

Technical Support Document
for
EPA's Notice of Proposed Rulemaking
on Revisions to the
California State Implementation Plan

as submitted by the State of California,
for the Imperial County Air Pollution Control District

EPA's Analysis of
Imperial County Air Pollution Control District's
Regulation VIII - Fugitive Dust
Rules 800-806

United States Environmental Protection Agency, Region IX
Air Division

February 2010

I. Overview of Regulation VIII and EPA's Imperial County PM₁₀ Actions

A. Regulation VIII Adoption and Submittal Chronology

Date	Action
November 8, 2005	The Imperial County Air Pollution Control District (ICAPCD) Governing Board adopted revised (Rule 800) and new (Rules 801-806) versions of the Regulation VIII fugitive dust rules.
June 16, 2006	The California Air Resources Board (ARB) submitted the November 8, 2005 version of Regulation VIII to EPA as a revision to the California State Implementation Plan (SIP). ¹
July 21, 2006	EPA found ARB's June 16, 2006 submittal of Regulation VIII complete. ²

EPA has not incorporated into the SIP previous versions of any of the Regulation VIII rules.

B. Regulation VIII Summary

ICAPCD's Regulation VIII consists of seven interrelated rules designed to limit emissions of inhalable coarse particulate matter (PM₁₀) from anthropogenic fugitive dust sources in Imperial County.

Rule 800, General Requirements for Control of Fine Particulate Matter, provides definitions, a compliance schedule, exemptions and other requirements generally applicable to all seven rules. It also describes specific exemptions and requirements for the U.S. Department of Defense (DOD), U.S. Bureau of Land Management (BLM) and U.S. Border Patrol (BP). Appendices A and B describe methods for determining compliance with opacity and surface stabilization requirements in Rules 801 through 805.

Rule 801, Construction and Earthmoving Activities, establishes a 20% opacity limit and control requirements for construction and earthmoving activities. Affected sources must submit a dust control plan and comply with other portions of Regulation VIII regarding bulk materials, carry-out and track-out, and paved and unpaved roads. The rule exempts single family homes and waives the 20% opacity limit in winds over 25 mph under certain conditions.

Rule 802, Bulk Materials, establishes a 20% opacity limit and control requirements for bulk material handling, storage, transport and hauling.

Rule 803, Carry-Out and Track-Out, establishes control requirements for removing carry-out and track-out material transported onto paved roads from unpaved roads and areas.

1 Letter from Michael Scheible, ARB, to Wayne Nastri, EPA, June 16, 2006.

2 Letter from Deborah Jordan, EPA, to Catherine Witherspoon, ARB, July 21, 2006.

Rule 804, Open Areas, establishes a 20% opacity limit and requires land owners to prevent vehicular trespass and stabilize disturbed soil on certain open areas. Agricultural operations are exempt from the rule.

Rule 805, Paved and Unpaved Roads, establishes a 20% opacity limit and control requirements for unpaved haul and access roads, canal roads, and traffic areas that meet certain size or traffic thresholds. Single family residences and agricultural operations are exempt from the rule.

Rule 806, Conservation Management Practices, requires agricultural operation sites greater than 40 acres to implement at least one conservation management practice (CMP) for each of these categories: land preparation and cultivation, harvest activities, unpaved roads and unpaved traffic areas.

C. PM₁₀ Background and Related EPA Actions Concerning PM₁₀ and Imperial County

PM₁₀ contributes to effects that are harmful to human health and the environment, including premature mortality, aggravation of respiratory and cardiovascular disease, decreased lung function, visibility impairment, and damage to vegetation and ecosystems. The population in Imperial County may be particularly vulnerable to these health impacts, having a high percentage of low income (19.7% of families below the poverty level, versus 9.6% nationally) and minority populations (76.0% Hispanic or Latino, versus 15.1% nationally), a low educational attainment rate (63.0% high school graduates or higher, versus 84.5% nationally),³ and decreased access to health care (including West Imperial and Calexico Medically Underserved Areas and Health Professional Shortage Areas throughout Imperial),⁴ all of which may impact a community's ability to avoid and/or cope with environmental impacts. The Clean Air Act (CAA) requires States to submit regulations that control PM₁₀ emissions to protect health of both the general and sensitive populations.

Upon enactment of the 1990 Clean Air Act (CAA) Amendments, Imperial County was classified as moderate nonattainment for the PM₁₀ national ambient air quality standards (NAAQS) under CAA Sections 107(d)(4)(B) and 188(a). By November 15, 1991, such areas were required to develop and submit SIP revisions providing for, among other things, implementation of reasonably available control measures (RACM). CAA Sections 188(a) and (c)(1) also required moderate PM₁₀ nonattainment areas to attain the PM₁₀ standards by December 31, 1994.

