by the District, excess emissions offset plans shall be deemed to be incorporated into the permit.
 - 12.1.3 The District or EPA determine that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 - 12.1.4 The District or EPA determine that the permit must be revised or revoked to assure compliance with the applicable requirements.
- 12.2 Administrative requirements to reopen and issue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Reopenings made under section 12.1.1 of this rule shall be completed no later than 18 months after promulgation of the applicable requirement.
- 12.3 Reopenings under section 12.1 of this rule shall not be initiated before a notice of such intent is provided to the permittee by the APCO at least 30 days in advance of the date that the permit is to be reopened, except that the APCO may provide a shorter time period in the case of an emergency.

12.4 Reopenings for cause by EPA

- 12.4.1 If the EPA finds that cause exists to terminate, modify, or revoke and reissue a permit pursuant to sections 12.1.1 through 12.1.4 of this rule, the EPA will notify the District and the permittee of such finding in writing.
- 12.4.2 The District, within 90 days after receipt of such notification, forward to EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate. The EPA may extend this 90-day period for an additional 90 days if it finds that a new or revised permit application is necessary or that the District must require the permittee to submit additional information.
- 12.4.3 The EPA will review the proposed determination from the District authority within 90 days of receipt.
- 12.4.4 The District shall have 90 days from receipt of an EPA objection to resolve any objection that EPA makes and to terminate, modify, or revoke and reissue the permit in accordance with the Administrator's objection.
- 12.4.5 If the District fails to submit a proposed determination pursuant to section 12.4.2 of this rule or fails to resolve any objection pursuant to paragraph 12.4.4 of this rule, the EPA will terminate, modify, or revoke and reissue the permit after taking the following actions:
 - 12.4.5.1 Providing at least 30 days' notice to the permittee in writing of the reasons for any such action. This notice may be given during the procedures in sections 12.4.1 through 12.4.4 of this rule.
 - 12.4.5.2 Providing the permittee an opportunity for comment on the EPA's proposed action and an opportunity for a hearing.

13.0 Compliance

13.1 Application Shield

- 13.1.1 Stationary sources for which timely and complete applications for initial permits have been submitted in accordance with the requirements of this rule may continue to operate under an application shield until the application is either approved or denied. Sources operating under the application shield shall not be in violation of the requirement of this rule to obtain a permit to operate. This requirement does not allow the source to operate in violation of any other requirement. The source is still

required to comply with the requirements of District Rule 2010 (Permits Required). For the purpose of this subsection, an application may be deemed complete if all information required under section 7.0 of this rule, except for information required under subsections 7.1.3.3 through 7.1.3.10, is provided.

- 13.1.2 Stationary Sources for which timely and complete renewal applications have been submitted may continue to operate until the renewal is either issued or denied. Under the renewal application shield, the existing permit shall not expire and the conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.
- 13.1.3 The application shield is not applicable if the District's final action is delayed due to the failure of the responsible official of the source to submit timely information requested by the District. The source must also submit additional information regarding applicable requirements that become applicable after a complete application is submitted, but before a draft permit is released.

13.2 Permit Shield

Compliance with permit conditions in part 70 permits that expressly state that a permit shield exists shall be deemed compliance with the applicable requirements on which the permit conditions are based, except for:

- 13.2.1 Requirements that become applicable after the permit is issued;
- 13.2.2 Requirements that become applicable with minor permit modifications, or any other changes, made without public comment; and
- 13.2.3 Requirements not specifically addressed in writing in response to an application for a permit or a revision to a permit. The permit shield applies only to requirements that are either identified and included by the District in the permit, or are requirements that the District, in acting on the application, determines in writing are not applicable to the source. In cases where the District determines that a requirement is not applicable to the source and provides a permit shield, the permit shall include the determination or a concise summary of the determination.
- 13.2.4 A part 70 permit that does not expressly state that a permit shield exists.

Notwithstanding these permit shield provisions, if a source that is operating under a general permit or a part 70 permit based on a general permit template is later determined not to qualify for the terms and conditions of

the general permit or template, then the source is subject to enforcement action for operation without a part 70 permit. For sources operating under a part 70 permit based on a general permit template, if the source is later determined not to qualify for the template, only the portion of the facility covered by the template shall be subject to enforcement action for operation without a part 70 permit.

13.3 Penalties

Any person who violates any provision of this rule is guilty of a misdemeanor and is liable for a penalty as provided for in the California Health and Safety Code. Every day during any portion of which such violation occurs constitutes a separate offense.

13.4 Emergency Provisions

13.4.1 An emergency shall constitute an affirmative defense to an action brought for noncompliance with a technology based limitation providing:

13.4.1.1 The emergency arises from unforeseeable events beyond the control of the source;

13.4.1.2 The emergency does not result from improperly designed equipment, careless or improper operation, lack of preventive maintenance, or operator error;

13.4.1.3 Signed contemporaneous operating logs or other evidence demonstrate that the facility was being operated properly at the time of the emergency and that the permittee took all reasonable steps to minimize excessive emissions and meet all applicable requirements; and

13.4.1.4 The permittee notified the district within 48 hours of the time that the emergency occurred. Notification must contain a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.

13.4.2 The provisions of District Rule 1100 (Breakdowns) apply in addition to the provisions of this section.

APPENDIX E

**Demonstration of Contribution of Hypothetical Increased Ammonia Emissions to
PM_{2.5} Concentrations in the San Joaquin Valley**

July 15, 2019

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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



Demonstration of Contribution of Hypothetical Increased Ammonia Emissions to PM_{2.5} Concentrations in the San Joaquin Valley

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT – JULY 15, 2019

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1 Executive Summary

The U.S. Environmental Protection Agency (EPA) periodically reviews and establishes health-based air quality standards (also referred to as National Ambient Air Quality Standards, or NAAQS) for ozone, particulates, and other criteria pollutants. Although the San Joaquin Valley (Valley) experiences unique and significant difficulties in achieving these increasingly stringent standards, air quality in the Valley has improved considerably. For over two decades, the San Joaquin Valley Air Pollution Control District (District) has implemented several generations of increasingly more stringent emissions control measures for stationary and area sources under its jurisdiction. Similarly, the California Air Resources Board (CARB) has adopted stringent regulations for mobile sources. Together, these efforts represent the nation's toughest air pollution emissions regulations and have greatly contributed to reduced ozone and particulate matter (PM) concentrations in the Valley. Additionally, the District has in place a highly successful and effective Nonattainment New Source Review (NNSR) program through District Rule 2201 (New and Modified Stationary Source Review Rule).

Following the adoption of a new NAAQS, EPA will generally promulgate an Implementation Rule to guide states and local areas in demonstrating compliance with federal Clean Air Act (CAA) requirements as they incorporate the current and future NAAQS into their air quality programs. In EPA's PM_{2.5} Implementation Rule,¹ EPA provides details on meeting the statutory state implementation plan (SIP) requirements that apply to areas designated nonattainment for any PM_{2.5} NAAQS, including for NNSR permitting programs.

EPA recognizes that the treatment of PM_{2.5} precursors is an important issue in developing a PM_{2.5} attainment plan and in implementing the NNSR program in nonattainment areas. The EPA has long recognized the scientific basis for concluding that there are multiple precursors to PM₁₀ and PM_{2.5}. Appropriate control of precursors is especially important for attaining the PM_{2.5} NAAQS because secondarily formed particles (such as ammonium nitrate, ammonium sulfate, and some portion of organic carbon) comprise a large fraction of ambient PM_{2.5} concentrations in many nonattainment areas. However, in some PM_{2.5} nonattainment areas, a particular precursor or precursors may not contribute significantly to PM_{2.5} levels that exceed the relevant NAAQS. EPA therefore provides in the Implementation Rule a description of optional precursor demonstrations that a state may choose to submit to EPA in order to establish that sources of particular precursors need not be regulated for purposes of attainment planning or in the NNSR permitting program for a specific nonattainment

¹ Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements; Final Rule. 81 Fed. Reg. 164, pp. 58010-58162. (2016, August 24). (to be codified at 40 CFR Parts 50, 51, and 93). <https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf>

area. One of the three precursor demonstration approaches provided in the Implementation Rule is the “NNSR precursor demonstration,” which is the basis and focus of this report. A state or local area may use this type of demonstration to justify that a given precursor may be excluded from certain federal NNSR requirements.

The Implementation Rule outlines suggested approaches for addressing certain technical issues, such as the appropriate geographic scope of a precursor demonstration, recommended precursor demonstration thresholds, and recommended analytical approaches for evaluating precursor contributions to ambient PM_{2.5} levels and the sensitivity of PM_{2.5} levels in an area to decreases or increases of emissions. In addition, the District has been in close communication with EPA, both at Region IX and at EPA headquarters, and has received additional guidance in those communications that go far beyond the written guidelines in the Implementation Rule, but are believed by EPA to significantly strengthen the precursor demonstration. This precursor demonstration, as captured in this document follows EPA’s published and verbal guidance to provide a demonstration for NH₃ and its impacts on PM_{2.5} levels in the Valley.

This document describes the precursor demonstration’s modeling protocol and the results of the District modeling analysis; demonstrates that NH₃ is not a significant precursor to PM_{2.5} concentrations in the Valley; and provides the technical basis for exempting NH₃ from the Clean Air Act NNSR requirements under Clean Air Act §189(e) and 40 CFR 51.165(a)(13). This demonstration enables the District to focus its resources, and those of the businesses and residents of the Valley, on reducing PM_{2.5} and all other presumptively significant PM_{2.5} precursors. It should be noted that the District’s NNSR rule already requires that federal NNSR requirements be addressed for all other presumptively significant PM_{2.5} precursors.

2 Purpose of NH₃ Demonstration

The provisions of Clean Air Act Subpart 4 do not define the term “precursor” for purposes of PM₁₀, nor do they explicitly require the control of any specifically identified PM precursor. EPA has determined that sulfur dioxide (SO₂); oxides of nitrogen (NO_x); volatile organic compounds (VOC); and ammonia (NH₃) are precursors to PM, as identified in the Code of Federal Regulations.² All PM_{2.5} precursors are presumptively required to be addressed in any Serious area attainment plan associated with any PM_{2.5} NAAQS. As such, the requirements of Subpart 4 apply equally to emissions of direct PM_{2.5} and precursors in PM_{2.5} nonattainment areas, except as otherwise provided in the statute.

Pursuant to EPA guidance, in interpretation of CAA requirements, if a NNSR precursor demonstration that evaluates the impacts of increases in precursor emissions shows

² 40 CFR §51.1000

that a specific precursor is not a significant precursor for the purposes of PM_{2.5} formation, and that demonstration is approved by EPA, then the state would not be obligated to address LAER and emission offset requirements for that precursor in the NNSR program for that nonattainment area. According to EPA, this approach to interpreting CAA section 189(e) of the statute as it applies to control requirements for the NNSR program is appropriate because (1) an analysis that evaluates the sensitivity of the atmosphere in an area to increases in emissions would most closely replicate the scenario of concern, where precursor emissions from new major stationary sources or major modifications are *added* to the existing inventory for the area; and (2) this approach would take into consideration the specific atmospheric chemistry and emissions profile that varies from area to area.

2.1 Precursor Pollutants

Precursors identified by EPA as PM_{2.5} precursors include sulfur dioxide (SO₂); oxides of nitrogen (NO_x); volatile organic compounds (VOC); and ammonia (NH₃). The Implementation Rule establishes that PM_{2.5} precursors are presumptively considered to be significant precursors, and must be evaluated for potential control measures in any PM_{2.5} attainment plan or any NNSR program. The Implementation Rule does not include any national presumption that excludes sources of emissions of a particular precursor from further analysis for attainment plan or NNSR control requirements in a PM_{2.5} nonattainment area, but does allow for precursor demonstrations to prove that a precursor is not a significant contributor to ambient concentrations of PM_{2.5}.

2.1.1 EPA's Precursor Demonstration Guidance

Pursuant to 40 CFR §51.1006(a)(3)(i), a state may elect to submit to the EPA a NNSR precursor demonstration to prove that a precursor is not a significant contributor to ambient concentrations of PM_{2.5}. For the approach used by the District, EPA asks that the NNSR precursor demonstration evaluate the sensitivity of PM_{2.5} levels in the nonattainment area to increases in emissions of a particular precursor in order to determine whether the resulting air quality changes are significant. If the estimated air quality changes in the sensitivity analysis are determined to be not significant, based on the facts and circumstances of the area, then the state may use that information to identify a precursor(s) that will be considered not significant to PM_{2.5} levels that exceed the standard in the nonattainment area.

Pursuant to 40 CFR §51.1006(a)(3)(ii), if a NNSR precursor demonstration for a particular PM_{2.5} nonattainment area is approved, the state may exempt such new major stationary sources or major modifications of the particular precursor from the requirements for PM_{2.5} in §51.165 – Permit Requirements.

2.2 EPA's Precursor Modeling Demonstration Requirements

Consistent with EPA SIP and Precursor modeling guidelines, the District has modeled air quality in the San Joaquin Valley to estimate future contribution of new and/or modified sources of ammonia to PM_{2.5} concentrations at each monitored and unmonitored location within the San Joaquin Valley. This section describes the modeling requirements and outlines the implementation methodology used to determine the contribution of ammonia to PM_{2.5} formation as it relates to the District's NNSR program utilizing the draft guidance established by EPA in November 2016 and the subsequent final approved version dated May 2019.

On May 30, 2019, EPA released the Final "PM_{2.5} Precursor Demonstration Guidance." This final guidance provides a non-prescriptive approach for determining if a precursor pollutant is considered a significant contributor to PM_{2.5} concentrations. The guidance document provides criteria that all precursor demonstrations must include and/or justify why a given criteria was not used. The basic criteria essential to all precursor demonstrations, as noted in section 6.0 of the guidance document, are as follows:

1. What amount of emissions increase should be examined as part of the NNSR sensitivity analysis?
2. What location(s) should be used to model the precursor emissions increases resulting from potential major source growth?
3. What air quality concentration threshold should be used to determine if the modeled air quality change from the precursor is insignificant?

2.3 EPA's NNSR Precursor Demonstration Modeling Approach

According to section 6.2 of EPA's final guidance document, "The fundamental approach for analyzing changes in emissions pursuant to the NNSR precursor demonstration involves the use of a photochemical model to project the air quality changes associated with potential emissions increases from hypothetical new major stationary sources and/or major modifications. In most cases, it will not be sufficient to model potential emissions increases from existing major stationary sources in the area. Some nonattainment areas may only have one or, in some cases, no existing major stationary sources. Moreover, it is important to examine the area's sensitivity to emissions increases from potential source locations across the entire nonattainment area because a new source may locate in any part of the nonattainment area (notwithstanding relevant land use and/or zoning restrictions). New and/or modified sources could contribute significantly to existing monitored locations within the nonattainment area or cause new exceedances of the standard in other parts of the nonattainment area..."

2.4 Model Approach

EPA guidance, section 6.2.3, provides a simple or screening modeling approach to calculate impacts in a photochemical grid model for an NNSR precursor demonstration that uses a "brute force" change in emissions by simulating two sets of conditions: one

with all existing emissions, and one that includes an increase in emissions of the precursor that could result from major stationary source growth, known as the “absolute” approach. Another modeling approach allowed by EPA is a more sophisticated model, known as the “relative” approach. The guidance also allows air agencies to choose the most appropriate modeling technique for their particular situation.

2.5 Recommended Models

EPA recommends the use of a model that is capable of quantifying secondary formation by simulating chemical reactions and thermodynamic gas-particle partitioning in a realistic chemical and physical environment. Therefore, EPA recommends the use of a chemical transport model (CTM) for performing NNSR precursor model demonstrations. CTMs treat atmospheric, chemical, and physical processes such as deposition and transport.

2.6 Model Horizontal Grid Resolution

EPA guidance, section 6.2.4, recommends for NNSR precursor demonstrations that horizontal grid resolutions between ~1 kilometer (km) up to ~12 km be used.

2.7 Location and Characteristics of Potential Major Stationary Source Growth

EPA believes that the analysis should evaluate the projected air quality change from potential future major stationary sources in all parts of the nonattainment area. Air agencies should consult with the appropriate EPA Regional office to determine the appropriate number, and location, of potential major stationary sources in an NNSR precursor demonstration. Enough locations should be included in the demonstration such that new sources are placed in a variety of chemical regimes to provide full coverage over the nonattainment area. The journal article “Estimating ozone and secondary PM_{2.5} impacts from hypothetical single source emissions in the central and eastern United States” (Baker, 2016) provides examples of different types of hypothetical sources, modeled to examine secondary PM_{2.5} impacts.

2.7.1 Recommended Criteria for Selection of Major Stationary Sources

EPA guidance document states, “The fundamental approach for analyzing changes in emissions pursuant to the NNSR precursor demonstration involves the use of a photochemical model to project the air quality changes associated with various potential emissions increases from hypothetical new major stationary sources or major modifications.” EPA guidelines also state that it would be appropriate for an air agency to base estimates of any potential emissions increases in part on the types and size of new major stationary sources that are most likely to locate within the nonattainment area and/or existing sources most likely to undergo a major modification. The criteria that EPA recommends for locating sources and estimating emissions increases from these sources are described below:

2.7.2 Recommended Criteria for Locating Sources

EPA's guidance document suggests that in most cases it will be necessary to model a number of hypothetical new and/or modified sources, placed in various locations across the nonattainment area. The location of existing major sources and the stack parameters of those sources can be used to help design the NNSR modeling demonstration.

2.7.3 Recommended Criteria for Emission Estimation

In determining what amount of emissions increase should be examined as part of the NNSR sensitivity analysis, the precursor guidance document specifies that it would be appropriate for the air agency to base estimates of any potential emissions increases in part on:

- The type and size of new major stationary sources that are most likely to locate within the nonattainment area and/or existing sources most likely to undergo a major modification.
- Examination of recent (e.g., the last 5 years) major source permits in the region.
- How the particular precursor is treated as a result of regulation pursuant to other NAAQS is an important consideration when determining the potential emissions increases that should be modeled for a PM_{2.5} NNSR precursor demonstration.
- The number of existing major stationary sources (from which major modifications could occur).
- The natural resources available to support new sources, economic focus of the area and associated potential growth (conducive to a particular industry/source category).
- NNSR demonstration should consider the modeled size of sources (in tons per year of emissions) and the number and location of sources should be adequately conservative to analyze more than what is merely "likely" to occur in the area.
- The size of the nonattainment area.

2.8 Base Year and Future Year Model Assessments

EPA guidance document section 6.4 suggest that where air agencies have both base year and future year modeling in support of an attainment demonstration modeling, emissions increases to support an NNSR precursor demonstration could be done in either a base year or a future year. Conducting a demonstration based on future year modeling could be appropriate because air agencies should evaluate emissions controls in the context of achieving needed air quality improvements in the attainment year. It also recommends that air agencies account for the fact that new major stationary sources could locate in the nonattainment area at any time between the nonattainment designation date and the date when the area is eventually redesignated to attainment.

2.9 Precursor Demonstration Thresholds

EPA guidance document section 2.2 recommends the following precursor demonstration thresholds (PDT) for determining if a PM_{2.5} precursor has a significant increase under the NNSR evaluations methodology established by EPA:

- 0.2 µg/m³ for the annual PM_{2.5} NAAQS, and
- 1.5 µg/m³ for the 24-hour PM_{2.5} NAAQS.

3 District NNSR Modeling Inputs

The District has worked with the California Air Resources Board (CARB), EPA Region IX, and EPA Headquarters in developing the modeling input contained in this NH₃ precursor modeling demonstration. The District has provided EPA with two versions of the modeling protocol for review and the District has incorporated comments and feedback received from EPA into the final model inputs and report. Data included in this section are those required by the precursor guidance document and additional data requested by EPA.

It should be noted that the District's original modeling protocol submitted to EPA outlined a method for using the CTM model in a relative sense. EPA's initial comments to the District's first protocol was that the guidance required a "brute force" absolute evaluation. The District believes that the "brute-force" or screening method is best used for scenarios where an agency has limited resources to perform a more refined analysis (relative evaluation) or for modeling single sources that are significantly separated (~250km), as noted in EPA precursor modeling guidance document journal reference "Estimating ozone and secondary PM_{2.5} impacts from hypothetical single source emissions in the central and eastern United States" (Baker, 2016). Even with the uncertainty inherent in the brute-force method, the District changed the methodology in the second version of the protocol to using the more simple evaluation method, as requested by EPA.

EPA comments received on the second protocol focused on the fact that the model needed to fully evaluate the complex chemistry within the San Joaquin Valley and suggested that the originally-proposed and more sophisticated relative method would be more appropriate. Therefore, the modeling was reevaluated using the District's original method, i.e. running the model in a relative sense.

3.1 District Modeling Approach

The District utilized the current modeling platform developed by CARB and the District for the attainment demonstrations for the 24-hour and annual PM_{2.5} standards in the 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards (*2018 PM_{2.5} Attainment Plan*, Appendix L). The base year modeling inputs used for the purpose of the NNSR precursor demonstration are the same as those used in the *2018 PM_{2.5} Attainment*

Plan SIP attainment demonstration submitted to EPA. Therefore, the information contained within this report focuses on the requirements of the precursor demonstration for the future year modeling inputs that are required elements per EPA guidance, and are different from those utilized in the submitted attainment demonstration (i.e., modelling conducted for attainment plan purposes examines the air quality impacts of reductions in emissions, while increases in precursor emissions are modelled in NNSR precursor demonstrations).

3.2 Air Quality Studies Conducted in the Region

The San Joaquin Valley (SVJ) air basin is one of the most studied air basins in the world, in terms of the number of publications in peer-reviewed international scientific/technical journals and other major reports. Major Field studies that have taken place in the SVJ and surrounding areas are listed in Table 1.

Table 1 - Major Field Studies in Central California and Surrounding Areas.

