Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND 10-YEAR PM10 MAINTENANCE PLAN

Board Adopted
May 7, 2020

2700 "M" Street, Suite 302
Bakersfield CA 93301
(661) 862-5250
FAX: (661) 862-5251
ekapcd@kerncounty.com

EASTERN KERN
AIR POLLUTION CONTROL DISTRICT

SERVING EASTERN KERN COUNTY

Glen E. Stephens, P.E.
Air Pollution Control Officer

AIR POLLUTION CONTROL BOARD

Mick Gleason	Kern County Supervisor, District I
Zack Scrivner	Kern County Supervisor, District II
Don Parris	Councilman, City of California City
Mike Mower	Councilman, City of Ridgecrest
Michael Davies	Councilman, City of Tehachapi

Figure 1

California Air Pollution Control Districts

Figure 2

California Air Basins

Figure 3

Mojave Desert Air Basin

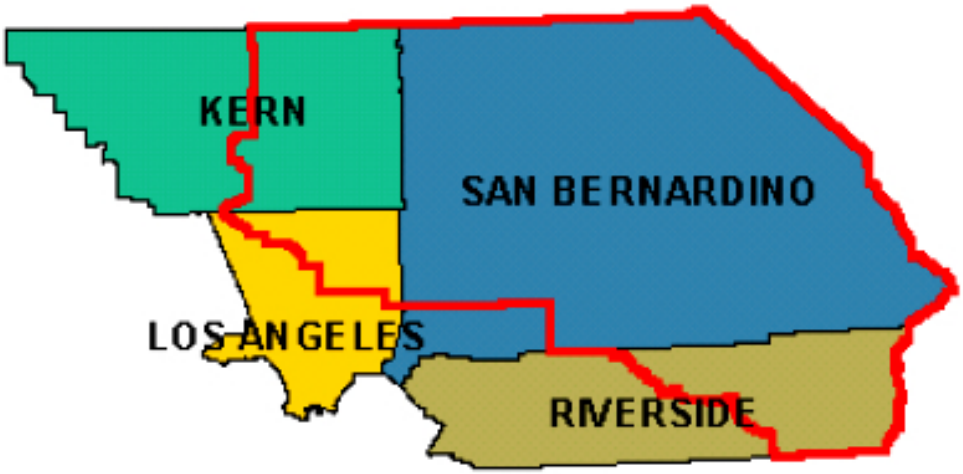


Figure 4

Indian Wells Valley Attainment Area

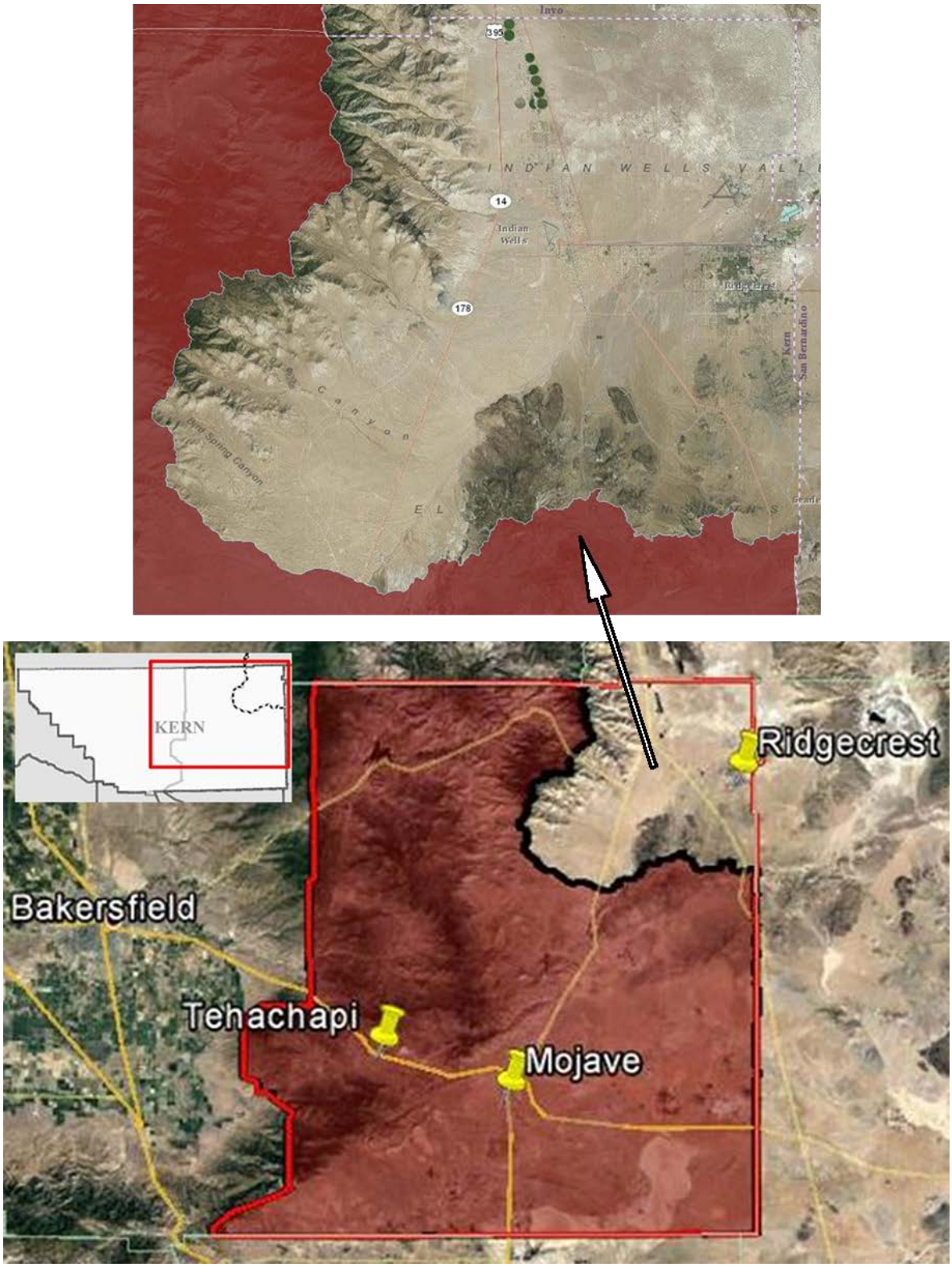


TABLE OF CONTENTS

Page

I. INTRODUCTION 1
- A. Purpose 1
- B. Regulatory Background 1
- C. Indian Wells Valley Attainment Area 5

II. BACKGROUND 5
- A. Plan Amendments 6
- B. Rule Development 6

III. ATTAINMENT DEMONSTRATION 8
- A. Linear Rollback Model 9
- B. Factors Contributing to Attainment 10
- C. Ridgecrest Air Monitor Upgrade 10

IV. MAINTENANCE PLAN 12
- A. Requirements 12
- B. Emission Inventory 12
- C. IWV Growth 13
- D. Forecast Emission Inventory 13
- E. Transportation Conformity 14
- F. PM10 Emission Category and Precursor Requirements for Conformity 15
- G. Assessment of Significance 16
- H. PM10 Conformity Budgets 17
- I. Additional Control Measures 18

V. CONTINGENCY MEASURES 19
- A. Tracking 19
- B. Contingency Plan Trigger 19
- C. Contingency Provisions 20
- D. District Rule SIP Approvals 21
- E. Contingency Plan Implementation 21

VI. SUBSEQUENT MAINTENANCE PLAN REVISIONS 22

FIGURES

Figure 1: California Air District Map ii
Figure 2: California Air Basin iii
Figure 3: Mojave Desert Air Basin iii
Figure 4: Indian Wells Valley Attainment Area iv
Figure 5: Respirable Particulates 2
Figure 6: Hydrological Unit 18090205 3
Figure 7: EPA Region IX PM10 Designations 4
Figure 8: New Ridgecrest Air Monitoring Site 11
Figure 9: Parallel PM10 Monitoring Data in Ridgecrest 11
Figure 10: PM10 Maintenance Area as Represented in KCOG Model 15

TABLES

Table 1: Design Value Report (AMP480) 2003-2018 9
Table 2: CEPAM PM10 Emission Inventory 2013-2018 12
Table 3: Forecast PM10 Emission Inventory 2017-2025 13
Table 4: Annual Average Mobile PM10 Contribution to Total PM10 16
Table 5: IWV Transportation Conformity Budget 17
Table 6: Ridgecrest Air Monitor Highest PM10 Readings 2013-2018 18
Table 7: Emission Sources & Control Measures 21

APPENDICES

Appendix A: Design Value Report (AMP480) ....Appx A
Appendix B: Ridgecrest Air Monitor CARB Audit Report ....Appx B
Appendix C: CEPAM Emission Projections by Summary Category ....Appx C
Appendix D: IWV Precursor Emission Inventories 2002-2025 ....Appx D
Appendix E: Rule 402, Fugitive Dust ....Appx E
Appendix F: Rule 402.2, Agricultural Operations ....Appx F

I. INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA) designated the Searles Valley Planning Area "moderate" nonattainment for the PM10 National Ambient Air Quality Standards (NAAQS's) pursuant to the 1990 Federal Clean Air Act (FCAA) amendments. This designation required adoption of a PM10 attainment plan for the area that showed how attainment would be achieved by the end of 1994. In December 1991, the Eastern Kern Air Pollution Control District [Kern County Air Pollution Control District at that time] (District) Board of Directors adopted the Kern County portion of the *PM10 State Implementation Plan (SIP) for the Searles Valley Planning Area* to satisfy this requirement.

U.S. EPA approved the District's *PM10 (Respirable Dust) Attainment Demonstration, Maintenance Plan, and Re-designation Request" Kern County Portion of Indian Wells Valley Segment of "Searles Valley" Federal Planning Area* in a final action published in the Federal Register, Vol. 68, No. 88 (68 FR 24368) on May 7, 2003. All control measures identified in the Plan were implemented, and the Kern County portion of the Searles Valley Federal PM10 Nonattainment Area attained the 24-hour PM10 NAAQS's.

A forecast emission inventory was prepared for the area at that time, using local industry, regional, and state planning entity estimates of future activity. The forecast inventory was analyzed with a linear model to estimate future (through 2013) ambient PM10 concentrations. The analysis showed ambient concentrations would not exceed 136 ug/m^3. It was determined no additional control measures or contingency measures would be needed, beyond those already in place, to maintain attainment of the 24-hour PM10 NAAQS's. This proved to be correct.

A. Purpose

This document is intended to serve as is the second 24-hour PM10 NAAQS Maintenance Plan for the IWV Attainment Area. The District has maintained attainment of the 24-hour PM10 NAAQS for the IWV Attainment Area since U.S. EPA's approval (2003) of the Re-designation request and Attainment/Maintenance plan (2002). The District is requesting continued attainment/maintenance status of the IWV Attainment Area. This second Maintenance Plan includes updated emission inventories, mobile source emissions budget, contingency measures, and additional years of forecasting. This second plan is designed to accompany the first PM10 attainment/maintenance (2002) plan, and ensure continued attainment/maintenance of the NAAQS in the IWV, and designed to comply with requirements of the FCAA, and with relevant policies and procedures of the U.S. EPA including 42 U.S.C. §7505a (FCAA §175A), Maintenance Plans.

B. Regulatory Background

1. PM10 National Ambient Air Quality Standard (NAAQS)

The 1970 Federal Clean Air Act (FCAA) required the U.S. EPA to develop health-based National Ambient Air Quality Standards (NAAQS) for several categories of air pollutants, including finely-divided particulates. A standard for total suspended particulates (TSP) was adopted (TSP refers to all particulates an aerodynamic diameter of less than 40 microns. In 1985, the U.S. EPA changed the TSP standards by setting NAAQS for PM10, defined as particles with an aerodynamic diameter of ten microns or

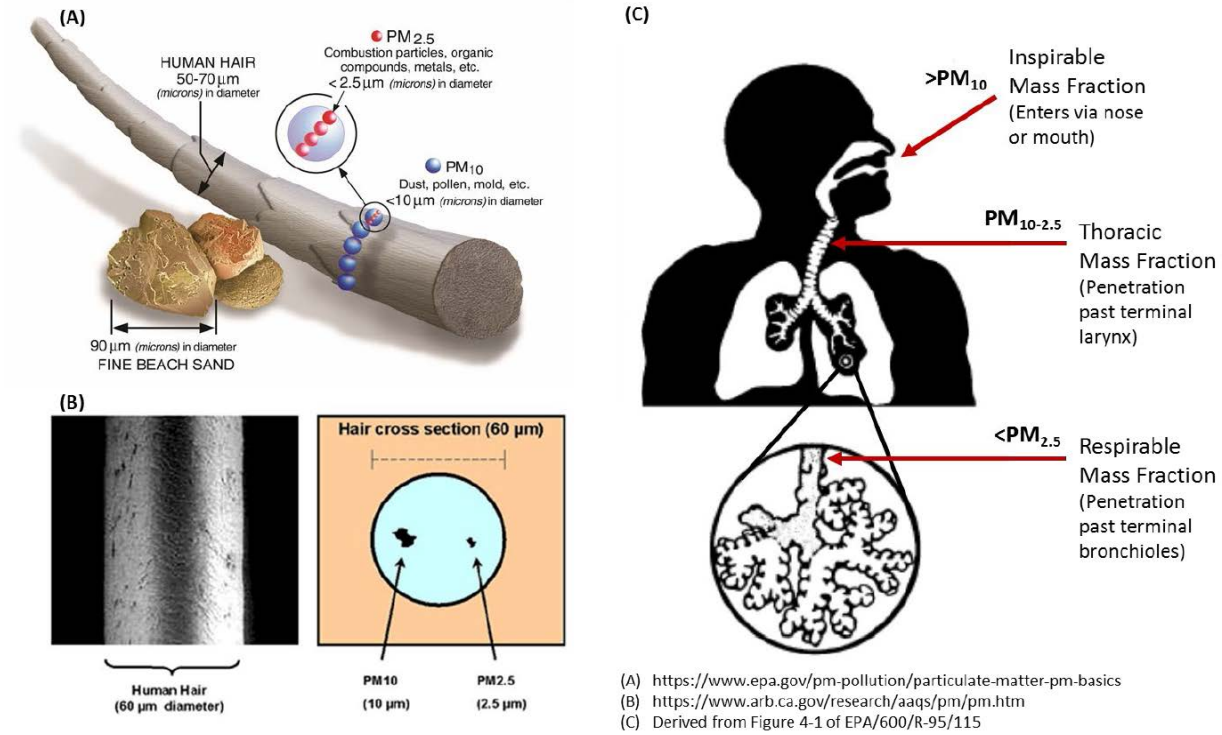
less (PM10). The current PM10 NAAQS allow for a maximum 24-hour average concentration of 150 ug/m^3. The 24-hour PM10 NAAQS may not be exceeded more than once per year on average over any three-year period.

There are both primary and secondary air quality standards. The primary standards are set to protect human health with a margin of safety to protect the more sensitive persons in the population like the very young, elderly and the ill. Secondary standards are set to protect property, materials, aesthetic values and general welfare. For PM10, the national primary and secondary standards are the same. The numerical levels of the standards are subject to change, based on new scientific evidence summarized in air quality criteria documents. In 2006, U.S. EPA revoked the annual PM10 standard but retained the 24-hour average of 150 ug/m^3 (71 FR 61144) for both the primary and secondary NAAQS.

2. PM10 Health and Environmental Effects

Particulate matter is the term given to tiny particles of solid or semi-solid material suspended in the atmosphere. PM10 refers to a subset of particulate matter 10 micrometers in diameter and smaller. Epidemiological studies and laboratory studies of humans and animals indicate that particulate matter can be inhaled deeply into the respiratory system, resulting in aggravation of existing respiratory and heart diseases, damage to lung tissue, impairment of breathing and respiratory functions, alterations to the body's physical and immune system defenses, and even premature death. Many particles are also composed of compounds that are known or suspected human carcinogens. People most sensitive to particulate matter are the elderly, children, and those with chronic lung disease, cardiovascular disease, influenza, and asthma.

Figure 5
Respirable Particulates



(A) https://www.epa.gov/pm-pollution/particulate-matter-pm-basics
(B) https://www.arb.ca.gov/research/aaqs/pm/pm.htm
(C) Derived from Figure 4-1 of EPA/600/R-95/115

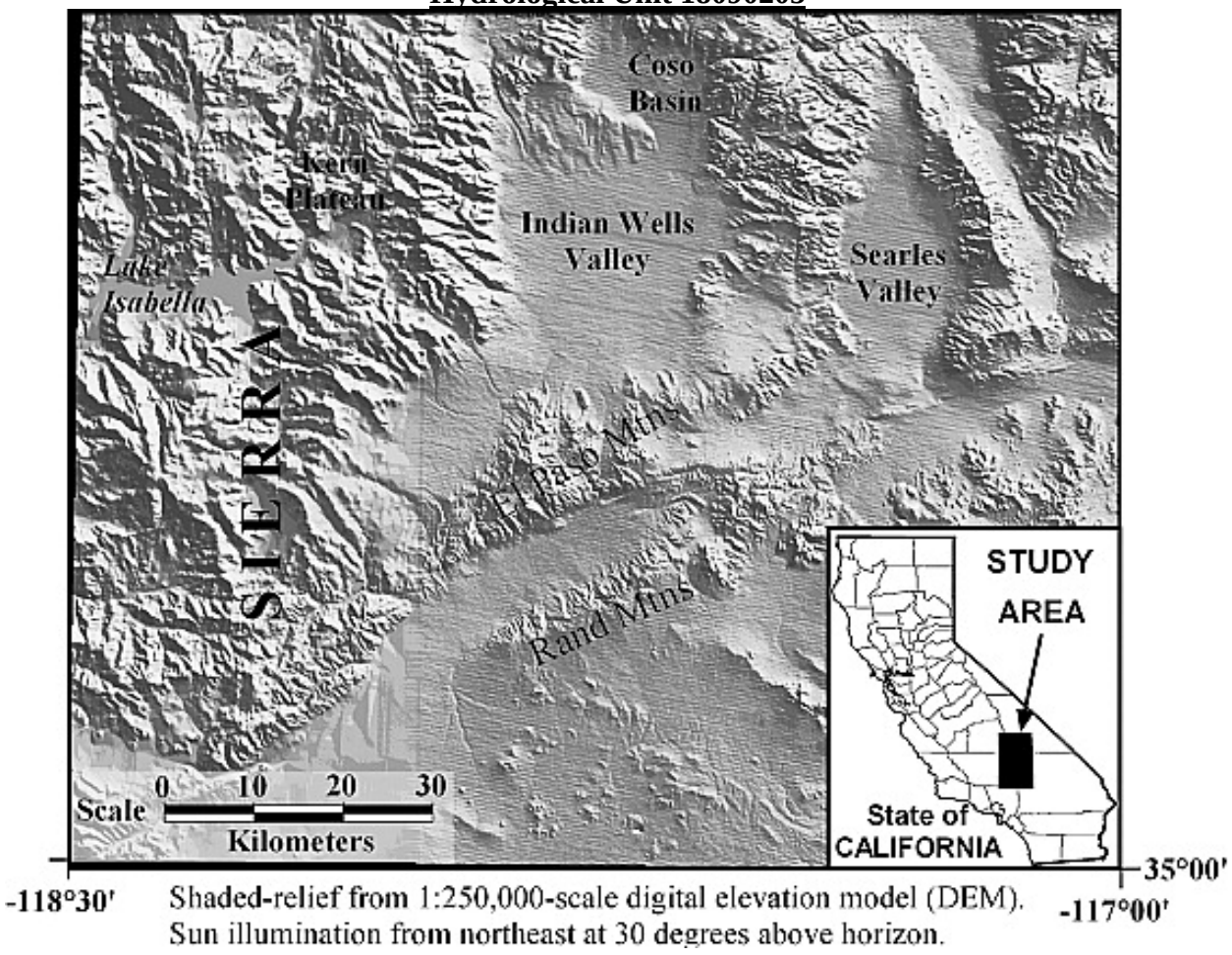
Environmental effects of particulate air pollution are widespread. Chemical and photochemical reactions involving the particles may occur in the air, or once they have been deposited on environmental media or structures. Such soiling and acid deposition cause visibility degradation, climate changes, and damage to crops, natural vegetation, water bodies, and aquatic life. In addition, sculpture and architecture may be damaged or destroyed by particulate soiling and acid deposition.

3. Searles Valley Planning Area

Section 110 (a)(1) of the 1977 FCAA amendments required U.S. EPA to divide the United States into "Planning Areas" and designate these areas "attainment", "nonattainment", or "unclassified" within 3 years of adopting the Ambient Air Quality Standard.

U.S. EPA considers PM10 a "localized" pollutant as opposed to a "regional" pollutant such as ozone. Consequently, attainment/nonattainment designations can apply to limited areas such as the Searles Valley instead of a whole district, or air basin. U.S. EPA used the Searles Valley's hydrological unit #18090205 (Figure 6) to define the PM10 Planning Area. This hydrological unit includes regions of three air districts

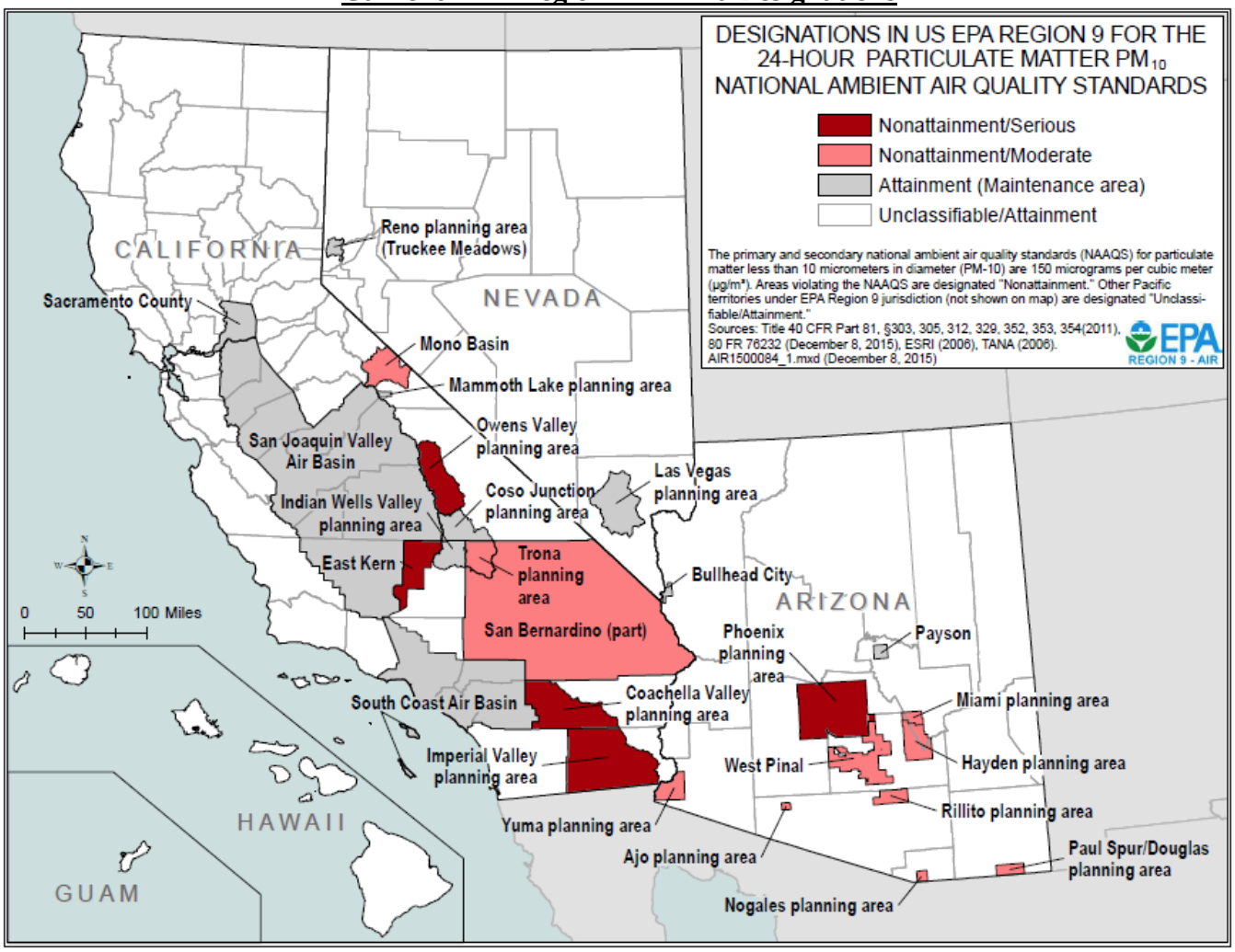
Figure 6
Hydrological Unit 18090205



Shaded-relief from 1:250,000-scale digital elevation model (DEM). Sun illumination from northeast at 30 degrees above horizon.

The Searles Valley Planning Area (Near the center of Figure 7) was eventually divided into three separate planning areas, delineated by the boundaries of the following three air districts: Eastern Kern APCD (Indian Wells Valley), Great Basin Unified APCD (Coso Junction), and Mojave Desert AQMD (Trona).

Figure 7
Current EPA Region IX PM10 Designations



PM10 monitoring data from 1987, was used to establish the probability of nonattainment pursuant to the 1977, Federal Clean Air Act Amendments (FCAAA). In 1987, PM10 monitoring was conducted in the Searles Valley at Trona and Coso Junction (Inyo County). PM10 monitoring at China Lake in (Eastern) Kern County did not begin until 1989.

As part of its PM10 designation process U.S. EPA developed three categories for areas without a history of PM10 monitoring:

- Group I (areas with "95% probability of exceeding the NAAQS's");
- Group II (areas with "a probability between 20 - 95% of exceeding the NAAQS's");
- Group III (areas with "less than 20% probability of exceeding the NAAQS's").

Based on 1987, air monitoring data, U.S. EPA identified the Searles Valley as an area with high probability of PM10 exceedances and listed it in the Federal Register as a Group I PM10 area (52 FR 29383 August 7, 1987).

Section 110 (a)(1) required a PM10 attainment plan to be submitted to U.S. EPA by 1988, for each area exceeding a NAAQS. However, in 1988, U.S. EPA granted an extension to November 20, 1991.

In 1990, the Searles Valley Planning Area became, by operation of law, and pursuant to Section 107 (d)(4)(b) of the 1990 FCAAA's, a "Moderate" PM10 nonattainment area. This designation was based on many PM10 NAAQS exceedances monitored after 1985, at the official Trona monitoring site and multiple industry-operated monitoring sites in the vicinity.

November 25, 1991, the three air districts with jurisdiction over the Searles Valley Planning Area jointly prepared and adopted a PM10 attainment plan for the region.

The District prepared amendments to the region's PM10 attainment plan to improve the emission inventory. These amendments were adopted on July 6, 1993. On November 29, 1993, the District's Board of Directors adopted Rule 402 (Fugitive Dust), to implement control measures that were identified in the attainment plan.

In 1994, U.S. EPA and the California Air Resources Board (CARB) notified the District that the attainment plan contained insufficient contingency measures. On September 7, 1995, the District's Board adopted a revised attainment plan and amended Rule 402, to incorporate enhanced contingency measures. CARB forwarded Rule 402 to U.S. EPA for approval and subsequent inclusion in the SIP on March 29, 1994.

C. Indian Wells Valley Attainment Area

On August 2, 2002, the U.S. EPA approved dividing the Searles Valley Federal PM10 Nonattainment Area into three Subareas, Published 67 FR 50805. The Indian Wells Valley (IWV) Attainment Area is the District's portion of the Searles Valley Planning Area, comprised of approximately 566 square miles of the southern half of the IWV, and populated by approximately 32,858 persons (Figure 4).

The IWV is an arid valley with several dry lakes and some farming. Average precipitation is four inches per year. The area features one community of significant size, Ridgecrest and the main base of the Naval Air Weapons Station (NAWS), China Lake. Primary roadways traversing the area are State Route 178, Highway 14, and Highway 395. The region is dominated by military activities related to NAWS. Other sources of pollution are those associated with the community, infrastructure, service industries, and vehicular activities. There are no large stationary sources of PM10 in the area.

II. BACKGROUND

On December 2, 1991, the District's Board of Directors adopted *PM10 State Implementation Plan (SIP) for the Searles Valley Planning Area* in response to Section 110 (A)(1) of the 1990 FCAAA. This Plan targeted control of several PM10 sources including: industrial processes,

construction and demolition activity, wind erosion sources, unpaved roadways, and open area sources. A PM10 Attainment Plan was required to identify a design value from the nonattainment area's 1988, 1989, and 1990 ambient air quality monitoring data, however the District was unable to demonstrate this at that time because PM10 monitoring was not initiated until 1989, and there were no NAAQS exceedances recorded in 1989 or 1990.

Initially, Kern County's portion of the Searles Valley Planning Area, shown in Figure 7, had a design value of 166 ug/m^3 (micrograms per cubic meter) recorded on March 13, 1991. This design value was supposed to reflect the area's representative level of exceedance. April 6 and May 30, 1991, both had higher concentrations, but these exceedances were determined “not” representative of the Ridgecrest area and determined to be transport from neighboring Owens Lake events.

The design value of 166 ug/m^3 was only 11% above the 24-hour NAAQS of 150 ug/m^3. Consequently, the PM10 control efficiency for each source targeted to reduce ambient PM10 concentrations sufficient to attain the standard, were modest. The District's Attainment Plan was designed to achieve the 24-hour PM10 NAAQS by the mandatory date of December 31, 1994. It succeeded. (Note: Since inception of monitoring, the IWV has never exceeded the NAAQS).

A. Plan Amendments

July 6, 1993, the District's Governing Board amended their portion of the Searles Valley PM10 Attainment Plan to clarify, amplify, and correct certain aspects of the Plan. The District committed to development of a PM10 control rule requiring Reasonably Available Control Measures (RACM's) to the extent that PM10 emissions in the IWV would be reduced by 25% from unpaved roadways; reduced by 25% from construction and demolition activities; and reduced by 15% from wind erosion.

February 22, 1994, EPA Region IX informed the District that their portion of the Searles Valley PM10 Attainment Plan had satisfied completeness criteria of 40 CFR Part 51, Appendix V.

September 7, 1995, the District's Governing Board amended the Attainment Plan and Rule 402 (Fugitive Dust) to include contingency measures. These contingency measures consisted of increasing the Plan's unpaved roadways PM10 control efficiency from 25% to 35%, and "tightening up" the unpaved roadways exemptions listed in Rule 402. Contingency measures were to be automatically "triggered" in the event the area fails to maintain the NAAQS.

B. Rule Development

In order to fulfill commitments made in the 1991 “PM10 State Implementation Plan for the Searles Valley Planning Area”, the District's Board adopted Rule 402, (Fugitive Dust) on November 29, 1993. Rule 402 had a final compliance date of June 1, 1994, and required control of certain new and existing unpaved roadways, large construction activities, demolition projects, and significant wind erosion sources. Full implementation occurred by year-end 1998. Rule 402 has been amended March 7, 1994; September 7, 1995; November 3, 2004; and March 12, 2015.

1. Fugitive Dust Rule 2015 Amendment

Rule 402 was last amended March 12, 2015. These amendments include revised and new definitions; and an exemption for Agricultural Operations that reads: *Provisions of this Rule shall not apply to Agricultural operations specifically subject to the requirements of District Rule 402.2, Agricultural Operations*.

Section VII, (Requirements) of Rule 402 was revised to require an owner/operator to implement one or more Reasonably Available Control Measure (RACM) or Bulk Material Control Measures (BMCM) fugitive dust emission control strategy from the Rule to limit visible dust emissions (VDE) to no more than 20% opacity or meet conditions for a stabilized surface. This section also required "Large Operations" to submit and receive approval of a "Fugitive Dust Emissions Control Plan" prior to any earth-moving activity.

Lastly, revised Rule 402 included additional air monitoring requirements for large operations causing downwind PM10 concentrations to increase more than 50 ug/m^3 above upwind concentrations. A copy of Rule 402 is attached as Appendix E.

The March 12, 2015, revision of Rule 402 is still awaiting U.S. EPA's Approval. The last U.S. EPA approved revision of Rule 402 was for the November 3, 2004, amendments published 74 FR 40750 (August 13, 2009). This publication included partial disapproval.