On August 11, 2004, EPA reclassified Imperial County as serious nonattainment for PM₁₀. As a result, under CAA Section 189(b)(1)(B), all best available control measures (BACM) were required to be implemented in the area within four years of the effective date of the

3 U.S. Census Bureau, factfinder.census.gov, http://factfinder.census.gov/servlet/ACSSAFFacts?_event=Search&geo_id=&geoContext=&street=&county=imperial+county&_cityTown=imperial+county&_state=04000US06&zip=&lang=en&sse=on&pctxt=fph&pgsl=010;

4 U.S. Department of Health and Human Services, muafind.hrsa.gov

reclassification, i.e., by September 10, 2008. Under Section 188(c), serious PM₁₀ nonattainment areas were required to attain the PM₁₀ standard by December 31, 2001 unless granted an extension under Section 188(e).⁵

On December 11, 2007, EPA determined that Imperial County had not attained the 24-hour PM₁₀ standard by December 31, 2001. The State was required to submit by December 11, 2008, a SIP revision including RACM and BACM. Pursuant to CAA Section 189(d), the plan was also required to provide for expeditious attainment and an annual reduction in PM₁₀ emissions of not less than 5% of the most recent inventory until attainment.⁶

On August 11, 2009, ICAPCD's Board adopted the "2009 Imperial County State Implementation Plan for Particulate Matter Less Than 10 Microns in Aerodynamic Diameter, Final," August 11, 2009 (2009 PM₁₀ SIP). The 2009 PM₁₀ SIP has not been submitted to EPA by the State.

II. EPA's Evaluation of Regulation VIII

A. Evaluation Criteria

EPA is primarily evaluating Regulation VIII against three criteria:

Enforceability - Regulations must be clear regarding, for example, who must comply, by what date, the standard of compliance, the methods used to determine compliance, and the process and criteria for obtaining any variation from the normal mode of compliance.⁷ Guidance used to help evaluate enforceability includes the Bluebook and the Little Bluebook.⁸

SIP Relaxation – CAA Section 110(l) states that EPA cannot approve SIP revisions that interfere with attainment of the NAAQS or any other applicable requirement of the Act.

BACM – We have defined BACM to be, among other things, the maximum degree of emission reduction achievable from a source category which is determined on a case-by-case basis considering energy, economic, environmental impacts and other costs.⁹ We have outlined in our guidance a four step process for identifying BACM: (1) develop a detailed emissions inventory

⁵ 69 FR 48792 (August 11, 2004).

⁶ 72 FR 70222 (December 11, 2007).

⁷ "Review of State Implementations Plans and Revisions for Enforceability and Legal Sufficiency" (Enforceability Guidance), Craig Potter, EPA, September 23, 1987. See also General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990. 57 FR 13498, 13502 and 13541 (April 16, 1992) (General Preamble) and CAA §§110(a)(2) and 172(c)(6). <http://www.epa.gov/compliance/resources/policies/civil/caa/stationary/review-enf-rpt.pdf>.

⁸ "Guidance Document for Correcting Common VOC and Other Rule Deficiencies," U.S. EPA Region IX, August 21, 2001 (the Little Bluebook), and "Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations," U.S. EPA, OAQPS, May 25, 1998 (The Bluebook).

⁹ "State Implementation Plans for Serious PM-10 Nonattainment Areas, and Attainment Date Waivers for PM-10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," 59 FR 41998, 42010 (August 16, 1994) (Addendum).

of PM₁₀ sources: (2) evaluate the impact of various sources on PM₁₀ concentrations to determine which are significant; (3) identify potential BACM for significant source categories and evaluate their reasonableness considering technological feasibility, costs, energy and environmental impacts; and (4) provide for the implementation of BACM or provide a reasoned justification for rejecting any potential BACM.¹⁰

When a moderate area is reclassified to serious, the requirement to implement RACM in CAA Section 189(a)(1)(C) remains. However, EPA does not ordinarily conduct a separate evaluation to determine whether measures for significant sources in a serious area also meet the RACM requirements. This is because in our serious area guidance, we interpret the BACM requirement as generally subsuming the RACM requirement (i.e., if we determine that the measures are indeed the "best available," we have necessarily concluded that they are "reasonably available").¹¹