Year	Study	Significance
1970	Project Lo-Jet	Identified summertime low-level jet and Fresno eddy
1972	Aerosol Characterization Experiment (ACHEX)	First TSP chemical composition and size distributions
1979-1980	Inhalable Particulate Network	First long-term PM _{2.5} and PM ₁₀ mass and elemental measurements in Bay Area, Five Points
1978	Central California Aerosol and Meteorological Study	Seasonal TSP elemental composition, seasonal transport patterns
1979-1982	Westside Operators	First TSP sulfate and nitrate compositions in western Kern County
1984	Southern SVJ Ozone Study	First major characterization of O ₃ and meteorology in Kern County
1986-1988	California Source Characterization Study	Quantified chemical composition of source emissions
1988-1989	Valley Air Quality Study	First spatially diverse, chemical characterized, annual and 24-hour PM _{2.5} and PM ₁₀

Year	Study	Significance
Summer 1990	San Joaquin Valley Air Quality Study/Atmospheric Utilities Signatures Predictions and Experiments (SJVAQS/AUSPEX) – Also known as SARMAP (SJVAQS/AUSPEX Regional Modeling Adaptation Project)	First central California regional study of O ₃ and PM _{2.5}
July and August 1991	California Ozone Deposition Experiment	Measurements of dry deposition velocities of O ₃ using the eddy correlation technique made over a cotton field and senescent grass near Fresno
Winter 1995	Integrated Monitoring Study (IMS-95, the CRPAQS Pilot Study)	First sub-regional winter study
December 1999 – February 2001	California Regional PM ₁₀ /PM _{2.5} Air Quality Study (CRPAQS) and Central California Ozone Study (CCOS)	First year-long, regional-scale effort to measure both O ₃ and PM _{2.5}
December 1999 to present	Fresno Supersite	First multi-year experiment with advanced monitoring technology
July 2003	NASA high-resolution lidar flights	First high-resolution airborne lidar application in SJV in the summer
February 2007	U.S. EPA Advanced Monitoring Initiative	First high-resolution airborne lidar application in SJV in the winter
August-October 2007; June-July 2009	BEARPEX (Biosphere Effects on Aerosols and Photochemistry Experiment)	Research-grade measurements to study the interaction of the Sacramento urban plume with downwind biogenic emissions
June 2008	ARCTAS - CARB	First measurement of high-time resolution (1-10s)

Year	Study	Significance
		measurements of organics and free radicals in SJV
May-July 2010	CalNex 2010 (Research at the Nexus of Air Quality and Climate Change)	Expansion of ARCTAS-CARB type research-grade measurements to multi-platform and expanded geographical area including the ocean.
June 2010	CARES (Carbonaceous Aerosols and Radiative Effects Study)	Research-grade measurements of trace gases and aerosols within the Sacramento urban plume to investigate SOA formation
June 2011	CABERNET (California Airborne BVOC Emission Research in Natural Ecosystem Transects)	Provided the first ever airborne flux measurements of isoprene in California
January-February 2013	DISCOVER-AQ (Deriving Information of Surface Conditions from Column and Vertically Resolved Observations Relevant to Air Quality)	Research-grade measurements of trace gases and aerosols during two PM _{2.5} pollution episodes in the SJV

3.3 PM_{2.5} Air Quality Background

Figure 1, shows the trend in peak valley-wide annual average PM_{2.5} concentrations and 98th percentile of the 24-hour PM_{2.5} concentrations, as well as the approximate number of days above the 24-hour standard in the Valley from 1999 to 2017. The SJV has seen significant improvement in PM_{2.5} concentrations over the last 20 years, with steady decreases in both annual average PM_{2.5} and in the number of days above the 24-hour standard, which coincide with the large emission reductions experienced in the Valley (Figure 2).

Appendix L of the *2018 PM_{2.5} Attainment Plan* provides more details on the annual average PM_{2.5} concentrations and the annual PM_{2.5} design values (i.e., 3-year average), from 1999 to 2017, for Federal Reference Method (FRM) and Federal Equivalent Method (FEM) sites in the SJV, respectively, and the annual 98th percentile and annual 24-hour design values (i.e., 3-year average), from 1999 to 2017, respectively. In most recent years (i.e., 2013-2017), in general, the two sites in Bakersfield have highest 24-hour design values in the Valley.

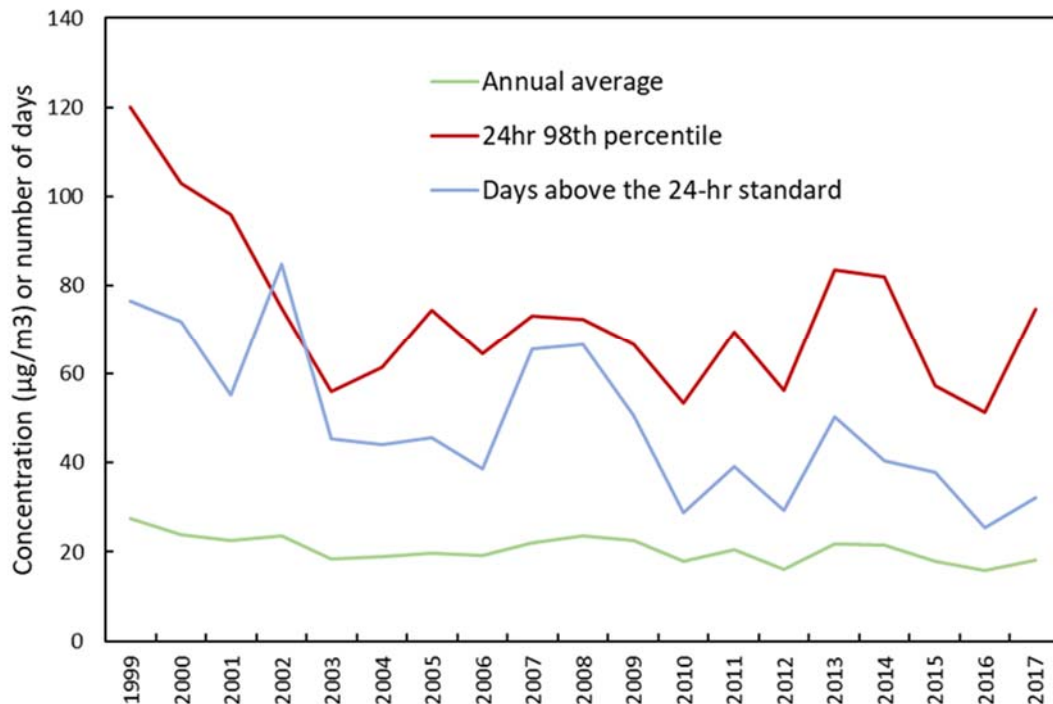


Figure 1 - Trends in valley-wide annual average, 24-hour 98th percentile PM2.5, and approximate number of days above the 24-hour standard

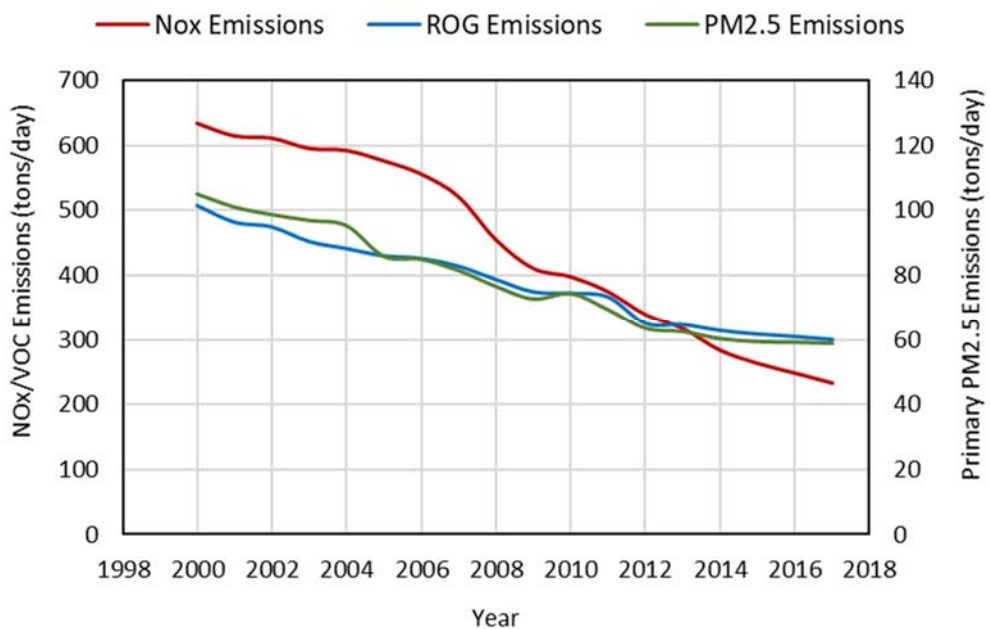


Figure 2 - San Joaquin Valley trends in PM2.5, NOx, and VOC emissions.

3.3.1 Major PM_{2.5} Components

Four monitoring sites collect PM_{2.5} chemical composition data in the San Joaquin Valley: Bakersfield-California, Fresno-Garland, Modesto, and Visalia. The Bakersfield and Fresno speciation monitors are part of the national Chemical Speciation Network (CSN) while Modesto and Visalia are part of the State and Local Air Monitoring Stations (SLAMS) network. All four sites use SASS samplers (Spiral Aerosol Speciation Sampler, Met One, Grants Pass, OR.) for data collection. The CSN data are analyzed by the Research Triangle Institute and the SLAMS data are analyzed by CARB. In recent years, changes were made to the carbon sampling and analysis method. The collection method changed from the MetOne SASS to the URG3000N sampler, which is very similar to the IMPROVE module C sampler. The analytical method was changed from the NIOSH-like thermal optical transmittance method to IMPROVE_A thermal optical reflectance. At Bakersfield, Modesto, and Visalia these changes were implemented in May of 2007, and the Fresno site switched to the new carbon system in April of 2009.

Figure 3 illustrates the average of the 2011-2013 annual average PM_{2.5} compositions, as well as average of the top 10 percent of days at Bakersfield, Fresno, and Modesto over the same time period (Note that this composition can be somewhat different from those used in the DV calculation since DV is based on the FRM filter measurement and there is filter and measurement technique difference between FRM and CSN methods. More detail can be found in the main body of the modeling protocol or the USEPA modeling guidance). Organic matter (OM) was calculated by multiplying measured organic carbon (OC) by 1.5 according to the OM/OC ratio measured at Fresno (Ge et al., 2012). Ammonium nitrate is the largest contributor to PM_{2.5} on an annual basis, accounting for approximately 40% of the PM_{2.5} mass. Its contribution is even higher on peak PM_{2.5} days, accounting for 55-60% of PM_{2.5} mass. Formation mechanisms for ammonium nitrate are discussed in Section 2.5. OM is the second most abundant component, constituting approximately 30% of the PM_{2.5} mass on an annual basis. Activities such as residential wood combustion, cooking, biomass burning, and mobile sources contribute to OM levels in the atmosphere. In addition, OM can also be formed in the atmosphere from oxidation of VOCs. Ammonium sulfate contributes approximately 10% of the PM_{2.5} on an annual basis. Its contribution is half that on peak days, at approximately 5%. Elemental carbon and crustal materials typically contribute less than 10% to PM_{2.5} levels in these cities, except at Bakersfield, where crustal materials contributed more than 10% on an annual basis.

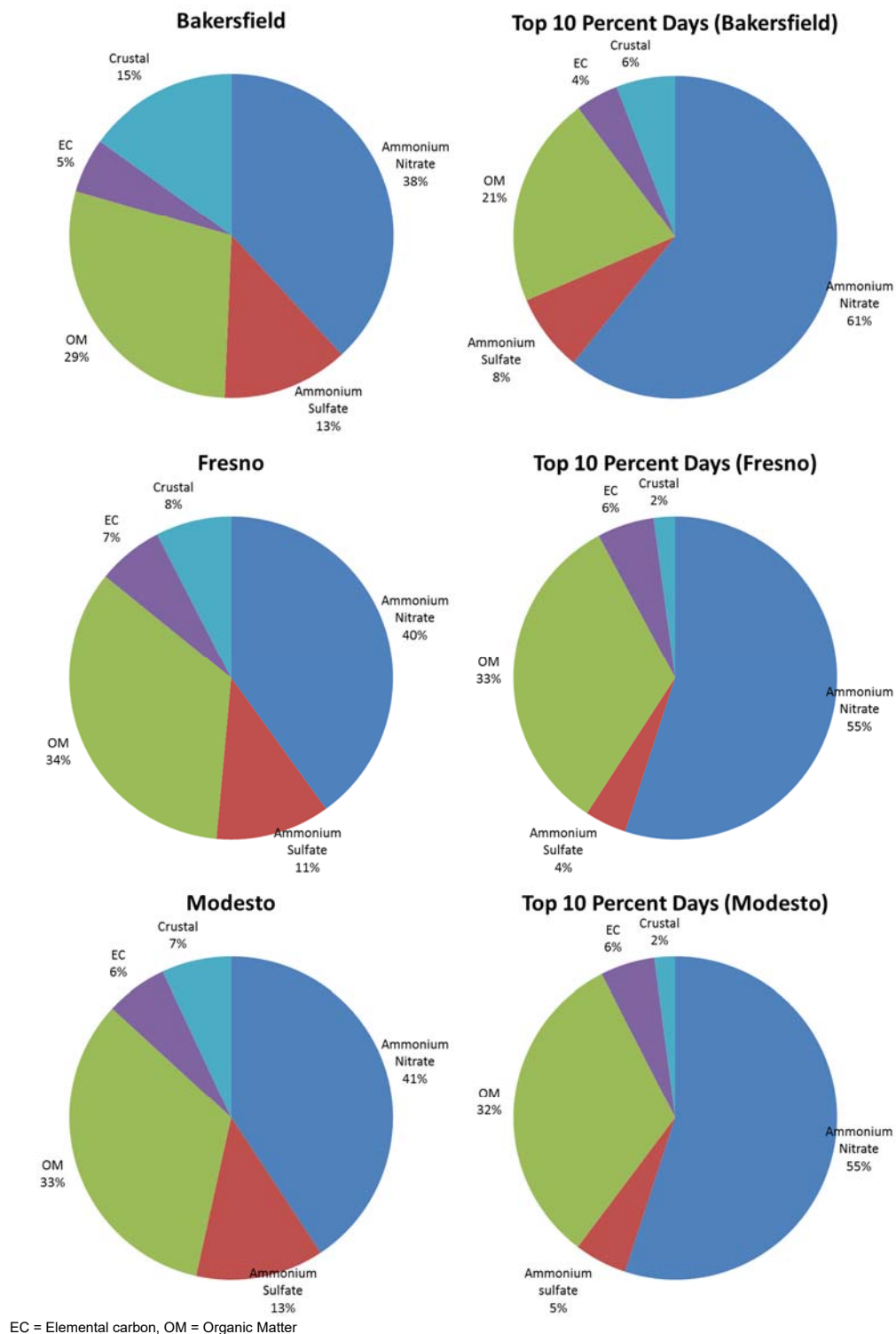


Figure 3 - Three-year average (2011-2013) and average peak day (top 10 percent over the same three years) PM_{2.5} compositions at Bakersfield, Fresno, and Modesto.

3.4 Nonattainment Area

The challenges of the PM_{2.5} precursor demonstration in the San Joaquin Valley stems from its unique topographical and meteorological conditions and the diverse industries found in the region.

3.4.1 Topography

The San Joaquin Valley, as seen in Figure 4, encompasses over 23,000 square miles and includes all or part of eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and the valley portion of Kern. Stretching over 250 miles from north to south and averaging 80 miles wide, it is partially enclosed by the Coast Mountain range to the west and the Tehachapi Mountains to the south and the Sierra Nevada range to the east.

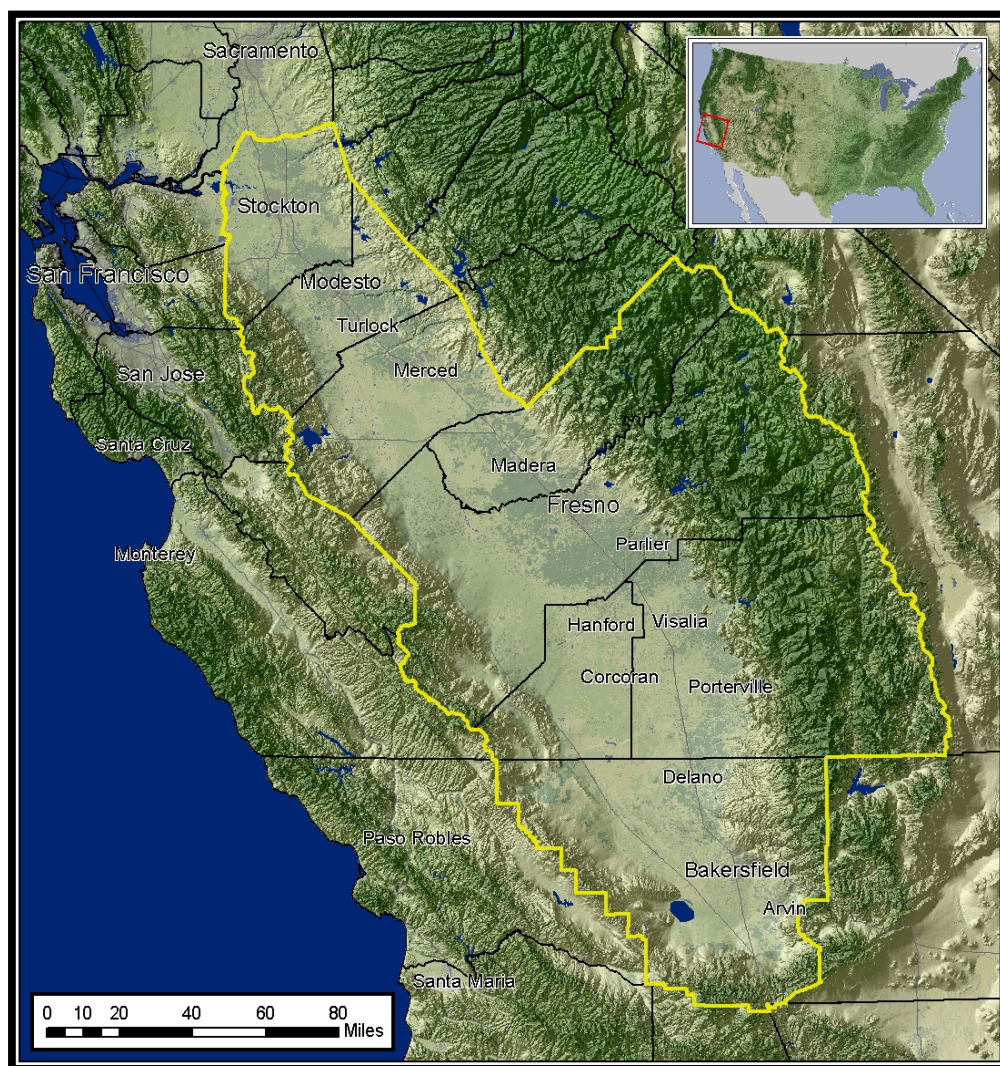


Figure 4 - San Joaquin Valley Air Basin

3.4.2 Meteorological Conditions

The San Joaquin Valley has a Mediterranean climate, with hot, dry summers and mild, moist winters. During the summer, the region is dominated by a strong subtropical high-pressure system over the eastern Pacific, marked with dry sinking air capping a surface marine layer of varying humidity along the coast and making rainfall impossible or unlikely except for the influx of monsoonal moisture. During the winter, the polar jet stream and associated weather systems reach the lower latitudes, bringing rain to the San Joaquin Valley and snow to higher elevations. The San Joaquin Valley receives most precipitation during the winter season, and may go between 4 to 6 months during the summer without significant precipitation.

3.4.3 Diverse Industry

The San Joaquin Valley is one of the most diverse areas in the state of California. It encompasses an area as large as 11 other states. It is a conglomeration of industrial, manufacturing, and farming operations along with commercial operations and metropolitan areas.

3.4.3.1 Agricultural Sector

When speaking of the agricultural sector, it is said that the San Joaquin Valley is the “Bread Basket of the World.” The San Joaquin Valley’s wide-ranging agricultural operations vary from crop production and processing (such as cotton, wheat, rice, fruits, vegetables, walnuts, pistachios, tomato processing and canning) to animal feeding operations, such as milk, chicken, and turkey production, and more. To put it into perspective, the contribution of the San Joaquin Valley’s agricultural communities, all eight counties are ranked in the top 10 agricultural counties in California, and account for over 73% of all US almond production, over 62% of all US grape production, and ~19 % of all US milk production.

3.4.3.2 Industrial & Manufacturing Sector

Similar to the San Joaquin Valley’s agricultural sector, the commercial, industrial, and manufacturing operations are diverse. Ranging from small “mom and pop” operations such as gasoline dispensing facilities, restaurants, and auto body shops to large industrial and manufacturing operations such as refineries, glass production plants, power generation, oil & gas production, and fiberglass and other manufacturing facilities. The San Joaquin Valley has the only flat glass facilities in California and two of the three west of Texas. The San Joaquin Valley has the ninth largest oil production field and four of the top 25 in the continental US. The Valley is also the home to the world’s largest wine producer.

3.5 CTM Model Selection

The U.S. EPA modeling guidance (U.S. EPA, 2014) requires several factors to be considered as criteria for choosing a qualifying air quality model to support the attainment demonstration. These criteria include: (1) It should have received a

scientific peer review; (2) It should be appropriate for the specific application on a theoretical basis; (3) It should be used with databases which are available and adequate to support its application; (4) It should be shown to have performed well in past modeling applications; and (5) It should be applied consistently with an established protocol on methods and procedures (U.S. EPA, 2014). In addition, it should be well documented with a user's guide as well as technical descriptions. For the PM_{2.5} modeled attainment test, a grid-based photochemical model is necessary to offer the best available representation of important atmospheric processes and the ability to analyze the impacts of proposed emission controls on ozone mixing ratios. In CARB's SIP modeling platform, the Community Multiscale Air Quality (CMAQ) Modeling System has been selected as the air quality model for use in attainment demonstrations of NAAQS for ozone and PM_{2.5}. The District utilized the same modeling platform for conducting NNSR precursor modeling.

The CMAQ model, a state-of-the-science "one-atmosphere" modeling system developed by U.S. EPA, was designed for applications ranging from regulatory and policy analysis to investigating the atmospheric chemistry and physics that contribute to air pollution. CMAQ is a three-dimensional Eulerian modeling system that simulates ozone, particulate matter, toxic air pollutants, visibility, and acidic pollutant species throughout the troposphere (UNC, 2010). The model has undergone peer review every few years and represents the state-of-the-science (Brown et al., 2011). The CMAQ model is regularly updated to incorporate new chemical and aerosol mechanisms, algorithms, and data as they become available in the scientific literature (e.g., Appel et al., 2013; Foley, et al., 2010; Pye and Pouliot, 2012;). In addition, the CMAQ model is well documented in terms of its underlying scientific algorithms as well as guidance on operational uses (e.g., Appel et al., 2013; Binkowski and Roselle, 2003; Byun and Ching, 1999; Byun and Schere, 2006; Carlton et al., 2010; Foley et al., 2010; Kelly, et al., 2010a; Pye and Pouliot, 2012; UNC, 2010).