2. Senate Bill 700

On September 22, 2003, Senate Bill 700 (SB 700) was signed into law. The bill amended air pollution control requirements in the California Health and Safety Code (CH & SC) to include requirements for agricultural sources of air pollution. It was determined that activities associated with AG Operations significantly contributed to the very poor air quality in some regions of the state that have the highest asthma rates in the nation. SB 700 addressed the agricultural contribution to these problems, while recognizing that the problems are not the same, nor is the contribution from all AG Operations the same, throughout the state.

California law had previously exempted AG Operations from requirements to obtain air permits. This resulted in a conflict between state and federal law. California potentially faced sanctions if it failed to correct the problem. Had SB 700 not been signed, new and expanding businesses in the state would have faced significant and costly hurdles to obtain air permits required under federal law. The state would have lost billions of dollars in federal transportation funding.

SB 700 allows air districts to adopt an agricultural rule, in lieu of issuing operating permits to all AG Operations, as long as emissions are mitigated from all types of associated activities and equipment listed in the bill. This includes (but not limited to) tilling, discing, cultivation, the raising of livestock and fowl, and similar activities, to a level that the District determines does not cause or contribute to a violation of a state or federal ambient air quality standard, a toxic air contaminant standard, or any other air limitation. SB 700 specifically states that the permit exemption must be adopted as a program, which means a regulatory action.

3. Rule 402.2, Agricultural Operations

Pursuant to SB 700, Draft Rule 402.2, (Agricultural Operations) was adopted by the District's Board on March 12, 2015, in lieu of issuing operating permits to AG Operations. Rule 402.2 became effective and enforceable upon adoption. A copy of the Rule was submitted to CARB for their review and approval, then forwarded to the U.S. EPA for inclusion into the SIP. Rule 402.2 is still awaiting U.S. EPA's Approval.

Rule 402.2 requires an owner/operator of an agricultural operation site of ten (10) or more acres, to implement at least one Conservation Management Practice (CMP) for each of the following categories: Land Preparation and Cultivation, Harvest Activities, Unpaved Roads and Traffic Areas, Windblown Dust/Cropland-Other, on each agricultural parcel located in the District, and perform all related requirements designed to prevent, reduce, or mitigate fugitive dust emissions. All Ag Operations subject to Rule 402.2 must submit a CMP Plan and receive District approval for each agricultural parcel and crop being grown annually. A copy of Rule 402.2 is attached as Appendix F.

4. Fugitive Dust Emission Reductions

Fugitive dust control plans have been prepared and implemented by large operations such as demolition, construction, earthmoving, grading, excavating, open storage piles, and materials handling capable of producing fugitive PM10 emissions in the IWV Attainment Area pursuant to Section V.D. of Rule 402. Additionally, Conservation Management Practices (CMP) Plans have been submitted and implemented for commercial agricultural operations operating in the IWV Attainment Area pursuant to Section V. of Rule 402.2. Enforcement of both of these rules have significantly prevented, reduced, and mitigated ambient concentrations of anthropogenic fugitive dust emissions to an amount sufficient to attain and maintain the NAAQS.

Several unpaved roadways in the Ridgecrest area were paved with hot mix asphalt using federal CMAQ funds, and the City of Ridgecrest paved, and continues to pave, roadways in the vicinity. The District used U.S. EPA 105 Grant pass-through monies for PM10 reductions to improve roadbeds, apply dust palliatives, and place dust control speed limit signs throughout the region. Additionally, the District provides AB2766 grant funds to residents through the District's DMV Grant Program to treat dusty unpaved roads with dust palliatives and asphalt. Several private parties have applied for, and received AB2766 funds to pave public roadways and reduce fugitive dust.

III. ATTAINMENT DEMONSTRATION

The District started monitoring total suspended particulate (TSP) in the Ridgecrest vicinity in 1971, PM10 in 1989, and PM2.5 in 2000. Prior to CY 2000, the District's monitors were located in downtown Ridgecrest at City Hall and downwind of the City of Ridgecrest at the Naval Air Weapons Station (NAWS) "Main Base" in China Lake. Those two locations were representative of the largest populated area (about 29,000 at that time) and had the highest concentrations of PM10 in the District's portion of the Searles Valley Planning Area.

PM10 data collected at those monitoring sites, referred to by CARB as #06-029-1001 and #06-029-0015, had very few exceedances of the 24-hour PM10 NAAQS (150 ug/m^3), and no

exceedances of the annual arithmetic mean of 50 ug/m^3 during the 10-year Attainment Demonstration period (1989-1999). All but two exceedances were due to transport from Owens Lake events. One exceedance was due to a "natural event" (wind storm), and the other was on March 24, 1995 (165 ug/m^3). The highest annual arithmetic mean was 23.0 ug/m^3. Data collected during 1999, 2000, and 2001 demonstrated attainment of PM10 NAAQS, and nearly showed attainment of the PM10 California Ambient Air Quality Standards (CAAQS) of 50 ug/m^3 (24 hr.) and 30 ug/m^3 (annual). Attainment was demonstrated by the mandatory attainment date for a "moderate area" (December 31, 1994), although the minimum required data collection of 75% was not achieved.

A. Linear Rollback Model

A linear rollback model assumes a linear relationship between pollutant emissions and ambient concentrations of those pollutants. Such a model does this by assuming concentrations measured on a design day are the direct result of emissions on that design day. The design day is, by definition, the day with the highest ambient concentration determined to be the result of local effects, i.e., a worst-case day.

As stated in Section II. (Background), March 13, 1991, was initially selected as the design day for the District's Planning area, thus, a concentration of 166 ug/m3 was used as the design value. By establishing a relationship between emissions and concentrations on the design day, a rollback model can translate real emission reductions into theoretical concentration reductions.

The 1991 Searles Valley PM10 Attainment Plan identified several control measures designed to mitigate PM10 emissions in the planning area. The District's control measures were implemented and resulted in emission reductions. The effect those controls had on PM10 concentrations were estimated with a linear rollback model. The rollback analysis was conducted for the FCAA mandatory period of 1991-94. Data demonstrated PM10 reductions occurring in the region produced a corresponding emission level with an ambient concentration of 149 ug/m^3 under "worst case" conditions, similar to those experienced on the design day. The linear rollback model showed that PM10 emission concentrations would continue to decrease during the attainment demonstration period through 2013. This proved to be true.

Table 1, contains info from a U.S. EPA Design Value Report (AMP480), for the 2006, PM10 24-Hour NAAQS, generated January 16, 2020, for reporting years 2003 to 2018. See Appendix A, Design Value Report (AMP480) for the complete report.

Table 1

PM10 24-Hour NAAQS Design Value Report (AMP480) Years 2003 to 2018																
Year	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Estimated Exceedances	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exceedances	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quarters Completed	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4

B. Factors that Contributed to Attainment

All of the following factors contributed to attaining the 24-hour PM10 NAAQS in the IWV:

- Adoption and implementation of Rule 402, Fugitive Dust controlled fugitive PM10 from: unpaved roadways, disturbed areas, construction/demolition activities, and earth moving/open storage piles.
- NAWS and the City of Ridgecrest prepared, submitted, and implemented fugitive dust emission control plans pursuant to Rule 402.
- The Kern County Ridgecrest Landfill controls fugitive dust pursuant to the CCR, Sections 20540 and 20800.
- Enforcement of existing Rules 401 (Visible Emissions), 404.1 (Particulate Matter Concentration), 405 (Particulate Matter Emission Rate), 409 (Fuel Burning Equipment Combustion Contaminants), 416 (Open Burning), 417 (Agricultural Burning), 418 (Incinerator Burning) and 425.1 (Asphalt Batch Plants - Clean Fuels).
- Rule 210.1 (New and Modified Source Review) - Requires BACT for any new or modified stationary source, regardless of emission rate.
- Paving, surfacing and treating of numerous unpaved roadways, including:
  - 1992, 1993 - U.S. EPA pass through funds used to treat five miles of public roadway.
  - 1994 - DMV Funds used to surface two miles of roadway. (Public road to landfill.)
  - 1998 - City of Ridgecrest and DMV Funds used to pave one mile of public roadway.
  - 2000 - CMAQ Funds used to pave three miles of residential roadway.
  - 2001 - DMV Funds used to surface one mile of residential roadway.
- County of Kern (1990 Land Use Ordinance) to pave new streets for new subdivisions.
- City of Ridgecrest Municipal Code requirement to pave new streets for new subdivisions.
- Bureau of Land Management closed several off highway vehicle (OHV) roads and trails.
- Negative growth (population reduction) for the IWV between 1990 and 2001.

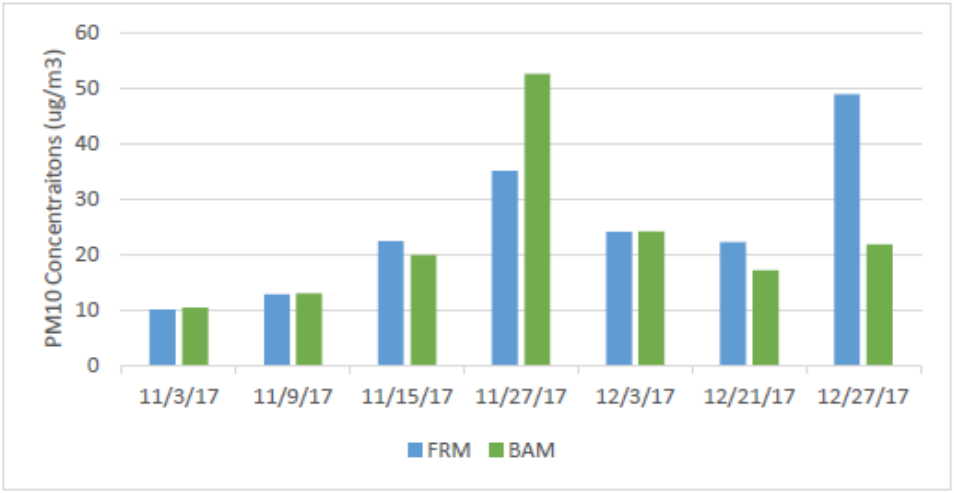
C. Ridgecrest Air Monitor Upgrade

In 2017, the District installed a new upgraded air monitoring station at a new location in Ridgecrest approximately 4-miles northwest from the old location (Figure 8) at the northeast corner of Sydnor Avenue and Primavera Street (APN 454-090-20-00). Parallel air monitoring was conducted between the new and existing (old) air monitor located at: 100 West California Avenue, Ridgecrest, CA (CARB Site No. 15300; AIRS Site No. 06-029-0015) once the new site became fully operational (November 1, 2017). The existing Ridgecrest station utilized Federal Reference Method (FRM) PM10 and PM2.5 air samplers. The upgraded station utilizes Met One 1020 BAM (Beta Attenuation Mass) air samplers.

March 22, 2018, CARB approved the new Ridgecrest air monitor site (AIRS Site No. 06-029-0018) based on the parallel monitoring data. CARB informed the District that CARB's evaluation of the PM10 (and PM2.5) data collected from the new site aligned with the original site as close as could be expected, given the number of data points available and inherent differences in parallel data collection using an FRM and a BAM (Figure 9). CARB conducted a performance audit of the new site January 29, 2020. The site passed all tests. A copy of the audit report is included in Appendix B.

Figure 8
New Ridgecrest Air Monitoring Site

Figure 9
Parallel PM10 Monitoring Data in Ridgecrest



IV. MAINTENANCE PLAN

A. Requirements

Section 107(d)(3)(E) of the FCAA provides that, for an area to be re-designated to an attainment classification, the U.S. EPA must fully approve a maintenance plan which meets the requirements of FCAA Section 175A. The maintenance plan will constitute a SIP revision and must provide for maintenance of the relevant NAAQS in the area for at least ten years after re-designation. The EPA approved the District's PM10 re-designation request and maintenance plan for the IWV on May 7, 2003, (68 FR 24368).

FCAA Section 175A(d) requires the submittal of a SIP revision eight years after the original re-designation request/maintenance plan is approved. The second plan should provide maintenance of the NAAQS for an additional ten years following the first ten-year period. Although the second attainment/maintenance plan is being submitted late, the District has maintained attainment of the IWV Attainment Area, and is providing attainment data in this plan that demonstrates continued attainment of the 24-hour PM10 NAAQS. The District intends to satisfy Section 175A(d) by preparing and submitting this plan pursuant to the FCAA and U.S. EPA requirements.

Section 175A further states that the plan shall contain such additional control measures as necessary to ensure maintenance. All control measures listed in Section II.B. of this plan shall remain in place. Additionally, this second attainment/maintenance plan contains a contingency plan to ensure the prompt correction of any unforeseen violation of the PM10 NAAQS.

B. Emission Inventory

The first maintenance plan showed the actual emission inventory for 1990 through 1994, and forecast emission inventories for 1997, 2001 and 2013. It was projected that the region's PM10 emissions would decline and then remain constant through the year 2013. This proved to be true. PM10 emissions even remained relatively flat through 2018. Table 2 shows the CEPAM PM10 emission inventory for years 2013 through 2018. There were no exceedances during this period and the District maintained the 24-hour PM10 NAAQS.

Table 2

CEPAM PM10 Emission Inventory Tons Per Annual Day 2013-2018						
Emission Source	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Fuel Combustion	0.018	0.019	0.019	0.015	0.031	0.031
Waste Disposal	0.000	0.000	0.000	0.000	0.002	0.002
Cleaning & Surface Coatings	0.000	0.000	0.000	0.000	0.001	0.001
Industrial Processes	0.009	0.010	0.011	0.013	0.019	0.019
Miscellaneous Processes	1.424	1.422	1.406	1.204	1.199	1.196
On-Road Motor Vehicles	0.051	0.045	0.042	0.042	0.039	0.038
Off-Road Mobile Sources	1.228	1.220	1.217	1.215	1.211	1.208
Total:	2.679	2.670	2.652	2.446	2.462	2.457

C. IWV Growth

The IWV Attainment Area has not had any significant changes since 1990, and no significant changes are projected to occur during the second maintenance period. The population has not significantly grown. There are approximately 33,000 current residents. This is only an estimated increase of about 2,800 residents since 1990. There is no new large-scale industry and the economy continues to be heavily dependent upon NAWS. Additionally, a number of residents commute to the Trona area East of Ridgecrest for work. There is a small amount of farming in the area, but limited by groundwater supply and weather. There is reason to believe the Sustainable Groundwater Management Act (SGMA) will ban all farming in the area once it is fully implemented.

D. Forecast Emission Inventory

42 U.S.C. §7505a (FCAA §175A) requires a maintenance plan to include an emission inventory extending at least 10 years beyond the re-designation date. The Searles Valley PM10 Attainment Plan was required to forecast regional emissions through 1994, the mandatory moderate classification attainment date. An emission inventory was prepared by CARB for the IWV Attainment Area that forecast emissions through the year 2013, including 1997 and 2001 as milestone years. That forecast inventory covered 19 years beyond the attainment date, and 10 years beyond the expected re-designation date of 2003. The U.S. EPA approved the first PM10 re-designation request and maintenance plan for the IWV Attainment Area on May 7, 2003, (Federal Register / Vol. 68, No. 88) effective June 6, 2003.

This second Maintenance Plan will use the 2017 inventory as the Base Year with a second Maintenance Period of 2017 to 2025. PM10 emission projections in Table 3 were generated from CARB's CEPAM External Adjustment Reporting Tool for the IWV PM10 Maintenance Plan Area, Version 1.00. Forecast emission projections show continued maintenance through 2025 and beyond.

Table 3

CEPAM Forecast PM10 Emission Inventory Tons Per Annual Day 2017-2025									
Emission Source	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Fuel Combustion	0.031	0.031	0.032	0.027	0.027	0.026	0.023	0.018	0.018
Waste Disposal	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Cleaning & Surface Coatings	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Industrial Processes	0.019	0.019	0.019	0.020	0.020	0.020	0.021	0.021	0.021
Miscellaneous Processes	1.199	1.196	1.195	1.193	1.267	1.266	1.265	1.263	1.262
On-Road Motor Vehicles	0.039	0.038	0.037	0.037	0.036	0.035	0.035	0.036	0.036
Off-Road Mobile Sources	1.172	1.170	1.168	1.167	1.166	1.164	1.163	1.163	1.161
Total:	2.462	2.457	2.454	2.446	2.519	2.514	2.509	2.503	2.501

E. Transportation Conformity

Section 176(c) of the Federal Clean Air Act (CAA) establishes transportation conformity requirements that are intended to ensure that transportation activities do not interfere with air quality progress.[1] The CAA requires that transportation plans, programs, and projects that obtain federal funds or approvals *conform to* applicable state implementation plans (SIP) before being approved by a Metropolitan Planning Organization (MPO). Conformity to a SIP means that proposed activities must not:

1. Cause or contribute to any new violation of any standard;

2. Increase the frequency or severity of any existing violation of any standard in any area; or

3. Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

A SIP analyzes the region's total emissions inventory from all sources for purposes of demonstrating reasonable further progress (RFP), attainment, or maintenance. The portion of the total emissions inventory from on-road highway and transit vehicles in these analyses becomes the "motor vehicle emissions budget[2,3]." Motor vehicle emissions budgets are the mechanism for ensuring that transportation planning activities conform to the SIP. Budgets are set for each criteria pollutant or its precursors, for all RFP base and attainment years. Subsequent transportation plans and programs produced by transportation planning agencies are required to conform to the SIP by demonstrating that the emissions from the proposed plan, program, or project do not exceed the budget levels established in the applicable SIP.

The Indian Wells Valley transportation conformity budget of projected PM_{10} emissions is derived from VMT projections developed by the Kern Council of Governments (KCOG). Since portions of Kern County lie within four PM10-classified areas – San Joaquin Valley Air Basin, Mojave Desert Air Basin nonattainment, Mojave Desert Air Basin unclassified, and Indian Wells Valley – VMT estimates were developed by KCOG for each of these four regions individually. The emissions budget included in this transportation conformity analysis applies only to the Indian Wells Valley PM_{10} maintenance area. The motor vehicle emissions budget for PM10 includes, in addition to vehicular exhaust, tire, and brake wear emissions, re-entrained dust from travel on paved and unpaved roads (71 FR 12498)[4]

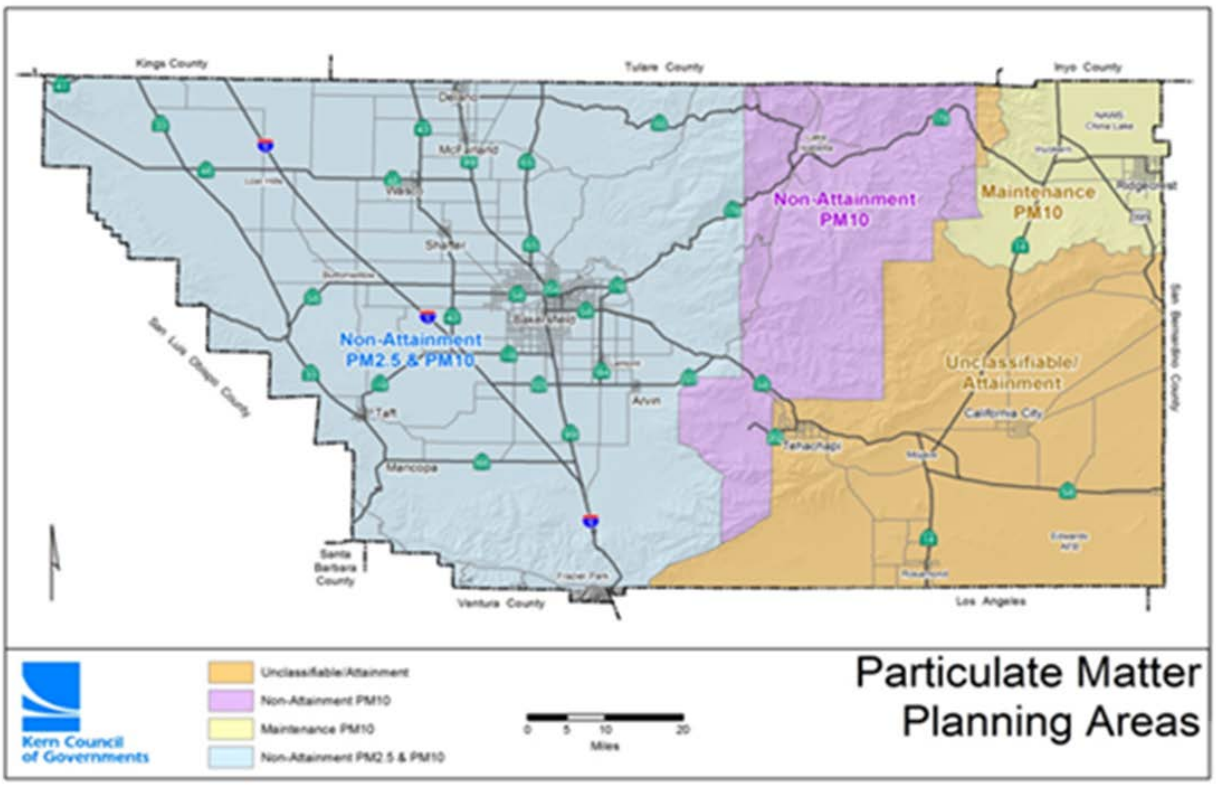
[1] Federal transportation conformity regulations are found in 40 CFR Part 51, subpart T, and in 40 CFR Part 93, subpart A, Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws.

[2] 40 CFR Part 93, Subpart A, §93.101—Definitions. Available at: http://law.justia.com/us/cfr/title40/40-20.0.1.1.7.1.1.2.html. Accessed: November 2016.

[3] Motor vehicle emission budgets are defined in the transportation conformity regulation43F as the "portion of the total allowable emissions defined in [a SIP] for a certain date for the purpose of meeting reasonable further progress milestones or demonstrating attainment or maintenance of the NAAQS…[that is] allocated to highway and transit vehicle use and emissions."

[4] And emissions from road construction if found significant (§ 93.122(e)(2))

Figure 10
PM10 Maintenance Area as Represented in KCOG Model



F. PM10 Emission Category and Precursor Requirements for Conformity

Guidance on the motor vehicle emission categories and precursors that must be considered in transportation conformity determinations is found in the transportation conformity regulation and final rules implementing amendments to the regulation as described below.

Direct PM10 Emissions
Section 93.102(b)(1) of the Conformity Regulation indicates that directly emitted PM10 motor vehicle emissions from the tailpipe, brake wear, and tire wear must be considered in conformity determinations.

Re-Entrained Paved and Unpaved Road Dust PM10 Emissions
The March 10, 2006, Final Rule amending the transportation conformity regulation to establish criteria for project-level PM2.5 and PM10 conformity determinations (71 FR 12498) indicates road dust must be included in regional conformity determinations: "EPA has intended for road dust emissions to be included in all conformity analyses of direct PM10 emissions."

Transportation-Related Construction Dust PM10 Emissions
Section 93.122(f) of the Conformity Regulation requires regional conformity determinations to include fugitive dust PM10 emissions from highway and transit construction activities if these sources are deemed significant contributors to the PM10 problem.

G. Assessment of Significance

This section assess the significance of various PM10 dust sources. Table 4 lists the mobile PM10 dust source categories in the IWV PM10 maintenance area and the corresponding percent contribution when compared to the entire PM10 emission inventory for the attainment area.

Re-Entrained Paved and Unpaved Road Dust PM10 Emissions
Re-entrained paved road dust accounts for more than one percent of the region's total direct PM10 emissions inventory in the budget years (1.6% in both 2020 and 2025), while unpaved road dust accounts for more than five percent (5.3% in 2020 and 5.2% in 2025). Consequently, PM10 emissions from transportation-related paved and unpaved road dust are significant.

Transportation-Related Construction Dust PM10 Emissions
Road construction dust is over one percent (1.2% in 2020 and 4.0% in 2025) of the region's total direct PM10 emissions inventory in the budget years. Consequently, PM10 emissions from transportation-related construction dust are significant.

Table 4

Annual Average Mobile PM10 Dust Categories Contribution to Total PM10 Emissions
(Tons per Annual Day)

Source Category	2020	Percent Inventory [c]	Significant	2025	Percent Inventory [c]	Significant
Vehicular Exhaust, Tire, and Brake Wear [a]	0.04	1.64%	Yes	0.04	1.60%	Yes
Re-Entrained Paved Road Dust (Total)	0.11	4.50%	Yes	0.12	4.80%	Yes
Re-Entrained Unpaved Road Dust (City and County Roads)	0.13	5.31%	Yes	0.13	5.20%	Yes
Road Construction Dust	0.03	1.23%	Yes	0.10	4.00%	Yes
Total [b]**:**	0.31	N/A	N/A	0.39	N/A	N/A

[a] This reflects the adjustment factor for SAFE Vehicle Rule part one using EMFAC2017.
[b] Values from CEPAM v1.00 may not add up due to rounding.
[c] Motor Vehicle Emission Budgets calculated are rounded up to the nearest tenth of a tpd.
Source: CEPAM 1.00 and EMFAC2017

PM10 emissions from vehicular exhaust, tire wear and brake wear, and re-entrained paved and unpaved road dust emissions are forecasted to remain relatively stable for the 2025 horizon year compared to the 2020 milestone year. While road construction dust emissions are forecasted to increase substantially. The Indian Wells Valley motor vehicle emissions budgets (i.e., the transportation conformity budgets) reported in Table 5 were chosen here to be equal to the projected levels of emissions from the contributing source categories.

Remainder of Page Intentionally Left Blank

H. PM10 Conformity Budgets

The transportation conformity budgets in Table 5-2, which were established in consultation with KCOG, Eastern Kern Air Pollution Control District (EKAPCD), and U.S. EPA satisfy the requirements established in 40 CFR Part 93, Section 118(e)(4).44F The budgets apply as a "ceiling" or limit on transportation emissions in Indian Wells Valley in the year for which they are defined and for all subsequent years until another year for which a different budget is defined (or until a SIP revision modifies the budget). Conformity budgets must be established for the attainment year for each NAAQS as well as the last year of the maintenance plan. For the Indian Wells Valley plan, 2020 is the attainment year and 2025 is the last year of the maintenance plan.

The federal conformity rule allows a SIP to create a safety margin in an emissions budget (See the Code of Federal Regulations, sections 93.101 and 93.118(e)(4)(vi)). A safety margin is defined as the difference between projected emissions and the emissions necessary to demonstrate progress or attainment. This plan creates a safety margin of 0.1 tons/day of VOC in 2025 only. These budgets are consistent with the demonstrations of progress and maintenance.

The motor vehicle emission budgets, presented in the last row in Table 5-2, have been prepared consistent with the on-road emissions inventory by rounding the values up to the nearest tenth of an integer. Average daily emissions are used in the plan consistent with how the PM10 standard is measured. Consequently, conformity budgets were calculated in EMFAC2017 using annual average daily emissions for the analysis years listed above. The transportation conformity budgets developed for this plan include more recent travel activity projections provided by the KCOG. This travel activity is based on 2019 Federal Transportation Improvement Program (FSTIP) amended as of July 2019.

Table 5

IWV Average Mobile PM10 Dust Categories Contribution to Total PM10 Emissions
(Tons per Annual Day)

Source Category	2020	2025
Vehicular Exhaust, Tire, and Brake Wear [a]	0.04	0.04
SAFE Rule Adjustment	0.00	0.00
Re-Entrained Paved Road Dust (Total)	0.11	0.12
Re-Entrained Unpaved Road Dust (City and County Roads)	0.13	0.13
Road Construction Dust	0.03	0.10
Safety Margin:	0.0	0.10
Total [b]**:**	0.31	0.49
Motor Vehicle Emission Budget [c]**:**	0.40	0.50

[a] This reflects the adjustment factor for SAFE Vehicle Rule part one using EMFAC2017.
[b] Values from CEPAM v1.00 may not add up due to rounding.
[c] Motor Vehicle Emission Budgets calculated are rounded up to the nearest tenth of a tpd.
Source: CEPAM 1.00 and EMFAC2017

I. Additional Control Measures

42 U.S.C. §7505a(a) (FCAA §175A(a)) requires a maintenance plan to include sufficient additional emission control measures to ensure attainment of the NAAQS's. The first maintenance plan forecast the IWV Attainment area to have a decreasing emission inventory through the year 2013. Linear analysis of this emission inventory forecast under "design day," or worst case conditions indicated ambient concentrations would not exceed the 24-hour PM10 NAAQS's. This proved to be true, and in fact continued through 2018.

This determination is based on complete, quality assured, and certified monitoring data from the Ridgecrest monitor in addition to the implementation of permanent and enforceable measures adopted by the District. Accordingly, no additional control measures are required to maintain ambient concentrations below the 24-hour PM10 NAAQS's.

Table 6 shows the Ridgecrest air monitor month by month highest 24-hour PM10 (ug/m^3) reading, along with annual and month averages for years 2013 through 2018. There were no 24-hour NAAQS exceedances during this period.

Table 6

Ridgecrest Air Monitor Month by Month Highest 24-Hour PM10 Reading (ug/m^3) With Annual and Month Averages for Years 2013 to 2018							
Year	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Avg.**
January	30.0	29.5	29.2	28.8	26.1	22.3	16.7
February	14.1	17.8	24.4	20.3	15.3	103.3	14.2
March	22.8	17.5	15.6	18.1	29.5	12.5	13.3
April	31	24.2	19.8	33.6	25.9	33.9	18.8
May	51.4	39.6	22.2	18.4	23.1	46.2	19.9
June	37.2	47.6	20.1	27.8	28.4	44.9	23.9
July	21.8	31.8	22.1	28.5	34.4	51.2	22.7
August	15.0	35.0	32.1	40.1	37.8	46.1	26.8
September	46.7	30.2	28.8	35.3	21.6	33.3	23.4
October	24.2	33.3	21.2	24.1	41.6	28.3	20.9
November	49.8	29.5	25.7	27.7	33.1	41.6	19.7
December	36.4	40.0	43.2	33.2	47.1	23.8	22.4
Annual Avg.	20.7	21.8	18.0	20.8	21.7	18.5	
NAAQS Exceedances	0	0	0	0	0	0	

Averages are based on daily (24-hour) PM10 monitoring data.

Remainder of Page Intentionally Left Blank

V. CONTINGENCY MEASURES

Section 175A(d) of the FCAA requires the maintenance plan to identify contingency provisions to offset any unexpected increases in emissions and ensure maintenance of the NAAQS. The contingency plan should ensure that contingency measures are adopted expediently once the need is triggered. The primary elements of the contingency plan involve the tracking and triggering mechanisms to determine when contingency measures would be needed, and a process for implementing appropriate control measures.

A. Tracking

The tracking plan for the IWV Attainment area will consist of monitoring and analyzing PM10 concentrations at the Ridgecrest air monitor. In accordance with 40 CFR Part 58, the District will continue to operate and maintain the air monitor in Ridgecrest.

B. Contingency Plan Trigger

Contingency provisions are traditionally held in reserve and are implemented only if air quality deteriorates beyond a specific level. In general, exceedances or violations of the NAAQS are acceptable triggers for contingency plan implementation. The IWV Attainment area has not experienced any exceedances of the PM10 NAAQS since attainment has been met. However, to ensure attainment is maintained, the District developed a process for determining when to trigger implementation of the contingency plan.

Triggering a contingency plan does not automatically require a SIP revision, nor is the region automatically re-designated nonattainment. Instead, the District will have an appropriate timeframe to correct the violation with one or more adopted contingency measure. In the event exceedances continue to occur, additional contingency measures will be adopted and implemented until the violation is corrected.

Under this contingency plan trigger process, implementation of a contingency plan will be required when the number of exceedances recorded at the air monitor averaged over three consecutive years, is greater than 1.05. The contingency plan trigger process allows for certain exceedances to be excluded from this calculation. The possibility of an exceptional event occurrence will be evaluated along with meteorological conditions related to the exceedance.

This aspect of the process is intended to distinguish between exceedances that are not within the District's control, and therefore not considered in determining whether the contingency plan should be triggered, and those that are within the District's control and should be considered.