B. Evaluation of Imperial County PM Inventory for Sources Requiring BACM

CAA Section 189(b)(1)(B) and EPA guidance require that serious PM₁₀ nonattainment areas implement BACM for all significant source categories. A source category is presumed to contribute significantly to a violation of the PM₁₀ NAAQS if its PM₁₀ impact exceeds 5 µg/m³.¹² In October 2005, ICAPCD produced an analysis of BACM to support adoption of Regulation VIII. It applied the 5 µg/m³ threshold to the available PM₁₀ inventory and 2002-2004 ambient PM₁₀ data, and determined a de minimis level for significant source categories as 4.9 tons per day of PM₁₀.¹³ ICAPCD identified four activities exceeding this level that were thus defined as significant sources needing BACM:

1. Windblown dust from open non-crop-farm areas;
2. Entrained and windblown dust from unpaved roads;
3. Windblown dust from non-pasture agricultural lands; and
4. Tilling dust.¹⁴

In 2008 and 2009, to support its PM₁₀ attainment plan, ICAPCD revised its analysis of significant sources of PM₁₀ to reflect 2006-2008 ambient PM₁₀ data and a 2005 base year inventory.¹⁵ The State sought to exclude exceedances caused by high winds for regulatory purposes under EPA's exceptional events rule.¹⁶ All remaining PM₁₀ exceedances occurred during low winds, so

¹⁰ 59 FR 42010-42014.

¹¹ 59 FR 42010, 42013-42014. See also 57 FR 13498, 13540-13541.

¹² 59 FR 42011.

¹³ "Draft Final Technical Memorandum: Regulation VIII BACM Analysis," October 2005 (2005 BACM Analysis), pg 8.

¹⁴ 2005 BACM Analysis, Table 3-6, pg. 16.

¹⁵ 2009 PM₁₀ SIP, section 3.2.

¹⁶ 40 CFR 50.1(j) and 50.14. See letter from James N. Goldstene, ARB, to Deborah Jordan, EPA, May 19, 2009, requesting exclusion of September 2, 2006, April 12, 2007, and June 5, 2007 Imperial County PM₁₀ exceedances.

ICAPCD adjusted the inventory to eliminate windblown dust¹⁷ and better reflect emissions from Mexico and other factors, and calculated a new de minimis threshold of 2 – 2.9% of the day-specific exceedances. ICAPCD identified only two activities exceeding this level that were defined as significant sources needing BACM:

1. Entrained dust from unpaved roads; and
2. Tilling dust from agricultural operations.¹⁸

On December 22, 2009, we did not concur with the State’s exceptional event requests for high winds in 2006 and 2007.¹⁹ As a result, we replicate Imperial’s de minimis calculations below without excluding the high wind events. The following table lists the measured ambient PM₁₀ concentrations during exceedances caused largely by local (i.e., not Mexican) sources. Depending on the specific monitor, 2-3% of Imperial County’s annual inventory is calculated to result in a 5 µg/m³ contribution to the air quality exceedances.

Exceedance (Date, Monitor, Value) ²⁰	Percent Equaling 5 ug/m³
9/02/06, Calexico Ethel, 164 µg/m ³	5 ÷ 164 µg/m ³ = 3%
9/02/06, Calexico Grant, 233 µg/m ³	5 ÷ 233 µg/m ³ = 2%
9/02/06, Westmorland, 167 µg/m ³	5 ÷ 167 µg/m ³ = 3%
4/12/07, Brawley, 291 µg/m ³	5 ÷ 291 µg/m ³ = 2%
4/12/07, Westmorland, 155 µg/m ³	5 ÷ 155 µg/m ³ = 3%
6/05/07, Brawley, 281 µg/m ³	5 ÷ 281 µg/m ³ = 2%
6/05/07, Calexico Ethel, 282 µg/m ³	5 ÷ 282 µg/m ³ = 2%
6/05/07, El Centro, 200 µg/m ³	5 ÷ 200 µg/m ³ = 3%
6/05/07, Niland, 162 µg/m ³	5 ÷ 162 µg/m ³ = 3%
6/05/07, Westmorland, 226 µg/m ³	5 ÷ 266 µg/m ³ = 2%

The following table lists anthropogenic source categories that meet or exceed this threshold and are therefore considered significant sources needing BACM.

Emission Source	Emissions,²¹ % of Total
Category From ICAPCD Average Annual PM₁₀ Inventory	
Open areas Windblown Dust, Other Open Area	170 tpd, 60%
Unpaved roads	

17 2009 PM₁₀ SIP, Table 3.6, pg. 3-8.

18 2009 PM₁₀ SIP, Table 3.7, pg. 3-9.