The CMAQ model was the regional air quality model used for the 2008 SJV annual PM_{2.5} SIP (SJVUAPCD, 2008), the 2012 SJV 24-hour PM_{2.5} SIP (SJVUAPCD, 2012), the 2013 SJV 1-hr ozone SIP (SJVUAPCD, 2013), and the 2006/ 2012 24-Hr/ Annual PM_{2.5} SIP (SJVAPCD 2018). A number of previous studies have also used the CMAQ model to study ozone and PM_{2.5} formation in the SJV (e.g., Jin et al., 2008, 2010b; Kelly et al., 2010b; Liang and Kaduwela, 2005; Livingstone, et al., 2009; Pun et al, 2009; Tonse et al., 2008; Vijayaraghavan et al., 2006; Zhang et al., 2010). The CMAQ model has also been used for regulatory analysis for many of U.S. EPA's rules, such as the Clean Air Interstate Rule (U.S. EPA, 2005) and Light-duty and Heavy-duty Greenhouse Gas Emissions Standards (U.S. EPA, 2010, 2011a). There have been numerous applications of the CMAQ model within the U.S. and abroad (e.g., Appel, et al., 2007, 2008; Civerolo et al., 2010; Eder and Yu, 2006; Hogrefe et al., 2004; Lin et al., 2008, 2009; Marmur et al., 2006; O'Neill, et al., 2006; Philips and Finkelstein, 2006; Smyth et al., 2006; Sokhi et al., 2006; Tong et al., 2006; Wilczak et al., 2009; Zhang et al., 2004,

2006), which have shown it to be suitable as a regulatory and scientific tool for investigating air quality. Staff at the CARB has developed expertise in applying the CMAQ model, since it has been used at CARB for over a decade. In addition, technical support for the CMAQ model is readily available from the Community Modeling and Analysis System (CMAS) Center (<http://www.cmascenter.org/>) established by the U.S. EPA.

The version 5.0.2 of the CMAQ model released in May 2014, (http://www.airqualitymodeling.org/cmaqwiki/index.php?title=CMAQ_version_5.0.2_%28April_2014_release%29_Technical_Documentation), will be used in this SIP modeling platform. Compared to the previous version, CMAQv4.7.1, which was used for the 2012 SJV 24-hour PM_{2.5} SIP (SJVUAPCD, 2012) and the 2013 SJV 1-hour ozone SIP (SJVUAPCD, 2013), CMAQ version 5 and above incorporated substantial new features and enhancements to topics such as gas-phase chemistry, aerosol algorithms, and structure of the numerical code (http://www.airqualitymodeling.org/cmaqwiki/index.php?title=CMAQ_version_5.0_%28February_2012_release%29_Technical_Documentation#RELEASE_NOTES_for_CMAQ_v5.0_.C2.A0February_2012).

3.6 Justification for Seasonal/Annual Modeling Rather than Episodic Modeling

In the past, computational constraints restricted the time period modeled for a SIP attainment demonstration to a few episodes (e.g., 2007 SJV 8-hr ozone SIP (SJVUAPCD, 2007), 2007 SC 8-hr ozone SIP (SCAQMD, 2012), 2009 Sacramento 8-hr ozone SIP (SMAQMD, 2012), and the 2006/ 2012 24-Hr/ Annual PM_{2.5} SIP (SJVAPCD 2018)). However, as computers have become faster and large amounts of data storage have become readily accessible, there is no longer a need to restrict modeling periods to only a few episodes. In more recent years, SIP modeling in California has covered the entire ozone or peak PM_{2.5} seasons (2012 SC 8-hour ozone and 24-hour PM_{2.5} SIP (SCAQMD, 2012), 2012 SJV 24-hour PM_{2.5} SIP (SJVUAPCD, 2012) and 2013 SJV 1-hr ozone SIP (SJVUAPCD, 2013)), or an entire year in the case of annual PM_{2.5} (2008 SJV annual PM_{2.5} SIP (SJVUAPCD, 2008)) The same is true for other regulatory modeling platforms outside of California (Boylan and Russell, 2006; Morris et al., 2006; Rodriguez et al., 2009; Simon et al., 2012; Tesche et al., 2006; U.S. EPA, 2011a, b).

Recent ozone based studies, which focused on model performance evaluation for regulatory assessment, have recommended the use of modeling results covering the full synoptic cycles and full ozone seasons (Hogrefe et al., 2000; Vizuite et al., 2011). This enables a more complete assessment of ozone response to emission controls under a wide range of meteorological conditions. The same is true for modeling conducted for peak 24-hour PM_{2.5}. Consistent with the shift to seasonal or annual modeling in most regulatory modeling applications, modeling for the annual 24-hour PM_{2.5} standard will be conducted for the entire year, and modeling for the 24-hour PM_{2.5} standard will, at a

minimum, cover the months in which peak 24-hour PM_{2.5} occurs (e.g., October – March in the SJV) and annually.

3.7 Models and Inputs

The Following sections describes the modeling inputs used for the NNSR precursor demonstration.

3.8 Meteorological Model

Meteorological model selection is based on a need to accurately simulate the synoptic and mesoscale meteorological features observed during the selected modeling period. The main difficulties in accomplishing this are California's extremely complex terrain and its diverse climate. It is desirable that atmospheric modeling adequately represent essential meteorological fields such as wind flows, ambient temperature variation, evolution of the boundary layer, and atmospheric moisture content to properly characterize the meteorological component of photochemical modeling.

In the past, the CARB has applied prognostic, diagnostic, and hybrid models to prepare meteorological fields for photochemical modeling. There are various numerical models that are used by the scientific community to study the meteorological characteristics of an air pollution episode. For the 2018 Plan modeling platform, the Weather and Research Forecasting (WRF) model (Skaramock et al, 2005) will be used to develop the meteorological fields that drive the photochemical modeling. The U.S. EPA (2014) recommends the use of a well-supported grid-based mesoscale meteorological model for generating meteorological inputs. The WRF model is a community-based mesoscale prediction model, which represents the state-of-the-science and has a large community of model users and developers who frequently update the model as new science becomes available. In recent years, WRF has been applied in California to generate meteorological fields for numerous air quality studies (e.g., Angevine, et al., 2012; Baker et al., 2015; Ensberg et al., 2013; Fast et al., 2014; Hu et al., 2014a, 2014b; Huang et al., 2010; Kelly et al., 2014; Lu et al., 2012; Mahmud et al., 2010), and has been shown to reasonably reproduce the observed meteorology in California.

3.8.1 Meteorological Modeling Domain

The WRF meteorological modeling domain consists of three nested grids of 36 km, 12 km and 4 km uniform horizontal grid spacing (illustrated in Figure 5). The purpose of the coarse, 36 km grid (D01) is to provide synoptic-scale conditions to all three grids, while the 12 km grid (D02) is used to provide finer resolution data that feeds into the 4 km grid (D03). The D01 grid is centered at 37 °N and 120.5 °W and was chosen so that the inner two grids, D02 and D03, would nest inside of D03 and be sufficiently far away from the boundaries to minimize boundary influences. The D01 grid consists of 90 x 90 grid cells, while the D02 and D03 grids encompass 192 x 192 and 327 x 297 grid cells, respectively, with an origin at -696 km x -576 km (Lambert Conformal projection). WRF will be run for the three nested domains simultaneously with two-way feedback between

the parent and the nest grids. The D01 and D02 grids are meant to resolve the larger scale synoptic weather systems, while the D03 grid is intended to resolve the finer details of the atmospheric conditions and will be used to drive the air quality model simulations. All three domains will utilize 30 vertical sigma layers (defined in Table 2), as well as the various physics options listed in Table 3 for each domain.

The initial and boundary conditions (IC/BCs) for WRF will be prepared based on 3-D North American Regional Reanalysis (NARR) data that are archived at the National Center for Atmospheric Research (NCAR). These data have a 32 km horizontal resolution. Boundary conditions to WRF are updated at 6-hour intervals for the 36 km grid (D01). In addition, surface and upper air observations obtained from NCAR will be used to further refine the analysis data that are used to generate the IC/BCs. Analysis nudging will be employed in the outer 36km grid (D01) to ensure that the simulated meteorological fields are constrained and do not deviate from the observed meteorology.

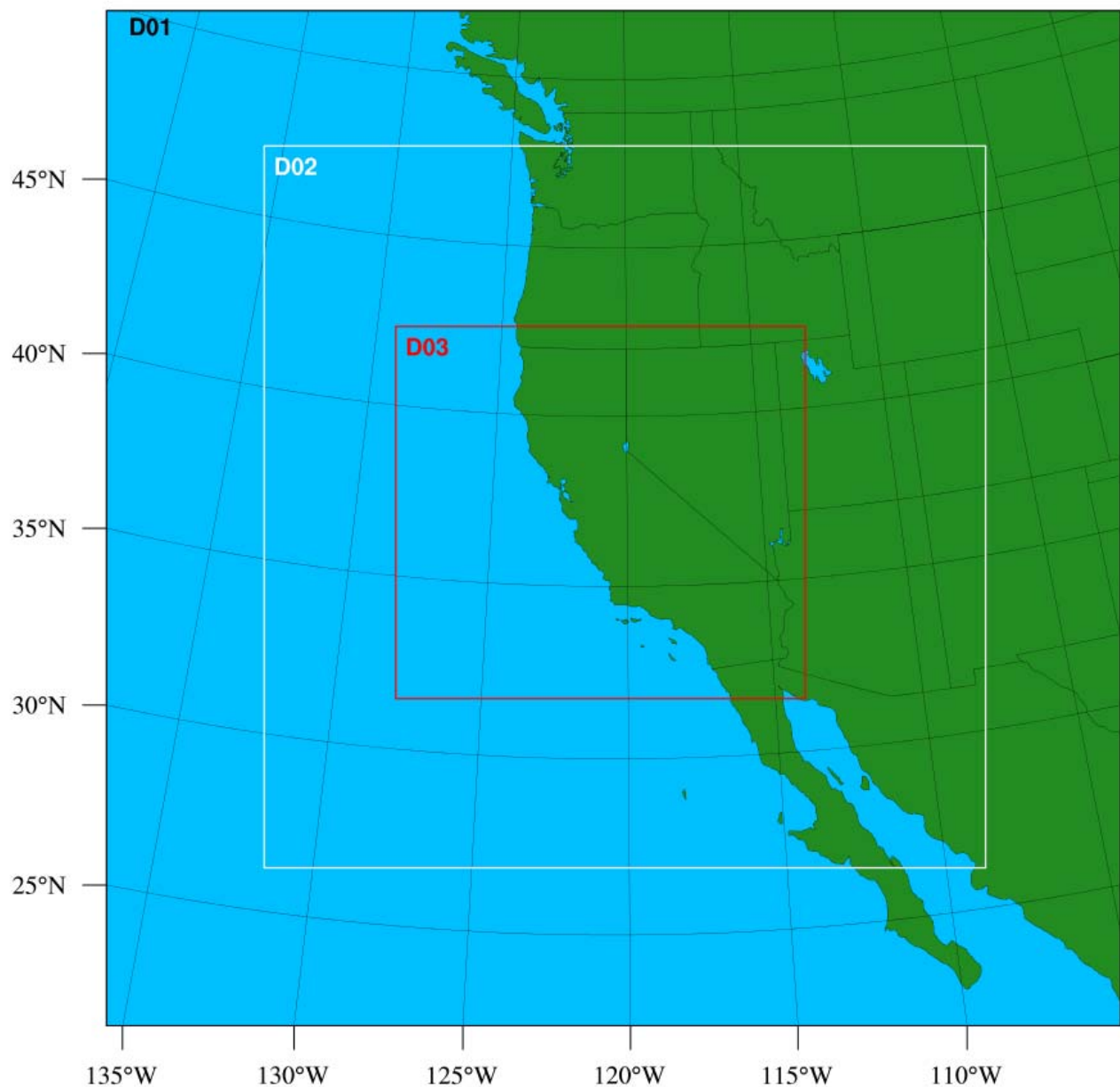


Figure 5 - The Three Nested Grids for the WRF Model (D01 36km; D02 12km; and D03 4km)

Table 2 - WRF Vertical Layer Structure

Layer Number	Height (m)	Layer Thickness (m)	Layer Number	Height (m)	Layer Thickness (m)
30	16082	1192	14	1859	334
29	14890	1134	13	1525	279
28	13756	1081	12	1246	233
27	12675	1032	11	1013	194
26	11643	996	10	819	162
25	10647	970	9	657	135
24	9677	959	8	522	113
23	8719	961	7	409	94
22	7757	978	6	315	79
21	6779	993	5	236	66
20	5786	967	4	170	55
19	4819	815	3	115	46
18	4004	685	2	69	38
17	3319	575	1	31	31
16	2744	482	0	0	0
15	2262	403			

Note: Shaded layers denote the subset of vertical layers to be used in the CMAQ photochemical model simulations. Further details on the CMAQ model configuration and settings can be found in subsequent sections.

Table 3 - WRF Physics Options

Physics Option	Domain		
	D01 (36 km)	D02 (12 km)	D03 (4 km)
Microphysics	WSM 6-class graupel scheme	WSM 6-class graupel scheme	WSM 6-class graupel scheme
Longwave radiation	RRTM	RRTM	RRTM
Shortwave radiation	Dudhia scheme	Dudhia scheme	Dudhia scheme
Surface layer	Revised MM5 Monin-Obukhov	Revised MM5 Monin-Obukhov	Revised MM5 Monin-Obukhov
Land surface	Pleim-Xiu LSM	Pleim-Xiu LSM	Pleim-Xiu LSM
Planetary Boundary Layer	YSU	YSU	YSU
Cumulus Parameterization	Kain-Fritsch scheme	Kain-Fritsch scheme	None

3.9 CMAQ Model Options

Table 4 shows the CMAQv5.0.2 configuration utilized in this modeling platform. The same configuration will be used in all simulations for both ozone and PM_{2.5}, and for all modeled years. The Intel FORTRAN compiler version 12 will be used to compile all source codes.

Table 4 - CMAQ v5.0.2 Configuration and Settings

Process	Scheme
Horizontal advection	Yamo (Yamartino scheme for mass-conserving advection)
Vertical advection	WRF-based scheme for mass-conserving advection
Horizontal diffusion	Multi-scale
Vertical diffusion	ACM2 (Asymmetric Convective Model version 2)
Gas-phase chemical mechanism	SAPRC07 gas-phase mechanism with version “C” toluene updates
Chemical solver	EBI (Euler Backward Iterative solver)
Aerosol module	Aero6 (the sixth-generation CMAQ aerosol mechanism with extensions for sea salt emissions and thermodynamics; includes a new formulation for secondary organic aerosol yields)
Cloud module	ACM_AE6 (ACM cloud processor that uses the ACM methodology to compute convective mixing with heterogeneous chemistry for AERO6)
Photolysis rate	phot_inline (calculate photolysis rates in-line using simulated aerosols and ozone)

3.9.1 Photochemical Mechanism

The SAPRC07 chemical mechanism will be utilized for all CMAQ simulations. SAPRC07, developed by Dr. William Carter at the University of California, Riverside, is a detailed mechanism describing the gas-phase reactions of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) (Carter, 2010a, 2010b). It represents a complete update to the SAPRC99 mechanism, which has been used for previous ozone SIP plans in the SJV. The well-known SAPRC family of mechanisms have been used widely in California and the U.S. (e.g., Baker, et al., 2015; Cai et al., 2011; Chen et al., 2014; Dennis et al., 2008; Ensberg, et al., 2013; Hakami, et al., 2004a, 2004b; Hu et al., 2012, 2014a, 2014b; Jackson, et al., 2006; Jin et al., 2008, 2010b; Kelly, et al., 2010b; Lane et al., 2008; Liang and Kaduwela, 2005; Livingstone et al., 2009; Lin et al., 2005; Napelenok, 2006; Pun et al., 2009; Tonse et al., 2008; Ying et al., 2008a, 2008b; Zhang et al., 2010; Zhang and Ying, 2011).

The SAPRC07 mechanism has been fully reviewed by four experts in the field through a CARB funded contract. These reviews can be found at <http://www.arb.ca.gov/research/reactivity/rsac.htm>. Dr. Derwent's (2010) review compared

ozone impacts of 121 organic compounds calculated using SAPRC07 and the Master Chemical Mechanism (MCM) v 3.1 and concluded that the ozone impacts using the two mechanisms were consistent for most compounds. Dr. Azzi (2010) used SAPRC07 to simulate ozone formation from isoprene, toluene, m-xylene, and evaporated fuel in environmental chambers performed in Australia and found that SAPRC07 performed reasonably well for these data. Dr. Harley discussed implementing the SAPRC07 mechanism into 3-D air quality models and brought up the importance of the rate constant of $\text{NO}_2 + \text{OH}$. This rate constant in the SAPRC07 mechanism in CMAQv5.0.2 has been updated based on new research (Mollner et al., 2010). Dr. Stockwell (2009) compared individual reactions and rate constants in SAPRC07 to two other mechanisms (CB05 and RADM2) and concluded that SAPRC07 represented a state-of-the-science treatment of atmospheric chemistry.

3.9.2 Aerosol Module

The aerosol mechanism with extensions version 6 with aqueous-phase chemistry (AE6-AQ) will be utilized for all SIP modeling. When coupled with the SAPRC07 chemical mechanism, AE6-AQ simulates the formation and evaporation of aerosol and the evolution of the aerosol size distribution (Foley et al., 2010). AE6-AQ includes a comprehensive, yet computationally efficient, inorganic thermodynamic model ISORROPIA to simulate the physical state and chemical composition of inorganic atmospheric aerosols (Fountoukis and Nenes, 2007). AE6-AQ also features the addition of new $\text{PM}_{2.5}$ species, an improved secondary organic aerosol (SOA) formation module, as well as new treatment of atmospheric processing of primary organic aerosol (Appel et al., 2013; Carlton et al., 2010; Simon and Bhawe, 2011). These updates to AE6-AQ in CMAQv5.0.2 continue to represent state-of-the-art treatment of aerosol processes in the atmosphere (Brown et al., 2011).

3.9.3 CMAQ Initial and Boundary Conditions (IC/BC) and Spin-Up period

Air quality model initial conditions define the mixing ratio (or concentration) of chemical and aerosol species within the modeling domain at the beginning of the model simulation. Boundary conditions define the chemical species mixing ratio (or concentration) within the air entering or leaving the modeling domain. This section discusses the initial and boundary conditions utilized in the CARB modeling system.

U.S. EPA guidance recommends using a model “spin-up” period by beginning a simulation 3-10 days prior to the period of interest (U.S. EPA, 2014). This “spin-up” period allows the initial conditions to be “washed out” of the system, so that the actual initial conditions have little to no impact on the modeling over the time period of interest, as well as giving sufficient time for the modeled species to come to chemical equilibrium. When conducting annual or seasonal modeling, it is computationally more efficient to simulate each month in parallel rather than the entire year or season sequentially. For each month, the CMAQ simulations will include a seven day spin-up period (i.e., the last seven days of the previous month) for the outer 12 km domain to

ensure that the initial conditions are “washed out” of the system. Initial conditions at the beginning of the seven day spin-up period will be based on the default initial conditions that are included with the CMAQ release. The 4 km inner domain simulations will utilize a three day spin-up period, where the initial conditions will be based on output from the corresponding day of the 12 km domain simulation.

In recent years, the use of global chemical transport model (CTM) outputs as boundary conditions (BCs) in regional CTM applications has become increasingly common (Chen et al., 2008; Hogrefe et al., 2011; Lam and Fu, 2009; Lee et al., 2011; Lin et al., 2010), and has been shown to improve model performance in many cases (Appel et al., 2007; Borge et al., 2010; Tang et al., 2007, 2009; Tong and Mauzerall, 2006). The advantage of using global CTM model outputs as opposed to fixed climatological-average BCs is that the global CTM derived BCs capture spatial, diurnal, and seasonal variability, as well as provide a set of chemically consistent pollutant mixing ratios. In the CARB’s SIP modeling system, the Model for Ozone And Related chemical Tracers (MOZART; Emmons et al., 2010) will be used to define the boundary conditions for the outer 12 km CMAQ domain, while boundary conditions for the 4 km domain will be derived from the 12 km output. MOZART is a comprehensive global model for simulating atmospheric composition including both gases and bulk aerosols (Emmons et al., 2010). It was developed by the National Center for Atmospheric Research (NCAR), the Max-Planck-Institute for Meteorology (in Germany), and the Geophysical Fluid Dynamics Laboratory (GFDL) of the National Oceanic and Atmospheric Administration (NOAA), and is widely used in the scientific community. In addition to inorganic gases and VOCs, BCs were extracted for aerosol species including elemental carbon, organic matter, sulfate, soil and nitrate. MOZART has been extensively peer-reviewed and applied in a range of studies that utilize its output in defining BCs for regional modeling studies within California and other regions of the U.S. (e.g., Avise et al., 2008; Chen et al., 2008, 2009a, 2009b; Fast et al., 2014; Jathar et al., 2015).

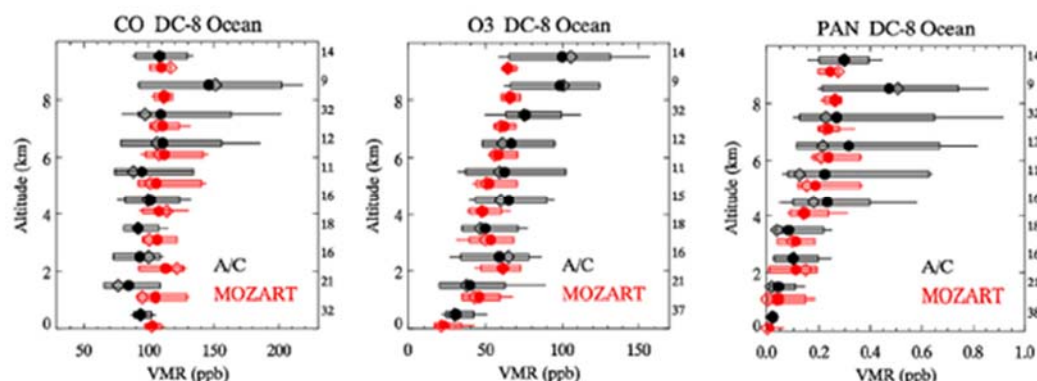


Figure 6 - Comparison of MOZART (red) simulated CO (left), ozone (center), and PAN (right) to observations (black) along the DC-8 flight track. Shown are mean (filled symbol), median (open symbols), 10th and 90th percentiles (bars) and extremes (lines).