The process would exclude exceedances from the contingency plan trigger calculation in conjunction with the process for Initial Notification of Potential Exceptional Event (Initial Notification) set forth in 40 CFR 50.14(c)(2). At the conclusion of each quarter, the District will have 60 days to prepare and submit a list of exceedances that occurred during the previous quarter to CARB, designating those proposed as potential exceptional event exceedances, flagging the data, and providing an initial event description in AQS.

The District will also include a copy of the previously submitted Initial Notification data and an update on exceedances that occurred in the previous 12 quarters that describe status of the CARB and U.S. EPA review of those events. CARB will have 60 days to review from time of receipt, during which time they may request additional readily available information from the District. CARB will forward the information to U.S. EPA upon completion of their review.

If a violation of the PM10 NAAQS has occurred, and information is available that contradicts the assessment, and supports exclusion of certain data from determining whether the contingency plan has been triggered, the District or CARB will include the additional information and analysis in the appendix to the quarterly report. Additionally, the District will confer with U.S. EPA to determine the type of information needed to determine the cause of the exceedance prior to submittal of the quarterly report. This information might include:

- A detailed analysis of upwind wind speed and direction;
- PM10 and/or PM2.5 concentrations from non-regulatory monitors in the area;
- HYSPLIT back-trajectory analysis;
- Satellite image or remote sensing analysis;
- An evaluation of upwind source area (including further evaluation of dust
- Complaints/NOVs or known contributing anthropogenic sources);
- PM speciation or PM10/PM2.5 ratio analysis; and/or
- Other event specific analysis needed to appropriately determine cause of exceedance.

U.S. EPA will review the quarterly reports submitted by CARB and the District. U.S. EPA will notify the District if the submitted documentation is insufficient to support exclusion from the contingency plan trigger calculation, or will include such exceedances in calculating the trigger for the contingency plan. If the contingency plan is triggered the District will begin implementation as described in the next section. However, if the District or CARB subsequently provides additional information to the U.S. EPA sufficient to exclude triggering the contingency plan, U.S. EPA will notify the District that the contingency plan trigger calculation will be adjusted. If the resulting value is less than 1.05, implementation of the contingency plan can be halted unless triggered in a subsequent quarter.

C. Contingency Provisions

If U.S. EPA determines that contingency measures have been triggered in the IWV Attainment area, the District will have 18 months from date of U.S. EPA's notification to evaluate the cause of the exceedance and take appropriate action. This process would consist of first analyzing the exceedance and determining its possible causes. Potential sources of increased ambient PM10 would be examined to determine if certain measures exist to reduce fugitive dust emissions not already used in demonstrating maintenance.

To initiate this process the District will consult with local industry and community members to determine if any voluntary or incentive-based control measures could be implemented to achieve reductions in PM10 emissions. If these measures do not adequately address the causes of the exceedances, then the District will look to its fugitive dust Rules (402, 402.2, and 419), or other rules, as appropriate, for measures that can be improved or expanded to achieve additional PM10 emissions reductions.

If it were determined that non-exceptional event exceedances attributed to windblown dust (a known significant source of fugitive dust emissions) then a contingency control measure based on revising Rule 402 (Fugitive Dust) could be implemented. Table 7 includes a summary of potential sources of fugitive dust and the associated rules that could be explored as options for more stringent control through revision if exceedances occur. The examples provided are specific to sources of fugitive dust, as it accounts for the majority of PM10 emissions in the District.

Table 7

Emission Sources and Associated Control Measures Rules To Revise If Contingency Triggered	
Emission Source	**Rule**
Construction and Earthmoving Activities	402
Storage Piles/Bulk Materials	402
Track-out/Carry-out	402
Agricultural Operations	402.2
Paved and Unpaved Roads	402 & 402.2
Nuisance	419
Open Areas	402 & 419

The District will complete its analysis of any exceedance and available contingency measures within six months of U.S. EPA's notification that a contingency measure was triggered. This will be followed by a 12-month period, during which time all applicable contingency measures will be adopted and implemented.

D. District Rule SIP Approvals

- 402, (Fugitive Dust) Adopted November 29, 1993, Amended March 7, 1994; September 7, 1995; November 3, 2004; and March 12, 2015. The last U.S. EPA approved revision of Rule 402 was for the November 3, 2004, amendments; published 74 FR 40750 (August 13, 2009). This publication included partial disapproval.

- 402.2, (Agricultural Operations) Adopted March 12, 2015, is still awaiting U.S. EPA SIP Approval.

- 419, (Nuisance) Adopted April 18, 1972, SIP approved: 37 FR 19812 (September 22, 1972). U.S. EPA determined Rule 419 had no enforceable limits for regulated are pollutants, therefore could not be included in the SIP. The U.S. EPA removed Rule 419 from the SIP in 2019, published 84 FR 45422 (September 30, 2019).

E. Contingency Plan Implementation

The District is committed to maintaining regular review of the ambient PM10 monitoring data to ensure continued maintenance of the 24-hour PM10 NAAQS. If the Contingency Plan is Triggered (violation of the 24-hour PM10 NAAQS, consistent with 40 CFR Part 50 Appendix K, Section 2.3(c) following an initial review of the exceedances), the District will commit to initiating the contingency provisions described in this Maintenance Plan.

This includes identifying measures, either through expanding existing rules or employing measures from outside the rulebook to achieve the necessary reductions within 18 months of U.S. EPA's notification.

VI. SUBSEQUENT MAINTENANCE PLAN REVISIONS

The District has prepared this second maintenance plan to provide for continued maintenance of the 24-hour PM10 NAAQS for an additional ten years beyond the original ten-year period. This revised plan is consistent with requirements of FCAA Section 175A(b). The District will track the progress of its maintenance plan over time to ensure continued attainment by:

1. Periodic review of air monitoring data and emissions inventory;

2. Periodic review of the inputs and assumptions used for the emission inventory and subsequent updates to the inventory.

CARB works with local air districts to create and maintain inventory data. Since portions of the statewide inventory are updated with varying regularity, the District will review the inputs and assumptions used for the emission inventory on an annual basis. If the District finds that these inputs have changed significantly, the District will solicit CARB to update the existing inventory and will evaluate the revised inventory against the inventories presented in this maintenance plan.

Remainder of Page Intentionally Left Blank

Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND PM10 MAINTENANCE PLAN

Appendix A

Design Value Report (AMP480)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

User ID: NTB

DESIGN VALUE REPORT

Report Request ID: 1803672 Report Code: AMP480 Jan. 16, 2020

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	06	029	0015								
	06	029	0018								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
DESIGN VALUE	81102		

SELECTED OPTIONS

Option Type	Option Value
WORKFILE DELIMITER	,
SINGLE EVENT PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
QUARTERLY DATA IN WORKFILE	NO
AGENCY ROLE	PQAO
USER SITE METADATA	STREET ADDRESS
MERGE PDF FILES	YES
USE LINKED SITES	YES

DATE CRITERIA

Start Date	End Date
2003	2018

APPLICABLE STANDARDS

Standard Description
PM10 24-hour 2006

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 16, 2020

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2003

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2003				2002				2001				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	6	1	4		0	0	4		0	0	4	Y	2	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2004
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: California

			2004				2003				2002				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0*	0	3		6	1	4		0	0	4		2	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2005

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2005				2004				2003				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0*	0	3		0*	0	3		6	1	4		2	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2006
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: California

			2006				2005				2004				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0*	0	3		0*	0	3		0*	0	3		0	N

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2007
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: California

			2007				2006				2005				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4		0*	0	3		0*	0	3		0	N

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2008
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: California

			2008				2007				2006				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4		0	0	4		0*	0	3		0	N

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2009
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: California

			2009				2008				2007				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4		0	0	4		0	0	4		0	Y

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2010
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: California

			2010				2009				2008				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Exceedances Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Exceedances Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Exceedances Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4		0	0	4		0	0	4		0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2011

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2011				2010				2009				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4		0	0	4		0	0	4		0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2012

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2012				2011				2010				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4	S	0	0	4		0	0	4		0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2013

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2013				2012				2011				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4	S	0	0	4	S	0	0	4		0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2014

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2014				2013				2012				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4	S	0	0	4	S	0	0	4	S	0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2015

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2015				2014				2013				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4	S	0	0	4	S	0	0	4	S	0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2016

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2016				2015				2014				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4	Y	0	0	4	S	0	0	4	S	0	Y

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102) **Design Value Year:** 2017
Standard Units: Micrograms/cubic meter (25 C)(001) **REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.**
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150 **State Name:** California

			2017				2016				2015				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0	0	4	Y	0	0	4	Y	0	0	4	S	0	Y
06-029-0018	1	2051 Ward, Ridgecrest CA	0*	0	0	Y									0	N

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Pollutant: PM10 Total 0-10um STP(81102)
Standard Units: Micrograms/cubic meter (25 C)(001)
NAAQS Standard: PM10 24-hour 2006
Statistic: Annual Estimated Days > Standard **Level:** 150

Design Value Year: 2018

REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.

State Name: California

			2018				2017				2016				3 - Year	
Site ID	POC	STREET ADDRESS	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Exceedances Estimated	Count	#Comp Quarter	Cert& Eval	Estimated Exceedances	Validity Ind.
06-029-0015	1	100 WEST CALIFORNIA AVE, RIDGECREST, CA	0*	0	1	Y	0	0	4	Y	0	0	4	Y	0	N
06-029-0018	1	2051 Ward, Ridgecrest CA	0	0	4		0*	0	0	Y					0	N

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR 58.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

Notes:
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND PM10 MAINTENANCE PLAN

Appendix B

Ridgecrest Air Monitor CARB Audit Report

California Air Resources Board
Preliminary Performance Audit Report by
Quality Assurance Section
Monitoring and Laboratory Division

Manager: Ranjit Bhullar

Phone: (916) 322-0223

AQS Number: 060290018

ARB Number: 15301

Site Name:
Ridgecrest - Ward

Audit Date:
2020-01-29

Auditors:
Eric Burton
Ron Barros

Station Operator:
Nicole Dickerson

Report Contents:
Executive Summaries
Technical Appendices
Audit Calculations
Site Survey Report

When this report has been finalized, it will be available at: http://www.arb.ca.gov/qaweb/panda/panda.php

Executive Summary - Samplers (Flow Rate)

Site Name: Ridgecrest - Ward

Audit Date: 2020-01-29

Parameter	Station Percent Difference	Station Percent Difference From Design	Leak Check Value	Leak Check Pass/Fail	Percent Difference Pass/Fail	Design Difference Pass/Fail
BAM PM10	**-0.8**	**1.1**	**0.30 LPM**	**Pass**	**Pass**	**Pass**
BAM PM2.5	**-0.5**	**0.7**	**0.17 LPM**	**Pass**	**Pass**	**Pass**

Executive Summary - Meteorological Sensors

Site Name: Ridgecrest - Ward

Audit Date: 2020-01-29

Audit Parameter & Point	Station Act.	Van Act.	**Diff. or % Diff**	**Pass/Fail**
Barometric Pressure (Point 1)	703.90	703.82	**0.08 mmHg**	**Pass**
Barometric Pressure (Point 2)	704.00	703.92	**0.08 mmHg**	**Pass**
Barometric Pressure (Point 3)	704.00	703.92	**0.08 mmHg**	**Pass**
Horizontal Wind Speed Threshold			**0.3 (m/s)**	**Pass**
Horizontal Wind Speed (Point 1)	0.00	0.00	**0.0 m/s**	**Pass**
Horizontal Wind Speed (Point 2)	5.20	5.12	**1.6%**	**Pass**
Horizontal Wind Speed (Point 3)	10.20	10.24	**-0.4%**	**Pass**
Horizontal Wind Speed (Point 4)	15.40	15.36	**0.3%**	**Pass**
Horizontal Wind Speed (Point 5)	20.50	20.48	**0.1%**	**Pass**
Outdoor Temperature (Point 1)	1.3	1.1	**0.2 °C**	**Pass**
Outdoor Temperature (Point 2)	20.0	20.1	**-0.1 °C**	**Pass**
Outdoor Temperature (Point 3)	32.0	32.1	**-0.1 °C**	**Pass**
Wind Direction Threshold			**0.48 (m/s)**	**Pass**
Orientation Error			**-0.1 °**	
Wind Direction	89.6	90	**-0.4°**	**Pass**
Wind Direction	181.1	180	**1.1°**	**Pass**
Wind Direction	274.2	270	**4.2°**	**Pass**
Wind Direction	360.3	360	**0.3°**	**Pass**
Wind Direction	222.8	220	**2.8°**	**Pass**
Wind Direction	335.5	335	**0.5°**	**Pass**

Technical Appendix - BAM PM10

Audit Information

Audit MFM Display Reading	Audit Flow (SLPM)	Audit Actual Flow (LPM)	Station Indicated Flow (LPM)	**Leak Check Flow (LPM)**	**Percent Difference**	**Percent Difference from Design**
16.85	16.37	16.85	16.71	**0.30**	**-0.8**	**1.1**

	Audit Sensor Display Reading	Audit Actual Values
Ambient Temperature (°C):	9.8	9.8
Ambient Pressure (mmHg):	700.5	700.5

Design flow rate limits are 15.00 to 18.34 LPM for BAM PM10 samplers.

Failures and Warnings

All audit parameters are within specified limits!

Instrument / AQS Information

ARB #: 15301
Audit Date: 2020-01-29
Van: E
Quarter: 1

AQS #: 060290018
Instrument-Method: MetOne BAM 1020
Serial #/ID: U12346
Last Cal Date: 2019-12-16

Technical Appendix - BAM PM2.5

Audit Information

Audit MFM Display Reading	Average Audit Flow (SLPM)	Average Audit Flow (LPM)	Station Indicated Flow	**Leak Check Flow (LPM)**	**Percent Difference**	**Percent Difference from Design**
16.78	16.32	16.78	16.69	**0.17**	**-0.5**	**0.7**

	Audit Sensor Display Reading	Van Actual Values	Station Indicated Values	**Difference**
Barometric Pressure (mmHg)	700.5	700.5	703.0	**2.5**
Temperature (°C)	9.4	9.4	9.5	**0.1**

Design flow rate limits are 15.84 to 17.50 LPM for PM2.5 samplers.

Failures and Warnings

All audit parameters are within specified limits!

Instrument / AQS Information

ARB #: 15301
Audit Date: 2020-01-29
Van: E
Quarter: 1

AQS #: 060290018
Instrument-Method: MetOne BAM 1020
Serial #/ID: U12356
Last Cal Date: 2019-12-16

Technical Appendix - Outdoor Temperature

Audit Information

Audit Display Reading	Audit Temperature (°C)	Station Indicated Temperature (°C)	Station Actual Temperature (°C)	**Degree Difference**
1.1	1.1	1.3	1.3	**0.2**
20.1	20.1	20.0	20.0	**-0.1**
32.1	32.1	32.0	32.0	**-0.1**

Failures and Warnings

All audit parameters are within specified limits!

Instrument / AQS Information

ARB #: 15301
Audit Date: 2020-01-29
Van: E
Quarter: 1

AQS #: 060290018
Instrument-Method: RM YOUNG RTD
Serial #/ID: 025700
Last Cal Date: 2019-12-16

Technical Appendix - Wind Direction

Audit Information

Audit Direction	Station Direction	**Degree Difference**
90	89.7	**-0.4**
180	181.2	**1.1**
270	274.3	**4.2**
360	360.4	**0.3**
220	222.9	**2.8**
335	335.6	**0.5**

Boom Orientation	
Compass Reading	348
Sensor Alignment	360
Declination	12.1
True Alignment	360.1
Alignment Error	**-0.1**

Torque Measurements

Measured Torque	10
Starting Threshold	**0.48**
K Factor	44
Highest Allowable Torque	**11.0**

Failures and Warnings

The sensor meets audit criteria for combined accuracy and orientation error.
The starting threshold value meets audit criteria.

Instrument / AQS Information

ARB #: 15301
Audit Date: 2020-01-29
Van: E
Quarter: 1

AQS #: 060290018
Instrument-Method: RM YOUNG 05305
Serial #/ID: 144950
Last Cal Date: 2019-12-16

Technical Appendix - Horizontal Wind Speed

Audit Information

Audit Reference (RPM)	Audit Actual Speed (m/s)	Station Reported Speed (m/s)	Station Actual Speed (m/s)	**PSD Failure Limits**	**Actual Differences**
0	0.00	0.10	0.00	**+/- 0.25 m/s**	**0.0 m/s**
1000	5.12	5.20	5.20	**+/- 5%**	**1.6%**
2000	10.24	10.20	10.20	**+/- 5%**	**-0.4%**
3000	15.36	15.40	15.40	**+/- 5%**	**0.3%**
4000	20.48	20.50	20.50	**+/- 5%**	**0.1%**

Torque Measurements

Measured Torque	0.3
Starting Threshold	**0.3**
K Factor	3.8
Highest Allowable Torque	**1**

Failures and Warnings

All audit parameters are within specified limits!

Instrument / AQS Information

ARB #: 15301
Audit Date: 2020-01-29
Van: E
Quarter: 1

AQS #: 060290018
Instrument-Method: RM YOUNG 05305 (prop 08254)
Serial #/ID: 144950
Last Cal Date: 2019-12-16

Technical Appendix - Barometric Pressure

Audit Information

Audit Display Reading (volts or mmHg)	Audit Actual (mmHg)	Station (mmHg)	Station (mmHg)	**Difference**
703.20	703.82	703.90	703.90	**0.08**
703.30	703.92	704.00	704.00	**0.08**
703.30	703.92	704.00	704.00	**0.08**

Failures and Warnings

All audit parameters are within specified limits!

Instrument / AQS Information

ARB #: 15301
Audit Date: 2020-01-29
Van: E
Quarter: 1

AQS #: 060290018
Instrument-Method: Vaisala PTB110
Serial #/ID: L4720028
Last Cal Date: 2019-12-16

Audit Calculations

Site Name: Ridgecrest - Ward

Audit Date: 2020-01-29

BAM PM2.5

Audit Flow = Slope * (MFM Reading) + Intercept

Audit Slope	Audit Intercept
1.0000	0.0000

BAM PM10

Audit Flow = Slope * (MFM Reading) + Intercept

Audit Slope	Audit Intercept
1.0000	0.0000

Outdoor Temperature

Audit Temperature = (Audit Display Reading) * Slope + Intercept

Slope	Intercept
1.00000	0.00000

Audit Calculations

Site Name: Ridgecrest - Ward

Audit Date: 2020-01-29

Wind Direction

Starting Threashold = (Measured Torque/K Factor)^{½}
Highest Allowable Torque = K Factor * 0.25
True Alignment = Declination + Compass Reading
Alignment Error = Sensor Alignment - True Alignment
Degree Difference = Station Direction - Audit Direction + Alignment Error

K Factor
44.00

Horizontal Wind Speed

Starting Threashold = (Measured Torque/K Factor)^{½}
Highest Allowable Torque = K Factor * 0.25
Audit Actual Speed = Audit Reference * Slope + Intercept
Station Speed (m/s) = Station Speed * Conversion Factor

Slope	Intercept	K Factor	Conversion Factor
0.005120	0.000000	3.80	1.0000

Barometric Pressure

Audit Actual = (Audit Display Reading) * Slope + Intercept
Station (mmHg) = Station Indicated * Conversion Factor

Slope	Intercept	Conversion Factor
1.001	0.125	1.0

General Survey

Ridgecrest - Ward

2020-01-29

AQS ID: 060290018

Siting Information

Site Name: Ridgecrest - Ward	Audit Date: 2020-01-29	ARB Number: 15301	AQS Number: 060290018
Address: 2051 Ward Ridgecrest, CA 93555	Latitude: N 35.64296	Longitude: W -117.71414	Elevation (m): 717
	Auditors: Eric Burton Ron Barros	Site Technician: Nicole Dickerson	Site Phone:
Operating Agency: Eastern Kern APCD		Site Report: Yes	Site Photos: Yes

General Siting Conditions

Station Temperature	**Traffic**	**Topography**	Predominant Wind Direction: Southwest
Controlled: Yes	Description: Rural	Site: Level	Arc Air Flow (Deg): 360 Degrees
Recorded: Yes	Distance: 960 meters	Region: Valley	Probe Clean: N/A
Inside Temp: 21 Degrees Celsius	Count (Veh/Day): 6300	**QA Manual**	Manifold Clean: N/A
Meteorology	**Non-vehicular Local Sources**	Approved: Yes	Cleaning Schedule: N/A
Located With Instruments: Yes	Description:	Agency: CARB	Autocalibrator Type: N/A
Shadowing: Yes	Distance: 0 meters	Urbanization: Suburban	Site Survey Complete: Yes
Boom Orientation (Deg): 348	Direction:	Ground Cover: Dirt	Logbook Up To Date: Yes
Temp(Motor/Natural): Natural			

Action Items

* Wind Speed calibration standard has no certification date; a CAN will be issued.

Comments

* Wind Direction-Resultant being reported (parameter code 61104).
* Wind Speed-Resultant being reported (parameter code 61103).
* Ultrasonic RM Young 8600 (S/N UD0003908) certified on 08-02-2019.
* Site map redrawn.

Monitor Surveys

Ridgecrest - Ward

2020-01-29

AQS ID: 060290018

Monitor Category	BAM	BAM-PM2.5	Outdoor Temperature
Evaluation Type	Annual P.E.	Annual P.E.	Annual P.E.
Manufacturer/Model	MetOne BAM 1020	MetOne BAM 1020	RM YOUNG RTD
ID/Serial #	U12346	U12356	025700
Parameter Code-POC*	81102 - 1	88101 - 1	62101 - 1
Method Code*	122	170	40
Method Description*	INSTRUMENT MET ONE 4 MODELS - BETA ATTENUATION	Met One BAM-1020 Mass Monitor w/VSCC - Beta Attenuation	INSTRUMENTAL - ELECTRONIC OR MACHINE AVG.
Data for Record? (AQS)	Yes	Yes	Yes
Monitor Type*	SLAMS	SLAMS	SLAMS
Monitor Objective Type* (Site Type)	POPULATION EXPOSURE	POPULATION EXPOSURE	POPULATION EXPOSURE
Spatial Scale*	NEIGHBORHOOD	NEIGHBORHOOD	NEIGHBORHOOD
PQAO	California Air Resources Board	California Air Resources Board	California Air Resources Board
Collecting Agency*	Kern County APCD	Kern County APCD	Kern County APCD
Reporting Agency*	Kern County APCD	Kern County APCD	Kern County APCD
Networks*	none	none	none
First Year of Data*	2017	2017	2017
Current Sampling Frequency	CONTINUOUS	CONTINUOUS	CONTINUOUS
Collocated Designation	--	--	--
Distance to Collocated Monitor	n/a	n/a	n/a
Inlet Height Above Ground	5.2	5.3	2.1
Inlet Height Above Structure	2.0	2.1	--
Distance From Obstructions on Roof (Horizontal)	--	--	--
Height Above Inlet for Obstructions on Roof	--	--	--
Distance From Obstructions Not on Roof (Horizontal)	--	--	--
Height Above Inlet for Obstructions Not on Roof	--	--	--
Distance From Trees (Dripline)	--	--	--
Distance to Furnace, Flue, or A/C	--	--	--
Distance to Nearest Roadway	n/a	n/a	n/a
Unrestricted Airflow	360 degrees	360 degrees	360 degrees
*data taken from AQS	*all distances in meters	*all distances in meters	*all distances in meters

Monitor Surveys

Ridgecrest - Ward

2020-01-29

AQS ID: 060290018

Monitor Category	Wind Direction	Horizontal Wind Speed	Barometric Pressure
Evaluation Type	Annual P.E.	Annual P.E.	Annual P.E.
Manufacturer/Model	RM YOUNG 05305	RM YOUNG 05305 (prop 08254)	Vaisala PTB110
ID/Serial #	144950	144950	L4720028
Parameter Code-POC*	61102 - 1	61101 - 1	64101 - 1
Method Code*	20	20	14
Method Description*	INSTRUMENTAL - SPOT READING	INSTRUMENTAL - SPOT READING	INSTRUMENTAL - BAROMETRIC SENSOR
Data for Record? (AQS)	Yes	Yes	Yes
Monitor Type*	SLAMS	SLAMS	SLAMS
Monitor Objective Type* (Site Type)	POPULATION EXPOSURE	POPULATION EXPOSURE	POPULATION EXPOSURE
Spatial Scale*	NEIGHBORHOOD	NEIGHBORHOOD	NEIGHBORHOOD
PQAO	California Air Resources Board	California Air Resources Board	California Air Resources Board
Collecting Agency*	Kern County APCD	Kern County APCD	Kern County APCD
Reporting Agency*	Kern County APCD	Kern County APCD	Kern County APCD
Networks*	none	none	none
First Year of Data*	--	--	2017
Current Sampling Frequency	CONTINUOUS	CONTINUOUS	CONTINUOUS
Collocated Designation	--	--	--
Distance to Collocated Monitor	n/a	n/a	n/a
Inlet Height Above Ground	10.0	10.0	1.7
Inlet Height Above Structure	--	--	--
Distance From Obstructions on Roof (Horizontal)	--	--	--
Height Above Inlet for Obstructions on Roof	--	--	--
Distance From Obstructions Not on Roof (Horizontal)	--	--	--
Height Above Inlet for Obstructions Not on Roof	--	--	--
Distance From Trees (Dripline)	--	--	--
Distance to Furnace, Flue, or A/C	--	--	--
Distance to Nearest Roadway	n/a	n/a	n/a
Unrestricted Airflow	360 degrees	360 degrees	360 degrees
*data taken from AQS	*all distances in meters	*all distances in meters	*all distances in meters

Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND PM10 MAINTENANCE PLAN

Appendix C

CEPAM Emission Projections by Summary Category

CEPAM: External Adjustment Reporting Tool
Emission Projections by Summary Category

(Includes approved external emission adjustments)

Season: Annual
Particulate Matter 10 Microns or Less (PM10)
Base Year: 2017

Preliminary Draft: Subject to Change

Download this data as a comma delimited file.

Download more detail data as a comma delimited file.

KERN COUNTY APCD DISTRICT

STATIONARY SOURCES									
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
FUEL COMBUSTION									
ELECTRIC UTILITIES	0.016	0.016	0.016	0.011	0.011	0.009	0.006	0.001	0.001
MANUFACTURING AND INDUSTRIAL	0.007	0.008	0.008	0.008	0.008	0.008	0.009	0.009	0.009
FOOD AND AGRICULTURAL PROCESSING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SERVICE AND COMMERCIAL	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
OTHER (FUEL COMBUSTION)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL FUEL COMBUSTION**	0.031	0.031	0.032	0.027	0.027	0.026	0.023	0.018	0.018
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
WASTE DISPOSAL									
SEWAGE TREATMENT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LANDFILLS	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
INCINERATORS	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
*** TOTAL WASTE DISPOSAL**	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
CLEANING AND SURFACE COATINGS									
LAUNDERING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DEGREASING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
COATINGS AND RELATED PROCESS SOLVENTS	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
PRINTING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ADHESIVES AND SEALANTS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (CLEANING AND SURFACE COATINGS)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL CLEANING AND SURFACE COATINGS**	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
PETROLEUM PRODUCTION AND MARKETING									
PETROLEUM REFINING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM MARKETING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
INDUSTRIAL PROCESSES									
CHEMICAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MINERAL PROCESSES	0.013	0.013	0.013	0.014	0.014	0.014	0.014	0.014	0.014
METAL PROCESSES	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (INDUSTRIAL PROCESSES)	0.006	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.007
*** TOTAL INDUSTRIAL PROCESSES**	0.019	0.019	0.019	0.020	0.020	0.020	0.021	0.021	0.021
**** TOTAL STATIONARY**	0.052	0.053	0.054	0.049	0.050	0.049	0.046	0.042	0.042
AREAWIDE SOURCES									
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
SOLVENT EVAPORATION									
CONSUMER PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PESTICIDES/FERTILIZERS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ASPHALT PAVING / ROOFING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL SOLVENT EVAPORATION**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
MISCELLANEOUS PROCESSES									
RESIDENTIAL FUEL COMBUSTION	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
FARMING OPERATIONS	0.033	0.033	0.033	0.033	0.033	0.032	0.032	0.032	0.032
CONSTRUCTION AND DEMOLITION	0.140	0.141	0.141	0.141	0.217	0.217	0.218	0.217	0.218
PAVED ROAD DUST	0.109	0.110	0.112	0.113	0.115	0.117	0.119	0.121	0.123
UNPAVED ROAD DUST	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199	0.199
FUGITIVE WINDBLOWN DUST	0.648	0.644	0.641	0.637	0.634	0.630	0.627	0.624	0.621
FIRES	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
MANAGED BURNING AND DISPOSAL	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
COOKING	0.013	0.013	0.013	0.013	0.013	0.014	0.014	0.014	0.014
OTHER (MISCELLANEOUS PROCESSES)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL MISCELLANEOUS PROCESSES**	1.199	1.196	1.195	1.193	1.267	1.266	1.265	1.263	1.262
**** TOTAL AREAWIDE**	1.199	1.196	1.195	1.193	1.267	1.266	1.265	1.263	1.262
MOBILE SOURCES									
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
ON-ROAD MOTOR VEHICLES									
LIGHT DUTY PASSENGER (LDA)	0.011	0.011	0.011	0.012	0.012	0.012	0.012	0.013	0.013
LIGHT DUTY TRUCKS - 1 (LDT1)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
LIGHT DUTY TRUCKS - 2 (LDT2)	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005
MEDIUM DUTY TRUCKS (MDV)	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.014	0.013	0.012	0.011	0.011	0.010	0.010	0.010	0.010
MOTORCYCLES (MCY)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HEAVY DUTY GAS URBAN BUSES (UBG)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCHOOL BUSES - GAS (SBG)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SCHOOL BUSES - DIESEL (SBD)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER BUSES - GAS (OBG)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ALL OTHER BUSES - DIESEL (OBD)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MOTOR HOMES (MH)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL ON-ROAD MOTOR VEHICLES**	0.039	0.038	0.037	0.037	0.036	0.035	0.035	0.036	0.036
SUMMARY CATEGORY NAME	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
OTHER MOBILE SOURCES									
AIRCRAFT	1.150	1.150	1.150	1.150	1.150	1.150	1.150	1.150	1.150
TRAINS	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
RECREATIONAL BOATS	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
OFF-ROAD RECREATIONAL VEHICLES	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OFF-ROAD EQUIPMENT	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003
FARM EQUIPMENT	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004
FUEL STORAGE AND HANDLING	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
*** TOTAL OTHER MOBILE SOURCES**	1.172	1.170	1.168	1.167	1.166	1.164	1.163	1.163	1.161
**** TOTAL MOBILE**	1.211	1.208	1.205	1.204	1.202	1.199	1.198	1.198	1.197

GRAND TOTAL FOR KERN COUNTY APCD DISTRICT	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
	2.462	2.457	2.454	2.446	2.519	2.514	2.509	2.503	2.501

Notes:

- Migration ID: SIP2019_VERSION_100_INDIAN_WELLS
- AF Migration Table: AF_MASTERSP19IWVPM100

Report Run time: Started: 11/18/2019 15:14:56 ; Finished: 11/18/2019 15:14:58

Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND PM10 MAINTENANCE PLAN

Appendix D

IWV Precursor Emission Inventories

2002-2025

Emissions Inventory Documentation for the
Indian Wells Valley PM10 Area Maintenance Plan

Emissions inventories are one of the fundamental building blocks in the development of a State Implementation Plan (SIP or Plan). In simple terms, an emissions inventory is a systematic listing of the sources of air pollution along with the amount of pollution emitted from each source or category over a given time period. This document describes the emissions inventory included in the SIP for the Indian Wells Valley PM10 Area Maintenance Plan.

The California Air Resources Board (CARB) and Eastern Kern Air Pollution Control District (District) have developed a comprehensive, accurate, and current emissions inventory consistent with the requirements set forth in Section 182(a)(1) of the federal Clean Air Act. CARB and District staff conducted a thorough review of the inventory to ensure that the emission estimates reflect accurate emission reports for point sources, and that estimates for mobile and areawide sources are based on the most recent models and methodologies.

CARB also reviewed the growth profiles for point and areawide source categories and updated them as necessary to ensure that the emission projections are based on data that reflect historical trends, current conditions, and recent economic and demographic forecasts. Growth forecasts for most point and areawide sources were developed by CARB.