19 Letter, with enclosure, from Laura Yoshii, EPA to James Goldstene, ARB, Re: exceptional events requests regarding exceedances of the PM-10 NAAQS in Imperial County, CA, December 22, 2009.

20 Data for this column are from the 2009 PM₁₀ SIP, Table 2.1, pg. 2-4.

21 Emissions data are from the 2009 PM₁₀ SIP, Table 3.3, pg. 3-4.

Entrained Unpaved Road Dust, City/County	25 tpd, 9%
Entrained Unpaved Road Dust, Canal	30 tpd, 11%
Windblown Dust, Unpaved City/County Road	8 tpd, 3%
Windblown Dust, Unpaved Canal Road	16 tpd, 6%
Windblown Dust, Unpaved Farm Road	6 tpd, 2%
Agricultural lands	
Tilling	7 tpd, 2%
Windblown Dust, Non-Pasture Agricultural Lands	11 tpd, 4%

C. Summary of EPA Evaluation Criteria

Enforceability - The recordkeeping, reporting and other rule provisions help ensure that Regulation VIII, for the most part, can be enforced. However, we have identified below several provisions in Regulation VIII that we believe do not meet the enforceability requirements of CAA Section 110(a).

SIP Relaxation - There is no prior version of Regulation VIII in the SIP, so our action does not raise issues regarding SIP relaxation and CAA Section 110(l).

BACM – We have compared Regulation VIII with analogous requirements in the South Coast Air Quality Management District (SCAQMD), San Joaquin Valley Air Pollution Control District (SJVAPCD), Maricopa County Air Quality Department (MCAQD), Clark County Department of Air Quality and Environmental Management (CCDAQEM) and other areas. In doing so, we recognize that some variability exists among sources in different areas, and that technically and economically feasible controls in one area may not be feasible in another area. Based on our analysis, we believe that Regulation VIII is generally consistent with analogous requirements in other serious PM₁₀ areas and includes many provisions consistent with CAA requirements for BACM and with established EPA policy and guidance. However, we identify several provisions below where the State has not adequately demonstrated BACM implementation.

D. Rule Deficiencies

The following deficiencies preclude EPA’s full approval of Regulation VIII. Section II.D.1 below identifies deficiencies related to sources for which BACM is required as discussed above in Section II.B. While, as indicated above, BACM is determined on a case-by-case basis, the identification of potential BACM for a significant source category in Imperial County necessarily involves a consideration of control measures adopted and/or implemented in other geographical areas for the same and similar source categories. Therefore, in the following discussions we reference rules, statutes and other requirements in such areas that inform the determination of BACM for Imperial County sources.

Section II.D.2 identifies one deficiency related to bulk materials, a source category for which BACM is not currently required based on the information available to EPA to date.

1. BACM-Related Deficiencies

Open Areas

- a. Recreational off-highway vehicle (OHV)²² activity causes much of the PM₁₀ emissions from open areas in Imperial County. Rule 804 regulates only a small portion of these emissions, including some emissions from OHV activity on State lands where Rule 804 is apparently not being implemented. The vast majority of the OHV emissions in Imperial County are addressed only by requirements in Rule 800 Section F.5 for dust control plans (DCPs) for sources under the control of BLM. While BLM is required to describe in the DCPs the dust control measures that it intends to implement, BLM is not required to implement any specific BACM-level controls for OHV use.

ICAPCD must provide an analysis of potential BACM controls for OHV activity in open areas and on unpaved roads and paths that are exempt from the specific requirements and measures in Rules 804 and 805 and identify, adopt and submit any appropriate revisions to Rules 800, 804 and 805. Such analysis should address as its starting point measures in EPA's 1992 RACM guidance at 57 FR 18070, 18072 (April 28, 1992) and analogous requirements in other areas such as Arizona Revised Statute §49-457.03, and Clark County Air Quality Regulations, Section 90. ICAPCD should evaluate the feasibility and impacts of additional restrictions in recreational OHV areas, such as closing some of the 250 square miles that are open to OHV use that are particularly likely to impact populations, and restricting OHV activity during summer months when there is virtually no rain to reform surface crusts. In addition, ICAPCD must implement Rules 804 and 805 on all State lands used by OHVs or demonstrate in its BACM analysis that an exemption for OHV activity on such lands is appropriate. See Section III.B.1 below for further discussion.

- b. The term "disturbed surface area" is used in several Regulation VIII rules but is never defined. For example, Rule 804 applies to a source category for which BACM is required and relies on the undefined term to describe rule applicability in Rule 804 Section B. In order to ensure that these rules are enforceable at a BACM level, ICAPCD must define "disturbed surface area" as do, for example, SJVAPCD Rule 8010 and SCAQMD Rule 403.