The number of data points per 1-km wide altitude bin is shown next to the graphs. Adapted from Figure 2 in Pfister et al. (2011).

In particular, MOZART version 4 (MOZART-4) was recently used in a study characterizing summertime air masses entering California from the Pacific Ocean (Pfister et al., 2011). In their work, Pfister et al. (2011) compared MOZART-4 simulation results to measurements of CO, ozone, and peroxyacetyl nitrate (PAN) made off the California coast during the ARCTAS-CARB airborne field campaign (Jacob et al., 2010) and showed good agreement between the observations and model results (see Figure 5-3).

The specific MOZART simulations to be utilized in this modeling platform are the MOZART4-GEOS5 simulations by Louisa Emmons (NCAR) for the years 2012 and 2013, which are available for download at <http://www.acom.ucar.edu/wrf-chem/mozart.shtml>. These simulations are similar to those of Emmons et al. (2010), but with updated meteorological fields. Boundary condition data will be extracted from the MOZART-4 output and processed to CMAQ model ready format using the “mozart2camx” code developed by the Rambol-Environ Corporation (available at <http://www.camx.com/download/support-software.aspx>). The final BCs represent day-specific mixing ratios, which vary in both space (horizontal and vertical) and time (every six hours).

Per U.S. EPA guidance, the same MOZART derived BCs for the 12 km outer domain will be used for all simulations (e.g., Base Case, Reference, Future, and any sensitivity simulation).

3.9.4 Quality Assurance of Model Inputs

In developing the IC/BCs and Four Dimensional Data Assimilation (FDDA) datasets for WRF, quality control is performed on all associated meteorological data. Generally, all surface and upper air meteorological data are plotted in space and time to identify extreme values that are suspected to be “outliers”. Data points are also compared to other, similar surrounding data points to determine whether there are any large relative discrepancies. If a scientifically plausible reason for the occurrence of suspected outliers is not known, the outlier data points are flagged as invalid and may not be used in the modeling analyses.

In addition, the model-ready emissions files used in CMAQ will be evaluated and compared against the planning inventory totals. Although deviations between the model-ready and planning inventories are expected due to temporal adjustments (e.g., month-of-year and day-of-week) and adjustments based on meteorology (e.g., evaporative emissions from motor vehicles and biogenic sources), any excessive deviation will be investigated to ensure the accuracy of the temporal and meteorology based adjustments. If determined to be scientifically implausible, then the adjustments

which led to the deviation will be investigated and updated based on the best available science.

Similar to the quality control of the modeling emissions inventory, the chemical boundary conditions derived from the global CTM model will be evaluated to ensure that no errors were introduced during the processing of the data (e.g., during vertical interpolation of the global model data to the regional model vertical structure or mapping of the chemical species). Any possible errors will be evaluated and addressed if they are determined to be actual errors and not an artifact of the spatial and temporal dynamics inherent in the boundary conditions themselves.

3.10 Meteorological Model Performances

The complex interactions between the ocean-land interface, orographic induced flows from the mountain-valley topography, and the extreme temperature gradients between the ocean, delta regions, valley floor, and mountain ranges, make California one of the most challenging areas in the country to simulate using prognostic meteorological models. Although there is a long history of prognostic meteorological model applications in California (e.g., Bao et al., 2008; Hu et al., 2010; Jackson et al., 2006; Jin et al., 2010a, 2010b; Livingstone et al., 2009; Michelson et al., 2010; Seaman, Stauffer, and Lario-Gibbs, 1995; Stauffer et al., 2000; Tanrikulu et al., 2000), there is no single model configuration that works equally well for all years and/or seasons, which makes evaluation of the simulated meteorological fields critical for ensuring that the fields reasonably reproduce the observed meteorology for any given time period.

3.10.1 Ambient Data Base and Quality of Data

Observed meteorological data used to evaluate the WRF model simulations will be obtained from the Air Quality and Meteorological Information System (AQMIS) database, which is a web-based source for real-time and official air quality and meteorological data (www.arb.ca.gov/airqualitytoday/). This database contains surface meteorological observations from 1969-2016, with the data through 2013 having been fully quality assured and deemed official. In addition, CARB also has quality-assured upper-air meteorological data obtained using balloons, aircraft, and profilers.

3.10.2 Statistical Evaluation

Statistical analyses will be performed to evaluate how well the WRF model captured the overall structure of the observed atmosphere during the simulation period, using wind speed, wind direction, temperature, and humidity. The performance of the WRF model against observations will be evaluated using the METSTAT analysis tool (Emery et al., 2001) and supplemented using statistical software tools developed at CARB. The model output and observations will be processed, and data points at each observational site for wind speed, wind direction, temperature, and moisture data will be extracted. The following values will be calculated: Mean Obs, Mean Model, Mean Bias (MB), Mean (Gross) Error (ME/MGE), Normalized Mean Bias (NMB), Root Mean Squared error

(RMSE), and the Index Of Agreement (IOA) when applicable. Additional statistical analysis may also be performed.

The mathematical expressions for these quantities are:

$$MB = \frac{1}{N} \sum_1^N (\text{Model} - \text{Obs}) \quad (1)$$

$$ME = \frac{1}{N} \sum_1^N |\text{Model} - \text{Obs}| \quad (2)$$

$$NMB = \frac{\sum_1^N (\text{Model} - \text{Obs})}{\sum_1^N \text{Obs}} \times 100\%, \quad (3)$$

$$RSME = \sqrt{\frac{\sum_1^N (\text{Model} - \text{Obs})^2}{N}} \quad (4)$$

$$IOA = 1 - \frac{\sum_1^N (\text{Model} - \text{Obs})^2}{\sum_1^N [(\text{Model} - \text{Obs}) + (\text{Model} + \text{Obs})]^2}, \quad (5)$$

where, “*Model*” is the simulated values, “*Obs*” is the observed value, and *N* is the number of observations. These values will be tabulated and plotted for all monitoring sites within the air basin of interest, and summarized by subregion when there are distinct differences in the meteorology within the basin. Statistics may be compared to other prognostic model applications in California to place the current model performance within the context of previous studies. In addition to the statistics above, model performance may also be evaluated through metrics such as frequency distributions, time-series analysis, and wind-rose plots. Based on previous experience with meteorological simulations in California, it is expected that the analysis will show wind speed to be overestimated at some stations with a smaller difference at others. The diurnal variations of temperature and wind direction at most stations are likely to be captured reasonably well. However, the model will likely underestimate the larger magnitudes of temperature during the day and smaller magnitudes at night.

3.10.3 Phenomenological Evaluation

In addition to the statistical evaluation described above, a phenomenological based evaluation can provide additional insights as to the accuracy of the meteorological modeling. A phenomenological evaluation may include analysis such as determining the relationship between observed air quality and key meteorological parameters (e.g., conceptual model) and then evaluating whether the simulated meteorology and air quality is able to reproduce those relationships. Another possible approach would be to generate geopotential height charts at 500 and 850 mb using the simulated results and compare those to the standard geopotential height charts. This would reveal if the large-scale weather systems at those pressure levels were adequately simulated by the regional prognostic meteorology model. Another similar approach is to identify the larger-scale meteorological conditions associated with air quality events using the National Centers for Environmental Prediction (NCEP) Reanalysis dataset. These can then be visually compared to the simulated meteorological fields to determine whether those large-scale meteorological conditions were accurately simulated and whether the same relationships observed in the NCEP reanalysis are present in the simulated data.

3.11 Photochemical Model Performance

3.11.1 Ambient Data

Air quality observations are routinely made at state and local monitoring stations. Gas species and PM species are measured on various time scales (e.g., hourly, daily, weekly). The U.S. EPA guidance recommends model performance evaluations for the following gaseous pollutants: ozone (O_3), nitric acid (HNO_3), nitric oxide (NO), nitrogen dioxide (NO_2), peroxyacetyl nitrate (PAN), volatile organic compounds (VOCs), ammonia (NH_3), NO_y (sum of NO_x and other oxidized compounds), sulfur dioxide (SO_2), carbon monoxide (CO), and hydrogen peroxide (H_2O_2). The U.S. EPA recognizes that not all of these species are routinely measured (U.S. EPA, 2014) and therefore may not be available for evaluating every model application. Recognizing that $PM_{2.5}$ is a mixture, U.S. EPA recommends model performance evaluation for the following individual $PM_{2.5}$ species: sulfate (SO_4^{2-}), nitrate (NO_3^-), ammonium (NH_4^+), elemental carbon (EC), organic carbon (OC) or organic mass (OM), crustal, and sea salt constituent (U.S. EPA, 2014).

Table 5 lists the species for which routine measurements are generally available in 2012 and 2013. When quality assured data are available and appropriate for use, model performance for each species will be evaluated. Observational data will be obtained from the Air Quality and Meteorological Information System (AQMIS), which is a web-based source for real-time and official air quality and meteorological data (www.arb.ca.gov/airqualitytoday/). This database contains surface air quality observations from 1980-2016, with the data through 2014 having been fully quality assured and deemed official.

Table 5 - Monitored Species Used in Evaluating Model Performance

Species	Sampling frequency
O ₃	1 hour
NO	1 hour
NO ₂	1 hour
NO _x	1 hour
CO	1 hour
SO ₂	1 hour
Selected VOCs from the PAMS measurement	3 hours (not every day)
PM _{2.5} measured using FRM ¹	24 hours (daily to one in six days)
PM _{2.5} measured using FEM	Continuously
PM _{2.5} Speciation sites	24 hours (not every day)
Sulfate ion	24 hours (not every day)
Nitrate ion	24 hours (not every day)
Ammonium ion	24 hours (not every day)
Organic carbon	24 hours (not every day)
Elemental carbon	24 hours (not every day)
Sea salt constituents	24 hours (not every day)

¹ Direct comparison between modeled and FRM PM_{2.5} may not be appropriate because of various positive and negative biases associated with FRM measurement procedures.

These species cover the majority of pollutants of interest for evaluating model performance as recommended by the U.S. EPA. Other species such as H₂O₂, HNO₃, NH₃, and PAN are not routinely measured. During the DISCOVER-AQ field campaign, which took place in January and February 2013 in the SJV, aircraft sampling provided daytime measurements for a number of species (including HNO₃, NH₃, PAN, alkyl nitrates, and selected VOC species) that are not routinely measured. Modeled concentrations will be compared to aircraft measurements for these species, except for the gaseous HNO₃ measurements, which were contaminated by particulate nitrate (Dr. Chris Cappa, personal communication).

3.11.2 Statistical Evaluation

As recommended by U.S. EPA, a number of statistical metrics will be used to evaluate model performance for ozone, speciated and total PM_{2.5}, as well as other precursor species. These metrics may include mean bias (MB), mean error (ME), mean fractional bias (MFB), mean fractional error (MFE), normalized mean bias (NMB), normalized mean error (NME), root mean square error (RMSE), correlation coefficient (R²), mean normalized bias (MNB), and mean normalized gross error (MNGE). The formulae for estimating these metrics are given below.

$$MB = \frac{1}{N} \sum_{i=1}^N (\text{Model} - \text{Obs}) \quad (1)$$

$$ME = \frac{1}{N} \sum_{i=1}^N |\text{Model} - \text{Obs}| \quad (2)$$

$$MFB = \frac{2}{N} \sum_{i=1}^N \left(\frac{\text{Model} - \text{Obs}}{\text{Model} + \text{Obs}} \right) \times 100\%, \quad (3)$$

$$MFE = \frac{2}{N} \sum_{i=1}^N \left(\frac{|\text{Model} - \text{Obs}|}{\text{Model} + \text{Obs}} \right) \times 100\%, \quad (4)$$

$$NMB = \frac{\sum_{i=1}^N (\text{Model} - \text{Obs})}{\sum_{i=1}^N \text{Obs}} \times 100\%, \quad (5)$$

$$NME = \frac{\sum_{i=1}^N |\text{Model} - \text{Obs}|}{\sum_{i=1}^N \text{Obs}} \times 100\%, \quad (6)$$

$$RSME = \sqrt{\frac{\sum_{i=1}^N (\text{Model} - \text{Obs})^2}{N}} \quad (7)$$

$$R^2 = \left(\frac{\sum_{i=1}^N ((\text{Model} - \overline{\text{Model}}) \times (\text{Obs} - \overline{\text{Obs}}))}{\sqrt{\sum_{i=1}^N (\text{Model} - \overline{\text{Model}})^2 \sum_{i=1}^N (\text{Obs} - \overline{\text{Obs}})^2}} \right)^2 \quad (8)$$

$$\text{MNB} = \frac{1}{N} \sum_{i=1}^N \left(\frac{\text{Model} - \text{Obs}}{\text{Obs}} \right) \times 100\%, \quad (9)$$

$$\text{MNGE} = \frac{1}{N} \sum_{i=1}^N \left(\frac{|\text{Model} - \text{Obs}|}{\text{Obs}} \right) \times 100\%. \quad (10)$$

where, “Model” is the simulated mixing ratio, “ $\overline{\text{Model}}$ ” is the simulated mean mixing ratio, “Obs” is the observed value, “ $\overline{\text{Obs}}$ ” is the mean observed value, and “N” is the number of observations.

In addition to the above statistics, various forms of graphics will also be created to visually examine and compare the model predictions to observations. These will include time-series plots comparing the predictions and observations, scatter plots for comparing the magnitude of the simulated and observed mixing ratios, box plots to summarize the time series data across different regions and averaging times, as well as frequency distributions. For PM_{2.5} the so called “bugle plots” of MFE and MFB from Boylan and Russell (2006) will also be generated. The plots described above will be created for paired observations and predictions over time scales dictated by the averaging frequencies of observations (i.e., hourly, daily, monthly, seasonally) for the species of interest. Together, they will provide a detailed view of model performance during different time periods, in different sub-regions, and over different concentrations and mixing ratio levels.

3.11.3 Comparison to Previous Modeling Studies

Previous U.S. EPA modeling guidance (U.S. EPA, 1991) utilized “bright line” criteria for the performance statistics that distinguished between adequate and inadequate model performance. In the latest modeling guidance from U.S. EPA (U.S. EPA, 2014) it is now recommended that model performance be evaluated in the context of similar modeling studies to ensure that the model performance approximates the quality of those studies. The work of Simon et al. (2012) summarized photochemical model performance for studies published in the peer-reviewed literature between 2006 and 2012 and this work will form the basis for evaluating the modeling utilized in the attainment demonstration.

3.11.4 Diagnostic Evaluation

Diagnostic evaluations are useful for investigating whether the physical and chemical processes that control ozone and PM_{2.5} formation are correctly represented in the modeling. These evaluations can take many forms, such as utilizing model probing tools like process analysis, which tracks and apportions ozone mixing ratios in the model to various chemical and physical processes, or source apportionment tools that utilize model tracers to attribute ozone formation to various emissions source sectors and/or geographic regions. Sensitivity studies (either “brute-force” or the numerical Direct Decoupled Method) can also provide useful information as to the response exhibited in the modeling to changes in various input parameters, such as changes to the emissions inventory or boundary conditions. Due to the nature of this type of analysis, diagnostic evaluations can be very resource intensive and the U.S. EPA modeling guidance acknowledges that air agencies may have limited resources and time to perform such analysis under the constraints of a typical SIP modeling application.

In addition to the above analysis, the 2013 DISCOVER-AQ field campaign in the SJV offers a unique dataset for additional diagnostic analysis that is not available in other areas, in particular, the use of indicator ratios in determining the sensitivity of secondary PM_{2.5} to its limiting precursors. As an example, the ratio between free ammonia (total ammonia – 2 x sulfate) and total nitrate (gaseous + particulate) was proposed by Ansari and Pandis (1998) as an indicator of whether ammonium nitrate formation is limited by NO_x or ammonia emissions. The DISCOVER-AQ dataset will be utilized to the extent possible to investigate PM_{2.5} precursor sensitivity in the SJV as well as analysis of upper measurements and detailed ground level AMS measurements (Young et al., 2016).

3.12 Grid Resolution

EPA recommends that the major stationary source assessments for nonattainment areas be conducted using horizontal grid resolutions between ~1 kilometer (km) up to ~12 km.

Figure 7 shows the photochemical modeling domains used by CARB for the 2018 Plan. The larger domain (dashed black colored box), covering all of California, has a horizontal grid resolution of 12 km and extends from the Pacific Ocean in the west to Eastern Nevada in the east and runs from south of the U.S.-Mexico border in the south to north of the California-Oregon border in the north. The smaller 4 km Northern (green box) and Southern (red box) modeling domains are nested within the outer 12 km domain and utilized to better reflect the finer scale details of meteorology, topography, and emissions. Consistent with the WRF modeling, the 12 km and 4 km CMAQ domains are based on a Lambert Conformal Conic projection with reference longitude at -120.5°W, reference latitude at 37°N, and two standard parallels at 30°N and 60°N. The 30 vertical layers from WRF were mapped onto 18 vertical layers for CMAQ, extending from the surface to 100 mb such that the majority of the vertical layers fall

within the planetary boundary layer. A third 4 km resolution modeling domain (blue box) is nested within the Northern California domain and covers the SJV air basin. This smaller SJV domain may be utilized for PM_{2.5} modeling in the SJV if computational constraints (particularly for annual modeling) require the use of a smaller modeling domain. In prior work, modeling results from the smaller SJV domain were compared to results from the larger Northern California domain and no appreciable differences were noted, provided that both simulations utilized chemical boundary conditions derived from the same statewide 12 km simulation.

For the coarse portions of nested regional grids, the U.S. EPA guidance (U.S. EPA, 2014) suggests a grid cell size of 12 km if feasible but not larger than 36 km. For the fine scale portions of nested regional grids, it is desirable to use a grid cell size of ~4 km (U.S. EPA, 2014). CARB's selection of modeling domains and grid resolution is consistent with this recommendation. The U.S. EPA guidance (U.S. EPA, 2014) does not require a minimum number of vertical layers for an attainment demonstration, although typical applications of "one-atmosphere" models (with the model top at 50-100 mb) are anywhere from 14 to 35 vertical layers. In the CARB's current SIP modeling platform, 18 vertical layers will be used in the CMAQ model. The vertical structure is based on the sigma-pressure coordinate, with the layers separated at 1.0, 0.9958, 0.9907, 0.9846, 0.9774, 0.9688, 0.9585, 0.9463, 0.9319, 0.9148, 0.8946, 0.8709, 0.8431, 0.8107, 0.7733, 0.6254, 0.293, 0.0788, and 0.0. As previously noted, this also ensures that the majority of the layers are in the planetary boundary layer.

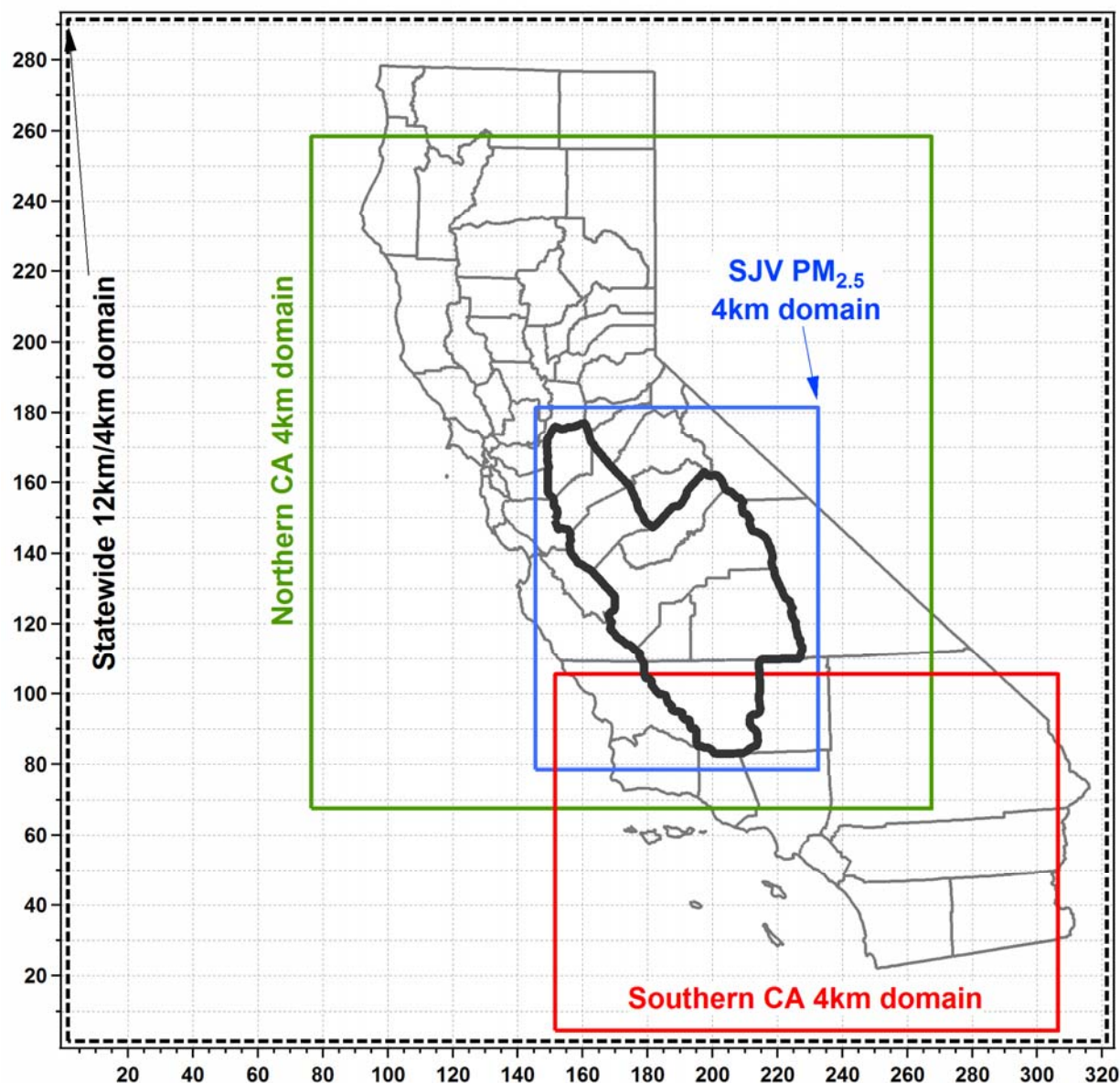


Figure 7 - CMAQ Modeling Domains Used in this SIP Modeling Platform

The outer domain (dashed black line) represents the extent of the California statewide domain (shown here with a 4 km horizontal resolution, but utilized in this modeling platform with a 12 km horizontal resolution). Nested higher resolution 4 km modeling domains are highlighted in green and red for Northern/Central California and Southern California, respectively. The smaller SJV PM_{2.5} 4 km domain (colored in blue) is nested within the Northern California 4 km domain.