Emissions Inventory Overview

Emissions inventories are estimates of the amount and type of pollutants emitted into the atmosphere by industrial facilities, mobile sources, and areawide sources such as consumer products and paint. They are fundamental components of an air quality plan, and serve critical functions such as:

1) the primary input to air quality modeling used in attainment demonstrations;
2) the emissions data used for developing control strategies; and
3) a means to track progress in meeting the emission reduction commitments.

The United States Environmental Protection Agency (U.S. EPA) regulations require that the emissions inventory for a PM10 SIP contain emissions data for directly emitted PM10 and its precursors: oxides of nitrogen (NOx), sulfur oxides (SOx), volatile organic compounds (VOC), and ammonia (NH3). The inventory included in this plan substitutes VOC with reactive organic gases (ROG), which in general represent a slightly broader group of compounds than those in U.S. EPA's list of VOCs.

Agency Responsibilities

CARB and District staff worked jointly to develop the emissions inventory for Indian Wells Valley Area. The District worked closely with operators of major stationary facilities in their jurisdiction to develop the point source emission estimates. CARB staff developed the emission inventory for mobile sources, both on-road and off-road. The

District and CARB shared responsibility for developing estimates for the nonpoint (areawide) sources, such as paved road dust and consumer products. CARB worked with several State and local agencies such as the Department of Transportation (Caltrans), the Department of Motor Vehicles (DMV), the Department of Pesticide Regulation (DPR), and the California Energy Commission (CEC) to assemble activity information necessary to develop the mobile and areawide source emission estimates.

Inventory Base Year

The base year inventory forms the basis for all future year projections and also establishes the emission levels against which progress in emission reductions will be measured. Since U.S. EPA regulations establish that the base year inventory should be preferably consistent with the triennial reporting schedule required under the Air Emissions Reporting Requirements (AERR) rule, CARB selected 2017 as the base year.

Forecasted Inventories

In addition to a base year inventory, U.S. EPA regulations also require future year inventory projections for specific years. Forecasted inventories are a projection of the base year inventory that reflects expected growth trends for each source category and emission reductions due to adopted control measures. CARB develops emission forecasts by applying growth and control profiles to the base year inventory.

Growth profiles for point and areawide sources are derived from surrogates, such as economic activity, fuel usage, population, housing units, etc., that best reflect the expected growth trends for each specific source category. Growth projections were obtained primarily from government entities with expertise in developing forecasts for specific sectors, or, in some cases, from econometric models. Control profiles, which account for emission reductions resulting from adopted rules and regulations, are derived from data provided by the regulatory agencies responsible for the affected emission categories.

Projections for mobile source emissions are generated by models that predict activity rates and vehicle fleet turnover by vehicle model year along with activity inputs from the Eastern Kern metropolitan planning organization (MPO). As with stationary sources, the mobile source models include control algorithms that account for all adopted regulatory actions.

Temporal Resolution

Planning inventories typically include annual as well as seasonal (summer and winter) emission estimates. Annual emission inventories represent the total emissions over an entire year (tons per year), or the daily emissions produced on an average day (tons per day). Seasonal inventories account for temporal activity variations throughout the year,

as determined by category-specific temporal profiles. The emission inventory used in the Plan is an annual inventory.

Geographical Scope

The inventories presented in this Plan include emissions for the Indian Wells Valley Area, which is a portion of the Eastern Kern Air Pollution Control District. The emissions from the District were allocated to the Indian Wells Valley Area using the approaches described below.

Stationary Sources. District staff designated emissions from stationary sources as being inside or outside the maintenance area based on facility location assignments.

Areawide Sources. District and CARB staff assessed spatial surrogates for areawide categories to identify the portion of emissions in the Indian Wells Valley Area.

On-Road Mobile Sources. Emissions from on-road mobile sources were estimated for Indian Wells Valley Area via a special run using California's on-road motor vehicle model, EMFAC2017. The allocation to the maintenance area inventory was accomplished using vehicles miles traveled (VMT) provided by the Kern Council of Governments (Kern COG) to distribute EMFAC2017 emissions.

Off-Road Mobile Sources. District and CARB staff assessed spatial surrogates for off-road categories to identify the portion of emissions in the Indian Wells Valley Area.

Table 1 below specifies the methods used to allocate emissions to the Indian Wells Valley PM10 Area.

Table 1
Method for the Spatial Allocation of Emissions to the Indian Wells Valley PM10 Area

Source Category	Subcategory	Allocation Method
Stationary Point Sources	All	District Facility Location Assignments
Area Source Component of Stationary Sources	Manufacturing and Industrial	Human Population
	Food and Agricultural Processing	Human Population
	Service and Commercial	Human Population
	Sewage Treatment	Human Population
	Landfills	Human Population
	Laundering	Human Population
	Degreasing	Human Population

Table 1
Method for the Spatial Allocation of Emissions to the
Indian Wells Valley PM10 Area

Source Category	Subcategory	Allocation Method
	Coatings and Related Process Solvents	Human Population
	Adhesives and Sealants	Human Population
	Petrleum Marketing	Human Population
	Mineral Processes	Human Population
	Metal Processes	Human Population
Areawide Sources	Consumer Products	Human Population
	Architectural Coatings and Related Process Solvents	Human Population
	Pesticides/Fertilizers	Land Area
	Asphalt Paving / Roofing	Human Population
	Residential Fuel Combustion	Human Population
	Farming Operations	Land Area
	Construction and Demolition - Building Construction	Human Population
	Construction and Demolition - Road Construction	MPO Lane Miles
	Paved Road Dust	MPO VMT
	Unpaved Road Dust	Human Population
	Fugitive Windblown Dust	Land Area
	Fires	Human Population
	Managed Burning and Disposal	Land Area
	Cooking	Human Population
	Other (Miscellaneous Processes)	Human Population
On-Road Mobile Sources	ALL	Special EMFAC2017 run for Indian Wells Valley with MPO VMT
Off-Road Mobile Sources	Aircraft - Military	China Lake and Edwards Air Base relative LTO Activity
	Aircraft - Non-Military	District Fraction Estimate
	Trains	District Fraction Estimate
	Recreational Boats	Human Population
	Off-Road Recreational Vehicles	Human Population

**Table 1
Method for the Spatial Allocation of Emissions to the
Indian Wells Valley PM10 Area**

Source Category	Subcategory	Allocation Method
	Off-Road Equipment	Human Population
	Farm Equipment	Land Area
	Fuel Storage and Handling	Human Population

Quality Assurance and Quality Control

CARB has established a quality assurance and quality control (QA/QC) process involving CARB and District staff to ensure the integrity and accuracy of the emissions inventories used in the development of air quality plans. QA/QC occurs at the various stages of SIP emission inventory development. Base year emissions are assembled and maintained in the California Emission Inventory Development and Reporting System (CEIDARS). CARB inventory staff works with District staff, who are responsible for developing and reporting point source emission estimates, to verify these data are accurate. The locations of point sources, including stacks, are checked to ensure they are valid. Areawide source emission estimates are reviewed by CARB and District staff before their inclusion in the emission inventory. Additionally, CEIDARS is designed with automatic system checks to prevent errors such as double counting of emission sources. The system also makes various reports available to assist staff in their efforts to identify and reconcile anomalous emissions.

Future year emissions are estimated using the California Emission Projection Analysis Model (CEPAM), 2019 SIP Baseline Emission Projections, Version 1.00. Growth and control factors are reviewed for each category and year along with the resulting emission projections. Year to year trends are compared to similar and past datasets to ensure general consistency. Emissions for specific categories are checked to confirm they reflect the anticipated effects of applicable control measures. Mobile categories are verified with mobile source staff for consistency with the on-road and off-road emission models.

A summary of the information supporting the Indian Wells Valley PM10 Area Maintenance Plan emissions inventory is presented in the sections below.

Point Sources

The inventory reflects actual emissions from industrial point sources reported to the District by the facility operators through calendar year 2017, in accordance with the requirements set forth in U.S. EPA's AERR rule. The data elements in the 2017 baseline inventory are consistent with the data elements required by the AERR rule. Estimation methods include source testing, direct measurement by continuous emissions monitoring systems, or engineering calculations. Where appropriate, the PM10 emissions are the sum of filtered and condensable particulates.

Table 2 lists the point source categories that occur in Indian Wells Valley Area.

**Table 2
Point Source Categories**

Source Category	Subcategory
Fuel Combustion	Electrical Utilities
	Manufacturing and Industrial
	Food and Agricultural Processing
	Service and Commercial
	Other (Fuel Combustion)
Waste Disposal	Sewage Treatment
	Landfills
	Incinerators
Cleaning and Surface Coatings	Laundering
	Degreasing
	Coatings and Related Process Solvents
	Adhesives and Sealants
Petroleum Production and Marketing	Petroleum Marketing
Industrial Processes	Mineral Processes
	Metal Processes
	Other (Industrial Processes)

The point source inventory includes emissions from stationary aggregated sources, which are categories such as internal combustion engines and gasoline dispensing facilities that are not inventoried individually, but are estimated as a group and reported as an aggregated total. Estimates for the following categories were developed by CARB:

Stationary Nonagricultural Diesel Engines

This category includes emissions from backup and prime generators and pumps, air compressors, and other miscellaneous stationary diesel engines that are widely used throughout the industrial, service, institutional, and commercial sectors. The emission estimates, including emission forecasts, are based on a 2003 CARB methodology derived from the OFFROAD model. Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/arbfuelcombother.htm

Agricultural Diesel Irrigation Pumps

This category includes emissions from the operation of diesel-fueled stationary and mobile agricultural irrigation pumps. The emission estimates are based on a 2003 CARB methodology using statewide population and include replacements due to the Carl Moyer Program. Emissions are grown based on projected acreage for irrigated farmland from the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), 2008. Additional information on this category is available at: https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full1-1.pdf

Laundering

This category includes emissions from perchloroethylene (perc) dry cleaning establishments. The emission estimates are based on a 2002 CARB methodology that used nationwide perc consumption rates allocated to the county level based on population and an emission factor of 10.125 pounds per gallon used. Emissions were grown from the original estimates to 2017 using population growth trends from DOF. Growth in future years are based on DOF population forecasts, 2017. Additional information on this methodology is available at:
https://ww3.arb.ca.gov/ei/areasrc/arbcleanlaund.htm

Degreasing

This category includes emissions from solvents in degreasing operations in the manufacturing and maintenance industries. The emissions estimates are based on a 2000 CARB methodology using survey and industry data, activity factors, emission factors and a user's fraction. Growth for this category is based on CARB/Regional Economic Models, Inc. (REMI) version 2.2.2 industry-specific economic output. Additional information on this methodology is available at:
https://www.carb.ca.gov/ei/areasrc/arbcleandegreas.htm

Coatings and Thinners

This category includes emissions from coatings and related process solvents. Auto refinishing emissions estimates are based on a 1990 CARB methodology using production data and a composite emission factor derived from surveys. Growth is based on projected number of vehicles from CARB's on-road mobile sources model (EMFAC2014). Estimates for industrial coatings emissions are based on a 1990 CARB methodology using production and survey data, and emission factors derived from surveys. Estimates for thinning and cleaning solvents are based on a 1991 CARB methodology, census data and a default emission factor developed by CARB. Growth for these categories is projected using REMI county economic forecasts, version 2.2.2. Additional information on these methodologies is available at: https://www.carb.ca.gov/ei/areasrc/arbcleancoatreproc.htm

Adhesives and Sealants

This category includes emissions from solvent-based and water-based solvents contained in adhesives and sealants. Emissions are estimated based on a 1990 CARB methodology using production data and default emission factors. Growth for this category is based on REMI county economic forecasts, version 2.2.2. Additional information on this methodology is available at: https://www.carb.ca.gov/ei/areasrc/arbcleanadhseal.htm

Gasoline Dispensing Facilities

CARB staff developed an updated methodology to estimate emissions from fuel transfer and storage operations at gasoline dispensing facilities (GDFs) in 2015. The methodology addresses emissions from underground storage tanks, vapor displacement during vehicle refueling, customer spillage, and hose permeation. The updated methodology uses emission factors developed by CARB staff that reflect more current in-use test data and also accounts for the emission reduction benefits of onboard refueling vapor recovery (ORVR) systems. The emission estimates are based on 2012 statewide gasoline sales data from the California Board of Equalization that were apportioned to the county level using fuel consumption estimates from EMFAC. Additional information on this category is available at: https://www.carb.ca.gov/ei/areasrc/arbpetprodmarkpm.htm

Areawide Sources

Areawide sources are categories, such as consumer products and agricultural burning, for which emissions occur over a wide geographic area. Emissions for these categories are estimated by both CARB and District using various models and methodologies.

Table 3 lists the areawide sources that occur in Indian Wells Valley Area.

**Table 3
Areawide Sources**

Source Category	Subcategory
Solvent Evaporation	Consumer Products
	Architectural Coatings and Related Solvents
	Pesticides/Fertilizers
	Asphalt Paving and Roofing
Miscellaneous Processes	Residential Fuel Combustion
	Farming Operations
	Construction And Demolition
	Paved Road Dust
	Unpaved Road Dust
	Fugitive Windblown Dust
	Fires
	Managed Burning and Disposal
	Cooking
	Other (Miscellaneous Processes)

A summary of the areawide methodologies is presented below:

Consumer Products

The consumer products category reflects the four most recent surveys conducted by CARB staff for the years 2003, 2006, 2008, and 2010. Together these surveys collected updated product information and ingredient information for approximately 350 product categories. Based on the survey data, CARB staff determined the total product sales and total VOC emissions for the various product categories. The growth trend for most consumer product subcategories is based on DOF human population growth projections, 2017. A notable exception is aerosol coatings: staff determined that a no-growth profile would be more appropriate for this category based on survey data that

show relatively flat sales of these products over the last decade. Additional information on CARB's consumer products surveys is available at: https://www.carb.ca.gov/consprod/survey/survey.htm.

Architectural Coatings

The architectural coatings category reflects emission estimates based on a comprehensive CARB survey for the 2004 calendar year. The emission estimates include benefits of the 2007 CARB Suggested Control Measures. These emissions are grown based on DOF population forecasts, 2017. Additional information about CARB's architectural coatings program is available at: https://www.carb.ca.gov/coatings/arch/arch.htm

Pesticides

DPR develops month-specific emission estimates for agricultural and structural pesticides. Each calendar year, DPR updates the inventory based on the Pesticides Use Report, which provides updated information from 1990 to the most current data year available. The inventory includes estimates through the 2016 calendar year. For agricultural pesticides, emission forecasts for years 2017 and beyond are based on the average of the most recent five years. Growth for agricultural pesticides is based on CARB projections of farmland acres per FMMP, 2016. Growth for structural pesticides is based on DOF population growth projections, 2017. Additional information about CARB's pesticides program is available at: https://ww3.arb.ca.gov/ei/areasrc/arbsolevapagnagpest.htm

Asphalt Paving/Roofing

District staff updated the inventory in 2002. Emissions are estimated based on tons of asphalt applied and a default emission factor for each type of asphalt operation. The growth profile for both categories is based on REMI economic forecasts, version 2.2.2.

Residential Wood Combustion

CARB staff updated the methodology to reflect 2005 fuel use, and more recent emission factors and calculation approaches. The emission estimates reflect emission factors from U.S. EPA's National Emission Inventory. No growth is assumed for future years. Additional information on this methodology is available at: https://www.carb.ca.gov/ei/areasrc/arbmiscprocresfuelcom.htm

Farming Operations

CARB staff updated the inventory based on CARB methodologies for Agricultural Land Preparation and Agricultural Harvest Operations to reflect 2012 harvested crop acreage from the USDA's National Agricultural Statistics Service (NASS). NASS data are based on reports compiled by County Agricultural Commissioner staff. Emissions reflect crop and operation specific emission factors. Temporal profiles were updated based on crop specific activity profiles. Growth is based on CARB projections of FMMP acreage,

2016. The methodologies are available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocfarmops.htm

CARB staff updated the Livestock Husbandry methodology to reflect livestock population data based on the USDA's 2007 Census of Agriculture, and ammonia emission factors for dairy support cattle. A seasonal adjustment was added to account for the suppression of dust emissions in months in which rainfall occurs. Growth profiles are based on CARB's projections of Census of Agriculture's historical livestock population trends. No growth is assumed for dairy and feedlots. Additional information on CARB's methodology is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscproclivestock.htm

Construction and Demolition

Emission estimates for building construction were grown from CARB estimates developed in 2002. Growth for building construction is based on REMI economic forecasts, version 2.2.2. Emission estimates and future projections for road construction were based on road miles constructed according to MPO data. Emission factors were based on CARB's standard methodology for this category. Additional information on this methodology is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocconstdem.htm

Paved Road Dust

Paved road dust emissions for 2012 were estimated using a CARB methodology consistent with the current U.S. EPA method (AP-42). The emission estimates are based on VMT provided by the MPO, California-specific silt loading values, VMT distribution (travel fractions) for various paved road categories. Emissions were grown using VMT projections from the MPO. Additional information is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocpaverddst.htm

Unpaved Road Dust – Farm Roads

Emissions for unpaved farm roads were updated based on CARB's methodology and 2012 harvested crop acreage from NASS. Emissions reflect crop specific VMT factors and an updated emission factor based on California test data conducted by the University of California, Davis (UC Davis), and the Desert Research Institute (DRI). An updated particle size profile (CARB PM profile #470) was also used. Temporal profiles were updated based on crop specific activity profiles. Growth is based on projected FMMP farmland acreage, 2016. The methodology is available at:
https://www.arb.ca.gov/ei/areasrc/arbmiscprocunpaverddst.htm

Unpaved Nonfarm Road Dust

Emissions from unpaved nonfarm roads were estimated from 2008 unpaved road data collected from the California Statewide Local Streets and Roads Needs Assessment,

Caltrans, and the District. Dust emissions were calculated using the same emission factor (2.00 lbs PM10/VMT) and particle size fraction (CARB PM profile #470) described above for unpaved farm roads, and the addition of a rainfall adjustment factor. Temporal profiles were revised. Staff assumed no growth for this category based on the assumption that existing unpaved roads tend to get paved as vehicle traffic on them increases, which counteracts any additional emissions from new unpaved roads. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocunpaverddst.htm

Fugitive Windblown Dust from Open Areas and Non-pasture Agriculture Lands

Emissions for this source category were estimated based on a 1997 ARB methodology for windblown dust from agricultural land (nonpasture) and pasture land with adjustments to the wind erosion equation. Growth for this category is based on projections of acreage from FMMP, 2016. Additional information about CARB's methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocfugwbdst.htm

Windblown Dust from Unpaved Roads

Emissions for this source category were estimated based on a 1997 CARB methodology reflecting unpaved road mileage and local parameters that affect wind erosion. The estimates assume no growth. Additional information on this methodology is available at: https://www.arb.ca.gov/ei/areasrc/arbmiscprocfugwbdst.htm

Fires

Emissions from structural and automobile fires were estimated based on a 1999 CARB methodology using the number of fires and the associated emission factors. Estimates for structural fires are calculated using the amount of the structure that is burned, the amount and content of the material burned, and emission factors derived from test data. Estimates for automobile fires are calculated using the weight of the car and components and composite emission factors derived from AP-42 emission factors. Growth is based on DOF population forecasts, 2017. Additional information on this methodology is available at: https://www.carb.ca.gov/ei/areasrc/arbmiscprocfires.htm

Managed Burning & Disposal

CARB updated the emissions inventory to reflect burn data reported by District staff for 2017. Emissions are calculated using crop specific emission factors and fuel loadings. Temporal profiles reflect monthly burn activity. Growth for agricultural burning is based on CARB projections of FMMP farmland acres, 2016. No growth is assumed for burning associated with weed abatement. CARB's methodology for managed burning is available at: https://www.carb.ca.gov/ei/areasrc/distmiscprocwstburndis.htm

Commercial Cooking

The commercial cooking emissions were grown from a 1993 estimate. The emissions estimates were developed from the number of restaurants, the number and types of cooking equipment, the food type, and default emission factors. The growth profile reflects DOF population forecasts, 2017.

Point and Areawide Source Emissions Forecasting

Emission forecasts (2018 and subsequent years) are based on growth profiles that in many cases incorporate historical trends up to the base year or beyond. The growth surrogates used to forecast the emissions from these categories are presented below in Table 4.

Table 4
Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Electric Utilities	All	Energy Information Administration (EIA) Annual Energy Outlook, 2018
Manufacturing and Industrial	Natural Gas	CEC forecast, 2014
	Other Fuels	EIA forecast, 2018
Food and Agricultural Processing	Ag Irrigation I. C. Engines	FMMP irrigated farmland acreage, 2008
Service and Commercial	Natural Gas	CEC forecast, 2014
	Other Fuels	EIA forecast, 2018
Other (Fuel Combustion)	All	EIA forecast, 2011
Waste Disposal	All	DOF population forecast, 2017
Laundering	Dry Cleaning	DOF population forecast, 2017
Degreasing	All	CARB/REMI economic forecast, version 2.2.2
Coatings and Related Process Solvents	Auto Refinishing	Vehicles from CARB EMFAC2014 model
	Others	REMI economic forecast, version 2.2.2
Adhesives & Sealants	All	REMI economic forecast, version 2.2.2
Petroleum Marketing	All	Fuel use from CARB EMFAC2014 model
Mineral Processes	All	REMI version 2.2.2; EIA forecast, 2018

Table 4
Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Metal Processes	All	REMI economic forecast, version 2.2.2
Other Industrial Processes	All	REMI economic forecast, version 2.2.2
Consumer Products	Consumer Products	DOF population forecast, 2017
	Aerosol Coatings	No growth
Architectural Coatings & Related Process Solvents	All	DOF population forecast, 2017
Pesticides & Fertilizers	Agricultural Pesticides	CARB projection of farmland acres per FMMP, 2016
	Structural Pesticides	DOF population forecast, 2017
Asphalt Paving & Roofing	All	REMI economic forecast, version 2.2.2
Residential Fuel Combustion	Natural Gas	CEC forecast, 2014
	Other Fuels	No growth
Farming Operations	Land Preparation & Harvest Operations	CARB projection of farmland acres per FMMP, 2016
	Non-Dairy/Feedlots Livestock	CARB projection of livestock population per Census of Agriculture, 2012
Construction And Demolition	Building Construction	REMI economic forecast, version 2.2.2
	Road Construction	MPO road mile construction projection
Paved Road Dust	All	MPO vehicle miles traveled projection
Unpaved Road Dust	Farm Roads	FMMP farmland acreage projection, 2016
	Others	No growth
Fugitive Windblown Dust	Non-Pasture Agriculture Lands	FMMP farmland acreage projection, 2016
	Others	No growth
Fires	All	DOF population forecast, 2017

Table 4
Growth Surrogates for Point and Areawide Sources

Source Category	Subcategory	Growth Surrogate
Managed Burning and Disposal	Agricultural Burning, Prunings & Field Crops	FMMP farmland acreage projection, 2016
	Others	No growth
Cooking	All	DOF population forecast, 2017
Other (Miscellaneous Processes)	Domestic Activity - Ammonia	DOF population forecast, 2017

Stationary Source Control Profiles

The emissions inventory reflects emission reductions from point and areawide sources subject to District rules and CARB regulations. The rules and regulations reflected in the inventory are listed below in Table 5.

Table 5
District and ARB Stationary and Areawide Source Control Rules and Regulations Included in the Inventory

Agency	Rule/Reg No.	Rule Title	Source Categories Impacted
ARB	ARCH_SCM	Architectural Coatings 2000 Suggested Control Measures (SCM)	Architectural coatings
ARB	AC_SCM2007	Architectural Coatings 2007 SCM	Architectural coatings
ARB	ARB_R003 & ARB_R003_A	Consumer Product Regulations & Amendments	Consumer products
ARB	ARB_R007	Aerosol Coating Regulations	Aerosol coatings
ARB	GDF_HOSREG	Gasoline Dispensing Facility Hose Emission Regulation	Petroleum marketing
ARB	ORVR	Fueling Emissions from ORVR Vehicles	Petroleum marketing

Mobile Sources

CARB uses the EMFAC model to assess emissions from on-road vehicles. Off-road mobile source emissions are estimated using a new modular approach for different source categories. On-road and off-road models account for the effects of various adopted regulations, technology types, and seasonal conditions on emissions.

On-Road Mobile Sources

Emissions from on-road mobile sources, which include passenger vehicles, buses, and trucks, were estimated using outputs from CARB's EMFAC2017 model. The on-road emissions were calculated by applying EMFAC2017 emission factors to the transportation activity data provided by the Kern COG from their 2018 adopted Regional Transportation Plan/ 2019 Federal Transportation Improvement Program.

EMFAC2017 includes data on California's car and truck fleets and travel activity. Light-duty motor vehicle fleet age, vehicle type, and vehicle population were updated based on 2016 DMV data. The model also reflects the emissions benefits of CARB's recent rulemakings such as the Pavley Standards and Advanced Clean Cars Program, and includes the emissions benefits of CARB's Truck and Bus Rule and previously adopted rules for other on-road diesel fleets.

EMFAC2017 utilizes a socio-econometric regression modeling approach to forecast new vehicle sales and to estimate future fleet mix. Light-duty passenger vehicle population includes 2016 DMV registration data along with updates to mileage accrual using Smog Check data. Updates to heavy-duty trucks include model year specific emission factors based on new test data, and population estimates using DMV data for in-state trucks and International Registration Plan (IRP) data for out-of-state trucks. Additional information and documentation on the EMFAC2017 model is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-road-documentation

EMFAC2017 Off-Model Adjustment Factors

On September 27, 2019, U.S. EPA and National Highway Traffic Safety Administration (NHTSA) published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program." (84 Fed. Reg. 51,310 (Sept. 27, 2019.) The Part One Rule revokes California's authority to set its own greenhouse gas emissions standards and set zero-emission vehicle mandates in California. The SAFE Vehicle Rule Part One impacts some of the underlying assumptions in CARB's EMFAC2017 model, which was used to assess emissions from on-road mobile sources. Therefore, CARB developed off model adjustment factors in order for future transportation emissions estimates using EMFAC2017 to reflect SAFE Vehicle Rule Part One. These adjustments, provided in the form of multipliers, were applied to emissions outputs from the EMFAC2017 model to account for the impact of this rule. The adjustment factors are provided in Table 6. The off-model adjustment factors were only applied to emissions from gasoline light duty vehicles (LDA, LDT1, LDT2 and MDV). Please note that the adjustment factors are by calendar year and includes all model years.

**Table 6:
Adjustment Factors for EMFAC2017 Gasoline Light Duty**

Vehicles

Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust
2021	1.0002	1.0001	1.0002	1.0009
2022	1.0004	1.0003	1.0004	1.0018
2023	1.0007	1.0006	1.0007	1.0032
2024	1.0012	1.0010	1.0011	1.0051
2025	1.0018	1.0016	1.0016	1.0074
2026	1.0023	1.0022	1.0020	1.0091
2027	1.0028	1.0028	1.0024	1.0105
2028	1.0034	1.0035	1.0028	1.0117
2029	1.0040	1.0042	1.0032	1.0129
2030	1.0047	1.0051	1.0037	1.0142
2031	1.0054	1.0061	1.0042	1.0155
2032	1.0061	1.0072	1.0047	1.0169
2033	1.0068	1.0083	1.0052	1.0182
2034	1.0075	1.0095	1.0058	1.0196
2035	1.0081	1.0108	1.0063	1.0210
2036	1.0088	1.0121	1.0069	1.0223
2037	1.0094	1.0134	1.0074	1.0236
2038	1.0099	1.0148	1.0079	1.0248
2039	1.0104	1.0161	1.0085	1.0259
2040	1.0109	1.0174	1.0090	1.0270
2041	1.0113	1.0186	1.0095	1.0279
2042	1.0116	1.0198	1.0099	1.0286
2043	1.0119	1.0207	1.0103	1.0293
2044	1.0122	1.0216	1.0106	1.0299
2045	1.0124	1.0225	1.0109	1.0303
2046	1.0125	1.0233	1.0111	1.0308
2047	1.0127	1.0240	1.0113	1.0311
2048	1.0128	1.0246	1.0115	1.0314
2049	1.0128	1.0252	1.0116	1.0316
2050	1.0129	1.0257	1.0117	1.0318

Off-Road Mobile Sources

Emissions from off-road sources were estimated using a suite of category-specific models or, where a new model was not available, the OFFROAD2007 model. Many of the newer models were developed to support recent regulations, including in-use off-road equipment, ocean-going vessels and others. The sections below summarize the updates made to specific off-road categories.

Cargo Handling Equipment (CHE)

The emissions inventory for the Cargo Handling Equipment category was updated to reflect new information on equipment population, activity, recessionary impacts on growth, and engine load in 2011. The information includes regulatory reporting data which provide an accounting of all the cargo handling equipment in the State including their model year, horsepower and activity. Background and supporting documents for the Cargo Handling Equipment Regulation are available here:
https://www.carb.ca.gov/ports/cargo/cheamd2011.htm

Pleasure Craft and Recreational Vehicles

A new model was developed in 2014 to estimate emissions from pleasure craft and another new model was developed in 2018 to estimate emissions from recreational vehicles. In both cases, population, activity, and emission factors were re-assessed using new surveys, DMV registration information, and emissions testing. Additional information is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad

In-Use Off-Road Equipment

This category covers construction, industrial, mining, oil drilling, and ground support equipment. CARB developed this model in 2010 to support the analysis for amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation. Population is based on reporting data, while activity, load and fuel use are based on survey data and statewide fuel estimates.
https://ww3.arb.ca.gov/regact/2010/offroadlsi10/offroadappd.pdf

Locomotives

The locomotive model is based primarily on population and activity data reported to CARB by the major rail lines for calendar year 2011. To estimate emissions, CARB used duty cycle, fuel consumption and activity data from the two main rail companies. Activity is forecasted for individual train types and is consistent with CARB's ocean-going vessel and truck growth rates. Fuel efficiency improvements are projected to follow Federal Railroad Association projections and turnover assumptions are consistent with U.S. EPA projections. The model was updated in 2016 with revised growth rates, and revised turnover assumptions. Additional information is available at:
https://ww3.arb.ca.gov/msei/ordiesel/locolinehaul2017ei.docx

The additional locomotive categories (Switchers, Short Haul (Class III), Passenger) are all documented individually at
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad-0

Transport Refrigeration Units (TRU)

This model reflects updates to activity, population, growth and turn-over data, and emission factors developed to support the 2011 amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units. Additional information is available at:
https://ww3.arb.ca.gov/regact/2011/tru2011/truisor.pdf

Fuel Storage and Handling

Emissions for fuel storage and handling were estimated using the OFFROAD2007 model. Additional information is available at:
https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-offroad

Diesel Agricultural Equipment

The inventory for agricultural diesel equipment (such as tractors, harvesters, combines, sprayers and others) was revised based on a voluntary survey of farmers, custom operators, and first processors conducted in 2009. The survey data, along with information from the 2007 USDA Farm Census, was used to revise almost every aspect of the agricultural inventory, including population, activity, age distribution, fuel use, and allocation. This updated inventory replaces general information on farm equipment in the United States with one specific to California farms and practices. The updated inventory was compared against other available data sources such as Board of Equalization fuel reports, USDA tractor populations and age, and Eastern Research Group tractor ages and activity, to ensure the results were reasonable and compared well against outside data sources. Agricultural growth rates through 2050 were developed through a contract with URS Corp. Additional information is available at:
https://ww3.arb.ca.gov/msei/ordiesel/ag2011invreport.pdf

Mobile Source Forecasting

Table 7 summarizes the data and methods used to forecast future-year mobile source emissions by broad source category groupings.

**Table 7
Growth Surrogates for Mobile Sources**

Category	Growth Methodology
On-Road Sources	
All	Match total VMT projections provided by KERN COG (2018 adopted Regional Transportation Plan/ 2019 Federal Transportation Improvement Program)
Off-Road Gasoline Fueled Equipment	

**Table 7
Growth Surrogates for Mobile Sources**

Category	Growth Methodology
Aircraft	Forecast by CSU Fullerton
Lawn & Garden	1994 Household growth projection from the Center for Continuing Study of the California Economy
Off-Road Equipment	Employment growth projection (2010 for most categories)
Recreational Boats (PC2013)	2014 Nationwide Housing Starts (short-term) and historical human population growth (long-term)
Recreational Vehicles (RV2018)	2000 California Building Permits (short-term) and historical human population growth (long-term)
Off-Road Diesel-Fueled Equipment	
Construction and Mining	California construction employment data from U. S. Bureau of Labor Statistics (2009)
Farm Equipment	2011 study of forecasted growth by URS Corp (2010)
Industrial Equipment	California construction employment data from U.S. Bureau of Labor Statistics (2009)
Trains (line haul)	International/premium train growth tied to OGV forecast; Domestic train growth tied truck growth (2016)
Transport Refrigeration Units	Projection of historical Truck/Trailer TRU sales from ACT Research, adjusted for recession. (2010)

External Adjustments

External adjustments were made to the baseline inventory to account for military growth, and other unaccounted regulatory factors. The external adjustments reflected in the inventory are listed below in Table 8.

**Table 8
External Adjustment IDs and Description**

Adjustment ID	Adjustment Description
LSI_2006	Fleet Requirements for Forklifts and other Industrial Equipment
LSI_2008	Large Spark Ignition Engines
NonAg_ICE	Update non-ag internal combustion engines to reflect 2003 ATCM and 2010 rule amendment

Condensable Particulate Matter

Background

Condensable particulate matter (PM) is "material that is vapor phase at stack conditions, but which condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid PM immediately after discharge from the stack."[1] Condensable PM is a component of primary PM, which is the sum of condensable and filterable PM. Filterable PM comprises "particles that are directly emitted by a source as a solid or liquid [aerosol] at stack or release conditions."[2] All condensable PM is assumed to be smaller than 2.5 microns (µm) in diameter; therefore, PM10 primary encompasses condensable PM and filterable PM less than 10µm, while PM2.5 primary encompasses condensable PM and filterable PM less than 2.5µm. Consequently, the condensable PM value within PM10 primary and PM2.5 primary are the same.

The AERR requires states to report annual emissions of filterable and condensable components of PM2.5 and PM10, "as applicable," for large sources every inventory year and for all sources every third inventory year, beginning with 2011.[3] Subsequent emissions inventory guidance[4] from the U.S. EPA clarifies the meaning of the phrase "as applicable" by providing a list of source types "for which condensable PM is expected by the AERR. These source types are stationary point and nonpoint combustion sources that are expected to generate condensable PM and include, for instance, fuel combustion at electric generating utilities, industrial processes like cement or chemical manufacturing, and flares or incinerators associated with waste disposal. The District reports condensable PM from stationary and area sources using the methodology outlined below.

Mobile sources emit PM in both filterable and condensable form; however, the AERR does not require states to report filterable and condensable PM separately for mobile sources. Thus, emissions from mobile sources are reported in the emissions inventory in this Appendix as primary PM, e.g. the sum of filterable and condensable PM.

Methodology

For the current inventory, the District has collected data on primary PM only, containing both filterable and condensable components without distinguishing between the two. Consequently, to be able to report emissions of the condensable component of PM10 separately as required by the AERR, the District must use conversion factors to convert primary PM to condensable PM.

---

[1] 40 CFR §51.50
[2] Ibid.
[3] 40 CFR §51.15(a)(1) and §51.30(b)(1)
[4] U.S. EPA. Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations. May 2017. https://www.epa.gov/sites/production/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf

U.S. EPA has published an augmentation tool[5] which contains conversion factors for each source classification code (SCC) to convert filterable PM10 (PM10FIL) to condensable PM (PMCON). In this form, these conversion factors ($CF_{PM10FIL \rightarrow PMCON}$) are not useful because the District does not directly collect PM10FIL data. But, the following formula adjusts U.S. EPA's existing conversion factors to obtain new conversion factors for each SCC that convert from primary PM10 (PM10PRI)—data which the District does collect—to condensable PM ($CF_{PM10PRI \rightarrow PMCON}$):

$$CF_{PM10PRI \rightarrow PMCON} = \frac{CF_{\mathrm{PM10FIL \rightarrow PMCON}}}{(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})}$$

The formula was derived as follows:

$$PM10PRI = PM10FIL + PMCON$$

and

$$PMCON = PM10FIL\,(CF_{\mathrm{PM10FIL \rightarrow PMCON}})$$

and

$$PMCON = PM10PRI(CF_{\mathrm{PM10PRI \rightarrow PMCON}})$$

$$\therefore \quad PM10PRI = PM10FIL + PM10FIL\,(CF_{\mathrm{PM10FIL \rightarrow PMCON}})$$
$$= PM10FIL(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})$$

and

$$CF_{\mathrm{PM10PRI \rightarrow PMCON}} = \frac{PMCON}{PM10PRI} = \frac{PMCON}{PM10FIL(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})}$$
$$= \frac{PM10FIL\,(CF_{\mathrm{PM10FIL \rightarrow PMCON}})}{PM10FIL(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})} = \frac{CF_{\mathrm{PM10FIL \rightarrow PMCON}}}{(1 + CF_{\mathrm{PM10FIL \rightarrow PMCON}})}$$

To ensure that the calculated condensable PM values are smaller than the District-reported PM2.5 values, a 1:1 ratio between PM10 and PM2.5 is assumed, and the derived conversion factors are applied to convert primary PM2.5 (PM25PRI) to condensable PM using the same method. That is, $CF_{PM10PRI \rightarrow PMCON} = CF_{PM25PRI \rightarrow PMCON}$ where $CF_{PM25PRI \rightarrow PMCON}$ represents the conversion factors that convert from primary PM2.5— again, data the District does collect—to condensable PM. The resulting calculated condensable PM value is then the PMCON portion of both PM2.5PRI and PM10PRI since the condensable PM value within primary PM2.5 are one and the same as the condensable PM value within primary PM10.

[5] U.S. EPA. PM Augmentation. Air Emissions Inventories. May 20, 2016. https://19january2017snapshot.epa.gov/air-emissions-inventories/pm-augmentation_.html

Emissions Inventory Documentation for the
Indian Wells Valley PM10 Area Maintenance Plan

PM10 Tables
[insert tables]

ROG Tables
[insert tables]

NOX Tables
[insert tables]

SOX PM Tables
[insert tables]

NH3 Tables
[insert tables]

Condensable PM Tables
[insert tables]

Appendix D
Indian Wells Valley PM10 and Precursor Emission Inventories

PM10

Source Category	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stationary Sources	0.058	0.031	0.027	0.028	0.030	0.027	0.052	0.053	0.054	0.049	0.050	0.049	0.046	0.042	0.042
Areawide Sources	1.295	1.293	1.424	1.422	1.406	1.204	1.199	1.196	1.195	1.193	1.267	1.266	1.265	1.263	1.262
On-Road Motor Vehicles	0.073	0.072	0.051	0.045	0.042	0.042	0.039	0.038	0.037	0.037	0.036	0.035	0.035	0.036	0.036
Other Mobil Sources	1.197	1.201	1.177	1.176	1.175	1.173	1.172	1.170	1.168	1.167	1.166	1.164	1.163	1.163	1.161
GRAND TOTAL	2.623	2.597	2.679	2.670	2.653	2.446	2.462	2.457	2.454	2.446	2.519	2.514	2.509	2.503	2.501

NOx

Source Category	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stationary Sources	2.346	2.141	1.523	1.582	1.754	1.889	1.972	2.032	2.073	2.100	2.141	2.160	2.179	2.192	2.210
Areawide Sources	0.066	0.065	0.108	0.107	0.109	0.068	0.068	0.068	0.070	0.070	0.072	0.072	0.073	0.074	0.074
On-Road Motor Vehicles	2.048	1.960	0.887	0.782	0.706	0.661	0.595	0.552	0.516	0.476	0.441	0.404	0.362	0.358	0.353
Other Mobil Sources	1.873	1.897	1.451	1.434	1.422	1.403	1.382	1.351	1.326	1.303	1.280	1.254	1.233	1.213	1.188
GRAND TOTAL	6.332	6.062	3.969	3.905	3.991	4.021	4.017	4.003	3.984	3.950	3.933	3.889	3.847	3.836	3.825

SOx

Source Category	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stationary Sources	0.096	0.053	0.052	0.054	0.056	0.054	0.055	0.056	0.058	0.058	0.059	0.060	0.060	0.061	0.061
Areawide Sources	0.003	0.003	0.006	0.006	0.006	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
On-Road Motor Vehicles	0.013	0.012	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002
Other Mobil Sources	0.170	0.174	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.121	0.122	0.122
GRAND TOTAL	0.282	0.242	0.181	0.183	0.185	0.180	0.181	0.182	0.183	0.184	0.185	0.186	0.186	0.187	0.187

NH3

Source Category	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stationary Sources	0.058	0.031	0.027	0.028	0.030	0.027	0.052	0.053	0.054	0.049	0.050	0.049	0.046	0.042	0.042
Areawide Sources	1.295	1.293	1.424	1.422	1.406	1.204	1.199	1.196	1.195	1.193	1.267	1.266	1.265	1.263	1.262
On-Road Motor Vehicles	0.073	0.072	0.051	0.045	0.042	0.042	0.039	0.038	0.037	0.037	0.036	0.035	0.035	0.036	0.036
Other Mobil Sources	1.197	1.201	1.177	1.176	1.175	1.173	1.172	1.170	1.168	1.167	1.166	1.164	1.163	1.163	1.161
GRAND TOTAL	2.623	2.597	2.679	2.670	2.653	2.446	2.462	2.457	2.454	2.446	2.519	2.514	2.509	2.503	2.501

PM10

AREA	SOURCE TY	CATEGORY	SUB CATEC	POLLUTAN	SEASON	CONTROL	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
KERN COU	STATIONAF	FUEL COM	ELECTRIC U	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0158	0.0158	0.0158	0.0107	0.0107	0.0093	0.0056	0.0009	0.0009
KERN COU	STATIONAF	FUEL COM	MANUFAC	PM10	ANNUAL	GROWN AI	0.0081	0.0059	0.0071	0.0076	0.0076	0.0072	0.0074	0.0076	0.0079	0.008	0.0082	0.0083	0.0085	0.0087	0.0088
KERN COU	STATIONAF	FUEL COM	FOOD AND	PM10	ANNUAL	GROWN AI	0.0004	0.0004	0.0002	0.0002	0.0002	0.0001	0.0001	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	FUEL COM	SERVICE AI	PM10	ANNUAL	GROWN AI	0.0185	0.0087	0.008	0.0081	0.0082	0.0074	0.0076	0.0079	0.008	0.008	0.0081	0.0083	0.0084	0.0084	0.0084
KERN COU	STATIONAF	FUEL COM	OTHER (FU	PM10	ANNUAL	GROWN AI	0.0066	0.0012	0.0027	0.0027	0.0027	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	SEWAGE TI	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	LANDFILLS	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008
KERN COU	STATIONAF	WASTE DIS	INCINERAT	PM10	ANNUAL	GROWN AI	0	0.0003	0	0	0	0	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012
KERN COU	STATIONAF	CLEANING	LAUNDERII	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	DEGREASIN	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	COATINGS	PM10	ANNUAL	GROWN AI	0.0002	0.0001	0	0	0	0	0.0006	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
KERN COU	STATIONAF	CLEANING	PRINTING	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	ADHESIVES	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	OTHER (CL	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	PM10	ANNUAL	GROWN AI	0.0095	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	CHEMICAL	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	MINERAL F	PM10	ANNUAL	GROWN AI	0.0143	0.0138	0.0092	0.0096	0.0109	0.0124	0.0127	0.013	0.0133	0.0135	0.0137	0.0138	0.0142	0.0143	0.0144
KERN COU	STATIONAF	INDUSTRIA	METAL PR(	PM10	ANNUAL	GROWN AI	0	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	OTHER (INI	PM10	ANNUAL	GROWN AI	0.0001	0	0	0	0	0.0001	0.0059	0.006	0.0061	0.0061	0.0063	0.0064	0.0065	0.0065	0.0066
					Stationary Source Total		0.0577	0.0305	0.0272	0.0282	0.0296	0.0272	0.0519	0.0529	0.0537	0.0489	0.0496	0.0487	0.0459	0.0415	0.0419
KERN COU	AREAWIDE	SOLVENT E	CONSUME	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ARCHITECT	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	PESTICIDES	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ASPHALT P	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	RESIDENTI/	PM10	ANNUAL	GROWN AI	0.0418	0.0437	0.0492	0.0499	0.0383	0.0317	0.0319	0.0319	0.032	0.0321	0.0322	0.0322	0.0323	0.0324	0.0324
KERN COU	AREAWIDE	MISCELLAN	FARMING (	PM10	ANNUAL	GROWN AI	0.0376	0.0372	0.0341	0.0338	0.0336	0.0334	0.0333	0.033	0.0328	0.0326	0.0325	0.0322	0.032	0.0319	0.0317
KERN COU	AREAWIDE	MISCELLAN	CONSTRUC	PM10	ANNUAL	GROWN AI	0.1298	0.1322	0.1562	0.1601	0.1504	0.1386	0.1401	0.1406	0.1413	0.1413	0.217	0.2171	0.2175	0.2174	0.2176
KERN COU	AREAWIDE	MISCELLAN	PAVED RO/	PM10	ANNUAL	GROWN AI	0.1009	0.1017	0.0991	0.1005	0.1047	0.109	0.1093	0.1104	0.1117	0.1133	0.1151	0.117	0.1189	0.1207	0.1226
KERN COU	AREAWIDE	MISCELLAN	UNPAVED I	PM10	ANNUAL	GROWN AI	0.2003	0.2002	0.1995	0.1995	0.1995	0.1994	0.1994	0.1993	0.1993	0.1993	0.1992	0.1992	0.1991	0.1991	0.1991
KERN COU	AREAWIDE	MISCELLAN	FUGITIVE V	PM10	ANNUAL	GROWN AI	0.7272	0.7211	0.6633	0.6579	0.6547	0.6515	0.6479	0.6443	0.6407	0.6372	0.6338	0.6304	0.6271	0.6238	0.6206
KERN COU	AREAWIDE	MISCELLAN	FIRES	PM10	ANNUAL	GROWN AI	0.0009	0.0009	0.001	0.001	0.001	0.001	0.001	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
KERN COU	AREAWIDE	MISCELLAN	MANAGED	PM10	ANNUAL	GROWN AI	0.0459	0.0456	0.2093	0.2072	0.2116	0.0269	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
KERN COU	AREAWIDE	MISCELLAN	COOKING	PM10	ANNUAL	GROWN AI	0.0104	0.0106	0.012	0.0121	0.0122	0.0123	0.0126	0.0128	0.0129	0.0132	0.0133	0.0135	0.0137	0.0139	0.0141
KERN COU	AREAWIDE	MISCELLAN	OTHER (MI	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
					Areawide Source Total		1.2948	1.2932	1.4237	1.422	1.406	1.2038	1.1985	1.1964	1.1949	1.1932	1.2673	1.2658	1.2648	1.2634	1.2623

KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	PM10	ANNUAL	GROWN AI	0.0123	0.0118	0.0099	0.01	0.0105	0.0107	0.0107	0.011	0.0113	0.0116	0.0119	0.0122	0.0124	0.0128	0.0131
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	PM10	ANNUAL	GROWN AI	0.0022	0.0018	0.001	0.001	0.0011	0.0012	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	PM10	ANNUAL	GROWN AI	0.0047	0.0049	0.0041	0.0042	0.0043	0.0043	0.0043	0.0043	0.0043	0.0045	0.0045	0.0045	0.0045	0.0046	0.0046
KERN COU	MOBILE	ON-ROAD I	MEDIUM D	PM10	ANNUAL	GROWN AI	0.0025	0.0028	0.0031	0.0031	0.0033	0.0035	0.0034	0.0034	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0011	0.0012	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	PM10	ANNUAL	GROWN AI	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0014	0.0016	0.0019	0.0018	0.0018	0.0019	0.0018	0.0017	0.0015	0.0015	0.0013	0.0013	0.0013	0.0012	0.0011
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0003	0.0003	0.0006	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	PM10	ANNUAL	GROWN AI	0.0049	0.0048	0.0024	0.0025	0.0024	0.0024	0.0019	0.0018	0.0018	0.0015	0.0014	0.001	0.0008	0.0009	0.0009
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	PM10	ANNUAL	GROWN AI	0.0423	0.0412	0.0261	0.0195	0.0165	0.015	0.0135	0.0125	0.0118	0.0114	0.0107	0.0098	0.0097	0.0097	0.0099
KERN COU	MOBILE	ON-ROAD I	MOTORCY(	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	PM10	ANNUAL	GROWN AI	0	0.0001	0.0001	0.0001	0	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	PM10	ANNUAL	GROWN AI	0.0006	0.0006	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
KERN COU	MOBILE	ON-ROAD I	OTHER BUS	PM10	ANNUAL	GROWN AI	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	OTHER BUS	PM10	ANNUAL	GROWN AI	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	ALL OTHER	PM10	ANNUAL	GROWN AI	0.0002	0.0002	0	0.0001	0	0.0001	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	MOTOR HC	PM10	ANNUAL	GROWN AI	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
			On-Road Motors Vehicle Total				0.0731	0.0719	0.051	0.0446	0.0424	0.0415	0.0391	0.0381	0.0373	0.037	0.0362	0.0351	0.035	0.0355	0.0359
KERN COU	MOBILE	OTHER MC	AIRCRAFT	PM10	ANNUAL	GROWN AI	1.1497	1.1509	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497
KERN COU	MOBILE	OTHER MC	TRAINS	PM10	ANNUAL	GROWN AI	0.0152	0.016	0.0059	0.0053	0.0049	0.0044	0.004	0.0034	0.0029	0.0027	0.0026	0.0024	0.0023	0.0021	0.0019
KERN COU	MOBILE	OTHER MC	RECREATIC	PM10	ANNUAL	GROWN AI	0.0048	0.0047	0.0032	0.0032	0.0029	0.0026	0.0025	0.0023	0.0022	0.002	0.0018	0.0018	0.0018	0.0016	0.0015
KERN COU	MOBILE	OTHER MC	OFF-ROAD	PM10	ANNUAL	GROWN AI	0.0004	0.0005	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
KERN COU	MOBILE	OTHER MC	OFF-ROAD	PM10	ANNUAL	GROWN AI	0.014	0.0159	0.009	0.0089	0.0088	0.0085	0.0081	0.0071	0.0062	0.0055	0.0054	0.0045	0.0041	0.004	0.0034
KERN COU	MOBILE	OTHER MC	FARM EQU	PM10	ANNUAL	GROWN AI	0.0131	0.0129	0.0085	0.0082	0.0079	0.0076	0.0074	0.007	0.0068	0.0064	0.006	0.0056	0.0052	0.0049	0.0044
KERN COU	MOBILE	OTHER MC	FUEL STOR	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Other Mobil Sources Total				1.1972	1.2009	1.1767	1.1756	1.1745	1.1731	1.172	1.1698	1.168	1.1665	1.1657	1.1642	1.1633	1.1625	1.1611

	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
GRAND TOTAL	2.6228	2.5965	2.6786	2.6704	2.6525	2.4456	2.4615	2.4572	2.4539	2.4456	2.5188	2.5138	2.509	2.5029	2.5012

NOx

AREA	SOURCE TY	CATEGORY	SUB CATEC	POLLUTAN	SEASON	CONTROL T	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
KERN COU	STATIONAF	FUEL COM	ELECTRIC L	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0082	0.0082	0.0082	0.0055	0.0055	0.0048	0.0029	0.0005	0.0005
KERN COU	STATIONAF	FUEL COM	MANUFAC	NOX	ANNUAL	GROWN AI	0.2208	0.1748	0.2026	0.2135	0.2139	0.2088	0.2037	0.2139	0.2121	0.21	0.2195	0.2181	0.2173	0.2156	0.2172
KERN COU	STATIONAF	FUEL COM	FOOD AND	NOX	ANNUAL	GROWN AI	0.0119	0.0119	0.0057	0.0055	0.0034	0.0026	0.0024	0.0022	0.0021	0.0021	0.002	0.0019	0.0018	0.0016	0.0016
KERN COU	STATIONAF	FUEL COM	SERVICE AI	NOX	ANNUAL	GROWN AI	0.0969	0.0357	0.0309	0.0309	0.0309	0.0055	0.0185	0.0186	0.0187	0.0188	0.0189	0.0189	0.019	0.019	0.0191
KERN COU	STATIONAF	FUEL COM	OTHER (FU	NOX	ANNUAL	GROWN AI	0.0303	0.0006	0.0015	0.0015	0.0015	0.0008	0.003	0.0031	0.0031	0.003	0.003	0.003	0.003	0.0031	0.0032
KERN COU	STATIONAF	WASTE DIS	SEWAGE TI	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	LANDFILLS	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0018	0.0018	0.0018	0.0019	0.0019	0.0019	0.002	0.002	0.002
KERN COU	STATIONAF	WASTE DIS	INCINERAT	NOX	ANNUAL	GROWN AI	0.0001	0.0001	0	0	0	0	0.001	0.001	0.001	0.001	0.0011	0.0011	0.0011	0.0011	0.0011
KERN COU	STATIONAF	CLEANING	LAUNDERII	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	DEGREASIN	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	COATINGS	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	PRINTING	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	ADHESIVES	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	OTHER (CL	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	NOX	ANNUAL	GROWN AI	0.0105	0.0002	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	CHEMICAL	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	MINERAL P	NOX	ANNUAL	GROWN AI	1.9739	1.9161	1.2799	1.3282	1.5023	1.6684	1.7303	1.7799	1.8231	1.8547	1.8856	1.907	1.9281	1.9455	1.9616
KERN COU	STATIONAF	INDUSTRIA	METAL PR(	NOX	ANNUAL	GROWN AI	0.0011	0.0014	0.0023	0.0023	0.0024	0.0027	0.0029	0.0029	0.003	0.0031	0.0032	0.0032	0.0033	0.0033	0.0034
KERN COU	STATIONAF	INDUSTRIA	OTHER (INI	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Stationary Source Total					2.3455	2.1408	1.5229	1.5819	1.7544	1.8888	1.9718	2.0316	2.0731	2.1001	2.1407	2.1599	2.1785	2.1917	2.2097
KERN COU	AREAWIDE	SOLVENT E	CONSUME	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ARCHITECT	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	PESTICIDES	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ASPHALT P	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	RESIDENTI/	NOX	ANNUAL	GROWN AI	0.0589	0.0579	0.0641	0.064	0.065	0.0646	0.0658	0.0661	0.0676	0.0679	0.0693	0.0696	0.0711	0.0713	0.0717
KERN COU	AREAWIDE	MISCELLAN	FARMING (	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	CONSTRUC	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	PAVED RO/	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	UNPAVED I	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	FUGITIVE V	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	FIRES	NOX	ANNUAL	GROWN AI	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
KERN COU	AREAWIDE	MISCELLAN	MANAGED	NOX	ANNUAL	GROWN AI	0.0069	0.0068	0.0433	0.0428	0.0438	0.003	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
KERN COU	AREAWIDE	MISCELLAN	COOKING	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	AREAWIDE	MISCELLAN	OTHER (MI	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Areawide Source Total					0.0659	0.0648	0.1075	0.1069	0.1089	0.0677	0.068	0.0683	0.0698	0.0701	0.0715	0.0718	0.0733	0.0735	0.0739

KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	NOX	ANNUAL	GROWN AI	0.1871	0.1695	0.0516	0.0456	0.0408	0.0358	0.0309	0.0267	0.0234	0.0208	0.0188	0.0171	0.0157	0.0144	0.0134
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	NOX	ANNUAL	GROWN AI	0.063	0.053	0.0128	0.0101	0.0095	0.0086	0.0074	0.0063	0.0054	0.0048	0.0043	0.0038	0.0035	0.0032	0.0029
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	NOX	ANNUAL	GROWN AI	0.1302	0.1291	0.0494	0.0441	0.0411	0.0366	0.0316	0.0274	0.0239	0.0208	0.0184	0.0163	0.0145	0.0129	0.0115
KERN COU	MOBILE	ON-ROAD I	MEDIUM D	NOX	ANNUAL	GROWN AI	0.0641	0.0669	0.0321	0.0305	0.0282	0.0266	0.0235	0.0207	0.0183	0.0161	0.0141	0.0118	0.0103	0.0091	0.0081
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	NOX	ANNUAL	GROWN AI	0.0212	0.0213	0.0104	0.0106	0.0101	0.0098	0.0087	0.0077	0.007	0.0062	0.0057	0.0051	0.0046	0.0042	0.0038
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	NOX	ANNUAL	GROWN AI	0.0019	0.0018	0.0009	0.0009	0.0009	0.0008	0.0008	0.0007	0.0006	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	NOX	ANNUAL	GROWN AI	0.007	0.007	0.0024	0.002	0.002	0.0017	0.0014	0.0012	0.001	0.0009	0.0008	0.0007	0.0006	0.0005	0.0005
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	NOX	ANNUAL	GROWN AI	0.0048	0.0048	0.0017	0.0003	0.0001	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	NOX	ANNUAL	GROWN AI	0.0657	0.0787	0.0731	0.0696	0.0678	0.065	0.0595	0.0547	0.05	0.0456	0.0416	0.0379	0.0342	0.0308	0.0276
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	NOX	ANNUAL	GROWN AI	0.014	0.0166	0.0178	0.0164	0.0162	0.0159	0.0146	0.0135	0.0125	0.0115	0.0106	0.0097	0.0089	0.008	0.0073
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	NOX	ANNUAL	GROWN AI	0.0945	0.0936	0.0427	0.0428	0.0403	0.0403	0.0336	0.0309	0.0287	0.0257	0.0226	0.0177	0.0137	0.0139	0.0143
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	NOX	ANNUAL	GROWN AI	1.3666	1.2898	0.5717	0.4887	0.4287	0.4011	0.3654	0.3456	0.3291	0.3083	0.2893	0.2698	0.2428	0.2485	0.2512
KERN COU	MOBILE	ON-ROAD I	MOTORCY(	NOX	ANNUAL	GROWN AI	0.006	0.0067	0.0087	0.0088	0.009	0.0089	0.0085	0.008	0.0076	0.0074	0.007	0.0068	0.0066	0.0065	0.0062
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	NOX	ANNUAL	GROWN AI	0.0005	0.0006	0.0001	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	NOX	ANNUAL	GROWN AI	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	NOX	ANNUAL	GROWN AI	0.0002	0.0003	0.0001	0.0001	0	0.0001	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	NOX	ANNUAL	GROWN AI	0.0068	0.0063	0.0044	0.0045	0.0049	0.0043	0.0043	0.004	0.0039	0.0037	0.0035	0.0033	0.0031	0.0031	0.0029
KERN COU	MOBILE	ON-ROAD I	OTHER BU	NOX	ANNUAL	GROWN AI	0.001	0.0011	0.0009	0.0008	0.0006	0.0005	0.0004	0.0004	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
KERN COU	MOBILE	ON-ROAD I	OTHER BU	NOX	ANNUAL	GROWN AI	0.0031	0.0029	0.0017	0.0016	0.0015	0.0013	0.0012	0.0011	0.001	0.0009	0.0008	0.0006	0.0005	0.0005	0.0005
KERN COU	MOBILE	ON-ROAD I	ALL OTHER	NOX	ANNUAL	GROWN AI	0.0025	0.0026	0.0006	0.0008	0.0006	0.0008	0.0005	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004
KERN COU	MOBILE	ON-ROAD I	MOTOR HC	NOX	ANNUAL	GROWN AI	0.0073	0.0069	0.0038	0.0035	0.0033	0.0031	0.0029	0.0027	0.0025	0.0023	0.0021	0.0019	0.0019	0.0017	0.0016
					On-Road Motors Vehicle Total		2.0476	1.9596	0.8869	0.7818	0.7057	0.6612	0.5952	0.552	0.5155	0.4761	0.4407	0.4035	0.3618	0.3582	0.3528
KERN COU	MOBILE	OTHER MC	AIRCRAFT	NOX	ANNUAL	GROWN AI	0.8619	0.8629	0.8652	0.8654	0.8658	0.8659	0.8661	0.8663	0.8665	0.8667	0.8669	0.8671	0.8673	0.8676	0.8678
KERN COU	MOBILE	OTHER MC	TRAINS	NOX	ANNUAL	GROWN AI	0.5242	0.5155	0.2625	0.2536	0.2463	0.2369	0.2251	0.2102	0.195	0.1848	0.1754	0.1649	0.1551	0.1426	0.1306
KERN COU	MOBILE	OTHER MC	RECREATIC	NOX	ANNUAL	GROWN AI	0.0109	0.0112	0.0099	0.0094	0.009	0.009	0.0088	0.0088	0.0086	0.0085	0.008	0.0082	0.008	0.0078	0.0075
KERN COU	MOBILE	OTHER MC	OFF-ROAD	NOX	ANNUAL	GROWN AI	0.0002	0.0003	0.0003	0.0002	0.0002	0.0004	0.0003	0.0003	0.0002	0.0003	0.0003	0.0004	0.0005	0.0005	0.0005
KERN COU	MOBILE	OTHER MC	OFF-ROAD	NOX	ANNUAL	GROWN AI	0.2358	0.2726	0.1607	0.1592	0.1597	0.1554	0.1518	0.1405	0.1351	0.1303	0.1246	0.1155	0.1108	0.1087	0.1014
KERN COU	MOBILE	OTHER MC	FARM EQU	NOX	ANNUAL	GROWN AI	0.2402	0.234	0.1528	0.1463	0.1405	0.1353	0.1302	0.1247	0.1203	0.1126	0.1051	0.0979	0.0917	0.0856	0.0805
KERN COU	MOBILE	OTHER MC	FUEL STOR	NOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
					Other Mobil Sources Total		1.8732	1.8965	1.4514	1.4341	1.4215	1.4029	1.3823	1.3508	1.3257	1.3032	1.2803	1.254	1.2334	1.2128	1.1883

	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
GRAND TOTAL	6.3322	6.0617	3.9687	3.9047	3.9905	4.0206	4.0173	4.0027	3.9841	3.9495	3.9332	3.8892	3.847	3.8362	3.8247

SOx

AREA	SOURCE TY	CATEGORY	SUB CATEC	POLLUTAN	SEASON	CONTROL T	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
KERN COU	STATIONAF	FUEL COM	ELECTRIC L	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	FUEL COM	MANUFAC	SOX	ANNUAL	GROWN AI	0.0231	0.017	0.0202	0.0218	0.0219	0.0206	0.0213	0.0218	0.0225	0.023	0.0234	0.0238	0.0243	0.0248	0.0251
KERN COU	STATIONAF	FUEL COM	FOOD AND	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	FUEL COM	SERVICE AI	SOX	ANNUAL	GROWN AI	0.0511	0.0181	0.0179	0.0179	0.0179	0.0177	0.0177	0.0177	0.0177	0.0177	0.0177	0.0177	0.0177	0.0177	0.0177
KERN COU	STATIONAF	FUEL COM	OTHER (FU	SOX	ANNUAL	GROWN AI	0.0018	0.0002	0.0015	0.0015	0.0015	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	SEWAGE TI	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	LANDFILLS	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	STATIONAF	WASTE DIS	INCINERAT	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	LAUNDERII	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	DEGREASIN	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	COATINGS	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	PRINTING	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	ADHESIVES	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	OTHER (CL	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	SOX	ANNUAL	GROWN AI	0.0013	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	CHEMICAL	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	MINERAL F	SOX	ANNUAL	GROWN AI	0.0185	0.018	0.012	0.0125	0.0141	0.0157	0.0162	0.0167	0.0171	0.0174	0.0177	0.0179	0.0181	0.0183	0.0184
KERN COU	STATIONAF	INDUSTRIA	METAL PR(	SOX	ANNUAL	GROWN AI	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	STATIONAF	INDUSTRIA	OTHER (INI	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Stationary Source Total				0.0958	0.0533	0.0517	0.0538	0.0555	0.0541	0.0554	0.0564	0.0575	0.0583	0.059	0.0596	0.0603	0.061	0.0614
KERN COU	AREAWIDE	SOLVENT E	CONSUME	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ARCHITECT	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	PESTICIDES	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ASPHALT P	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	RESIDENTI/	SOX	ANNUAL	GROWN AI	0.0013	0.0013	0.0014	0.0014	0.0012	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
KERN COU	AREAWIDE	MISCELLAN	FARMING (	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	CONSTRUC	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	PAVED RO/	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	UNPAVED I	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	FUGITIVE V	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	FIRES	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	MANAGED	SOX	ANNUAL	GROWN AI	0.0014	0.0014	0.0046	0.0046	0.0047	0.0011	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
KERN COU	AREAWIDE	MISCELLAN	COOKING	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	OTHER (MI	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Areawide Source Total				0.0027	0.0027	0.006	0.006	0.0059	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022

KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	SOX	ANNUAL	GROWN AI	0.0011	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	SOX	ANNUAL	GROWN AI	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	SOX	ANNUAL	GROWN AI	0.0006	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
KERN COU	MOBILE	ON-ROAD I	MEDIUM D	SOX	ANNUAL	GROWN AI	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	SOX	ANNUAL	GROWN AI	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	SOX	ANNUAL	GROWN AI	0.0005	0.0006	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	SOX	ANNUAL	GROWN AI	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	SOX	ANNUAL	GROWN AI	0.0008	0.0008	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	SOX	ANNUAL	GROWN AI	0.009	0.0088	0.0009	0.0008	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
KERN COU	MOBILE	ON-ROAD I	MOTORCY(	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	OTHER BU	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	OTHER BU	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	ALL OTHER	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	MOTOR HC	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				On-Road Motors Vehicle Total			0.0129	0.0119	0.0026	0.0025	0.0025	0.0026	0.0026	0.0026	0.0025	0.0025	0.0025	0.0025	0.0025	0.0023
KERN COU	MOBILE	OTHER MC	AIRCRAFT	SOX	ANNUAL	GROWN AI	0.1195	0.1197	0.1205	0.1205	0.1206	0.1207	0.1207	0.1208	0.1208	0.1209	0.121	0.121	0.1211	0.1212	0.1212
KERN COU	MOBILE	OTHER MC	TRAINS	SOX	ANNUAL	GROWN AI	0.0508	0.0535	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003
KERN COU	MOBILE	OTHER MC	RECREATIC	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	OTHER MC	OFF-ROAD	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	OTHER MC	OFF-ROAD	SOX	ANNUAL	GROWN AI	0.0001	0.0004	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	OTHER MC	FARM EQU	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	OTHER MC	FUEL STOR	SOX	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Other Mobil Sources Total			0.1704	0.1736	0.1207	0.1207	0.1208	0.1209	0.1209	0.121	0.121	0.1211	0.1212	0.1212	0.1213	0.1215	0.1215

	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
GRAND TOTAL	0.2818	0.2415	0.181	0.183	0.1847	0.1798	0.1811	0.1822	0.1832	0.1841	0.1849	0.1855	0.1863	0.1872	0.1874

NH3

AREA	SOURCE TY	CATEGORY	SUB CATEC	POLLUTAN	SEASON	CONTROL T	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
KERN COU	STATIONAF	FUEL COM	ELECTRIC U	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0158	0.0158	0.0158	0.0107	0.0107	0.0093	0.0056	0.0009	0.0009
KERN COU	STATIONAF	FUEL COM	MANUFAC	PM10	ANNUAL	GROWN AI	0.0081	0.0059	0.0071	0.0076	0.0076	0.0072	0.0074	0.0076	0.0079	0.008	0.0082	0.0083	0.0085	0.0087	0.0088
KERN COU	STATIONAF	FUEL COM	FOOD AND	PM10	ANNUAL	GROWN AI	0.0004	0.0004	0.0002	0.0002	0.0002	0.0001	0.0001	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	FUEL COM	SERVICE AI	PM10	ANNUAL	GROWN AI	0.0185	0.0087	0.008	0.0081	0.0082	0.0074	0.0076	0.0079	0.008	0.008	0.0081	0.0083	0.0084	0.0084	0.0084
KERN COU	STATIONAF	FUEL COM	OTHER (FU	PM10	ANNUAL	GROWN AI	0.0066	0.0012	0.0027	0.0027	0.0027	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	SEWAGE TI	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	WASTE DIS	LANDFILLS	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008
KERN COU	STATIONAF	WASTE DIS	INCINERAT	PM10	ANNUAL	GROWN AI	0	0.0003	0	0	0	0	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012
KERN COU	STATIONAF	CLEANING	LAUNDERII	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	DEGREASIN	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	COATINGS	PM10	ANNUAL	GROWN AI	0.0002	0.0001	0	0	0	0	0.0006	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
KERN COU	STATIONAF	CLEANING	PRINTING	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	ADHESIVES	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	CLEANING	OTHER (CL	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	PM10	ANNUAL	GROWN AI	0.0095	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	PETROLEUI	PETROLEUI	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	CHEMICAL	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	MINERAL F	PM10	ANNUAL	GROWN AI	0.0143	0.0138	0.0092	0.0096	0.0109	0.0124	0.0127	0.013	0.0133	0.0135	0.0137	0.0138	0.0142	0.0143	0.0144
KERN COU	STATIONAF	INDUSTRIA	METAL PR(	PM10	ANNUAL	GROWN AI	0	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	STATIONAF	INDUSTRIA	OTHER (INI	PM10	ANNUAL	GROWN AI	0.0001	0	0	0	0	0.0001	0.0059	0.006	0.0061	0.0061	0.0063	0.0064	0.0065	0.0065	0.0066
					Stationary Source Total		0.0577	0.0305	0.0272	0.0282	0.0296	0.0272	0.0519	0.0529	0.0537	0.0489	0.0496	0.0487	0.0459	0.0415	0.0419
KERN COU	AREAWIDE	SOLVENT E	CONSUME	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ARCHITECT	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	PESTICIDES	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	SOLVENT E	ASPHALT P	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	AREAWIDE	MISCELLAN	RESIDENTI/	PM10	ANNUAL	GROWN AI	0.0418	0.0437	0.0492	0.0499	0.0383	0.0317	0.0319	0.0319	0.032	0.0321	0.0322	0.0322	0.0323	0.0324	0.0324
KERN COU	AREAWIDE	MISCELLAN	FARMING (	PM10	ANNUAL	GROWN AI	0.0376	0.0372	0.0341	0.0338	0.0336	0.0334	0.0333	0.033	0.0328	0.0326	0.0325	0.0322	0.032	0.0319	0.0317
KERN COU	AREAWIDE	MISCELLAN	CONSTRUC	PM10	ANNUAL	GROWN AI	0.1298	0.1322	0.1562	0.1601	0.1504	0.1386	0.1401	0.1406	0.1413	0.1413	0.217	0.2171	0.2175	0.2174	0.2176
KERN COU	AREAWIDE	MISCELLAN	PAVED RO/	PM10	ANNUAL	GROWN AI	0.1009	0.1017	0.0991	0.1005	0.1047	0.109	0.1093	0.1104	0.1117	0.1133	0.1151	0.117	0.1189	0.1207	0.1226
KERN COU	AREAWIDE	MISCELLAN	UNPAVED I	PM10	ANNUAL	GROWN AI	0.2003	0.2002	0.1995	0.1995	0.1995	0.1994	0.1994	0.1993	0.1993	0.1993	0.1992	0.1992	0.1991	0.1991	0.1991
KERN COU	AREAWIDE	MISCELLAN	FUGITIVE V	PM10	ANNUAL	GROWN AI	0.7272	0.7211	0.6633	0.6579	0.6547	0.6515	0.6479	0.6443	0.6407	0.6372	0.6338	0.6304	0.6271	0.6238	0.6206
KERN COU	AREAWIDE	MISCELLAN	FIRES	PM10	ANNUAL	GROWN AI	0.0009	0.0009	0.001	0.001	0.001	0.001	0.001	0.0011	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
KERN COU	AREAWIDE	MISCELLAN	MANAGED	PM10	ANNUAL	GROWN AI	0.0459	0.0456	0.2093	0.2072	0.2116	0.0269	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
KERN COU	AREAWIDE	MISCELLAN	COOKING	PM10	ANNUAL	GROWN AI	0.0104	0.0106	0.012	0.0121	0.0122	0.0123	0.0126	0.0128	0.0129	0.0132	0.0133	0.0135	0.0137	0.0139	0.0141
KERN COU	AREAWIDE	MISCELLAN	OTHER (MI	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
					Areawide Source Total		1.2948	1.2932	1.4237	1.422	1.406	1.2038	1.1985	1.1964	1.1949	1.1932	1.2673	1.2658	1.2648	1.2634	1.2623

KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	PM10	ANNUAL	GROWN AI	0.0123	0.0118	0.0099	0.01	0.0105	0.0107	0.0107	0.011	0.0113	0.0116	0.0119	0.0122	0.0124	0.0128	0.0131
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	PM10	ANNUAL	GROWN AI	0.0022	0.0018	0.001	0.001	0.0011	0.0012	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
KERN COU	MOBILE	ON-ROAD I	LIGHT DUT	PM10	ANNUAL	GROWN AI	0.0047	0.0049	0.0041	0.0042	0.0043	0.0043	0.0043	0.0043	0.0043	0.0045	0.0045	0.0045	0.0045	0.0046	0.0046
KERN COU	MOBILE	ON-ROAD I	MEDIUM D	PM10	ANNUAL	GROWN AI	0.0025	0.0028	0.0031	0.0031	0.0033	0.0035	0.0034	0.0034	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0011	0.0012	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	PM10	ANNUAL	GROWN AI	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0014	0.0016	0.0019	0.0018	0.0018	0.0019	0.0018	0.0017	0.0015	0.0015	0.0013	0.0013	0.0013	0.0012	0.0011
KERN COU	MOBILE	ON-ROAD I	LIGHT HEA	PM10	ANNUAL	GROWN AI	0.0003	0.0003	0.0006	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004
KERN COU	MOBILE	ON-ROAD I	MEDIUM H	PM10	ANNUAL	GROWN AI	0.0049	0.0048	0.0024	0.0025	0.0024	0.0024	0.0019	0.0018	0.0018	0.0015	0.0014	0.001	0.0008	0.0009	0.0009
KERN COU	MOBILE	ON-ROAD I	HEAVY HE/	PM10	ANNUAL	GROWN AI	0.0423	0.0412	0.0261	0.0195	0.0165	0.015	0.0135	0.0125	0.0118	0.0114	0.0107	0.0098	0.0097	0.0097	0.0099
KERN COU	MOBILE	ON-ROAD I	MOTORCY(	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	HEAVY DU	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	PM10	ANNUAL	GROWN AI	0	0.0001	0.0001	0.0001	0	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
KERN COU	MOBILE	ON-ROAD I	SCHOOL BI	PM10	ANNUAL	GROWN AI	0.0006	0.0006	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
KERN COU	MOBILE	ON-ROAD I	OTHER BUS	PM10	ANNUAL	GROWN AI	0	0	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	OTHER BUS	PM10	ANNUAL	GROWN AI	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	ALL OTHER	PM10	ANNUAL	GROWN AI	0.0002	0.0002	0	0.0001	0	0.0001	0	0	0	0	0	0	0	0	0
KERN COU	MOBILE	ON-ROAD I	MOTOR HC	PM10	ANNUAL	GROWN AI	0.0002	0.0002	0.0003	0.0002	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
			On-Road Motors Vehicle Total				0.0731	0.0719	0.051	0.0446	0.0424	0.0415	0.0391	0.0381	0.0373	0.037	0.0362	0.0351	0.035	0.0355	0.0359
KERN COU	MOBILE	OTHER MC	AIRCRAFT	PM10	ANNUAL	GROWN AI	1.1497	1.1509	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497	1.1497
KERN COU	MOBILE	OTHER MC	TRAINS	PM10	ANNUAL	GROWN AI	0.0152	0.016	0.0059	0.0053	0.0049	0.0044	0.004	0.0034	0.0029	0.0027	0.0026	0.0024	0.0023	0.0021	0.0019
KERN COU	MOBILE	OTHER MC	RECREATIC	PM10	ANNUAL	GROWN AI	0.0048	0.0047	0.0032	0.0032	0.0029	0.0026	0.0025	0.0023	0.0022	0.002	0.0018	0.0018	0.0018	0.0016	0.0015
KERN COU	MOBILE	OTHER MC	OFF-ROAD	PM10	ANNUAL	GROWN AI	0.0004	0.0005	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
KERN COU	MOBILE	OTHER MC	OFF-ROAD	PM10	ANNUAL	GROWN AI	0.014	0.0159	0.009	0.0089	0.0088	0.0085	0.0081	0.0071	0.0062	0.0055	0.0054	0.0045	0.0041	0.004	0.0034
KERN COU	MOBILE	OTHER MC	FARM EQU	PM10	ANNUAL	GROWN AI	0.0131	0.0129	0.0085	0.0082	0.0079	0.0076	0.0074	0.007	0.0068	0.0064	0.006	0.0056	0.0052	0.0049	0.0044
KERN COU	MOBILE	OTHER MC	FUEL STOR	PM10	ANNUAL	GROWN AI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Other Mobil Sources Total				1.1972	1.2009	1.1767	1.1756	1.1745	1.1731	1.172	1.1698	1.168	1.1665	1.1657	1.1642	1.1633	1.1625	1.1611

	2002	2003	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
GRAND TOTAL	2.6228	2.5965	2.6786	2.6704	2.6525	2.4456	2.4615	2.4572	2.4539	2.4456	2.5188	2.5138	2.509	2.5029	2.5012

Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND PM10 MAINTENANCE PLAN

Appendix E

Rule 402, Fugitive Dust

RULE 402 Fugitive Dust - Adopted 11/29/93, Amended 3/07/94, 9/7/95, 11/3/04, 3/12/15

I. Purpose

Fugitive dust contains varying sizes of respirable particulate matter including those with an aerodynamic diameter of 10 micrometers or less (PM_{10}). The purpose of this Rule is to prevent, reduce, and mitigate ambient concentrations of anthropogenic fugitive dust emissions to an amount sufficient to attain and maintain the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

District Rule 419, Nuisance shall still be used to prevent or correct specific public nuisances and health hazards.

II. Applicability

Provisions of this Rule are applicable to specified outdoor fugitive dust producing activities, which include: handling, storage, and transport of bulk storage piles, construction, demolition, excavation, extraction, and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, on-site travel including travel on access roads to and from the job site, and any other anthropogenic condition resulting in wind erosion.

III. Definitions

A. Active Operation: Activity capable of generating fugitive dust, including any open storage pile, earth-moving activity, construction/demolition activity, disturbed surface area, and non-emergency movement of motor vehicles on unpaved roadways and any parking lot served by an unpaved road subject to this Rule.

B. Agricultural Operation: The growing and harvesting of crops or the raising of fowl or animals, for the primary purpose of earning a living, or of conducting agricultural research or instruction by an educational institution.

C. Anthropogenic: Caused, created, or produced by people or human activity.

D. APCO: Air Pollution Control Officer of the Eastern Kern Air Pollution Control District.

E. Blasting: Any excavation or demolition conducted with the use of explosives.

F. Bulk Material: Sand, gravel, soil, aggregate, and any other organic or inorganic solid matter capable of releasing dust.

G. Bulk Material Handling, Storage, and/or Transporting Operation: Includes but is not limited to the use of equipment, haul trucks, and/or motor vehicles for the loading, unloading, conveying, transporting, piling, stacking, screening, grading, or moving of bulk materials at an industrial, institutional, commercial and/or governmental owned or operated site or facility.

H. Calendar Quarter: Consecutive three month period and each consecutive three-month period thereafter, beginning on the first day of the calendar month in which an activity qualifies as a large operation.

I. Carryout/Trackout: Any and all materials that adheres to and agglomerates on vehicles, haul trucks, or equipment (including trailers, tires, etc.) and falls onto a paved public road or the paved shoulder of a paved public road.

J. Chemical/Organic Stabilization/Suppression: Method of controlling PM_{10} emissions from fugitive dust by applying any non-toxic chemical or organic dust suppressant, other than water, which meets any specifications, criteria, or tests required by any federal, state, or local water agency and is not prohibited for use by any applicable law, rule, or regulations.

K. Construction and Demolition Activity: Any on-site mechanical activity preparatory to or related to building, alteration, rehabilitation, demolition or improvement of property, including the following activities: grading, excavation, loading, crushing, cutting, planning, shaping or ground breaking.

L. Contractor: Any person or company, or licensed construction contractor having a contractual arrangement to conduct an active operation subject to this Rule for another person.

M. Contingency Measure: Additional PM_{10} control requirements automatically triggered in the event of failure to maintain the NAAQS for PM_{10} in the Indian Wells Valley.

N. Disturbed Surface Area: Portion of the earth's surface having been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural condition, thereby increasing the potential for emission of fugitive dust. Disturbed surface area does not include areas restored to a natural state with vegetative ground cover and soil characteristics similar to adjacent or nearby natural conditions.

O. Dust Suppressant: Water, hygroscopic materials, or chemical/organic stabilization/suppression materials used as treatment to reduce fugitive dust emissions. A suppressant shall not be used if prohibited by the Regional Water Quality Control Board, the California Air Resources Board, the Environmental Protection Agency, or any other applicable law, rule or regulation. All suppressants shall meet all specifications, criteria, or tests required by any federal, state, or local water agency. The use of dust suppressants shall be of sufficient concentration and application frequency to maintain a stabilized surface.

P. Earthmoving: The use of any equipment for an activity that may generate fugitive dust emissions, including, but not limited to, grading, cutting, filling, leveling, excavating, trenching, loading or unloading of dirt or bulk material, demolishing, blasting, drilling, adding to or removing of material from open storage piles, backfilling, soil mulching, or weed abatement through disking.

Q. Emergency: Any situation where immediate action on the part of a federal, state or local agency involved is needed and where the timing of such federal, state or local activities makes it impractical to meet the requirements of this Regulation, such as natural disasters, civil disturbances, or hazardous materials spills. Only an authorized official of a federal, state or local agency may declare an emergency when deemed necessary to protect the general public.

R. Event Material: Wind, storm, or water erosion and runoff resulting in the accumulation of mud, soil, or other material onto a public paved road surface travel lane or shoulder.

S. Excavation: Any digging, trenching, quarrying, extraction, or tunneling.

T. Extraction: Removal of minerals, aggregate, or fossil fuels from the earth by excavation; including mining, surface stripping, open pit excavation, or tunneling.

U. Fugitive Dust: Any particulate matter directly or indirectly becoming airborne, other than being emitted from an exhaust stack or duct designed to control flow, as a result of human activity.

V. Gravel Pad: A layer of washed gravel, rock, or crushed rock located at the point of intersection of a paved public roadway and an unpaved work site exit, and maintained to dislodge mud, dirt, and/or debris from the tires of motor vehicles and/or haul trucks, prior to exiting the work site.

W. Grizzly: A device (i.e., rails, pipes, or grates) used to dislodge mud, dirt, and/or debris from the tires and undercarriage of motor vehicles or haul truck prior to leaving the work site.

X. Haul Truck: Any fully or partially open-bodied, self-propelled vehicle including any non-motorized attachments used for transporting bulk materials, including, but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

Y. Inactive Disturbed Surface Area: Any disturbed surface area upon which an active operation has not occurred for a period of at least ten consecutive days.

Z. Landfill Daily Cover: Soil excavated and stockpiled from a landfill borrow site that is used for daily operations to cover solid waste, trash, garbage, or other waste at a landfill disposal site.

AA. Landfill Disposal Site: A site where solid waste, trash, garbage, or other waste is disposed of by burying between layers of earth.

BB. Land Preparation: Any activity that disturbs the natural condition of land, including, but not limited to, brush or timber clearing, grubbing, scraping, ground excavation, land leveling, or grading.

CC. Large Operation: Any construction activity on any site involving 10 or more contiguous acres of disturbed surface area, or any earthmoving activity exceeding a daily volume of 10,000 cubic yards, or relocating more than 2,500 cubic yards per day of bulk materials at least three days per year.

DD. Motor vehicle: Any engine-powered device used to convey people, or freight and registered for use on public highways.

EE. Non-Routine: Non-periodic active operation occurring no more than three times per year, lasting less than 30 cumulative days per year, and scheduled less than 30 days in advance.

FF. Open-Pit Mine: An excavation for a mining operation which, excluding entrances and egresses, is encircled by a "high-wall" at least 10 feet high. A "high wall" is a berm or cut having a slope of at least 1:1.

GG. Open Storage Pile: Any accumulation of bulk material with 5 percent or greater silt content not fully enclosed, covered or chemically stabilized, attaining a height of 3 feet or more and a total surface area of 500 or more square feet. Silt content level shall be assumed to be 5 percent or greater unless a person shows, by sampling and analysis in accordance with ASTM Method C-136 or equivalent method approved in writing by the APCO, EPA, and CARB, that the silt content is less than 5 percent. Results of ASTM Method C-136 or equivalent method is valid for 60 days from the date the sample was taken.

HH. Outdoor Handling, Storage, and Transport: Handling (including loading and unloading), storage, and transport, and any accumulation of bulk material, temporarily or permanently stored outside of an enclosed structure.

II. Owner/Operator: Includes, but is not limited to, any person who leases, supervises, or operates equipment, or owns/operates a fugitive dust source, in addition to the normal meaning of owner or operator.

JJ. Particulate Matter (PM): A complex mixture of extremely small particles and liquid droplets made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Any solid material, existing in finely divided form.

KK. Paved Road/Area: Any road/area that is covered by concrete, asphaltic concrete, asphalt, or other materials which provides structural support for vehicles.

LL. PM_{10}: Particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by California Air Resources Board Test Method 501.

MM. Property Line: Boundaries of an area in which either a person causing fugitive dust emissions or a person allowing fugitive dust emissions has ownership or legal right to use the property.

NN. Reasonably Available Control Measure (RACM): Any technique or procedure used to prevent or reduce the emission and airborne transport of fugitive dust. RACM includes, but is not limited to, application of dust suppressants, use of coverings or enclosures, paving, enshrouding, planting, control of vehicle speed, and any other measure recognized by the APCO as providing equivalent dust control. Table 1 and EPA's reference document "Control of Open Fugitive Dust Sources", Midwest Research Institute, September 1988 shall be used for guidance.

OO. Simultaneous Sampling: Operation of two PM_{10} samplers such that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period of not less than 290 minutes and not more than 310 minutes.

PP. Site: Real property or land used or set aside for any specific use.

QQ. Soil Stabilization: The process used to control PM_{10} emissions from fugitive dust for an extended period of time by applying dust suppressants or planting vegetative cover.

RR. Stabilized Surface: Any disturbed surface area or open bulk material storage pile that is resistant to windblown fugitive dust emissions. A surface is considered to be stabilized if it meets at least one of the following conditions and as determined by the test methods specified in Attachment A of this Rule:

a. A visible crust;

b. A threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 centimeters per second or greater;

c. A flat vegetative cover of at least 50 percent that is attached or rooted vegetation; or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind;

d. A standing vegetative cover of at least 30 percent that is attached or rooted vegetation with a predominant vertical orientation;

e. A standing vegetative cover that is attached or rooted vegetation with a predominant vertical orientation that is at least 10 percent and where the TFV is at least 43 centimeters per second when corrected for nonerodible elements; or

f. A surface that is greater than or equal to 10 percent of non- erodible elements such as rocks, stones, or hard-packed clumps of soil.

SS. Trackout Control Device: A gravel pad, grizzly, wheel wash system, or a paved area located at the point of intersection of an unpaved area and a paved road that prevents or controls trackout.

TT. Unpaved Road: Any road that is not covered by one of the materials described in the paved road definition.

UU. Unpaved Access/Haul Road: Any road or path that is not covered by one of the materials described in the paved road definition that is associated with any construction, demolition, excavation, extraction, and other earthmoving activity and used by vehicles, equipment, haul trucks, or any conveyances to travel within a site, to move materials from one part of a site to another part within the same site, or to provide temporary access to a site.

VV. Unpaved Vehicle/Equipment Traffic Area: Any nonresidential area that is not covered by asphalt, recycled asphalt, asphaltic concrete, concrete, or concrete pavement that is used for fueling and servicing; shipping, receiving and transfer; or parking or storing equipment, haul trucks, vehicles, and any conveyances.

WW. Visible Dust Emissions (VDE): Dust emissions visible to an observer. Opacity observations to determine compliance with VDE standards shall be conducted in accordance with the test procedures for "Visual Determination of Opacity" as described in Attachment B of this Rule.

XX. Wind Barrier: A fence or structure constructed, or row of trees planted, to reduce the shearing effects caused by wind thereby reducing or eliminating the amount of entrained fugitive dust.

YY. Wind Generated Fugitive Dust: Visible emissions from any disturbed surface area which is generated by wind action alone.

ZZ. Wind Gust: Maximum instantaneous wind speed, as measured by an anemometer or as provided by the nearest local meteorological station.

IV. Exemptions

A. Provisions of this Rule shall not apply to:

1. Agricultural operations specifically subject to the requirements of District Rule 402.2, Agricultural Operations;

2. Actions required by federal or state endangered species legislation, or the Surface Mining and Reclamation Act;

3. Any disturbed surface area less than three acres on residential property in the Indian Wells Valley and less than two acres in the remainder of the District;

4. Active operation conducted during emergency life-threatening situations, or in conjunction with any officially-declared disaster or state of emergency. Emergency activities lasting more than 30 days shall be subject to this regulation, except where compliance would limit effectiveness of ensuring public health and safety.;

5. Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions;

6. Unpaved roads that are not part of a large operation and are outside the Indian Wells Valley and unpaved roads within the Indian Wells Valley provided such roads:

    a. Are less than 75 (50, if contingency measure triggered) feet long or,

    b. Have a motor vehicle traffic volume less than 25 (15, if contingency measure triggered) vehicle-trips per day, or

    c. Have a motor vehicle traffic volume greater than 25 (15, if contingency measure triggered) vehicle-trips per day not more than six times per year, or

    d. Provide access to not more than 10 residences.

Contingency measure is triggered if EPA publishes a finding in the Federal Register that District's portion of the Indian Wells Valley Planning Area has failed to maintain NAAQS for PM_{10}.

7. Restorative grading of unpaved shoulders of paved roads;

8. Non-routine or emergency maintenance of flood control channels and water spreading basins;

9. Weed and dried vegetation removal required by a fire prevention/control agency;

10. Active operations conducted during freezing weather if applicable RACM involves application of water;

11. County or properly permitted private sanitary landfill disposal sites provided such sites conform to California Code of Regulations Title 14: Sections 17659, 17660 and 17706 (County) or District dust control permit to operate conditions;

12. Blasting operations permitted by the California Division of Industrial Safety;

13. Motion picture, television, and video production activities when dust emissions are required for visual effects. This exemption shall be obtained from the APCO;

14. Officially designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and County regional parks;

15. Federal facilities (outside Indian Wells Valley) required by National Environmental Protection Act (NEPA) to implement fugitive dust RACM's for activities otherwise subject to this Rule, provided District receives an up-to-date description, including all RACM's employed.

B. Provisions of Section V.A. shall not apply when wind gusts exceed 25 miles per hour, provided:

1. Table 1 RACM is implemented for each applicable fugitive dust source type; or

2. An owner/operator has on file with the District an approved "High Wind Fugitive Dust Control Plan" indicating technical reasons why RACM cannot be implemented. Such plan shall provide alternative measures for fugitive dust control, if technically feasible, and shall be subject to the same approval conditions as specified in Section V.D.

C. Bulk Materials

1. Any outdoor storage, handling, or transport of bulk materials which would be damaged by wetting with water or by the application of chemical/organic dust suppressants, provided owners/operators demonstrate to the satisfaction of the APCO and EPA that none of the control measures specified in Table 2 Bulk Material Control Measures (BMCM) can be implemented to limit VDE to no more than 20% opacity or provide a stabilized surface.

2. Spreading of daily landfill cover.

3. Transport of a bulk material in an outdoor area for a distance of twelve feet or less with the use of a chute or conveyor device.

4. Outdoor storage of any bulk material at a single site where no material is actively being added or removed at the end of the workday or overnight and where the total material stored is less than 100 cubic yards.

V. Requirements

A. A person shall not cause or allow fugitive dust emissions from any active operation to remain visible in the atmosphere beyond the property line of the emission source.

B. An owner/operator of any active operation subject to this Rule shall implement one or more fugitive dust emission control strategy listed in Table 1, Reasonably Available Control Measure (RACM) or Table 2, Bulk Material Control Measures (BMCM) to limit visible dust emissions (VDE) to no more than 20% opacity or meet the conditions for a stabilized surface as defined in Section III.RR.

Remained of Page Intentionally Left Blank

TABLE 1
REASONABLY AVAILABLE CONTROL MEASURES (RACM)

Source Category	Control Measure
Unpaved Road:	Control Vehicular Speed (signage/enforcement)
	Improve Road Surface (leveling/grading)
	Use Water Trucks to Keep Soil Damp
	Apply Dust Suppressant (palliatives/gravel/ect.)
Construction, Demolition, and Earth-Moving:	Minimize/Limit Cut-Fill Grading
	Phase Work to Reduce Disturbed Surface Area
	Use Wind Breaks (screens/fencing/barriers/burms)
	Compact Disturbed Surfaces
	Limit Equipment/Vehicular Access
	Use Water Trucks to Keep Soil Damp
	Apply Dust Suppressant (palliative/gravel/ect.)
Open Storage Pile:	Use Enclosures Around Storage Piles
	Keep Pile Damp
	Apply Dust Suppressant (palliative/gravel/ect.)
	Cover with Hydro-mulch or Woodchips
Disturbed Surface Area Stabilization During Inactivity:	Compact Disturbed Surfaces
	Restrict Equipment/Vehicular Access
	Use Wind Breaks (screens/fencing/barriers/burms)
	Apply Dust Suppressant (palliative/gravel/ect.)
	Apply Hydro-mulch or Woodchips
	Re-vegetate

C. Bulk Materials

No person shall perform any outdoor handling, storage, and transport of bulk materials unless the appropriate control measures as listed in Table 2 are sufficiently implemented in order to limit VDE to no more than 20% opacity. Conditions of Stabilized Surface, as defined in Section III.RR of this Rule, must also be met.

TABLE 2
BULK MATERIAL CONTROL MEASURES (BMCM)

Category	Control Measure
Handling	Apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20% opacity or;
	Construct and maintain wind barriers sufficient to limit VDE to 20% opacity and with less than 50% porosity. If utilizing fences or wind barriers, also apply water or chemical/organic stabilizers/suppressants.
Storage	When storing bulk materials, comply with the conditions for a stabilized surface as defined in this Rule; or
	Cover bulk materials stored outdoors with tarps, plastic, or other suitable material and anchor in such a manner that prevents the cover from being removed by wind action; or
	Construct and maintain wind barriers sufficient to limit VDE to 20% opacity and with less than 50% porosity. If utilizing fences or wind barriers, apply water or chemical/organic stabilizers/suppressants to limit VDE to 20% opacity or;
	Utilize a 3-sided structure with a height at least equal to the height of the storage pile and with less than 50% porosity.
On-Site Transporting	Limit vehicular speed while traveling on the work site sufficient to limit VDE to 20% opacity; or
	Load all haul trucks such that the freeboard is not less than six (6) inches when material is transported across any paved public access road sufficient to limit VDE to 20% opacity, or
	Apply water to the top of the load sufficient to limit VDE to 20% opacity, or
	Cover haul trucks with a tarp or other suitable cover.
Off-Site Transporting	Clean interior of the cargo compartment or cover cargo compartment before empty truck leaves the site; and
	Prevent spillage or loss of bulk material from holes or other openings in cargo compartment's floor, sides, and/or tailgate; and
	Load all haul trucks such that the freeboard is not less than six (6) inches when material is transported on any paved public access road, and apply water to top of load sufficient to limit VDE to 20% opacity; or cover haul trucks with a tarp or other suitable cover.
Outdoor Chute & Conveyor	Fully enclose the chute/conveyor; or
	Operate water spray equipment that sufficiently wets materials to limit VDE to 20% opacity; or
	Wash separated or screened materials to remove conveyed materials having an aerodynamic diameter of 10 microns or less sufficient to limit VDE to 20% opacity.

D. Fugitive Dust Emission Control Plan

1. An owner/operator shall submit a Fugitive Dust Emission Control Plan to the APCO prior to the start of any Large Operation as defined in Section III.CC. Activity shall not commence until APCO has approved or conditionally approved a Fugitive Dust Emission Control Plan.