3.12.1 NNSR Precursor Modeling Domain

The District utilized the same modeling platform and grid resolution used for the 2018 *PM_{2.5} Attainment Plan* submitted to EPA. The modeling platform and grid resolution

[illegible]

Figure 8 - NNSR Modeling Domain

Since EPA guidance is not prescriptive on how this determination must be derived, but provides suggestions for information that may be used, the District developed a method for evaluating the immense amount of data that was used to locate and characterize the potential sources included in the NNSR precursor evaluation.

To help focus the evaluation of where to place new and/or modified sources, the District utilized the facility SIC (source industrial classification) code/groups identified in Table 6 and consolidated them into Source groups or categories that have similar resource requirements and source parameters. For example: SICs 241 (Dairy Farms) and 251 (Broiler, Fryers, and Layers) share similar characteristics and resources parameters i.e. they are both confined animal feeding operations, they are constructed in rural areas

away from metropolitan areas, and they require a large number of acres in order to operate.

Currently the District does not track PM_{2.5} emissions, therefore emissions of PM₁₀ were used as a surrogate to generate the list of SICs found in Table 6, along with any projects that had ammonia increases. The District currently has ~30 PM₁₀ major sources. To be conservative, no effort was made to determine which of these sources were major for PM_{2.5} and therefore the number of PM₁₀ major sources provides a conservative estimate of the number and types of sources to be included in the evaluation.

Table 6 - SIC Categories

SIC	SIC Name
241	DAIRY FARMS
252	CHICKEN EGGS
723	CROP PREPARATION SERVICES FOR MARKET
1311	CRUDE PETROLEUM AND NATURAL GAS
1321	NATURAL GAS LIQUIDS
2022	CHEESE, NATURAL AND PROCESSED
2033	CANNED FRUITS AND VEGETABLES
2043	CEREAL BREAKFAST FOODS
2077	ANIMAL & MARINE FATS AND OILS
2084	WINES, BRANDY, BRANDY SPIRITS
2875	FERTILIZERS, MIXING ONLY
2653	CORRUGATED & SOLID FIBER BOXES
2679	CONVERTED PAPER PRODUCTS
2911	PETROLEUM REFINING
3221	GLASS CONTAINERS
4911	ELECTRIC SERVICES
4922	NATURAL GAS TRANSMISSION
4931	ELECTRIC & OTHER SERVICES COMBINED
4952	SEWERAGE SYSTEMS
9223	CORRECTIONAL INSTITUTIONS

Based on data collected, the following groups were used to evaluate the locations of new and/or modified sources.

Table 7 - Source Categories

Source Categories	SIC Category
Agricultural Operations (Primary Process)	Dairy Farms
	Egg Production
Agricultural Services (Secondary Process)	Crop Preparation Services
	Cheese Processing

Source Categories	SIC Category
	Canned Fruits and Vegetables
	Cereal Foods
	Fertilizer Mfg.
Oil and Gas Operations and Services	Oil and Gas Production
	Petroleum Refining
	Natural Gas Liquids
Other Operation	Correctional Institution
	Sewerage Systems
	Animal & Marine Fats and Oils (Tallow Plant)
Wines, Brandy, & Spirits	
Glass Container Mfg.	
Paper Products	Corrugated & Solid Fiber Boxes
	Converted Paper Products
Electric Services	Power Generation
	Other Services

3.13.2 Location of New and Modified Sources

EPA's guidance suggests that in most cases it will be necessary to model a number of hypothetical new and/or modified sources, placed in various locations across the nonattainment area. The location of existing major sources and the stack parameters of those sources can be used to help design the NNSR modeling demonstration. The EPA guidance does not provide a prescriptive method for making a determination of the location of new and/or modified sources and therefore the District utilized geographic information system (GIS) software to provide insight.

3.13.2.1 Evaluating Source Location Using GIS

As noted in section 3.4.3, the San Joaquin Valley is larger than 11 other states in the US. In order to determine where to place sources as suggested by the precursor guidance and comments provided by EPA, the GIS layers in Table 8 will be coupled with the identified source categories from Table 7 to provide an understanding of inclusion and exclusion area and where emissions sources could be placed i.e. locations where they are currently permitted and in areas where they may "Likely" be constructed in the future.

Table 8 - GIS Layer Used

• Areas where current permitted sources are located
• Areas where emissions from similar sources in CMAQ are located
• Areas of inclusion
o Farmland (Source Group Dependent)
o Oil Fields (Source Group Dependent)
o Other areas not identified below
• Areas for exclusion

o Class I areas
o State and National reserves and parks
o State Refuges
o Indian Lands
o National Wilderness Preservation
o Public Conservation Trust Land
o Urban Areas (Source Group Dependent)
o Oil Fields (Source Group Dependent)

3.13.2.2 Source Category Evaluation Using GIS

Since EPA does not provide guidance on how to determine the location of proposed sources and the journal article cited has sources ~250kms apart, one in every state evaluated, it provides no useful information in evaluating source locations as it relates to the San Joaquin Valley. Therefore, the District used available data to visually determine sources locations.

The example provided below outlines the layers and steps taken for the Oil and Gas Operations source category. Each of the steps build upon the other in order to provide a full picture of the conditions that need to be weighed to determine an appropriate location for the new major source.

3.13.2.2.1 Step 1 – Evaluating Current Location of Sources

The first step was to determine where sources of the same category were currently located. One aspect of EPA guidance suggest that sources be placed where existing sources are located. In order accomplish this the District generated a list of facilities for each source category, geocoded the data, and processed it though ArcMap to develop a map layer, for each source category. The figure below display the general location of each Oil and Gas Operation within the District.

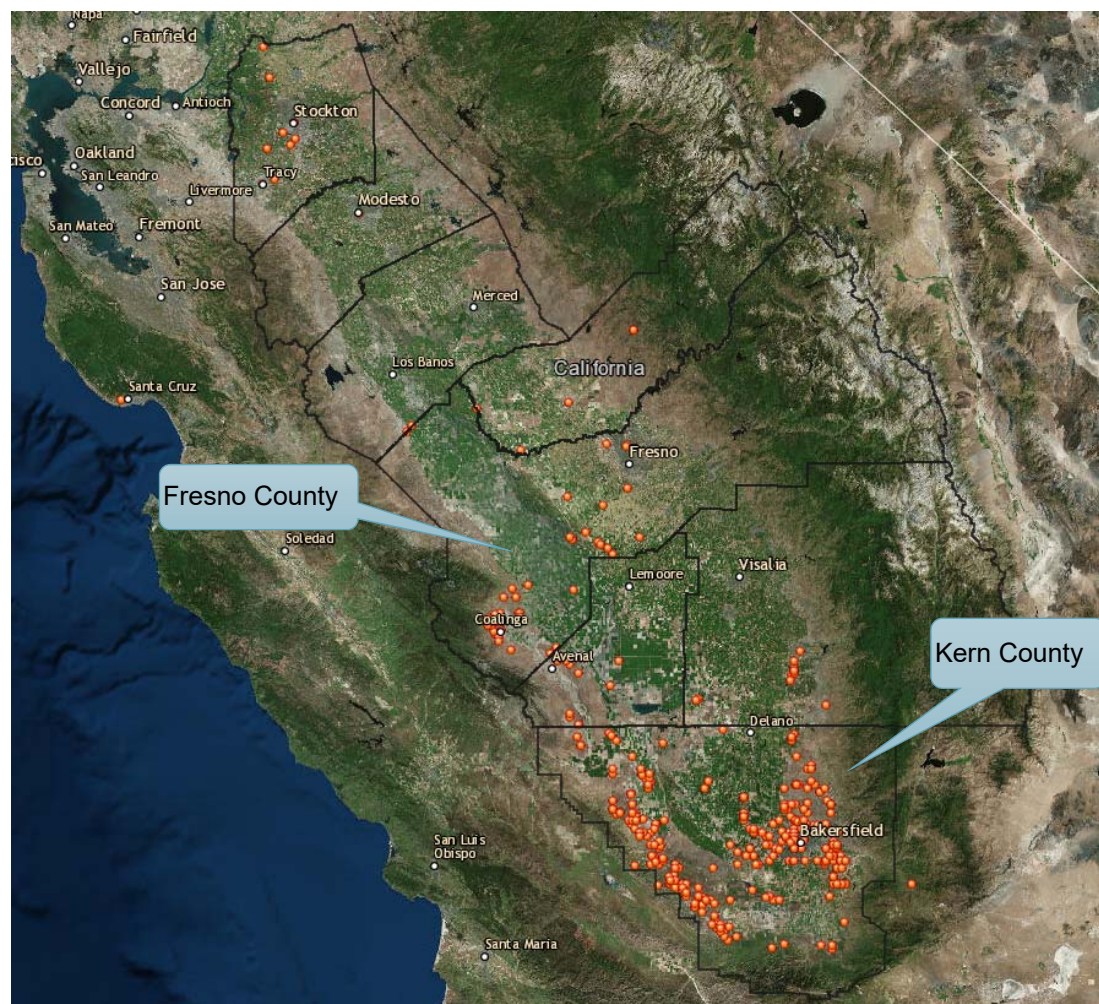


Figure 9 - Existing Oil & Gas Operations

As noted in the figure above, the majority of Oil and Gas Operations in the Valley are concentrated in the Kern and Fresno oil fields. This data was used to provide a better understanding of existing sources and where modifications would occur in the future.

3.13.2.2.2 Step 2 – Evaluating Resource Limiting

In the case of the Oil and Gas Operations there are resource restrictions that can be used to define the areas where operations would occur in the future. Not all source categories have such a resource limitation. EPA guidance allows for this type of data to be used to include or exclude areas from evaluation.

In Step 2, data was used that defined specific areas where current and potential oil and gas resources are/ or would be available for conducting Oil and Gas operations. The figure below delineates areas known to state's Division of Oil, Gas, and Geothermal Resources (DOGGR) and provides information on locations where resources of oil and gas lease/fields are located within the San Joaquin Valley.

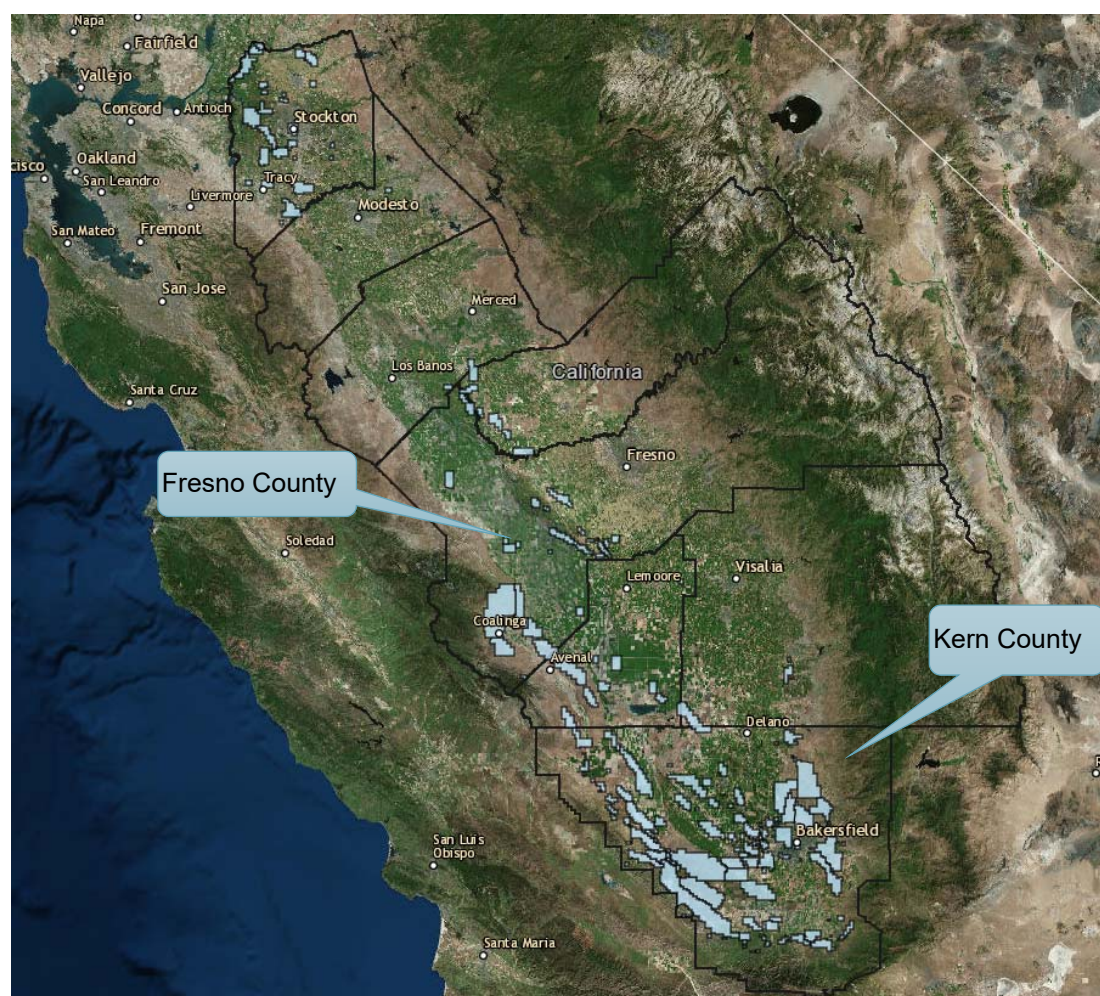


Figure 10 - Division of Oil, Gas, and Geothermal Resources (DOGGR) Data

3.13.2.2.3 Step – 3 Evaluating Other Areas of Exclusion

As noted in the figure below, data for state park boundaries, fish and wildlife reserves, Federal Land (Green), and city boundaries (Red) were used to limit the placement of sources within the modeling domain. **Please note:** in rural areas where boundaries covered areas beyond the actual town/city, this layer was not used to limit placement of sources.

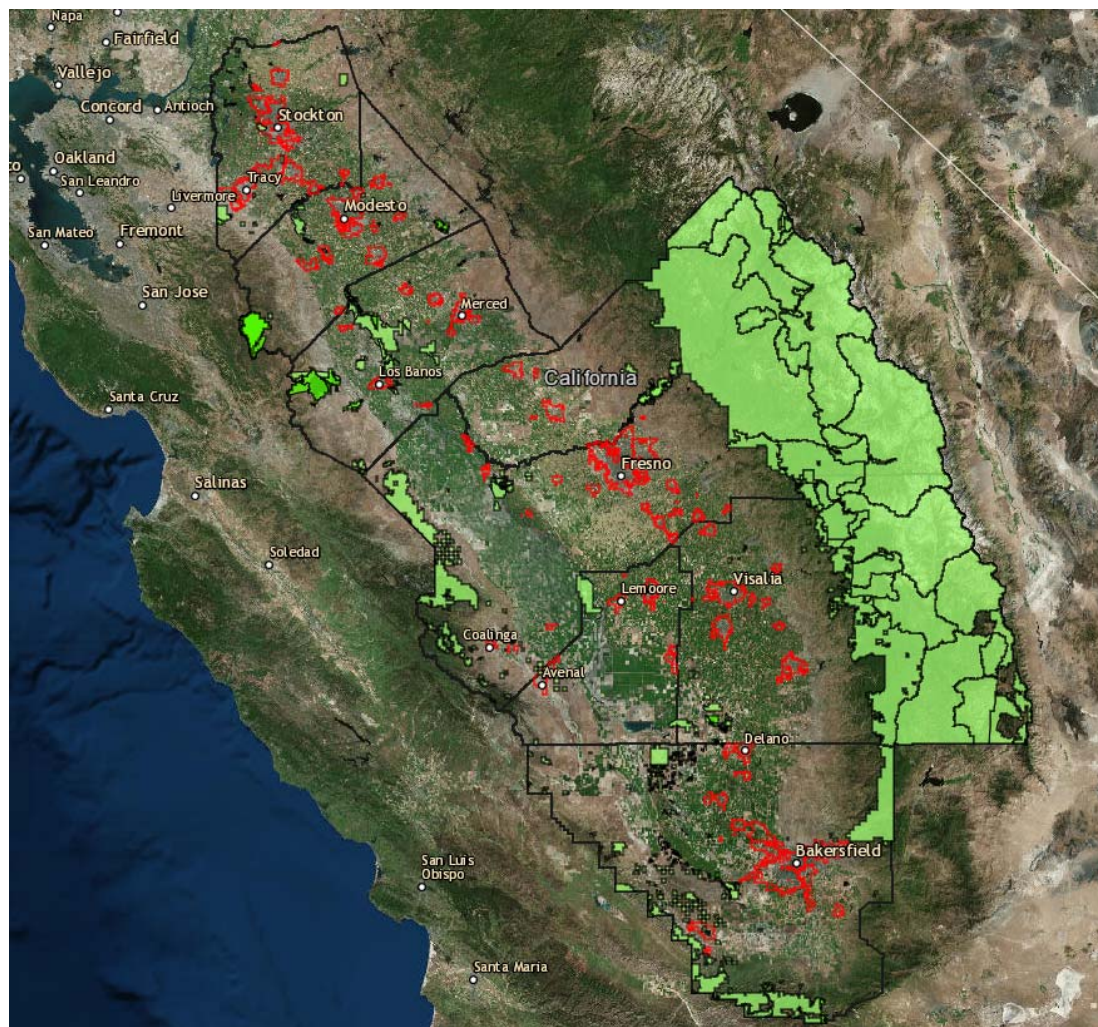


Figure 11 - Other Limiting Factors

3.13.2.2.4 Step 4 – Location of Current Modeled NH₃

EPA guidance indicates that new sources should be placed in locations where emissions of the precursor under evaluation exist and in areas where it does not exist in order to fully evaluate the impact of adding new sources to a region. The District extracted NH₃ emissions from the *2018 PM_{2.5} Attainment Plan*, for both area-wide and point sources, and processed the grid data in AcrMap to create a visually layer of NH₃ emissions within the San Joaquin Valley.

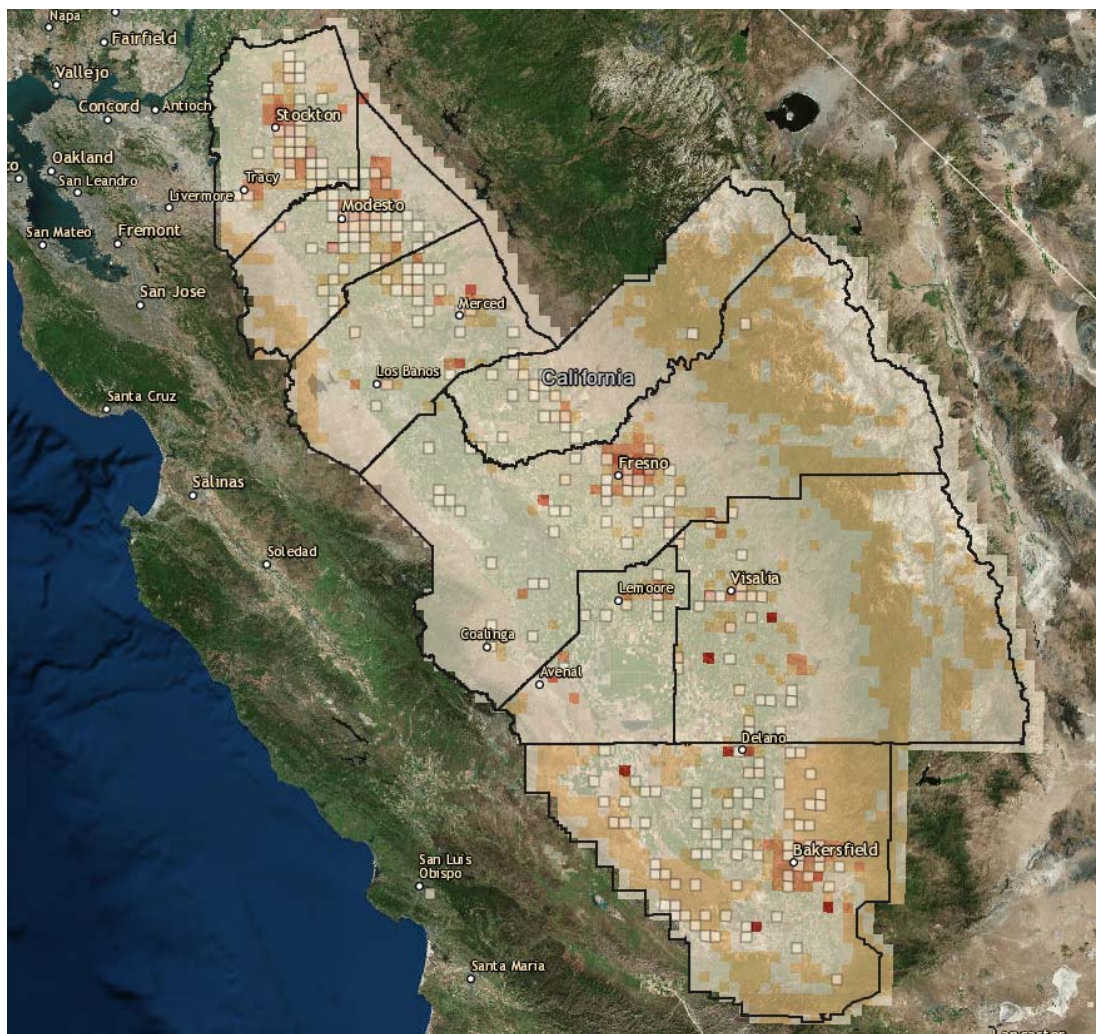


Figure 122 - Location of Current Modeled NH₃

3.13.2.2.5 Overview of the Layers

The figure below combines all the layers used for the oil and gas source category. This figure displays the complexity and the efforts the District has taken to ensure that the evaluation of the placement of new sources was as comprehensive as possible, given the availability of data for performing this type of analysis.