2. Any operation subject to the requirements of this section must post visible signage on location that clearly displays:

    a. Message stating “If you see blowing dust please call”;

    b. Contact phone number for person responsible for on-site dust control; and

    c. District primary contact phone number.

3. A Fugitive Dust Emission Control Plan must include:

    a. Name(s), address(es), and phone number(s) of person(s) and owner(s)/operator(s) responsible for the preparation, submittal, and implementation of the plan and responsible for the dust generating operation and the application of dust control measures;

    b. Description and location of operation;

    c. Plot plan which shows the type and location of each project;

    d. Listing of all fugitive dust emissions sources included in the large operation;

    e. Total area of land surface to be disturbed, daily throughput volume of earthmoving in cubic yards, and total area in acres of the entire project site;

    f. Actual and potential sources of fugitive dust emissions on the site and the location of bulk material handling and storage areas, paved and unpaved roads; entrances and exits where carryout/trackout may occur; and traffic areas;

    g. All RACM or BMCM to be implemented before, during, and after any dust generating activity. Such description must be sufficiently detailed to demonstrate RACM or BMCM will be utilized and/or installed during all periods of active operations;

    h. Expected start and completion dates of dust generating and soil disturbance activities to be performed on the site; and

    i. Any special technical, e.g., non-economic, circumstances preventing use of RACM or BMCM for any source, justification shall be provided in lieu of the description. A justification statement shall explain reason(s) why RACM or BMCM cannot be implemented.

4. APCO shall approve, conditionally approve, or disapprove a plan in writing within 30 calendar days of receipt. For a plan to be approved or conditionally approved the following three conditions shall be satisfied:

    a. All sources of fugitive dust emissions shall be identified, e.g., earth-moving, storage piles, vehicular traffic on unpaved roads, etc;

    b. At least one RACM or BMCM shall be implemented for each source identified; and

    c. List of standby/additional contingency control measures (e.g. increase watering, stop work, additional palliative, ect.) shall be specified for immediate implementation in the event visible dust emissions cross property line(s).

5. The applicant shall be notified in writing if a plan can be conditionally approved by adding actions not specified in the proposed plan. Such actions shall be incorporated into a revised plan and submitted to the APCO within 30 days of receipt or the plan will be disapproved.

6. An owner/operator must submit a Fugitive Dust Emission Control Plan for each large operation if multiple sites/projects are involved.

7. An owner/operator shall notify the APCO in writing 10 days prior to the commencement of any large operation via email or fax.

8. An owner/operator shall retain a copy of the approved plan at the project site.

9. An approved plan is valid for a period of one year from date of approval or conditional approval. A plan shall be resubmitted annually, at least 60 days prior to expiration date, or the plan will be disapproved as of the expiration date. If all fugitive dust sources and corresponding RACM, BMCM, or special circumstances remain identical to those identified in the previously approved plan, the resubmittal may contain a simple statement of "no-change". Otherwise a resubmittal shall contain all items specified in Section V.D.2.

10. Failure to comply with any provisions of the approved or conditionally approved plan shall result in a notice of violation (NOV).

E. <u>Earthmoving Activities</u>

No person shall perform or authorize any earthmoving activity subject to requirements of this Rule unless the appropriate fugitive dust emission control measure(s) as described herein are implemented to limit VDE to no more than 20% opacity.

Earthmoving activities include but not limited to, construction, demolition, excavation, extraction, land clearing, grubbing, scraping, on-site travel, and travel on access roads to and from site. This section also applies to the construction of new landfill disposal sites or modification to existing landfill disposal sites prior to commencement of normal landfill operations.

1. Any Large Operation earthmoving activity as defined in Section III.EE. shall comply with the requirements of Section V.D.

2. Implement one or more strategy from Table 1.

3. Speed Limitations and Posting of Speed Limit Signs on Uncontrolled Unpaved Access/Haul Roads on Construction Sites.

    a. An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.

    b. An owner/operator shall post speed limit signs that meet State and Federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.

4. Wind Generated Fugitive Dust Requirements.

    a. Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever VDE exceeds 20% opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.

    b. Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.

F. Carryout and Trackout

An owner/operator shall sufficiently prevent or cleanup carryout/trackout as follows:

1. Owners/operators shall remove all visible carryout/trackout at the end of each workday.

2. Cleanup of carryout/trackout shall be accomplished by:

    a. Manually sweeping and picking-up; or

    b. Operating a rotary brush or broom accompanied or preceded by sufficient wetting to limit VDE to at least 20% opacity; or

    c. Operating a PM_{10}-efficient street sweeper that has a pick-up efficiency of at least 80 percent.

    d. Flushing with water, if curbs or gutters are not present and where the use of water will not result as a source of trackout material or result in adverse impacts

on storm water drainage systems or violate any National Pollutant Discharge Elimination System permit program.

3. Urban areas: An owner/operator shall prevent or immediately remove carryout/trackout when it extends 50 feet or more from the nearest unpaved surface exit point of a site.

4. Rural areas: An owner/operator shall prevent or immediately remove carryout/trackout on construction projects 10 acres or more in size, when it extends 50 feet or more from the nearest unpaved surface exit point of a site.

5. Carryout/trackout shall be prevented and mitigated as follows:

    a. Installing and maintaining a trackout control device meeting the specifications contained in Section V.F.6. at all access points to paved public roads; or

    b. Utilizing a carryout and trackout prevention procedure which has been demonstrated to the satisfaction of the APCO and EPA as achieving an equivalent or greater level of control than specified in Section V.F.5.a.

    c. In the event that measures specified in Sections V.F.5.a. and V.F.5.b. are insufficient to prevent carryout/trackout, removal of any carryout/trackout must be accomplished within one-half hour of the generation of such carryout/trackout.

6. Specifications for Section V.F.5 shall meet the following conditions or combination of conditions:

    a. For use of grizzlies or other similar devices designed to remove dirt/mud from tires, the devices shall extend from the intersection with the public paved road surface for a distance of at least 25 feet, and cover the full width of the unpaved exit surface for at least 25 feet.

    b. For use of gravel pads, coverage with gravel shall be at least one inch or larger in diameter and at least 3 inches deep, shall extend from the intersection with the public paved road surface for a distance of at least 50 feet, and cover the full width of the unpaved exit surface for at least 50 feet. Any gravel deposited onto a public paved road travel lane or shoulder must be removed at the end of the workday or immediately following the last vehicle using the gravel pad, or at least once every 24 hours, whichever occurs first.

    c. For use of paving, paved surfaces shall extend from the intersection with the public paved road surface for a distance of at least 100 feet, and cover the full width of the unpaved access road for that distance to allow mud and dirt to drop off of vehicles before exiting the site. Mud and dirt deposits accumulating on paved interior roads shall be removed with sufficient frequency, but not less frequently than once per workday, to prevent carryout and trackout onto paved public roads.

7. An owner/operator of any site with 150 or more vehicle trips per day or 20 or more vehicle trips per day by vehicles with three or more axles shall take the actions for carryout/trackout as specified in Section V.F.5.

8. An owner/operator subject to the requirements of a Fugitive Dust Emission Control Plan as specified in Section V.D. shall take the actions for carryout/trackout as specified in Section V.F.5.

9. For sites with paved interior roads, an owner/operator shall prevent and mitigate carryout/trackout as specified in Section V.F.5.

G. Administrative Requirements

Any Person subject to the requirements of this Rule shall compile and retain records that provide evidence of control measure application and compliance with this Rule (i.e., receipts and/or purchase records). Such Person shall describe, in the records, the type of treatment or control measure, extent of coverage, and date applied. For control measures which require multiple daily applications, recording the frequency of application will fulfill the recordkeeping requirements of this Rule (i.e., water being applied three times a day and the date) Records shall be maintained and be readily accessible for two years after the date of each entry and shall be provided to the APCD upon request.

VI. PM_{10} Air Monitoring

District may require on-site PM_{10} air monitoring for any large operation causing downwind PM_{10} ambient concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations or any large operation that continually causes a public nuisance.

A. Any source required to conduct on-site PM_{10} monitoring shall:

1. Operate, maintain, and calibrate monitors in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate EPA-published documents for EPA-approved equivalent methods(s) for PM_{10} sampling;

2. Reasonably place monitors on adjacent corners of the operation, as close to property lines as feasible, and in such a way that other sources of fugitive dust between the sampler and the property line are minimized;

3. Notify APCO of intent to monitor PM_{10} at least seven days prior to initiating such monitoring. Notification shall contain, at a minimum, the person's name, address, telephone number, brief description and location of the operation(s), and anticipated first date of sampling;

4. Collect samples at least one-day per week, on a different day of each week. . Sampling shall be conducted during typical operations and in all weather and wind conditions. All other provisions of this Rule shall continue to be applicable;

5. Collect additional samples as requested by APCO based on receipt of public complaints, visible dust emissions, high wind events, or other determinations made by District staff indicating violations may be occurring;

6. Compile and submit records to the District on a quarterly basis, not later than 30 days after the end of each calendar quarter. Such records shall include:

    a. Brief description and location of the operation;

    b. Hours of active operation on days when particulate sampling occurred;

    c. Location, vendor, model, and serial number of PM_{10} samplers used on each sampling day;

    d. Date, start and end times of all PM_{10} sampling;

    e. Laboratory results (measured ambient concentrations) of all PM_{10}samples;

    f. List of consultants, laboratories, and other groups of individuals responsible for collection, analysis, evaluation and validation of each PM_{10} sample;

    g. Documentation of any maintenance and calibration actions performed on each PM_{10} sampler conducted in accordance with 40 CFR, Part 50, Appendix J; and

    h. All monitoring records shall be maintained for at least two years and made available to the APCO upon request.

VII. Prohibitions

A. Materials used for chemical/organic stabilization of soils, including petroleum resins, asphaltic emulsions, acrylics, and adhesives shall not violate State Water Quality Control Board standards for use as a soil stabilizer. Materials accepted by CARB and EPA, and which meet State water quality standards, shall be considered acceptable to the APCO.

B. Any material prohibited for use as dust suppressant by CARB, EPA, or other applicable law, rule, or regulation is also prohibited.

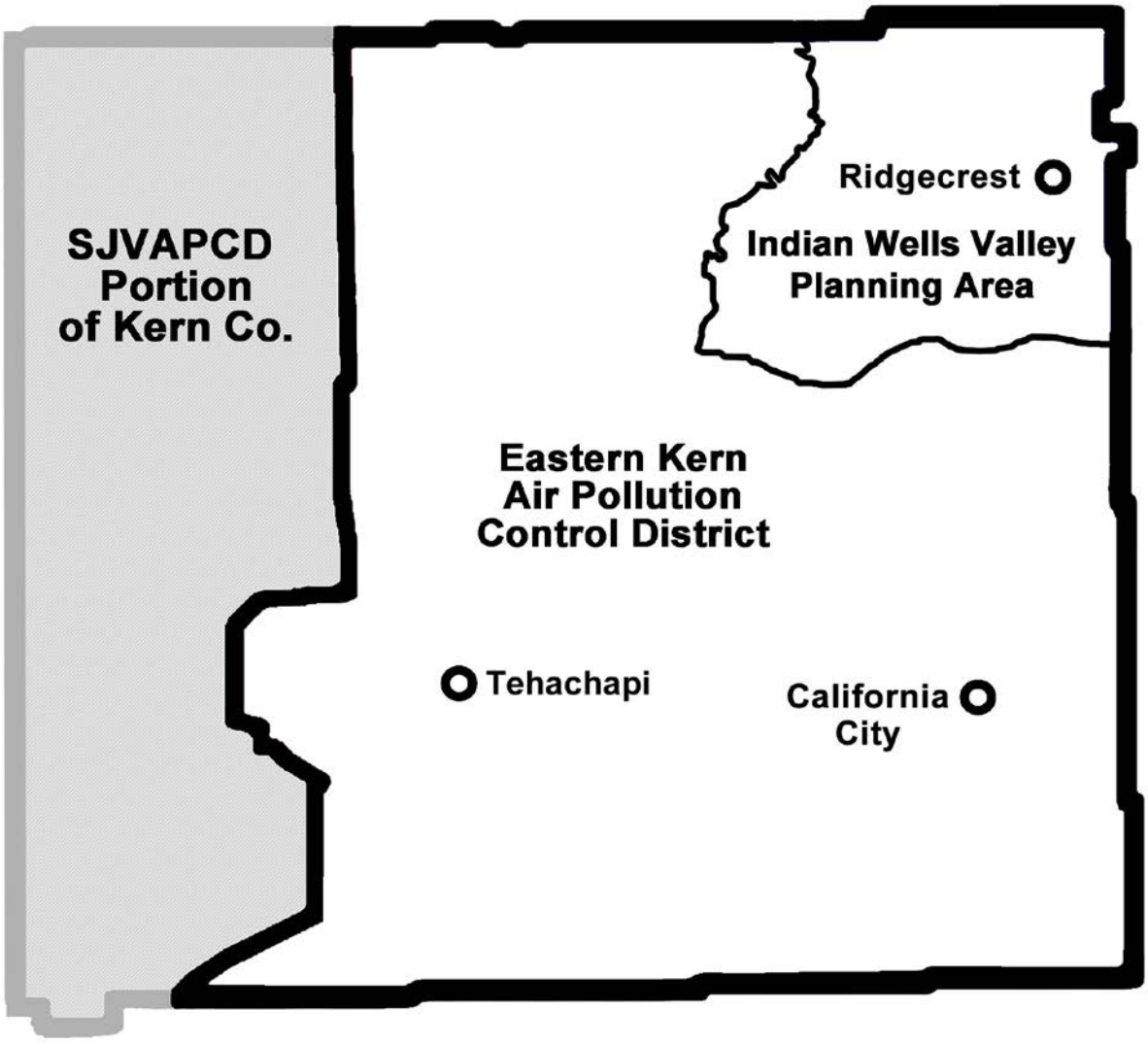
C. Use of hygroscopic materials may be prohibited by the APCO in areas lacking sufficient atmospheric moisture of soil for such materials to effectively reduce fugitive dust emissions. The atmospheric moisture of soil is considered to be sufficient if it meets the application specifications of the hygroscopic product manufacturer. Use of such materials may be approved in conjunction with sufficient wetting of the controlled area.

D. Any use of dust suppressants or gravel pads, and paving materials such as asphalt or concrete for paving, shall comply with all other applicable District Rules.

E. The use of blower devices or dry rotary brushes/brooms for removal of carryout and trackout on public roads is expressly prohibited. Removal of carryout and trackout from paved public roads does not exempt an owner/operator from obtaining state or local agency permits which may be required for the cleanup of mud and dirt on paved public roads.

Eastern Kern Air Pollution Control District

Portion of Searles Valley/Indian Wells Valley Planning Area (18090295)



ATTACHMENT A

Determination of Stabilization

I. Test Methods for Determining Stabilization.

The test methods described in Sections II through VI of this attachment shall be used to determine whether an area has a stabilized surface. Should a disturbed area contain more than one type of visibly distinguishable disturbance; soil, vegetation, or other characteristic, test each representative surface for stability separately. Test each surface in an area that represents a random portion of the overall disturbed conditions of the site according to the appropriate test method(s) in this attachment. Include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results.

II. Visible Crust Determination.

A. Where a visible crust exists, drop a steel ball with a diameter of 15.9 millimeters (0.625 inches) and a mass ranging from 16-17 grams from a distance of 30 centimeters (one foot) directly above (at a 90° angle perpendicular to) the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the visible crust test method is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of a site which have not originated from the representative site surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Section 4 of this attachment to the loose material to determine whether the surface is stabilized.

B. A sufficient crust is defined under the following conditions: once a ball has been dropped according to section II.A of this attachment, the ball does not sink into the surface, so that it is partially or fully surrounded by loose grains and, upon removing the ball, the surface upon which it fell has not been pulverized, so that loose grains are visible.

C. Drop the ball three times within a survey area that measures 1 foot by 1 foot and that represents a random portion of the overall disturbed conditions of the site. The survey area shall be considered to have passed the Visible Crust Determination Test if at least two out of the three times that the ball was dropped, the results met the criteria in section II.B. Select at least two other survey areas that represent a random portion of the overall disturbed conditions of the site, and repeat this procedure. If the results meet the criteria of section II.B for all of the survey areas tested, then the site shall be considered to have passed the Visible Crust Determination Test and shall be considered sufficiently crusted.

D. At any given site, the existence of a sufficient crust covering one portion of the site may not represent the existence or protectiveness of a crust on another portion of the site. Repeat the visible crust test as often as necessary on each random portion of the overall conditions of the site for an accurate assessment.

III. Determination of Threshold Friction Velocity (TFV)

For disturbed surface areas that are not crusted or vegetated, determine threshold friction velocity (TFV) according to the following sieving field procedure (based on a 1952 laboratory procedure published by W. S. Chepil).

A. Obtain and stack a set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm, and 0.25 mm or obtain and stack a set of standard/commonly available sieves. Place the sieves in order according to size openings, beginning with the largest size opening at the top. Place a collector pan underneath the bottom (0.25 mm) sieve. Collect a sample of loose surface material from an area at least 30 cm by 30 cm in size to a depth of approximately 1 cm using a brush and dustpan or other similar device. Only collect soil samples from dry surfaces (i.e. when the surface is not damp to the touch). Remove any rocks larger than 1 cm in diameter from the sample. Pour the sample into the top sieve (4 mm opening) and cover the sieve/collector pan unit with a lid. Minimize escape of particles into the air when transferring surface soil into the sieve/collector pan unit. Move the covered sieve/collector pan unit by hand using a broad, circular arm motion in the horizontal plane.

   Complete twenty circular arm movements, ten clockwise and ten counterclockwise, at a speed just necessary to achieve some relative horizontal motion between the sieves and the particles. Remove the lid from the sieve/collector pan unit and disassemble each sieve separately beginning with the largest sieve. As each sieve is removed, examine it for loose particles. If loose particles have not been sifted to the finest sieve through which they can pass, reassemble and cover the sieve/collector pan unit and gently rotate it an additional ten times. After disassembling the sieve/collector pan unit, slightly tilt and gently tap each sieve and the collector pan so that material aligns along one side. In doing so, minimize escape of particles into the air.

   Line up the sieves and collector pan in a row and visibly inspect the relative quantities of catch in order to determine which sieve (or whether the collector pan) contains the greatest volume of material. If a visual determination of relative volumes of catch among sieves is difficult, use a graduated cylinder to measure the volume. Estimate TFV for the sieve catch with the greatest volume using Table 1 of this attachment, which provides a correlation between sieve opening size and TFV.

Table 1. Determination of Threshold Friction Velocity

Tyler Sieve No.	ASTM 11 Sieve No.	Opening (mm)	TFV (cm/s)
5	5	4	135
9	10	2	100
16	18	1	76
32	35	0.5	58
60	60	0.25	43
Collector Pan	---	--	30

B. Collect at least three soil samples which represent random portions of the overall conditions of the site, repeat the above TFV test method for each sample and average the resulting TFVs together to determine the TFV uncorrected for non-erodible elements. Non-erodible elements are distinct elements, in the random portion of the overall conditions of the site, that are larger than 1 cm in diameter, remain firmly in place during a wind episode, and inhibit soil loss by consuming Section of the shear stress of the wind. Non-erodible elements include stones and bulk surface material but do not include flat or standing vegetation. For surfaces with non-erodible elements, determine corrections to the TFV by identifying the fraction of the survey area, as viewed from directly overhead that is occupied by non-erodible elements using the following procedure. For a more detailed description of this procedure, see Section V (Test Methods for Stabilization-Rock Test Method). Select a survey area of 1 meter by 1 meter that represents a random portion of the overall conditions of the site. Where many non-erodible elements lie within the survey area, separate the non-erodible elements into groups according to size. For each group, calculate the overhead area for the non-erodible elements according to the following equations:

Average Dimensions = (Average Length) x (Average Width) — Eq. 1

Overhead Area = (Average Dimensions) x (Number Of Elements) — Eq. 2

Total Overhead Area = Overhead Area Of Group 1 + Overhead Area Of Group 2 (etc.) — Eq. 3

Total Frontal Area = Total Overhead Area/2 — Eq. 4

Percent Cover Of Non-Erodible Elements = (Total Frontal Area/Survey Area) x 100 — Eq. 5

Note: Ensure consistent units of measurement (e.g., square meters or square inches when calculating percent cover).

Repeat this procedure on an additional two distinct survey areas that represent a random portion of the overall conditions of the site and average the results. Use Table 2 of this attachment to identify the correction factor for the percent cover of non-erodible elements. Multiply the TFV by the corresponding correction factor to calculate the TFV corrected for non-erodible elements.

Table 2. Correction Factors for Threshold Friction Velocity

Percent Cover Of Non-Erodible Elements	Correction Factor
Greater than or equal to 10%	5
Greater than or equal to 5% and less than 10%	3
Less than 5% and greater than or equal to 1%	2
Less than 1%	None

IV. Determination of Flat Vegetative Cover.

Flat vegetation includes attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind. Flat vegetation, which is dead but firmly attached, shall be considered equally protective as live vegetation. Stones or other aggregate larger than 1 centimeter in diameter shall be considered protective cover in the course of conducting the line transect test method. Where flat vegetation exists, conduct the following line transect test method.

A. Line Transect Test Method. Stretch a 100 foot measuring tape across a survey area that represents a random portion of the overall conditions of the site. Firmly anchor both ends of the measuring tape into the surface using a tool such as a screwdriver, with the tape stretched taut and close to the soil surface. If vegetation exists in regular rows, place the tape diagonally (at approximately a 45° angle) away from a parallel or perpendicular position to the vegetated rows. Pinpoint an area the size of a 3/32 inch diameter brazing rod or wooden dowel centered above each 1 foot interval mark along one edge of the tape. Count the number of times that flat vegetation lies directly underneath the pinpointed area at 1 foot intervals. Consistently observe the underlying surface from a 90° angle directly above each pinpoint on one side of the tape. Do not count the underlying surface as vegetated if any portion of the pinpoint extends beyond the edge of the vegetation underneath in any direction. If clumps of vegetation or vegetative debris lie underneath the pinpointed area, count the surface as vegetated, unless bare soil is visible directly below the pinpointed area. When 100 observations have been made, add together the number of times a surface was counted as vegetated. This total represents the percent of flat vegetation cover (e.g., if 35 positive counts were made, then vegetation cover is 35%). If the survey area that represents a random portion of the overall conditions of the site is too small for 100 observations, make as many observations as possible. Then multiply the count of vegetated surface areas by the appropriate conversion factor to obtain percent cover. For example, if vegetation was counted 20 times within a total of 50 observations, divide 20 by 50 and multiply by 100 to obtain a flat vegetation cover of 40%.

B. Conduct the line transect test method, as described in section IV.A an additional two times on areas that represent a random portion of the overall conditions of the site and average results.

V. Determination of Standing Vegetative Cover

Standing vegetation includes vegetation that is attached (rooted) with a predominant vertical orientation. Standing vegetation, which is dead but firmly rooted, shall be considered equally protective as live vegetation. Conduct the following standing vegetation test method to determine if 30% cover or more exists. If the resulting percent cover is less than 30% but equal to or greater than 10%, then conduct the test in Section III (Determination of Threshold Friction Velocity (TFV)) in order to determine if the site is stabilized, such that the standing vegetation cover is equal to or greater than 10%, where threshold friction velocity, corrected for nonerodible elements, is equal to or greater than 43 cm/second.

A. For standing vegetation that consists of large, separate vegetative structures (e.g., shrubs and sagebrush), select a survey area that represents a random portion of the overall conditions of the site that is the shape of a square with sides equal to at least 10 times the average height of the vegetative structures. For smaller standing vegetation, select a survey area of three feet by three feet.

B. Count the number of standing vegetative structures within the survey area. Count vegetation, which grows in clumps as a single unit. Where different types of vegetation exist and/or vegetation of different height and width exists, separate the vegetative structures with similar dimensions into groups. Count the number of vegetative structures in each group within the survey area. Select an individual structure within each group that represents the average height and width of the vegetation in the group. If the structure is dense (e.g., when looking at it vertically from base to top there is little or zero open air space within its perimeter), calculate and record its frontal silhouette area, according to Equation 6 of this attachment. Also, use Equation 6 of this attachment to estimate the average height and width of the vegetation if the survey area is larger than nine square feet. Otherwise, use the procedure in section V.C to calculate the frontal silhouette area. Then calculate the percent cover of standing vegetation according to Equations 7, 8, and 9 of this attachment.

Frontal Silhouette Area = (Average Height) x (Average Width) — Eq. 6

Frontal Silhouette Area of Group = (Frontal Silhouette Area Of Individual Vegetative Structure) x (Number Of Vegetation Structures Per Group) — Eq. 7

Total Frontal Silhouette Area = Frontal Silhouette Area of Group 1 + Frontal Silhouette Area of Group 2 (etc.) — Eq. 8

Percent Cover Of Standing Vegetation = (Total Frontal Silhouette Area/Survey Area) x 100 — Eq. 9

Percent Open Space = [(Number Of Circled Gridlines Within The Outlined Area Counted That Are Not Covered By Vegetation/Total Number of Gridline Intersections Within The Outlined Area) x 100] — Eq. 10

Percent Vegetative Density = 100 - Percent Open Space — Eq. 11

Vegetative Density = Percent Vegetative Density/100 — Eq. 12

Frontal Silhouette Area = [Max. Height x Max. Width] x [Vegetative Density/0.4]0.5 — Eq. 13

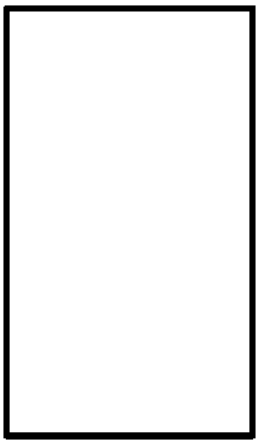
Note: Ensure consistent units of measurement (e.g., square meters or square inches when calculating percent cover).

C. Vegetative Density Factor. Cut a single, representative piece of vegetation (or consolidated vegetative structure) to within 1 cm of surface soil. Using a white paper grid or transparent grid over white paper, lay the vegetation flat on top of the grid (but do not apply pressure to flatten the structure). Grid boxes of 1 inch or 1/2 inch squares are sufficient for most vegetation when conducting this procedure. Using a marker or pencil, outline the shape of the vegetation along its outer perimeter, according to Figure B, C, or D of this attachment, as appropriate. (Note: Figure C differs from Figure D primarily in that the width of vegetation in Figure C is narrow at its base and gradually broadens to its tallest height. In Figure D, the width of the vegetation generally becomes narrower from its midpoint to its tallest height.) Remove the vegetation, count and record the total number of gridline intersections within the outlined area, but do not count gridline intersections that connect with the outlined shape.

There must be at least 10 gridline intersections within the outlined area and preferably more than 20, otherwise, use smaller grid boxes. Draw small circles (no greater than a 3/32 inch diameter) at each gridline intersection counted within the outlined area. Replace the vegetation on the grid within its outlined shape. From a distance of approximately 2 feet directly above the grid, observe each circled gridline intersection. Count and record the number of circled gridline intersections that are not covered by any piece of the vegetation. To calculate percent vegetative density, use Equations 10 and 11 of this attachment.

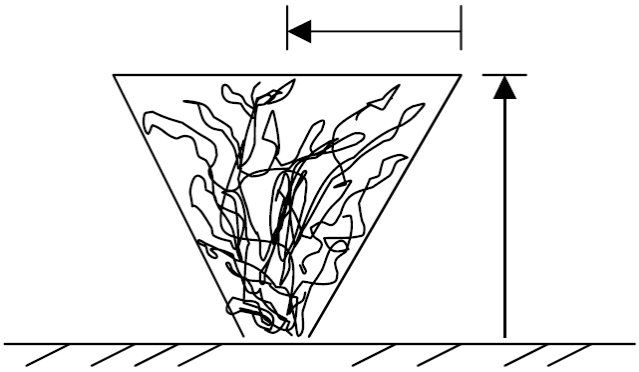
If percent vegetative density is equal to or greater than 30, use an equation (one of the equations-Equations 16, 17, or 18 of this attachment) that matches the outline used to trace the vegetation (Figure B, C, or D) to calculate its frontal silhouette area. If percent vegetative density is less than 30, use Equations 12 and 13 of this attachment to calculate the frontal silhouette area.

Figure B. Cylinder



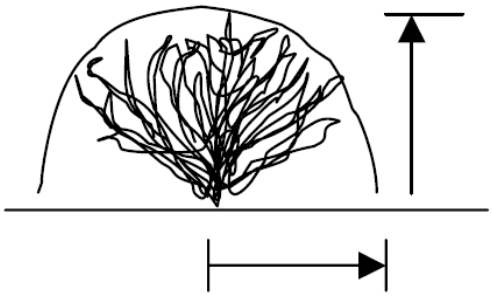
Frontal Silhouette Area = Maximum Height x Maximum Width Eq. 16

Figure C. Inverted Cone



Frontal Silhouette Area = Maximum Height x 1/2 Maximum Width Eq. 17

Figure D. Upper Sphere



Frontal Silhouette Area = (3.14 x Maximum Height x 1/2 Maximum Width)/2 Eq. 18

VI. Rock Test Method

The Rock Test Method, which is similar to Section III (Test Methods for Stabilization Determination of Threshold Friction Velocity (TFV)) of this attachment, examines the wind-resistance effects of rocks and other non-erodible elements on disturbed surfaces. Non-erodible elements are objects larger than 1 centimeter (cm) in diameter that remain firmly in place even on windy days. Typically, non-erodible elements include rocks, stones, glass fragments, and hardpacked clumps of soil lying on or embedded in the surface. Vegetation does not count as a non-erodible element in this method. The purpose of this test method is to estimate the percent cover of non-erodible elements on a given surface to see whether such elements take up enough space to offer protection against windblown dust. For simplification, the following test method refers to all nonerodible elements as “rocks”.

A. Select a 1 meter by 1 meter survey area that represents the general rock distribution on the surface. A 1 meter by 1 meter area is slightly greater than a 3 foot by 3 foot area. Mark-off the survey area by tracing a straight, visible line in the dirt along the edge of a measuring tape or by placing short ropes, yard sticks, or other straight objects in a square around the survey area.

B. Without moving any of the rocks or other elements, examine the survey area. Since rocks >3/8 inch (1 cm) in diameter are of interest, measure the diameter of some of the smaller rocks to a get a sense for which rocks need to be considered.

C. Mentally group the rocks >3/8 inch (1 cm) diameter lying in the survey area into small, medium, and large size categories. Or, if the rocks are all approximately the same size, simply select a rock of average size and typical shape. Without removing any of the rocks from the ground, count the number of rocks in the survey area in each group and write down the resulting number.

D. Without removing rocks, select one or two average-size rocks in each group and measure the length and width. Use either metric units or standard units. Using a calculator, multiply the length times the width of the rocks to get the average dimensions of the rocks in each group. Write down the results for each rock group.

E. For each rock group, multiply the average dimensions (length times width) by the number of rocks counted in the group. Add the results from each rock group to get the total rock area within the survey area.

E. Divide the total rock area, calculated in Section VI.E by two (to get frontal area). Divide the resulting number by the size of the survey area (make sure the units of measurement match), and multiply by 100 for percent rock cover. For example, the total rock area is 1,400 square centimeters, divide 1,400 by 2 to get 700. Divide 700 by 10,000 (the survey area is 1 meter by 1 meter, which is 100 centimeters by 100 centimeters or 10,000 centimeters) and multiply by 100. The result is 7% rock cover. If rock measurements are made in inches, convert the survey area from meters to inches (1 inch = 2.54 centimeters).

G. Select and mark-off two additional survey areas and repeat the procedures described in Section VI.A through Section VI.E. Make sure the additional survey areas also represent the general rock distribution on the site. Average the percent cover results from all three survey areas to estimate the average percent of rock cover.

H. If the average rock cover is greater than or equal to 10%, the surface is stable. If the average rock cover is less than 10%, follow the procedures in Section VI.I.

I. If the average rock cover is less than 10%, the surface may or may not be stable. Follow the procedures in Section III (Determination of Threshold Friction Velocity (TFV)) and use the results from the rock test method as a correction (i.e., multiplication) factor. If the rock cover is at least 1%, such rock cover helps to limit windblown dust. However, depending on the soil's ability to release fine dust particles into the air, the percent rock cover may or may not be sufficient enough to stabilize the surface. It is also possible that the soil itself has a high enough TFV to be stable without even accounting for rock cover.