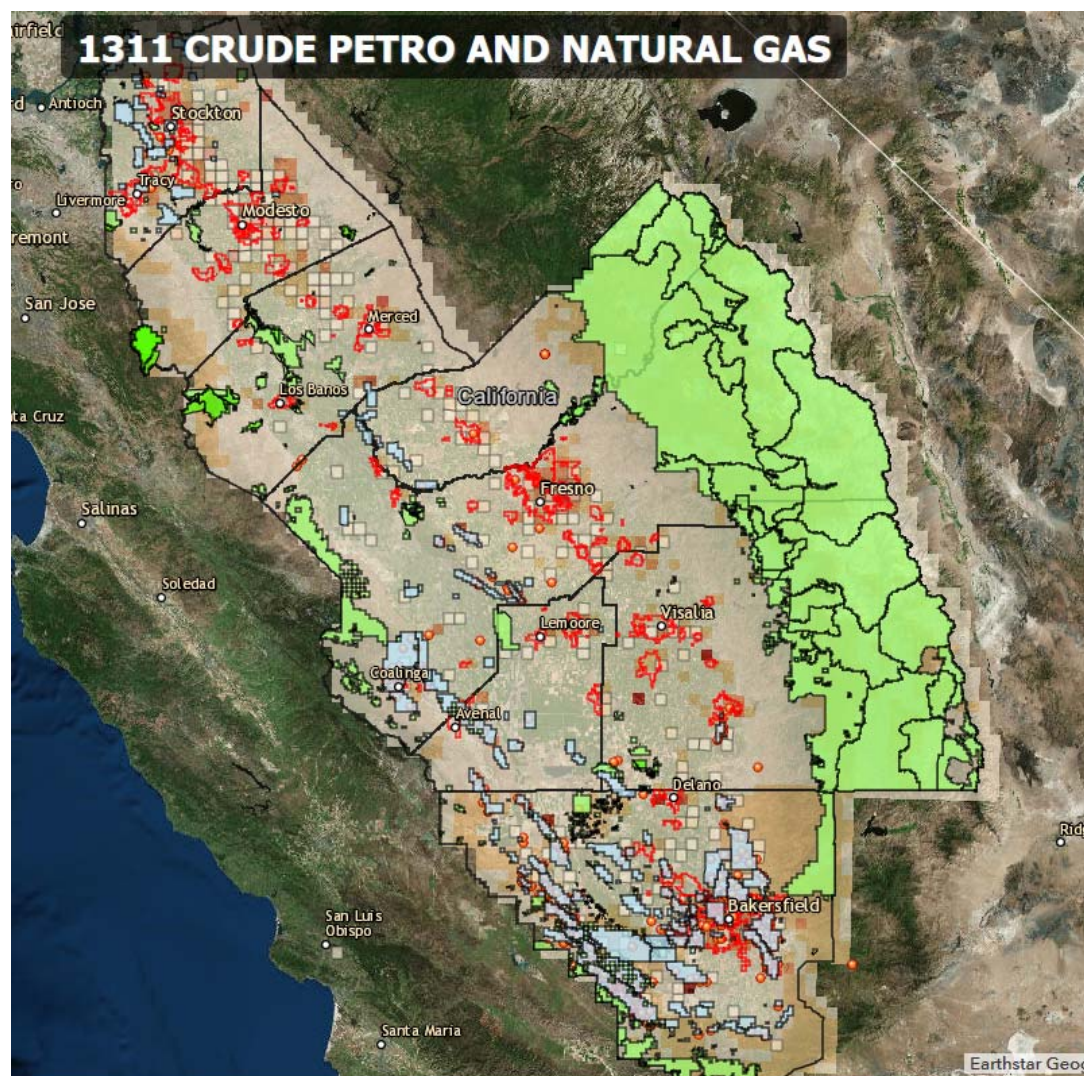


Figure 13 - Combined Oil & Gas Layers

3.13.2.2.6 Step 5 – Other Sources of Information

In addition to data from DOGGR or other government agencies used to develop GIS map layer, the District used data from other programs that provide information on potential future facilities/operations that could be locating in the San Joaquin Valley. Specifically, the District's California Environmental Quality Act (CEQA) program and the California Air Pollution Control Offices Association (CAPCOA) working groups that provide information on projected or future rules that may impact the region.

The final step is to evaluate all the GIS layers and any additional information gathered from other resources and determined the most appropriate location to place new and modified sources. District staff proposes, based on the information gathered for the oil and gas source category, that the locations noted in the figure below represents locations of future modification and/or new major sources.

Using data derived, the District placed oil & gas facilities for modified (Red) and New hypothetical (Green) sources as noted in the figure below. This process was repeated for each source category evaluated.

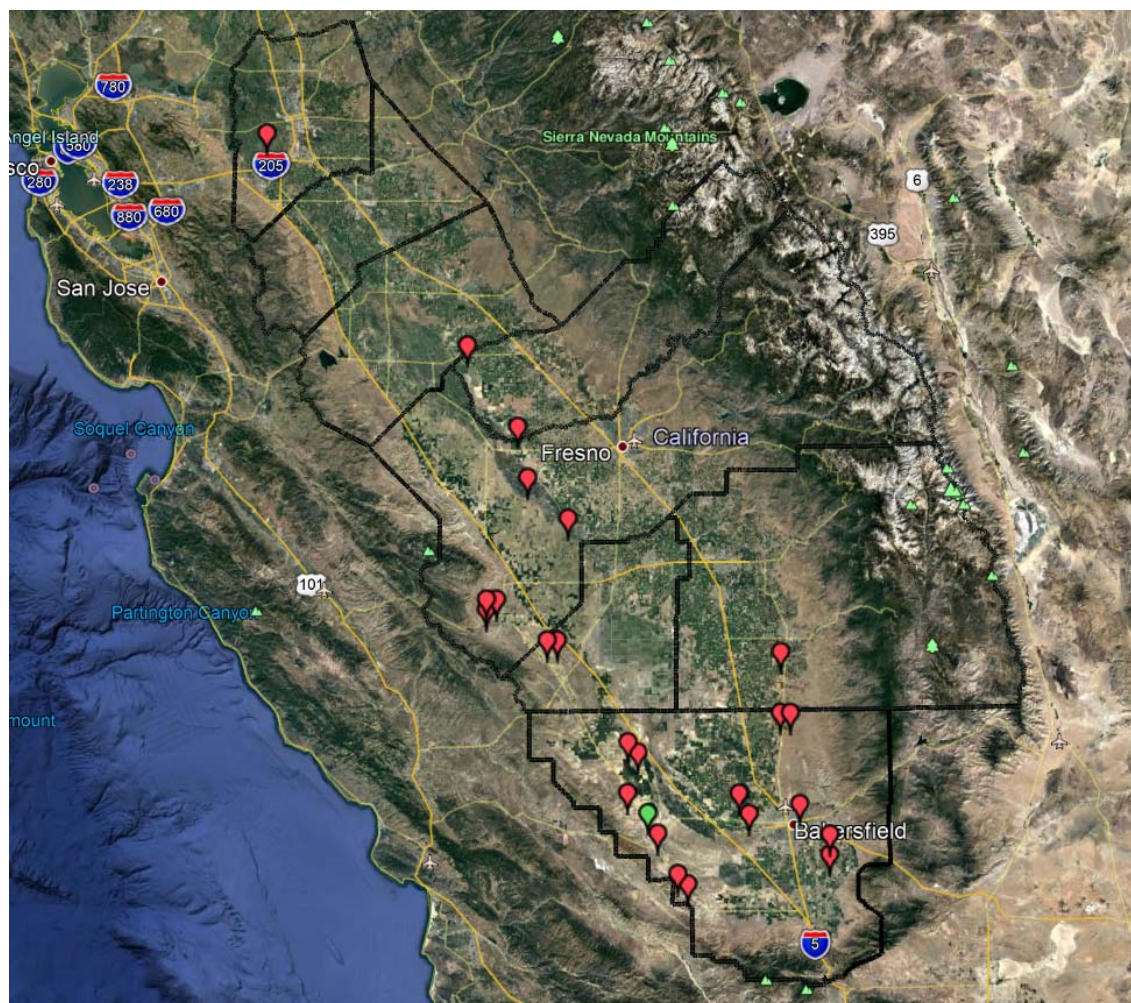


Figure 14 - Source Placement for New and Modified Future Oil & Gas Sources

Figure 15 below provides an aerial of all the new and modified sources included in the NNSR precursor demonstration. Pins in red represent modified sources and new hypothetical sources are represented by green pins.

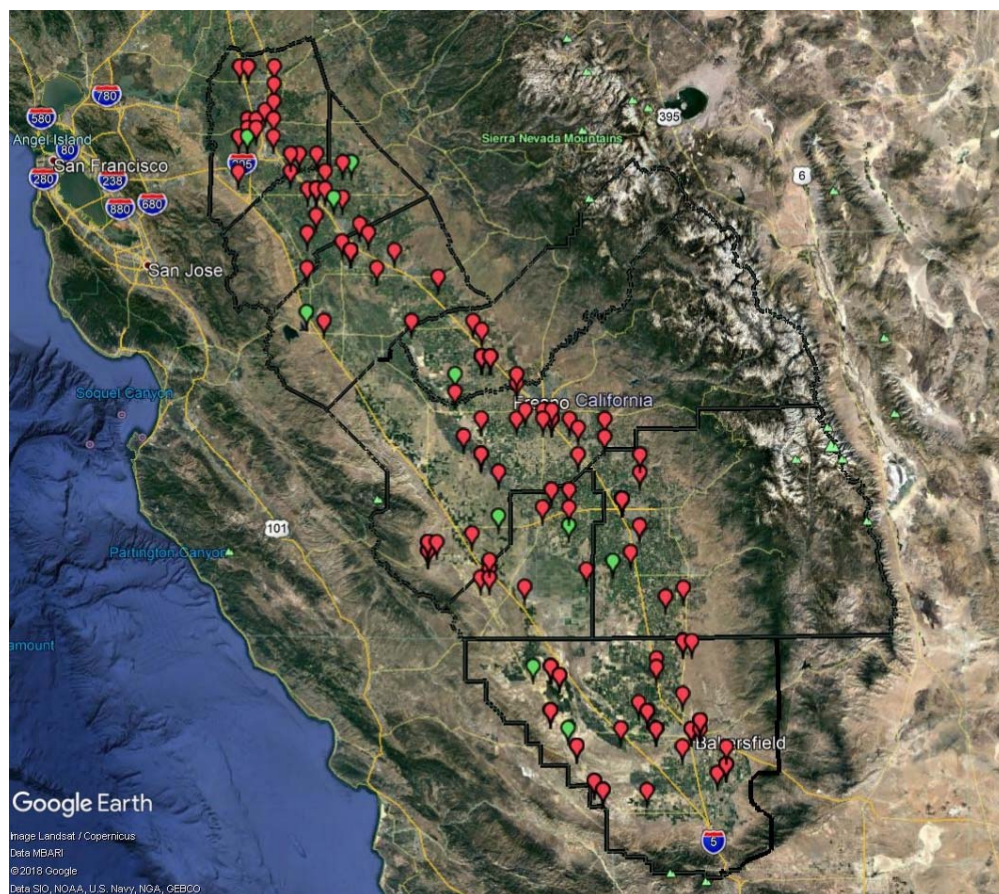


Figure 15 - New and Modified Sources Modeled

3.13.2.3 Source Geographical Location

To determine the latitude and longitude for each source, the District used the center of the grid that a source was determined to be located. This was done since the model combines data for each grid cell and processes it on a grid by grid basis.

3.14 Precursor Modeling Emission Inventory

EPA guidance indicates that an air agency can rely on 5 years of recent permitting data to determine the types of sources to include in the analysis. The guidance document also recommends to analyze more than what is merely “likely” to occur in the region.

3.14.1 New Hypothetical Major Sources

In order to determine the type and size of major sources to be included in the precursor analysis, the District initially proposed to review permits issued in the last 10 years and current ammonia inventories submitted by regulated facilities, see Table 9, to determine if any source had emissions greater than the major source threshold of 100 tons/yr. This review indicated that there are grandfathered permit sources in the San Joaquin Valley that exceed the 100 ton/year threshold. Grandfathered sources are sources that were permitted prior to regulation that may have required controls. Following EPA guidance, the district applied current and future regulations that would be associated

with these new permitted sources, including the requirement that new ammonia emissions over 2 pounds per day trigger Best Available Control Technology in the San Joaquin Valley, and determined that emissions, if permitted today, none of the facilities would exceed the 100 ton/year threshold as noted in Table 9.

Table 9 - Top 15 NH₃ Emission Sources

Facility ID	Facility Name	SIC	Industry	City	NH ₃ tpy (Grandfathered)	NH ₃ tpy (Controlled)
*360	Liberty Composting Inc	2875	Fertilizers, Mixing Only	Lost Hills	300.26	~40
***37	Kern Oil & Refining Co.	2911	Petroleum Refining	Bakersfield	264.92	---
*4912	Recology Blossom Valley Organics	2875	Fertilizers, Mixing Only	Vernalis	182.14	~27
****705	J R Simplot Company	2819	Industrial Inorganic Chemicals, NEC	Helm	170.28	<10
*7410	Synagro West, Inc Db a Centrl Vly Compost	2875	Fertilizers, Mixing Only	Dos Palos	137.07	~20
**3594	Harvest Power California LLC	9199	General Government, NEC	Tulare	112.83	~12
*7617	Harvest Power California LLC	2875	Fertilizers, Mixing Only	Lathrop	105.91	~16
*2843	Bakersfield City Wood Site	2875	Fertilizers, Mixing Only	Bakersfield	82.49	~9
**1547	Aera Energy LLC	1311	Crude Petroleum & Natural Gas	Kern County	73.93	~36
**2697	Northern California Power	4911	Electric Services	Lodi	68.35	~34
**3412	La Paloma Generating Co LLC	4911	Electric Services	McKittrick	59.14	~30
*7827	City Of Modesto Composting Facility	4953	Refuse Systems	Modesto	58.39	~29
**3746	Sunrise Power Company	4911	Electric Services	Fellows	44.59	~22
*8533	Highway 59 Composting Facility	2875	Fertilizers, Mixing Only	Merced	36.85	~5
**91	Mt Poso Cogeneration Company, LLC	4931	Electric & Other Services Combined	Bakersfield	35.27	~17

*Original composting NH₃ emissions factor was 4.08 pound per ton compost, but this was revised to 1.5, based on latest source test information, and Best Available Control Technology (BACT) for composting requires VOC / Ammonia control of 60%

**Ammonia slip reduced from 10 ppm to 5 ppm (50% reduction)

*** No new sources have been permitted in the last 20 years and Ammonia slip reduced from 10 ppm to 5 ppm

**** 2017 emissions inventory reported by the facility drops the emissions to less than 10 tons/yr. This change is based on a permit modification that included new reactor technology

It should be noted that facilities listed in Table 9 are typical of the types of major sources that locate or are constructed in the San Joaquin Valley. EPA guidance does not require that source types that would not be located in an area be considered or included in the evaluation.

3.14.1.1 Composting

New composting facilities that propose to operate in the San Joaquin Valley will be required to comply with the District's BACT requirements for new and modified sources. Current District BACT requirements for composting operations stipulate that these sources reduce ammonia emissions by at least 60%.

The District's original emissions inventory for ammonia emissions from composting facilities is based on a grandfathered/outdated emission factor of 4.08 lbs NH₃/ton of composted material, which over estimates emissions from this category. Based on extensive studies on emissions from composting operations, the District has established newer uncontrolled emission factors of 0.66 lbs NH₃/ton of material for green waste composting operations and 2.93 lbs NH₃/ton of material for co-composting with manure, biosolids, and/or poultry litter. It will be conservatively assumed that these new composting facilities will emit ammonia at a rate of 1.5 lbs NH₃/ton of composted material.

3.14.1.2 Electrical Generation

Most other sources in the top 15 NH₃ emissions sources are natural gas (NG) turbines that use ammonia as a control for NO_x in their selective catalytic reduction (SCR) systems. The ammonia emissions from these operations are produced by ammonia or urea that is injected into the SCR that does not combine with NO_x and is emitted through the turbine stack and is known as ammonia slip. Historically, these sources were permitted at 10 ppm of ammonia slip. Current permit levels have been decreased to 5 ppm, thereby reducing ammonia by 50%.

3.14.1.3 Adding Conservatism to Assumptions Regarding New Major Sources

Even though it is not foreseeable for emissions from future permitted sources to be greater than 100 ton/year threshold, as discussed above, the District's initial protocol proposed to include eight new sources of ammonia at 100 ton/year as a conservative assumption as suggested by EPA, even though each facility analyzed would be three or more times higher than expected for newly permitted sources. Through comments on the revised protocol, EPA suggested that modeling additional new major sources would provide an additional level of conservatism, and suggested at least one facility for each county be modeled. In addition, EPA suggested that, while they understood that the District projected that there would be no new major facilities (>100 tons NH₃ per year), and so the proposed modeling of eight new major sources at 100 tons should be seen as conservative, an additional level of conservatism could be achieved by modeling 10 new sources in the range of 200 to 300 tons per year. Even though this would be ~10 times greater than emissions expected from new major NH₃ sources, the District has included 10 new major sources at an emissions rate of 300 tons/yr, ensuring that the model results are extremely conservative. While EPA's written guidance does not require this level of conservatism, the District agreed to this approach for this particular NNSR precursor demonstration to provide maximum confidence in the modeling results.

3.14.2 Major Source Modifications

As discussed above, the District will be using a future year (2025) inventory from our *2018 PM_{2.5} Attainment Plan* for conducting NNSR precursor modeling, where the inventory has already been adjusted to consider future growth in the state, as well as in the San Joaquin Valley. As per EPA's request, additional modifications will be considered in the proposed modeling scenario above those already included in the 2025 SIP inventory.

A review of current PM₁₀ major sources identified only one project in the last 5 years that had a significant increase in NH₃. To provide an even more conservative evaluation, the District did not limit its review and/or evaluation to PM₁₀ major sources, but to all sources with NH₃ increases.

3.14.2.1 Source Grouping

In order to manage the list of different types of facilities anticipated to be included in this process, the District has grouped each facility by its primary SIC code. Grouping facilities by their SIC codes allows the District to identify the types of major sources being constructed and/or modified, and provide the number of new and/or modified facilities within a single industrial category within the San Joaquin Valley over the past 10 years. Preliminary estimates indicated that 20 different source categories could be included in the PM_{2.5} precursor evaluation, see Table 6 above.

3.14.2.2 Future Modification

District staff reviewed the last 10 years of permitting records to identify all new and/or modified major sources that have acquired Permits-To-Operate (PTOs) for increases in ammonia.

PTO data was grouped into two categories, 1) "Likely" and 2) "Potential" sources to be modified. Sources that have been constructed and/or modified in the last 5 years are those "Likely" to be modified in the future. Sources constructed and/or modified in the last 6 to 10 years are those that have the "Potential" to be modified in the future.

The following was used to evaluate PTOs issued in the last 10 years:

- 1) If the PTO facility emits NH₃:
 - a) Was it a new action or was it a modification?
 - b) What was the source of NH₃ emissions (boiler, steam generator, composting, etc.)?
 - c) What are the permitted increases of NH₃?
 - d) What are the source parameters (stack, area, volume parameters)?
 - e) What was the location of the new or modified source?
 - i) Address
 - ii) Section/Township/Range

iii) Latitude/Longitude

- 2) What future NH₃ reductions may this source be applicable to from current and/or future rules?
 - a) Any known compliance dates coming that affect emissions of PM_{2.5} precursor pollutant(s)?
 - b) Upcoming new or amended rules may affect emissions of precursor pollutant(s)?

Based on the above review of permitted actions, it is estimated that 128 modifications are likely to occur between 2013 and 2025. Data collected indicates that 90% of the permitting actions occur from modifications and 10% are from new applications, while emissions from modifications only made up 20% of the annual ammonia emissions and new applications contributed 80% of these emissions.

3.14.2.3 Emissions Calculation Methodology

EPA's guidance document indicates that an NNSR demonstration should consider analyzing more than what is merely "Likely" to occur in an area when evaluating the number and size of sources to be included.

To determine the total number of years to include in the evaluation it is important to understand that all future year SIP inventories are based on a given base year inventory, or actual inventory, collected by an agency. In order to account for any additional new and/or modifications that may occur to a future inventory, one must start from the same base year then generate the current SIP inventory and determine the number of years between the two. The District determined the appropriate year time period is 12 years (i.e., 2013 to 2025).

3.14.2.3.1 Number of Events & Estimating Emissions per Event

EPA's guidance recommends an examination of the last 5 years of major source permitting in the region being evaluated as the basis for estimating any probable emissions increases. As noted previously, two types of emissions sources are proposed to be evaluated as part of the PM 2.5 Precursor evaluation i.e., "Likely" and "Potential."

The District evaluated all permitting actions conducted for major sources between 2008 and 2017 (10 yrs) to determine which approved actions have transpired which have increased NH₃ emissions.

The District summed all the emissions from each SIC group to determine the total increase in 2025 for both the "Likely" and "Potential" scenarios. Even though EPA's guidance indicates that the summation of the "Likely" and "Potential" scenarios would be sufficient, to be conservative, the District will utilize the summation of the "Likely" and

“Potential” in addition to a 10% safety factor for additional conservatism in conducting the future year modeling runs.

3.14.2.3.2 Sample Calculations

The following describes the emissions calculation methodology to be used when estimating emissions for each source category. The basic steps are 1) Estimate the number of years within the evaluation period, 2) Estimate the average tons/year emitted for a given source category, 3) Determine the number of events (permit actions) in a given year, and 4) Estimate future year emissions increases.