J. After completing the procedures described in Section VI.I, use Table 2 to identify the appropriate correction factor to the TFV, depending on the percent rock cover.

ATTACHMENT B

Visual Determination of Opacity

I. Test Method

This method is applicable for the determination of the opacity of emissions from sources of visible emissions for time-averaged regulations. A time averaged regulation is any regulation that requires averaging visible emission data to determine the opacity of visible emissions over a specific time period.

A. Principle: The opacity of emissions from sources of visible emissions is determined visually by an observer qualified according to the procedures of Section II.

B. Procedures: An observer qualified, in accordance with Section II, shall use the following procedures for visually determining the opacity of emissions.

1. Position: Stand at a position at least 5 meters from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make opacity observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. The observer may follow the fugitive dust plume generated by mobile earthmoving equipment, as long as the sun remains oriented in the 140° sector to the back. As much as possible, if multiple plumes are involved, do not include more than one plume in the line of sight at one time.

2. Field Records: Record the name of the site, fugitive dust source type (i.e., pile, material handling (i.e., transfer, loading, sorting)), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also, record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the fugitive dust source, and color of the plume and type of background on the visible emission observation from when opacity readings are initiated and completed.

3. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. For storage piles, make opacity observations approximately 1 meter above the surface from which the plume is generated. For extraction operations and the loading of haul trucks in open-pit mines, make opacity observations approximately one meter above the rim of the pit. The initial observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume, but instead observe the plume momentarily at 15-second intervals. For fugitive dust from earthmoving equipment, make opacity observations approximately 1 meter above the mechanical equipment generating the plume.

4. Recording Observations: Record the opacity observations to the nearest 5% every 15 seconds on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 15-second period. If a multiple plume exists at the time of an observation, do not record an opacity reading. Mark an "x" for that reading. If the equipment generating the plume travels outside of the field of observation, resulting in the inability to maintain the orientation of the sun within the 140° sector or if the equipment ceases operating, mark an "x" for the 15- second interval reading. Readings identified as "x" shall be considered interrupted readings.

5. Data Reduction for Time-Averaged Regulations: For each set of 12 or 24 consecutive readings, calculate the appropriate average opacity. Sets must consist of consecutive observations, however, readings immediately preceding and following interrupted readings shall be deemed consecutive and in no case shall two sets overlap, resulting in multiple violations.

II. Qualification and Testing

A. Certification Requirements. To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5% increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15% opacity on any one reading and an average error not to exceed 7.5% opacity in each category. Candidates shall be tested according to the procedures described in Section II.B. Any smoke generator used pursuant to Section II.C shall be equipped with a smoke meter, which meets the requirements of Section II.A. Certification tests that do not meet the requirements of Sections II.B and II.C are not valid. The certification shall be valid for a period of 6 months, and after each 6-month period the qualification procedures must be repeated by an observer in order to retain certification.

B. Certification Procedure. The certification test consists of showing the candidate a complete run of 50 plumes, 25 black plumes and 25 white plumes, generated by a smoke generator. Plumes shall be presented in random order within each set of 25 black and 25 white plumes. The candidate assigns an opacity value to each plume and records the observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as Section of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator, during which candidates are shown black and white plumes of known opacity.

C. Smoke Generator Specifications. Any smoke generator used for the purpose of Section II.B shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity, based upon a path length equal to the stack exit diameter on a full 0% to 100% chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table A. The smoke meter shall be calibrated as prescribed in Section II.C.1 of this attachment prior to conducting each smoke reading test. At the completion of each test, the zero and span drift shall be checked, and if the drift

exceeds plus or minus 1% opacity, the condition shall be corrected prior to conducting any subsequent test runs.

The smoke meter shall be demonstrated, at the time of installation, to meet the specifications listed in Table A. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry, including the chart recorder or output meter, or every 6 months, whichever occurs first.

1. Calibration. The smoke meter is calibrated after allowing a minimum of 30 minutes warm-up by alternately producing simulated opacity of 0% and 100%. When stable response at 0% or 100% is noted, the smoke meter is adjusted to produce an output of 0% or 100%, as appropriate. This calibration shall be repeated until stable 0% and 100% readings are produced without adjustment. Simulated 0% and 100% opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

2. Smoke Meter Evaluation. The smoke meter design and performance are to be evaluated as follows:

    a. Light Source. Verify, from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within plus or minus 5% of the nominal rated voltage.

    b. Spectral Response of Photocell. Verify from manufacturer's data that the photocell has a photopic response (i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table A).

    c. Angle of View. Check construction geometry to ensure that the total angle of view of the smoke plume, as seen by the photocell, does not exceed 15°. Calculate the total angle of view as follows:

Table A. Smoke Meter Design and Performance Specifications

Parameter Specification

a. Light Source: Incandescent lamp operated at nominal rated voltage.
b. Spectral response of photocell: Photopic (daylight spectral response of the human eye).
c. Angle of view: 15° maximum total angle.
d. Angle of projection: 15° maximum total angle.
e. Calibration error: Plus or minus3% opacity, maximum.
f. Zero and span drift: Plus or minus 1% opacity, 30 minutes.
g. Response time: Less than or equal to 5 seconds

Eastern Kern
Air Pollution Control District

INDIAN WELLS VALLEY SECOND PM10 MAINTENANCE PLAN

Appendix F

Rule 402.2, Agricultural Operations

RULE 402.2 Agricultural Operations - Adopted 3/12/15

I. Purpose

Fugitive dust contains varying sizes of respirable particulate matter including those with an aerodynamic diameter of 10 micrometers or less (PM_{10}). The purpose of this Rule is to prevent, reduce, and mitigate ambient concentrations of anthropogenic fugitive dust emissions generated from agricultural operations through implementation of Conservation Management Practices.

II. Applicability

Provisions of this Rule are applicable to agricultural operations located within the Eastern Kern Air Pollution Control District (District).

III. Definitions

A. Administrative change: A change to a CMP Plan that:

1. Corrects typographical errors;

2. Identifies a change in the name, address, or phone number of any person identified in the CMP Plan, or provides a similar minor administrative change which has no effect on the selected CMPs and does not change any information that could be used to determine emissions reduction; or

3. Allows for the change of ownership or operational control of an agricultural operation site or agricultural parcel.

B. Agricultural Operation: The growing and harvesting of crops or the raising of fowl or animals, for the primary purpose of earning a living, or of conducting agricultural research or instruction by an educational institution.

C. Agricultural Operation Site: One or more agricultural parcels that meet the following:

1. Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and

2. Are located on one or more contiguous or adjacent properties wholly within the District jurisdiction.

D. Agricultural Parcel: A portion of real property, including but not limited to, cropland and animal feeding operation (AFO) used by an owner/operator for carrying out a specific agricultural operation. Roads, vehicle/equipment traffic areas, and facilities on or adjacent to the cropland or AFO are part of the agricultural parcel.

E. Alternative Tilling: Till alternative rows for weed management, reducing approximately 50% of field activity related to tilling, in addition to stabilizing soil surface and reducing soil compaction.

F. Air Pollution Control Officer (APCO): Air Pollution Control Officer of the Eastern Kern Air Pollution Control District or his designee.

G. Animal Feeding Operation (AFO): A lot or facility where animals have been, are on, or will be, gathered, fed, or stabled for a total of 45 days or more in any 12 month period and where crops, vegetation, forage growth, or post-harvest residues are not sustained over any portion of the lot or facility (as defined in 40 CFR 122.23 (b) (1)).

H. Application Efficiencies: Use more efficient application equipment so as to reduce a minimum of one ground operation. Examples include: compact or low volume spray equipment; aerial applications; micro-heads or infrared spot sprayers; electrostatic sprayers. Reduces soil compaction, passes and chemical usage.

I. Baling/Large Bales: Reduce a minimum of one pass through the field per acre by using large balers to harvest crops.

J. Bed/Row Size or Spacing: Reduce a minimum of one tillage operation by Increasing or decreasing the size of the planting bed area (can be done for field and permanent crops) or adjusting spacing. Spacing adjustments reduce the number of passes and soil disturbance by increasing plant density/canopy through reduction of row width to contain PM within the canopy.

K. Bulk Materials Control: Minimize visible dust emissions from bulk materials by using dust suppressant or water to form a stabilized surface, or using a tarp to fully cover the pile or truckbed, or using a wind barrier or 3-sided structure to reduce entrainment of fugitive dust.

L. Chemigation/Fertigation: Reduce a minimum of one ground operation by applying chemicals through an irrigation system. This reduces the need to travel in the field for application purposes, thus reducing operations and soil disturbance while increasing the efficiency of the application.

M. Chips/Mulches, Organic Materials, Polymers, Road Oil & Sand: Application of any nontoxic chemical or organic dust suppressant that meets all specification required by any federal, state, or local water agency and is not prohibited for use by any applicable regulations. Chips/Mulches and organic materials should meet the specifications in the mulches definition below. Polymers, road oil and sand should create a stabilized surface during high traffic times such as harvest.

N. Combined Operation: Combine equipment to perform several operations during one pass, thereby reducing a minimum of one tillage operation. Examples include: use of one-pass till equipment in ground preparation or crop tillage; and cultivation and fertilization of a field crop in a single pass. Other benefits are reduction of soil compaction and time to prepare fields, both of which can be precursors to additional tillage requirements. If a combined operation is accomplished through equipment change/technological improvement, that action is considered one CMP, and either Equipment Changes/Technological Improvements CMP or Combined Operations CMP may be selected in a CMP Plan, but not both.

O. Conservation Irrigation: Reduce a minimum of one tillage operation related to weeding by conserving the amount of water used by using either drip, sprinkler, or buried/underground line irrigation. Conserving water reduces weed population, which in turn reduces the need for tillage and reduces soil compaction.

P. Conservation Management Practice (CMP): An activity or procedure that prevents, reduces, or mitigates PM_{10} normally emitted by, or associated with, an agricultural activity.

Q. Conservation Management Practice Plan (CMP Plan): A document prepared by the owner or operator of an Agricultural Operation site that lists the selected CMPs for implementation. The CMP Plan also contains, but is not limited to, contact information for the owner or operator, a description of the Agricultural Operation Site and locations of Agricultural Parcels, and other information describing the extent and duration of CMP implementation.

R. Conservation Management Practice Program (CMP Program): A District program with the purpose of reducing air pollutants from agricultural operation sites.

S. Conservation Tillage (e.g.: no tillage, minimum tillage): A tillage system that reduces a minimum of three tillage operations. This system reduces soil and water loss by reducing the number of passes and by leaving crop residue on the field after harvest as well as managing the residue so that it remains intact during the planting season. It reduces the number of passes and amount of soil disturbance. It improves soil because it retains plant residue and increases organic matter.

T. 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.

U. Cover Crops: Establish cover crops that maintain a minimum of 60 percent ground cover, as determined by the Line Transect Test Method. Native or volunteer vegetation that meets the minimum ground cover requirement is acceptable.

V. Crop Residue Management: Maintain crop residue from previous crops until tilling for the next crop. Crop residues must maintain a minimum of 60 percent ground cover as determined by Line Transect Test Method. Implements such as undercuters or sweeps can maintain crop residues without burying or destroying residues.

W. Cross Wind Stripcropping: Establish crops in parallel strips across the prevailing wind erosion direction and arranged so that strips susceptible to wind erosion are alternated with strips having a protective cover that is resistant to wind erosion. The strips with the protective cover should be at least as wide as the strips susceptible to wind erosion.

X. Equipment Changes/Technological Improvements: Reduce a minimum of one tillage operation by modifying equipment or making technological improvements. Examples include flame cultivation or equipment that combines discing, chiseling and ring rolling. If an equipment change/technological improvement is made in order to combine operations, that action is considered one CMP; either Equipment

Changes/Technological Improvements CMP or Combined Operations CMP may be selected in the CMP plan, but not both.

Y. District: As defined in Rule 102 (Definitions).

Z. Fallow Land: Temporary or permanent removal from production. Eliminates entire operation/passes or reduces activities.

AA. Field Windbreaks: Plant or maintain a single or multiple row of trees or shrubs adjacent to windward edge of the field as close to perpendicular as practical with the direction of erosive winds. Windbreaks such as trees or shrubs should be established at a right angle to the prevailing wind direction. Sites downwind of the windbreak are considered protected if they fall within an area that is less than or equal to 10 times the height of the windbreak. The windbreak should have a porosity of 50 %. This CMP should be implemented consistent with NRCS Code 380 – Windbreak/Shelterbelt Establishment.

BB. Fugitive Dust: As defined in Rule 102 (Definitions).

CC. Gravel: Placing a layer of Gravel at least 3 inches in depth to minimize dust generated from vehicle movement and to dislodge any excess debris which can become entrained.

DD. Green Chop: Reduce a minimum of one ground operation by harvesting a forage crop without allowing it to dry in the field. This practice reduces soil disturbance and soil compaction.

EE. Grinding/Chipping/Shredding: Grinding pruning's and orchard removals instead of burning; incorporate to soil. Reduces PM from burning crop residues.

FF. Ground Operation: An agricultural operation that is not a tillage operation that involves equipment passing across the field, such as a chemical spray application. A pass through the field may be a subset of a ground operation.

GG. Hand Harvesting: Reduce a minimum of one ground operation by harvesting a crop by hand. It reduces soil disturbance due to machinery passes.

HH. Integrated Pest Management: Reduce a minimum of one ground operation by using a combination of techniques including organic, conventional and biological farming concepts to suppress pest problems. It creates beneficial insect habitat that reduces the use of herbicides/pesticides thereby reducing number of passes for spraying. It also reduces soil compaction and the need for additional tillage. If integrated pest management CMP uses the same practices described in the Organic Practices CMP, this action is considered one CMP, and either Integrated Pest Management CMP or Organic Practices CMP may be selected in a CMP plan, but not both.

II. Irrigation Power Units: Use cleaner burning engines, electric motors (CMP only applicable if engines are cleaner than otherwise required by current local, state and federal requirements).

JJ Mature Dairy Cow: A cow that has had its first calf.

KK. Mulching: Reducing PM10 emissions and wind erosion and preserving soil moisture by uniformly applying a protective layer of plant residue or other material to a soil surface prior to disturbing the site to reduce soil movement. Mulching material shall be evenly applied, and if necessary, anchored to the soil. Mulch should achieve a minimum 70% cover, and a minimum of 2 inch height above the surface. Inorganic material used for mulching should consist of pieces of .75 to 2 inches in diameter.

LL. Native Vegetation Mowing: Mowing native vegetation in order to leave native plant root systems in place in order to stabilize soil and promote indigenous plant regrowth.

MM. Night Farming: Operate at night when moisture levels are higher and winds are lighter. It decreases the concentration of PM emissions during daytime and the increased ambient humidity reduces PM emissions during the night. Night farming should take place between sundown and sunrise.

NN. Night Harvesting: Implementing harvesting practices at night when moisture levels are higher and winds are lighter. It reduces PM by operating when ambient air is moist, thereby reducing PM emissions. Night harvesting should take place between sundown and sunrise.

OO. No Burning: Switching to a crop/system that would not require waste burning. It reduces emissions associated with burning.

PP. Non Tillage/Chemical Tillage: Reduce a minimum of one tillage operation by, for example, using a flail mower or low volume sprayers. It reduces soil compaction and stabilizes soil.

QQ. NRCS: The United States Department of Agriculture Natural Resource Conservation Service.

RR. Opacity: As defined in Rule 402, Fugitive Dust.

SS. Organic Practices: Reduce a minimum of one ground or tillage operation by using biological control methods or non-chemical control methods. Examples include: organic certification, biological controls, mulches and humus. If an organic practice CMP uses the same practice as described in the integrated pest management CMP, this action is considered one CMP, and either Organic Practices CMP or Integrated Pest Management CMP may be selected in a CMP plan, but not both.

TT. Owner/Operator: Includes, but is not limited to, any person who leases, supervises, operates equipment, or owns/operates a fugitive dust source, in addition to the normal meaning of owner or operator.

UU Particulate Matter: As defined in Rule 102 (Definitions).

VV. Paved Road: Any road/area that is covered by concrete, asphaltic concrete, asphalt, recycled asphalt, or concrete, which provides structural support for vehicles.

WW. Permanent Crops: Having an established permanent crop that is not replanted annually.

XX. PM_{10}: As defined in Rule 402, Fugitive Dust.

YY. Precision Farming (GPS): Reduce a minimum of one pass through the field per acre by using satellite navigation to calculate position in the field, therefore manage/treat the selective area. It reduces overlap and allows operations to occur during inclement weather conditions and at night thereby generating less PM.

ZZ. Pre-Harvest Soil Preparation: Applying a water or stabilizing material to soil prior to harvest to form a visible crust. It reduces PM emissions at harvest.

AAA. Reduced Pruning: Reduce a minimum of one ground operation by reducing the frequency of pruning (e.g. one time per year, or every other year).

BBB. Restricted Access: To restrict or eliminate public access to unpaved private roads with signs or physical obstructions. At each access point, install signs or physical barriers such as gates, fencing, posts, signs, shrubs, trees that block or effectively control access to the area. It reduces vehicle traffic and thus reduces associated fugitive dust.

CCC. Ridge Roughness: Establish stabilized ridges , sufficient to meet the definition of stabilized surface, by normal tillage and planting equipment as close to perpendicular as practical with the direction of erosive winds (not appropriate for unstable soils such as sands or loamy sands). After establishment, ridges shall be maintained through those periods when wind erosion is expected to occur, or until growing crops provide enough cover to protect the soil from wind erosion. Ridge spacing should be no greater than 4 times the ridge height. This CMP should be implemented consistent with NRCS Code 588 -- Cross Wind Ridges.

DDD. Road: Any road or street, highway, freeway, alley, way, access easement or driveway.

EEE. Road Mix: A mixture of tank bottoms from crude oil storage tanks, material from crude oil spills, or other crude-oil-containing soil mixed with aggregates and soils, that are used as a base cover materials for roads, parking lots, berms, tank and well locations, or similar applications.

FFF. Shed Packing: Reducing a minimum of one pass through the field per acre by packing commodities in a covered or closed area, rather than field-pack. It reduces field traffic, thereby reducing PM emissions.

GGG. System/Large Carrier: Reduce a minimum of one pass through the field per acre by hauling multiple or larger trailers/bins per trip.

HHH. Soil Amendments: Organic or chemical materials uniformly applied to the soil for improvement (e.g: gypsum, lime, polyacrylamide).

III. Speed Limits: Control speed limits to 15 mph on unpaved roads through worker behavior modifications, signage, or any other necessary means.

JJJ. Stabilized Surface: As defined in Rule 402, Fugitive Dust.

KKK. Sulfur Reduction or Elimination: Reduce a minimum of one ground operation by reducing or eliminating sulfur dusting, an organic chemical used to control disease in crop, ornamental and home and gardens.

LLL. Surface Roughening: Produce and maintain stable clods or aggregates on the land surface, sufficient to meet the definition of stabilized surface, by bedding, rough disking, or tillage that leaves the surface covered by stable clods. Soil clods prevent wind erosion because they resist the forces of the wind and because they shelter other erodible materials. This CMP should be implemented consistent with NRCS Code 609 – Surface Roughening.

MMM. Tillage Operation: An agricultural operation that mechanically manipulates the soil for the enhancement of crop production. Examples include discing, weeding, or bedding. A pass through the field may be a subset of a tillage operation.

NNN. Track-Out Control: Minimize any and all material that adheres to and agglomerates on all vehicle and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road. Install one of the following devices: a grizzly, a gravel pad or a wheelwash system at all intersections of unpaved roads and public roads. Track-out control should be implemented pursuant to Rule 402, Fugitive Dust, Section V.F.E.

OOO. Transgenic Crops: Use of GMO or Transgenic crops such as "herbicide-ready" to reduce a minimum of one tillage operation. It reduces the need for tillage or cultivation operations, as well as reduces soil disturbance. It can also reduce the number of chemical applications.

PPP. Unpaved Road: Any road that is not covered by one of the materials described in the paved road definition.

QQQ. Unpaved Vehicle/Equipment Traffic Area: Any nonresidential area that is not covered by asphalt, recycled asphalt, asphaltic concrete, concrete, or concrete pavement that is used for fueling and servicing; shipping, receiving and transfer; or parking or storing equipment, haul trucks, vehicles, and any conveyances.

RRR. Visible Dust Emissions (VDE): Dust emissions visible to an observer. Opacity observations to determine compliance with VDE standards shall be conducted in accordance with the test procedures for "Visual Determination of Opacity" as described in Appendix B of Rule 402, Fugitive Dust.

SSS. Vehicle: As defined in Rule 102 (Definitions).

TTT. Water Application: Application of water to unpaved roads and traffic areas to create a visibly moist surface.

UUU. Wind Barriers (Herbaceous): Reduce wind erosion by planting or maintaining perennial or annual plants established in rows or narrow strips interspersed throughout a crop field as close to perpendicular as practical with the direction of erosive winds. This CMP should be implemented consistent with NRCS Code 603 – Herbaceous Wind Barriers. The selected plant(s) must stand at least three feet tall, with a porosity of 50%.

IV. Exemptions

A. Except for the recordkeeping requirements of Section VII.E.2, provisions of this rule shall not apply to:

1. Agricultural operation site where the total acreage of all agricultural parcels is less than 10 acres.

2. Woodland and wasteland not actually under cultivation or used for pasture.

3. Land placed in the Conservation Reserve Program meeting the definition and criteria set by the NRCS.

4. Agricultural operation parcel used for the purpose of:
   a. Propagating young trees, shrubs, or other miscellaneous crops for transplanting, and exhibiting plants under controlled conditions inside a building with walls and roof;
   b. Providing grazing rangeland or pasture; or
   c. Forestry, including but not limited to timber harvest operations, silvicultural practices, forest management burning, or forest protection practices.

5. AFO of mature dairy cows with less than 500 mature dairy cows, whether milked or dry.

6. AFO of cattle, other than mature dairy cows or veal calves, with less than 190 cattle, other than mature dairy cows or veal calves. Cattle includes, but not limited to, heifers, steers, bulls and cow/calf pairs.

7. AFO of turkeys with less than 55,000 turkeys.

8. AFO of chickens, other than laying hens, with less than 125,000 chickens.

9. AFO of laying hens with less than 82,000 laying hens.

10. AFO other than an AFO for mature dairy cows, cattle, turkeys, chickens, or laying hens.

B. Exemption from his rule does not exempt the owner/operator from any other District Rules or Regulations.

V. Requirements

A. Effective upon adoption of this rule, an owner/operator of an agricultural operation site of ten (10) acres or more, shall implement at least one (1) CMP for each of the following categories (1 through 4), and perform all related requirements, on each agricultural parcel, pursuant to the schedule listed in Section VII.B:

1. Land Preparation and Cultivation, (CMPs located in Section VI.A);
2. Harvest Activities, (CMPs located in section VI.B);
3. Unpaved Roads and Traffic Areas, (CMPs located in Section VI.C);
4. Windblown Dust, (CMPs located in Section VI.D).

CMPs are not required for categories 1 and 2 on parcels implementing Conservation Tillage. However, Conservation Tillage parcels shall still implement CMPs for categories 3 and 4.

B. Pursuant to Section VII of this Rule, an owner/operator shall prepare and submit a CMP application for each agricultural operation site to the APCO for approval. A CMP application approved by the APCO shall constitute a CMP Plan.

C. Except as provided in Section V.D. an owner/operator shall implement the approved CMP Plan for each agricultural operation site pursuant to Section VII, no later than ten (10) days after receiving CMP Plan approval from the APCO.

D. An owner/operator that discontinues implementation of a CMP as committed to in an approved CMP Plan, or makes other changes inconsistent with the CMP Plan, shall comply with the requirements of Section VII.B.3.

E. An owner/operator shall ensure that implementation of each selected CMP does not violate any other local, state, or federal law.

VI. Conservation Management Practices

An owner/operator subject to the requirements of this rule shall implement on each agricultural parcel, at least one CMP from each of the following source categories listed below. An owner/operator of Fallow Land must comply with Section VI.D.3.

A. Land Preparation and Cultivation (Category V.A.1)

1. Alternative Tilling,
2. Bed/Row Size Spacing,
3. Chemigation/Fertigation,
4. Combined Operations,
5. Conservation Irrigation,
6. Cover Crops,
7. Equipment Changes/Technological Improvements,
8. Fallow Land,
9. Integrated Pest Control,
10. Mulching,

11. Native Vegetation Mowing,
12. Night Farming,
13. Non Tillage/Chemical Tillage,
14. Organic Pesticides,
15. Precision Farming (GPS), or
16. Transgenic Crops.

B. Harvest Activities (Category V.A.2).

1. Baling /Large Bales,
2. Combined Operations,
3. Equipment Changes/Technological Improvements,
4. Green Chop,
5. Hand Harvesting,
6. Fallow Land,
7. Night Harvesting,
8. No Burning,
9. Pre-Harvesting Soil Preparation,
10. Shed Packing, or
11. Shuttle System/Large Carrier.

C. Unpaved Roads and Traffic Areas (Category V.A.3)

1. At least one of the following CMPs shall be implemented, at all times, on all unpaved roads and traffic areas on agricultural operation site:

    a. Chips/Mulches, Organic Materials, polymers, road oil and sand,
    b. Gravel,
    c. Paving,
    d. Restricted access,
    e. Low Speed limit (15 mph or less),
    f. Track-out control,
    g. Water Application, or
    h. Field windbreak.

2. Unpaved roads or traffic areas that have high traffic volume of fifty (50) or more vehicle trips per day; or twenty (20) or more vehicle trips per day made by three (3) or more axle vehicles, shall limit VDE to 20% opacity by implementing and maintaining one or more of the following CMPs:

    a. Pave,
    b. Apply Chemical Stabilization as directed by product manufacturer to control dust on Unpaved Roads,
    c. Apply and maintain Gravel, recrushed/recycled asphalt or other material of low Silt (<5%) content to a depth of three or more inches,
    d. Water Application,
    e. Permanent road closure (as allowed by law), or
    f. Restrict unauthorized vehicle access (as allowed by law).

D. Windblown Dust (Category V.A.4)

1. When preparing a field for planting, owner/operator shall minimize the time that newly tilled soil is smooth and dry by leaving the field surface with large clods for as long as possible and bedding and planting the field as soon as possible once it no longer has large clods.

2. At least one of the following windblown dust CMPs shall be implemented on all agricultural operation sites in addition to CMPs employed pursuant to Section VI.A. and VI.B:

    a. Alternate Tilling,
    b. Application Efficiencies,
    c. Bailing/Large Bales,
    d. Bulk Materials Control,
    e. Chemigation/Fertigation,
    f. Conservation Irrigation,
    g. Fallow Land,
    h. Grinding/Chipping/Shredding,
    i. Integrated Pest Management,
    j. Irrigation Power Units,
    k. Mulching,
    l. Night Farming,
    m. No Burning,
    n. Non Tillage/Chemical Tillage,
    o. Organic Practices,
    p. Permanent Crops,
    q. Reduced Pruning,
    r. Soil Amendments,
    s. Soil Incorporation,
    t. Sulfur: Reduction or Elimination of Dusting,
    u. Surface Roughening,
    v. Transgenic Crops, or
    w. Wind Barrier.

3. If an agricultural operation site has fields that are in between crops or more permanently fallow, the owner/operator shall implement at least one of the following windblown dust CMPs to limit VDE to no more than 20% opacity:

    a. Cover Crop,
    b. Conservation Tillage,
    c. Crop Residue Management,
    d. Cross Wind Stripcropping,
    e. Field Windbreaks,
    f. Ridge Roughness,
    g. Surface Roughening, or
    h. Wind Barrier.

VII. Administrative Requirements

A. CMP Application Preparation

An owner/operator shall prepare and submit a CMP application for each agricultural operation site. Owner/operator must maintain a CMP Plan that corresponds to the current crops being grown in the field. Each CMP Application shall include, but is not limited to, the following information:

1. Name, business name, business address, and phone number of the owner/operator responsible for the preparation and implementation of the CMP Plan.

2. Signature of the owner/operator and date the application was signed.

3. Plot plan or map which contains the following information:

    a. Location of the agricultural operation site;

    b. Location of each agricultural parcel on the agricultural operation site;

    c. Location of unpaved roads and unpaved equipment/traffic areas to be covered by the CMP Plan; and

    d. Location where the CMP Plan will be implemented.

4. Type of crop, AFO, or other use of parcel, and total crop acreage or number of animals.

5. Total length (miles) of unpaved roads and the total area (acres or square feet) of unpaved equipment and traffic areas to be covered by the CMP Plan.

6. List of applicable CMPs being implemented for each crop, unpaved roads, unpaved traffic areas, and windblown dust control. CMPs implemented should be described to verify that implementation is consistent with the CMP definitions in this rule.

7. Any other information as determined by the APCO.

B. CMP Application Submission

An owner/operator shall submit a complete CMP application to the APCO, pursuant to Section VI.A, in accordance with the following schedule:

1. Within 210-days after adoption of this rule, for existing agricultural operation(s).

2. Within 180-days after adoption of this rule, for agricultural operation(s) or agricultural parcel(s) that are acquired and become subject to the provisions of this Rule after adoption date.

3. Within 60 days of any modification (operational, administrative, or other) that necessitates the revision of the CMP Plan. A modification includes, but is not limited to:

    a. Administrative changes to any information provided pursuant to Section VII;

    b. Implementation of a CMP other than the CMP listed in a CMP Plan;

    c. Change of crop type or AFO type on an agricultural parcel; or

    d. Any other changes as determined by the APCO.

4. An approved CMP Plan is valid for a period of one year from date of approval. CMP application shall be resubmitted annually, at least 60 days prior to expiration date, or the Plan will be disapproved as of the expiration date. If all circumstances remain identical to those identified in the previously approved CMP Plan, the resubmittal may contain a simple statement of "no-change". Otherwise a resubmittal shall contain all items specified in Section VII.A.

C. CMP Application Review and Evaluation

1. APCO shall:

    a. Review the CMP Application and determine whether the submitted CMP Application is complete. Completeness shall be determined by evaluating whether the CMP Application meets the requirements of Section VII.A of this rule and Section I of Rule 301, Permit Fees.

    b. Notify the owner/operator in writing after determination of CMP Application completeness and, if applicable, request the owner/operator provide any additional information to the District within 30 days.

    c. Evaluate and approve or disapprove the CMP Application and provide written determination to the owner/operator within 180 days after receipt of the complete CMP Application.

2. A CMP Application for modification of a CMP Plan pursuant to Section VII.B.3.a shall be deemed approved as submitted, unless APCO provides written comments to the owner/operator within 30 days of receipt of the CMP Application.

3. A CMP Application for modification of a CMP Plan pursuant to Sections VII.B.3.b, VI.B.3.c, or VI.B.3.d shall be deemed conditionally approved as submitted unless APCO provides written comments to the owner/operator within 30 days of receipt of the CMP Application.

4. The approval of a CMP Application shall not serve to excuse the owner/operator from complying with law, nor shall it excuse any violation.

D. Test Methods

1. Stabilized Surface: See Rule 402, Fugitive Dust, Appendix A, Determination of Stabilization.

2. Visible Crust Determination: See Rule 402, Fugitive Dust, Appendix A, Section II.

3. Line Transect Method: See Rule 402, Fugitive Dust, Appendix A, Section V.A.

4. Opacity: See Rule 402, Fugitive Dust, Appendix B, Visual Determination of Opacity, Section 1.

E. Recordkeeping

1. An owner/operator subject to this rule shall maintain the following records for a minimum of five (5) years:

   a. A copy of each CMP Plan.

   b. Supporting information necessary to confirm implementation of the CMP Plan.

2. An owner/operator claiming an exemption pursuant to Section IV shall maintain records for a minimum of five (5) years demonstrating the agricultural operation site or agricultural parcel qualified for the exemption.

3. An owner/operator shall make all required records available to the APCO, upon request.

F. Loss of Exemption

An owner/operator of an agricultural operation site or agricultural parcel that becomes subject to the provisions of Section IV through loss of exemption shall comply with all applicable provisions of this rule pursuant to the schedule in Section VII.B.

Remainder of Page Intentionally Left Blank