Estimating the number of years during the evaluation period

To determine the total number of years to include in the evaluation it is important to understand that all future year SIP inventories are based on a given base year inventory, or actual inventory, collected by an agency. In order to account for any additional new and/or modifications that may occur to a future inventory, one must start from the same base year then generate the current SIP inventory and determine the number of years between the two. To do this the District will use the following equation:

Eq. 1 – Number of Years in the evaluation period

Years = Future Year – Base Year Inventory

Years = 2025 – 2013

Years = 12

Where:

Years - Number of years between the base year inventory and the future year inventory to be modeled

Future Year - Represents the future year inventory modeled

Base Year - Represents the base year inventory used to generate the SIP inventory

Number of events & estimating emissions per event

When estimating emissions from sources, EPA’s guidance recommends an examination of the last 5 years of major source permitting in the region being evaluated as the basis for estimating any probable emissions increases. As noted above, two types of emissions sources are proposed to be evaluated as part of the PM_{2.5} Precursor evaluation i.e., “Likely” and “Potential.” The District will evaluate all permitted action conducted for major sources between 2008 and 2017 (10 yrs) to determine which approved actions have transpired which have increased NH₃ emissions. An Access DB and Excel spreadsheet have been developed to post processing the data to derive the following:

For Each Source Category

- Identify the lbs./year of emissions permitted
- Identify the number of new facilities and/or modifications
- Estimate the average emissions (lbs. and tons) for each year
- Project the emissions without adjustment ("Likely" and "Potential")
- Project the emissions with safety factor included ("Likely" and "Potential")

For Example (TIER I):

For "Likely" Sources

- Determine the maximum number of events per year over the recent 5 years
- Determine the 5 year average emissions over the recent 5 years

*For "Potential" Sources**

- Determine the average number of events per year over the recent 10 years
- Determine the 10 year average emissions

*As clarification, sources included here have not had any permit actions in the last 5 years, but have had some permitting action within the last 10 years.

Emission Increases for "Likely" Modified Major Sources

723 - CROP PREPARATION SVCS FOR MKT

Eq. 2 – Estimated NH₃ Emission Increase (Tons/Year) by 2025

Tons/Year = Average Tons/Year * Max # of Events * # Years

Tons/Year = 0.55 X 1.0 X 12

Tons/Year = 6.63

Where:

Tons/Year -	Is the cumulative emissions increase over the modeling period, assuming that there are new units and/or modifications to major sources every year during the evaluation period
Average Tons/Year -	Average tons of all new units and/or modification to a major source over the averaging period (5 years)
Max # of Events -	Represents the max number of new and/or modifications to a major source that occurred in a given year during the averaging period
# Years -	See Eq.1

*Emission Increases for "Potential" Modified Major Sources**2022 - CHEESE, NATURAL AND PROCESSED*

Eq. 3 – Estimated NH₃ Emission Increase (Tons/Year) by 2025

Tons/Year = Average Tons/Year * Average # of Events * # Years

Tons/Year = 0.28 X 0.3 X 12

Tons/Year = 1.00

Where:

Tons/Year -	Is the cumulative emissions increase over the modeling period, assuming that there are new units and/or modifications to major sources every year during the evaluation period
Average Tons/Year -	Average tons of all new units and/or modification to a major source over the averaging period (10 years)
Ave # of Events -	Represents the Average number of new and/or modifications to a major source that occurred over the averaging period
# Years -	See Eq.1

Eq. 4 – Estimated NH₃ Emission Increase (Tons/Year) by 2025 Plus Safety Factor

$\text{Tons/Year} = 2025 \text{ Ton/Year (Eq2, or 3)} * (1.0 + \text{Safety Factor of 10\%}) * \text{MCF}$

$\text{Tons/Year} = 6.63 \times 1.10 * 0.2$

$\text{Tons/Year} = 1.46$

Where:

2025 Tons/Year -	Is the cumulative emissions increase over the modeling period, assuming there are new units and/or modifications to major sources every year during the evaluation period
Safety Factor -	Is used to account for any unforeseen increases in ammonia emissions from an emissions category
Tons/Year -	Represents the cumulative emissions increase over the modeling period plus a safety factor
MCF -	Modification Correction Factor of 0.2 or 20%, As noted in section 3.14.2.2 emissions from modified sources only contributes 20% of the total emissions on an annual basis.

The District will sum all the emissions from each SIC group to determine the total increase in 2025 for both the “Likely” and “Potential” scenarios. Even though EPA’s guidance indicates that the summation of the “Likely” and “Potential” scenarios would be sufficient, to be conservative, the District will utilize the summation of the “Likely” and “Potential” in addition to the safety factor for conducting the future year modeling runs.

Based on the information gathered by the District, emissions were calculated for the estimated number of modifications. As noted earlier, project growth for future years are already included in the 2025 future year emissions inventory and these emissions were added as requested by EPA.

Table 10 - Emissions from Future Modifications

Source SIC	NAICS	Source Description	Number of Modification	Tons/Yr. per Modification	Total Tons/Yr.
241	112120	Agricultural Operations (Primary Process)	0	0.00	0.00
252	112120	Agricultural Operations (Primary Process)	4	0.19	0.74
723	325314	Agricultural Services (Secondary Process)	5	0.29	1.46
1311	211111	Oil and Gas Operations and Services	24	0.41	9.74
1321	211111	Oil and Gas Operations and Services	13	0.10	1.24
2022	325314	Agricultural Services (Secondary Process)	5	0.04	0.22
2033	325314	Agricultural Services (Secondary Process)	13	0.72	9.30
2043	325314	Agricultural Services (Secondary Process)	0	0.00	0.00
2077	221210	Other Operation	5	0.13	0.66
2084	312130	Wines, Brandy, & Spirits	25	1.97	49.26
2653	322211	Paper Products	7	0.04	0.26
2679	322211	Paper Products	4	0.07	0.26
2875	325314	Agricultural Services (Secondary Process)	7	8.57	60.00
2911	211111	Oil and Gas Operations and Services	2	0.12	0.24
3221	327213	Glass Containers Mfg.	2	3.40	6.80
4911	221122	Electric Services	2	18.17	36.34
4922	486210	Natural Gas Transmission	2	0.41	0.82
4931	221210	Other Operation	1	36.57	36.57
4952	221210	Other Operation	3	0.20	0.59
9223	221210	Other Operation	5	0.11	0.54
		Totals	129		215.04

Table 11 - Example Emissions Estimation from “Likely” Sources (New and Modified)

SIC	Project Year	Lbs/Yr	Events	Average Lbs/Yr	Average Tons/Yr		
723 CROP PREPARATION SVCS FOR MKT	2013	5,341.00	1.00	5,341.00	2.67	Tons/Year Est. Multiply the Max # of Events by the Ave Tons/Yr. and the # of Year between the base (2013) and future year (2025) model run (12yrs.)	
	2014	0.00	0.00	0.00	0.00		
	2015	180.00	1.00	180.00	0.09		
	2016	0.00	0.00	0.00	0.00		
	2017	0.00	0.00	0.00	0.00	Multiply Future Year Est. by a 10% Safety Factor (SF)	
		5 Yr Maximum	1.00	5 Yr Average	0.55	Tons/Year ↑ by 2025	10% Safety Factor
						6.63	7.29

Table 12 - Example of Source Category Averages from “Potential” Sources (New and Modified)

Category	Project Year	Lbs / Yr	Events	Average Lbs/Yr	Average Tons / Yr
2022 - CHEESE, NATURAL AND PROCESED	2008	5537	2.00	1,989.00	0.99
	2009	0.00	0.00	0.00	0.00
	2010	0.00	0.00	0.00	0.00
	2011	0.00	0.00	0.00	0.00
	2012	29	1.00	29.00	0.01
	2013	0.00	0.00	0.00	0.00
	2014	0.00	0.00	0.00	0.00
	2015	0.00	0.00	0.00	0.00
	2016	0.00	0.00	0.00	0.00
	2017	0.00	0.00	0.00	0.00
Average # of Events			0.3	10 Yr Average	0.28

Table 13 - Example Emissions Increase from “Potential” Sources

SIC	Average Events	Average Tons/Yr	Tons/Year ↑ by 2025	10% Safety Factor
2022 - CHEESE, NATURAL AND PROCESED	0.3	0.28	1.00	1.10

3.15 Source Parameters

The District reviewed the point source FF10 files used in the *2018 PM_{2.5} Attainment Plan*, for the sources listed in Table 6, to derive the appropriate stack parameters for the 10 hypothetical and the 128 additional modified sources, see Table 14 below.

Table 14 - Source Parameters by SIC

Source SIC	NAICS	Source Description	Avg Stack Ht. (ft)	Avg Stack Dia. (ft)	Avg Stack Temp. (F)	Avg Stack Velocity (ft/sec)
723	325314	Agricultural Services (Secondary Process)	108.6	10.1	651.4	141.3
241	112120	Agricultural Operations (Primary Process)	121.4	11.1	699.5	22.6
252	112120	Agricultural Operations (Primary Process)	15.24	11.1	70	0.0328
723	325314	Agricultural Services (Secondary Process)	108.6	10.1	651.4	141.3
1311	211111	Oil and Gas Operations and Services	95.8	9.2	644.3	41.4
1321	211111	Oil and Gas Operations and Services	95.8	9.2	644.3	41.4
2022	325314	Agricultural Services (Secondary Process)	108.6	10.1	651.4	141.3
2033	325314	Agricultural Services (Secondary Process)	108.6	10.1	651.4	141.3
2043	325314	Agricultural Services (Secondary Process)	108.6	10.1	651.4	141.3
2077	221210	Other Operation	105.5	10.5	657.2	40.1
2084	312130	Wines, Brandy, & Spirits	104.5	9.8	676.3	22.6
2653	322211	Paper Products	119.4	10.9	691.5	23.1
2679	322211	Paper Products	119.4	10.9	691.5	23.1
2875	325314	Agricultural Services (Secondary Process)	16.76	10.1	70	0.0328
2911	211111	Oil and Gas Operations and Services	95.8	9.2	644.3	41.4
3221	327213	Glass Containers Mfg.	118.0	10.1	669.7	63.5
4911	221122	Electric Services	109.9	10.3	639.4	68.6
4922	486210	Natural Gas Transmission	91.1	8.1	745.9	97.0
4931	221210	Other Operation	105.5	10.5	657.2	40.1
4952	221210	Other Operation	105.5	10.5	657.2	40.1

3.16 Best Available Control Technology (BACT)

The California Health and Safety Code requires the California Air Districts to regulate air pollution to endeavor to achieve and maintain state ambient air quality standards. As part of these requirements California Air districts have formulated California NSR programs that include Best Available Control Technology (BACT) requirements (equivalent or more stringent than federal LAER – Lowest Achievable Emissions Rate)

for increases in determined levels of pollutants and their precursors, at emission thresholds far lower than federal requirements.

The San Joaquin Valley Air pollution Control District implements Federal and California NNSR requirements through District Rule 2201 – New and Modified Stationary Source Review Rule – which applies to sources of “affected pollutants”. The definition of affected pollutants includes particulate precursors, and so NH₃ is regulated under Rule 2201. Because the requirements of District Rule 2201, including this BACT requirement, are included in the California State Implementation Plan (SIP) (79 FR 55637), they are also federally enforceable.

Pursuant to District Rule 2201, Section 3.10, Best Available Control Technology (BACT) is the most stringent emission limitation or control technique that is:

- a. Achieved in practice for such category and class of source;
- b. Contained in any State Implementation Plan approved by the EPA for such category and class of source;
- c. Contained in an applicable federal New Source Performance Standard; or
- d. Any other emission limitation or control technique, including process and equipment changes of basic or control equipment, found by the District to be cost effective and technologically feasible for such class or category of sources or for a specific source.

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

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in a California Senate Bill (SB) 288 Major Modification or a Federal Major Modification, as defined by the rule.

District Rule 2201 requires the application of BACT to reduce the potential emissions of any pollutant from new and modified sources that meet any of the criteria specified above. Therefore, any new or modified source of emissions located in the San Joaquin Valley with increases in emissions as little as two pounds per day would be required to utilize the best available controls. BACT is also specifically triggered with any new major source or major modification. As also noted above, the District has determined

that ammonia is an affected pollutant that is subject to District BACT requirements and, for over a decade, has required sources of ammonia emissions, such as confined animal facilities and composting operations, to apply BACT for ammonia. The District's requirement for the application of BACT for ammonia emissions is demonstrated by the numerous existing District BACT guidelines that require evaluation and application of controls to reduce ammonia emissions, which include: BACT Guideline 1.6.25 – Blood Drying Operation (updated 4/18/2012); BACT Guideline 5.2.12 – Phosphine Fumigation of Nuts, Dried Fruit, Grain, and Beans (updated 1/23/2013); BACT Guideline 5.7.1 – Broiler House (updated 2/2/2006); BACT Guideline 5.7.2 – Poultry Layer House (updated 2/5/2013); BACT Guideline 5.7.3 – Turkey House (updated 11/23/2011); the District BACT Guidelines for dairy and cattle operations: 5.8.1, 5.8.2, 5.8.3, 5.8.4, 5.8.5, 5.8.6, 5.8.7, 5.8.8, and 5.8.9 (all updated 12/18/2013); BACT Guideline 6.4.8 – Manure Composting (updated 12/19/2016); BACT Guideline 6.4.14 – Biosolids Storage (updated 6/16/2016); and BACT Guideline 8.3.16 – Repair and Maintenance or Emergency Ammonia Venting Operation (≤ 100 hr/yr operation) (updated 9/28/2004).

3.17 Precursor Modeling Evaluation Methodology

3.17.1 Absolute vs Relative

It should be noted that CTM models such as Community Multiscale Air Quality (CMAQ) do not fully account for chemical speciation, as noted by EPA's 2018 "Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze" document, section 4.0:

There are four reasons why the recommended modeled attainment test is based on application of the model in a relative sense. First and foremost, this approach has the effect of anchoring the future concentrations to a 'real' measured ambient value, which is important given model bias and error in the base year simulation(s). It is reasoned that factors causing bias (either under or over-predictions) in the base case will also affect the future case. While good model performance remains a prerequisite for use of a model for regulatory analyses, problems posed by imperfect model performance on individual days are expected to be reduced when using the relative approach. An internal EPA analysis (U.S. EPA, 2014a) considered whether daily ratios of model future/current maximum daily 8-hour ozone averages (MDA8) varied strongly as a function of site-specific base case model performance. This analysis was completed using a national model simulation that projected 2020 ozone concentrations from a 2007 base case. The analysis determined that when modeled, MDA8 ozone bias was relatively small (e.g., less than +/- 20 ppb), the average response ratios were not a strong function of the model MDA8 bias. This provides confidence that the model can detect the air quality response in the midst of reasonable levels of absolute bias and error. Second, the relative modeled attainment test allows for a future projection of 3-year average ozone

and PM2.5 design values or 5-year average visibility values without explicitly having to model a 3-year or 5-year period. Third, because PM2.5 concentrations typically consist of a diverse mix of primary and secondary components, the modeled attainment test based on RRFs decreases the possibility of choosing ineffective control strategies based on inaccurate model estimations of PM2.5 composition, by assessing component specific RRFs. Fourth, and finally, there is evidence, based on a retrospective modeling analysis of ozone changes between 2002 and 2005 (Foley et al, 2014) and 2002 and 2010 (Hogrefe et al, 2014), that using the model in a relative sense provides better estimates of future ozone design values than using the absolute future year simulation. The correlation between model-projected and actual design values, as well as the accuracy of model projections of attaining a 75ppb NAAQS, appear to be slightly improved when a relative modeled attainment test is utilized.

EPA precursor modeling guidance also states “Even though it may be appropriate to calculate absolute modeled PM2.5 concentration changes, there are advantages to calculating relative concentration changes, using the relative attainment test procedures for the modeled attainment test in the modeling guidance. The relative attainment test procedure involves applying adjustments to the ambient data to reconstruct the measured species components so that they add up to the measured FRM mass. Data analyses (Frank, 2006) have noted that the FRM monitors do not measure the same components and do not retain all of the PM2.5 that is measured by routine speciation samplers and, therefore, cannot be directly compared to speciation measurements from the Chemical Speciation Network (CSN). It is possible to reconstruct PM2.5 species so that they more closely match the composition of mass retained by the FRM. This adjustment can be applied to the modeled change in PM2.5 species components. This will result in calculated PM2.5 species mass, which is anchored to the measured mass, and more closely reflects the species concentrations that are retained on the FRM filters, including an estimate of particle bound water. See the photochemical modeling guidance (USEPA, 2018c; Frank, 2006) for more details on the recommended calculations.”

Based on the information above, the fact that the San Joaquin Valley is one of the most complex areas in the country to model, the complex chemistry, and source locations that are significantly closer together than recommended by EPA to use of the brute force “Absolute” model method, and in full concurrence of EPA, the District conducted the precursor evaluation using the relative modeling evaluation method.

3.17.2 Precursor Demonstration Using the Model In a Relative Sense

3.17.2.1 Base Year Simulation

The base year simulation for 2013 is used to assess model performance (i.e., to ensure that the model is reasonably able to reproduce the observed ozone mixing ratios).

Since this simulation will be used to assess model performance, it is essential to include as much day-specific detail as possible in the emissions inventory, including, but not limited to hourly adjustments to the motor vehicle and biogenic inventories based on observed local meteorological conditions, known wildfire and agricultural burning events, and exceptional events such as the Chevron refinery fire in 2012.

3.17.2.2 Reference Year Simulation

The reference year simulation is identical to the base year simulation, except that certain emissions events which are either random and/or cannot be projected to the future are removed from the emissions inventory. These include wildfires and events such as the 2012 Chevron refinery fire.

3.17.2.3 Future Year Simulation

The District is expecting to see its NO_x inventory to drop by 50% by 2025, compared to the 2013 base year, as noted in the District's *2018 PM_{2.5} Attainment Plan*. These NO_x reductions will alter the contribution a precursor has on the formation of PM_{2.5} in the future and must be considered when choosing the proper modeling scenario.

Therefore, to properly evaluate the contribution NH₃ has on the formation of PM_{2.5}, the District will use the 2025 modeling inventory developed for the *2018 PM_{2.5} Attainment Plan* in the NNSR precursor evaluation.

3.17.2.3.1 Base Future Year Simulation

The future year simulation is identical to the reference year simulation, except that the projected future year anthropogenic emission levels are used rather than the reference year emission levels. All other model inputs (e.g., meteorology, chemical boundary conditions, biogenic emissions, and calendar for day-of-week specifications in the inventory) are the same as those used in the reference year simulation.

3.17.2.3.2 Adjusted Base Future Year Simulation

This simulation is the "Base Future Year Simulation" except that it includes additional emissions from new major and modified NH₃ sources.

3.17.2.4 Relative Response Factors

As part of the model precursor demonstration, the fractional change in PM_{2.5} between the model future year and model reference year are calculated for each monitor location. These ratios, called "relative response factors" or RRFs, are calculated based on the ratio of modeled future year ozone or PM_{2.5} to the corresponding modeled reference year ozone or PM_{2.5}.

$$RRF = \frac{\text{average } (O_3 \text{ or } PM_{2.5})_{\text{future}}}{\text{average } (O_3 \text{ or } PM_{2.5})_{\text{reference}}}$$

3.17.2.4.1 Annual and 24-hour PM_{2.5} RRF

The U.S. EPA (2014) guidance requires RRFs for both the annual and 24-hour PM_{2.5} attainment tests be calculated on a quarterly basis (January-March, April-June, July-September, and October-December) and for each PM_{2.5} component (sulfate, nitrate, ammonium, organic carbon, elemental carbon, particle bound water, salt, and other primary inorganic components).

For annual PM_{2.5}, the quarterly RRFs are based on modeled quarterly mean concentrations for each component, where the concentrations are averaged over the 9 model grid cells within the 3x3 array of grid cells surrounding each monitor. For the 24-hour PM_{2.5} attainment test, the quarterly RRFs are calculated based on the average for each component over the top 10% of modeled days (or the top nine days per quarter) with the highest total 24-hour average PM_{2.5} concentration. Peak PM_{2.5} values are selected and averaged using the PM_{2.5} concentration simulated at the single grid cell containing the monitoring site for calculating the 24-hour PM_{2.5} RRF (as opposed to the 3x3 array average used in the annual PM_{2.5} RRF calculation).

3.17.2.4.2 Sulfate, Adjusted Nitrate, Derived, Water, Inferred Carbonaceous Material Balance Approach (SANDWICH) and Potential Modifications

Federal Reference Method (FRM) PM_{2.5} mass measurements provide the basis for the attainment/nonattainment designations. For this reason it is recommended that the FRM data be used to project future air quality and progress towards attainment. However, given the complex physicochemical nature of PM_{2.5}, it is necessary to consider individual PM_{2.5} species as well. While the FRM measurements give the mass of the bulk sample, a method for apportioning this bulk mass to individual PM_{2.5} components is the first step towards determining the best emissions controls strategies to reach NAAQS levels in a timely manner.

The FRM measurement protocol finds its roots in the past epidemiological studies of health effects associated with PM_{2.5} exposure. It is upon these studies that the NAAQS are based. The FRM protocol is sufficiently detailed so that results might be easily reproducible and involves the measurement of filter mass before and after sampling together with equilibrating at narrowly defined conditions. Filters are equilibrated for more than 24 hours at a standard relative humidity between 30 and 40% and temperature between 20 and 23 °C. Due to the sampler construction and a lengthy filter equilibration period, FRM measurements are subjected to a number of known positive and negative artifacts. FRM measurements do not necessarily capture the PM_{2.5} concentrations in the atmosphere and can differ substantially from what is measured by speciation monitors including the Speciation Trends Network (STN) monitors (see <http://www.epa.gov/ttnamti1/specgen.html> for more details). Nitrate and semi-volatile organic mass can be lost from the filter during the equilibration process, and particle bound water associated with hygroscopic species like sulfate provides a positive artifact. These differences present an area for careful consideration when one attempts

to utilize speciated measurements to apportion the bulk FRM mass to individual species. Given that (1) attainment status is currently dependent upon FRM measurements and (2) concentrations of individual PM_{2.5} species need to be considered in order to understand the nature of and efficient ways to ameliorate the PM_{2.5} problem in a given region, a method has been developed to speciate bulk FRM PM_{2.5} mass with known FRM limitations in mind. This method is referred to as the measured **Sulfate, Adjusted Nitrate, Derived Water, Inferred Carbonaceous** material balance approach or “SANDWICH” (Frank, 2006). SANDWICH is based on speciated measurements from other (often co-located) samplers, such as those from STN, and the known sampling artifacts of the FRM. The approach strives to provide mass closure, reconciliation between speciated and bulk mass concentration measurements, and the basis for a connection between observations, modeled PM_{2.5} concentrations, and the air quality standard (U.S. EPA, 2014).

The main steps in estimating the PM_{2.5} composition are as follows:

(1) Calculate the nitrate retained on the FRM filter using hourly relative humidity and temperature together with the STN nitrate measurements,

The FRM does not retain all of the semi-volatile PM_{2.5} mass, and at warmer temperatures, loss of particulate nitrate from filters has been commonly observed (Chow et al., 2005). In order to estimate how much nitrate is retained on the FRM filter, simple thermodynamic equilibrium relations may be used. Necessary inputs include 24-hour average nitrate measurements and hourly temperature and relative humidity data. Frank (2006) suggests the following methodology for estimating retained nitrate. For each hour i of the day, calculate the dissociation constant, K_i from ambient temperature and relative humidity (RH).

For RH < 61%:

$$\ln(K_i) = 118.87 - (24084/T_i) - 6.025 \times \ln(T_i),$$

where, T_i is the hourly temperature in Kelvins and K_i is in nanobars.

For RH ≥ 61%, K_i is replaced by:

$$K'_i = [P_1 - P_2(1 - a_i) + P_3(1 - a_i)^2] \times (1 - a_i)^{1.75} \times K_i,$$

where, a_i is “fractional” relative humidity and

$$\begin{aligned}\ln(P_1) &= -135.94 + 8763/T_i + 19.12 \times \ln(T_i), \\ \ln(P_2) &= -122.65 + 9969/T_i + 16.22 \times \ln(T_i), \\ \ln(P_3) &= -182.61 + 13875/T_i + 24.46 \times \ln(T_i).\end{aligned}$$

Using this information, calculate the nitrate retained on the filter as:

$$\text{Retained Nitrate} = \text{STN nitrate} - 745.7/T_R \times (\kappa - \gamma) \times \frac{1}{24} \sum_{i=1}^{24} \sqrt{K_i},$$

where, T_R is the daily average temperature for the sampled air volume in Kelvin, K_i is the dissociation constant for NH_4NO_3 at ambient temperature for hour i , and $(\kappa - \gamma)$ relates to the temperature rise of the filter and vapor depletion from the inlet surface and is assumed to have a value equal to one (Hering and Cass, 1999).

(2) Calculate quarterly averages for retained nitrate, sulfate, elemental carbon, sea salt, and ammonium,

(3) Calculate particle bound water using the concentrations of ammonium, sulfate, and nitrate, using an equilibrium model like the Aerosol Inorganic Model (AIM) or a polynomial equation derived from model output

Under the FRM filter equilibration conditions, hygroscopic aerosol will retain its particle bound water (PBW) and be included in the observed FRM $\text{PM}_{2.5}$ mass. PBW can be calculated using an equilibrium model like the Aerosol Inorganics Model (AIM). AIM requires the concentrations of ammonium, nitrate, sulfate, and estimated H^+ as inputs. In addition to inorganic concentrations, the equilibration conditions are also necessary model inputs. In this case, a temperature of 294.15 K and 35% RH is recommended. Alternatively, for simplification, a polynomial regression equation may be constructed by fitting the calculated water concentration from an equilibrium model and the concentrations of nitrate, ammonium, and sulfate. The AIM model will be used for more accurate calculation of PBW.

(4) Add $0.5 \mu\text{g}/\text{m}^3$ as blank mass, and

(5) Calculate organic carbon mass (OCMmb) by difference, subtracting all inorganic species (including blank mass) from the $\text{PM}_{2.5}$ mass.

Other components that may be represented on the FRM filter include elemental carbon, crustal material, sea salt, and passively collected mass. Depending on location certain species may be neglected (e.g., sea salt for inland areas).

While carbonaceous aerosol may make up a large portion of airborne aerosol, speciated measurements of carbonaceous PM are considered highly uncertain. This is due to the large number of carbon compounds in the atmosphere and the measurement uncertainties associated with samplers of different configurations. In the SANDWICH approach, organic carbonaceous mass is calculated by difference. The sum of all nonorganic carbon components will be subtracted from the FRM PM_{2.5} mass to estimate the mass of organic carbon.

After having calculated the species concentrations as outlined above, we will calculate the percentage contribution of each species to the measured FRM mass (minus the blank concentration of 0.5 µg/m³) for each quarter of the years represented by the speciated data. Note that blank mass is kept constant at 0.5 µg/m³ between the base and future years, and future year particle bound water needs to be calculated for the future year values of nitrate, ammonium, and sulfate.

3.17.2.4.3 Estimation of Species Concentrations at Federal Reference Method (FRM) Monitors that Lack Speciation Data

Speciation data from available STN (speciation) sites will be used to speciate the FRM mass for all FRM sites. For those sites not collocated with STN monitors, surrogate speciation sites will be determined based on proximity and evaluation of local emissions or based on similarity in speciation profiles if such data exists (e.g., such as the speciated data collected in the SJV during CRPAQS (Solomon and Magliano, 1998)).

3.17.2.4.4 Speciated Modeled Attainment Test (SMAT)

Following U.S. EPA modeling guidance (U.S. EPA, 2014), the model attainment test for the annual PM_{2.5} standard will be performed with the following steps.

Step 1: For each year used in the design value calculation, determine the observed quarterly mean PM_{2.5} and quarterly mean composition for each monitor by multiplying the monitored quarterly mean concentration of FRM derived PM_{2.5} by the fractional composition of PM_{2.5} species for each quarter.

Step 2: Calculate the component specific RRFs at each monitor for each quarter as described in section 8.3.2 of EPA modeling guidance.

Step 3: Apply the component specific RRFs to the quarterly mean concentrations from Step 1 to obtain projected quarterly species estimates.

Step 4: Calculate future year annual average PM_{2.5} estimates by summing the quarterly species estimates at each monitor and then compare to the annual PM_{2.5} NAAQS. If the projected average annual arithmetic mean PM_{2.5} concentration is ≤ the NAAQS, then the attainment test is passed.

For the 24-hour $PM_{2.5}$ standard, the attainment test is performed with the following steps (U.S. EPA, 2014):

Step 1: Determine the top eight days with the highest observed 24-hour $PM_{2.5}$ concentration (FRM sites) in each quarter and year used in the design value calculation (a total of 32 days per year), and calculate the 98th percentile value for each year.

Step 2: Calculate quarterly ambient species fractions on “high” $PM_{2.5}$ days for each of the major $PM_{2.5}$ component species (i.e., sulfate, nitrate, ammonium, elemental carbon, organic carbon, particle bound water, salt, and blank mass). The “high” days are represented by the top 10% of days in each quarter. Depending on the sampling frequency, the number of days captured in the top 10% would range from three to nine. The species fractions of $PM_{2.5}$ are calculated using the “SANDWICH” approach which was described previously. These quarter-specific fractions along with the FRM $PM_{2.5}$ concentrations are then used to calculate species concentrations for each of the 32 days per year determined in Step 1.

Step 3: Apply the component and quarter specific RRF, described in Section 8.3.2, to observed daily species concentrations from Step 2 to obtain future year concentrations of sulfate, nitrate, elemental carbon, organic carbon, salt, and other primary $PM_{2.5}$.

Step 4: Calculate the future year concentrations for the remaining $PM_{2.5}$ components (i.e., ammonium, particle bound water, and blank mass). The future year ammonium is calculated based on the calculated future year sulfate and nitrate, using a constant value for the degree of neutralization of sulfate from the ambient data. The future year particle bound water is calculated from the AIM model.

Step 5: Sum the concentration of each of the species components to calculate the total $PM_{2.5}$ concentration for each of the 32 days per year and at each site. Sort the 32 days for each site and year, and calculate the 98th percentile value corresponding to each year.

Step 6: Calculate the future design value at each site based on the 98th percentile concentrations calculated in Step 5 and following the standard protocol for calculating design values. Compare the future-year 24-hour design values to the NAAQS. If the projected design value is $\leq$ the NAAQS, then the attainment test is passed.

3.17.2.5 Unmonitored Area Analysis

The unmonitored area analysis is used to ensure that there are no regions outside of the existing monitoring network that could exceed the NAAQS if a monitor was present at that location (U.S. EPA, 2014). The U.S. EPA recommends combining spatially interpolated design value fields with modeled gradients for the pollutant of interest (e.g. Ozone and PM_{2.5}) and grid-specific RRFs in order to generate gridded future year gradient adjusted design values. The spatial Interpolation of the observed design values is done only within the geographic region constrained by the monitoring network, since extrapolating to outside of the monitoring network is inherently uncertain. This analysis can be done using the Model Attainment Test Software (MATS) (Abt, 2014); however this software is not open source and comes as a precompiled software package. To maintain transparency and flexibility in the analysis, in-house R codes (<https://www.r-project.org/>) developed at CARB will be utilized in this analysis. The basic steps followed in the unmonitored area analysis for 8-hour ozone and annual/24-hour PM_{2.5} are described below.

3.17.2.5.1 Annual PM_{2.5}

The unmonitored area analysis for the annual PM_{2.5} standard will include the following steps:

Step 1: At each grid cell, the annual average PM_{2.5} (total and by species) will be calculated from the future year simulation, and a gradient in the annual averages between each grid cell and grid cells which contain a monitor will be calculated.

Step 2: The annual future year speciated PM_{2.5} design values will be obtained for each design site as described in section 8.4 of the EPA modeling guidance. For each grid cell, the monitors within its Voronoi Region will be identified, and the speciated PM_{2.5} values are then interpolated using normalized inverse distance squared weightings for all monitors within a grid cell's Voronoi Region. The interpolated speciated PM_{2.5} fields are then adjusted based on the appropriate gradients from Step 1.

Step 3: The concentration of each of the component PM_{2.5} species are summed to calculate the total PM_{2.5} concentration (or DV) for each grid cell.

Step 4: The future year gridded annual average PM_{2.5} estimates are then compared to the annual PM_{2.5} NAAQS to determine compliance.

3.17.2.5.2 24-hour PM_{2.5}

The unmonitored area analysis for the 24-hour PM_{2.5} standard will include the following steps:

Step 1: At each grid cell, the quarterly average of the top 10% of the modeled days for 24-hour $PM_{2.5}$ (total and by species for the same top 10% of days) will be calculated from the future year simulation, and a gradient in these quarterly speciated averages between each grid cell and grid cells which contain a monitor will be calculated.

Step 2: The 24-hour future year speciated $PM_{2.5}$ design values will be obtained for each design site as described in section 8.4 of the EPA modeling guidance. For each grid cell, the monitors within its Voronoi Region will be identified, and the speciated $PM_{2.5}$ values are then interpolated using normalized inverse distance squared weightings for all monitors within a grid cell's Voronoi Region. The interpolated speciated $PM_{2.5}$ fields are then adjusted based on the appropriate gradients from Step 1.

Step 3: The concentration of each of the component $PM_{2.5}$ species are summed to calculate the total $PM_{2.5}$ concentration (or DV) for each grid cell.

Step 4: The future year gridded 24-hour average $PM_{2.5}$ estimates are then compared to the 24-hour $PM_{2.5}$ NAAQS to determine compliance.

The R codes used in this analysis will be made available upon request to CARB.

3.17.3 Post Processing Relative Modeling Results

Once the relative modeling results have been generated for both "Base Future Year" and the "Adjusted Base Future Year" at all monitored and unmonitored areas. The change in concentration is derived, for each receptor, (i.e. Adjusted Base Future Year - Base Future Year). The change in concentration is then compared to the precursor demonstration threshold. A change greater than or equal to the precursor demonstration threshold is considered to be a significant.

4 CMAQ Results

The results of the CMAQ modeling using the relative analysis are shown in Figures 15 and 16. Figure 15 shows the results for 24-hour, and Figure 16 shows the results for annual average $PM_{2.5}$ concentrations differences.

Figure 16 - Maximum Daily Differences

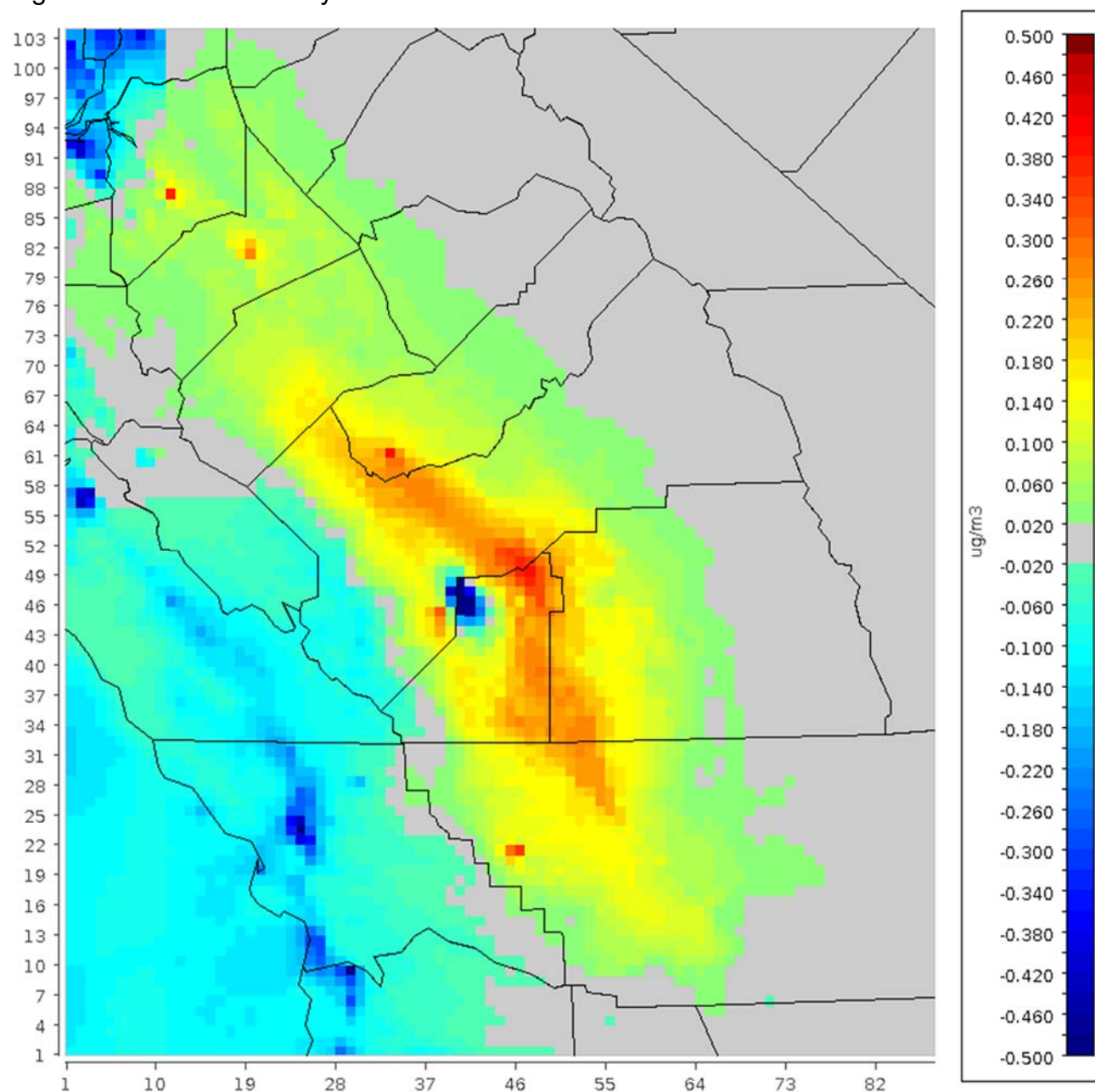


Figure 16 shows the spatial distribution of 24-hour PM_{2.5} differences between the base case and adjusted case scenarios.

Figure 17 - Annual Average Differences

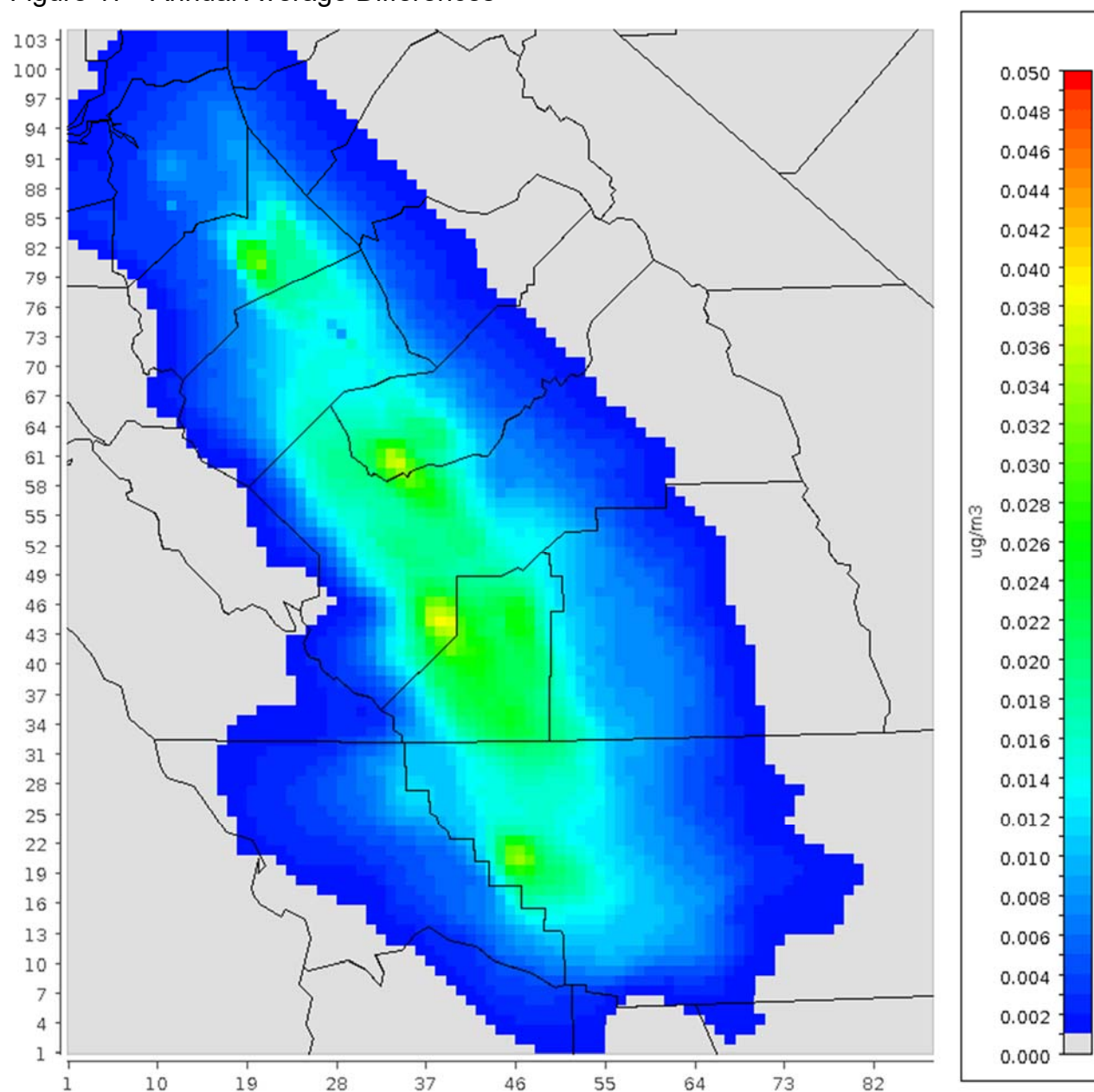


Figure 17 shows the spatial distribution of annual average PM_{2.5} differences between the base case and adjusted case scenarios.

5 Conclusion

As noted elsewhere in the this report, the District does not expect any new significant ammonia sources to be permitted in the Valley, based on an analysis of past permitting actions and expected future actions, including assumptions regarding Best Available Control Technology and the level of emissions control that would be required by existing District regulations. Regardless, a NNSR precursor demonstration modeling analysis was conducted pursuant to written EPA guidance, but also including additional requests by EPA, as noted, which were intended by EPA to ensure the conservative nature of the modeling.

This analysis addressed the sensitivity of ambient PM_{2.5} concentrations in the San Joaquin Valley to hypothetical and unrealistically large increases in NH₃ emissions from major point sources within the region, including modifications to existing sources. The analysis was conducted in accordance with the protocol described in this document, including the aforementioned additional requests from EPA, was developed in full consultation with CARB and EPA staff, and is consistent with EPA's final PM_{2.5} Precursor Demonstration Guidance.

The District conducted an analysis using the relative model approach described in this report, which derives overall PM_{2.5} design values for both monitored and unmonitored locations using speciation data. The relative method compares the allowed change in design value at each receptor versus the change in modeled concentration, and is the method recommended by EPA. The relative modeling analysis performed by the District demonstrated that NH₃ emissions from hypothetical (and unrealistically frequent and large) new and modified major sources in the Valley will not contribute significantly to PM_{2.5} concentrations levels exceeding the PM_{2.5} NAAQS.

The modeling analysis evaluated the potential impacts on daily (24-hour-average) and annual PM_{2.5} concentrations in the San Joaquin Valley from an ultra-conservative high-emissions-growth scenario. This scenario assumed that 10 new major sources would be built, each emitting 300 tons per year of NH₃, and 128 NH₃ modifications. This level of emissions growth is obviously not expected to occur, since, as noted in this report, the District does not anticipate permitting ANY new significant sources of ammonia, but it was used to ensure that the analysis represented a definitive, never-to-be-seen, "worst-case" scenario. It should be noted that the EPA guidance document does not require the degree of conservatism represented by this report, and so this demonstration should not be seen as establishing a precedent for the minimum level of analysis for future demonstrations. Rather, this ultra-conservative analysis should be seen as an extremely robust demonstration that went well beyond reasonable assumptions in reaching its conclusions, represented in the following table:

Table 15 - Determination of Significance

NAAQS	Maximum Modeled Change ($\mu\text{g}/\text{m}^3$)	Precursor Guidance Threshold ($\mu\text{g}/\text{m}^3$)	Is the Change significant?
Relative Analysis			
24-Hour	0.394	1.5	No
Annual	0.039	0.2	No

As seen in the table above, even with the ultra-conservative and unrealistically high ammonia growth assumptions used in the District's modeling analysis, the maximum modeled 24-hour concentration increase is only 26% of the level at which a change is seen as significant, while the maximum modeled annual increase is less than 20% of the allowable change.

In conclusion, the District's NNSR precursor demonstration provides a clear and convincing basis for EPA to make a determination under 40 CFR §51.165(a)(13) that the District's NNSR permitting program need not apply the federal Clean Air Act's NNSR requirements to ammonia.