Unpaved Roads and Traffic Areas

- c. Rule 805 Section D.2 exempts agricultural roads and traffic areas from opacity and stabilization requirements applicable to non-agricultural operation sites. Farm roads and traffic areas are only required to implement a CMP from the menus for unpaved roads and traffic areas in Rule 806. In contrast, for example, SJVAPCD requires that CMPs be implemented to meet opacity and surface stabilization requirements at the following

22 As used in this Technical Support Document, the term "off-highway vehicle" or OHV includes all vehicles subject to the exemption in Rule 800 Section E.6 for recreational use of public lands in Imperial County.

thresholds: unpaved farm roads with ≥ 75 VDT or ≥ 25 average daily vehicle trips by three or more axle vehicles; unpaved traffic areas with ≥ 50 average daily vehicle trips (on an annual basis) or ≥ 25 average daily vehicle trips (on an annual basis) by three or more axle vehicles. ICAPCD must remove the exemption in Rule 805 Section D.2 or demonstrate how BACM is met in Imperial County for farm roads and traffic areas that are subject to less stringent requirements than other roads and traffic areas in the County and farm roads and traffic areas in other areas.

- d. Rule 800 Section F.6.c exempts roads owned or operated by BP from Rule 805 requirements that are “inconsistent with BP authority and/or mission.” It is not clear what this exemption is intended to address, or how it would be implemented and enforced, particularly because both BP and ICAPCD staff have informally informed EPA that BP does not own or operate any roads in Imperial County. ICAPCD must either remove this exemption or narrow the exemption to specific mission activities and demonstrate that the exemption is minimized and necessary consistent with BACM requirements.
- e. The CAA requires ICAPCD to implement BACM by 2008 (i.e., four years after reclassification to serious).²³ Rule 805 Section E.7 allows the County until 2015 to stabilize heavily-travelled unpaved non-farm roads. This schedule is inconsistent with the statutory requirement and ICAPCD has not provided adequate evidence that this schedule is as expeditious as practicable, based upon economic feasibility or any other appropriate consideration. In evaluating economic feasibility of a measure that depends on public funding, EPA considers past funding of similar activities and availability of funding sources to determine whether public agencies have made good faith efforts to expeditiously implement the available control measures. ICAPCD must expedite the schedule for implementation of this measure or demonstrate good faith efforts to increase funding and priority of road stabilization projects consistent with national guidance. See Section III.B.3 below for further discussion.
- f. Rule 805 Section E.7’s requirement to stabilize all non-exempt unpaved County roads is also not adequately enforceable as currently structured. If ICAPCD retains the same structure, it must revise Rule 805 Section E.7 to clarify that the County must: (a) implement (and not just submit) a stabilization plan; (b) stabilize different unpaved roads each year; and (c) maintain all stabilized roads.

Agriculture (see also section II.D.1.c above)

- g. Rule 806 Section E lists CMPs intended to control emissions from agricultural land preparation and cultivation (which includes tilling), harvest activities, unpaved roads and traffic areas, but these CMPs are broadly defined and there is no other mechanism in the rule

²³ Since 2008 has passed, BACM is now required to be implemented as expeditiously as practicable. *Delaney v. EPA*, 898 F.2d 687 (9th Cir. 1990).

to ensure specificity.²⁴ The absence of sufficiently defined requirements makes it difficult for regulated parties to understand and comply with the requirements, and makes it difficult for ICAPCD or others to verify compliance and to enforce the requirements if necessary. The lack of specificity similarly renders it difficult to assess whether the measures constitute BACM level controls. ICAPCD must revise Rule 806 to ensure that CMPs are enforceable and are implemented at a BACM level or demonstrate why such a rule revision is not necessary.²⁵ SJVAPCD Rule 4550, for example, relies on an application submittal and approval process to ensure sufficient specificity of the particular measures implemented at each source. Great Basin Unified Air Pollution Control District (GBUAPCD) Rule 502 also has an application submittal and approval process. Alternatively, there may be another mechanism to ensure adequate specificity such as by revising and clarifying ICAPCD's CMP application forms.

- h. Rule 806 Section E requires one CMP from the "land preparation and cultivation" category and one CMP from the "harvest" category, while SJVAPCD Rule 4550 requires an additional CMP from the "cropland-other" category. GBUAPCD Rule 502 also requires that one CMP each be selected from the "land preparation and cultivation," "harvest," and the "cropland-other" categories. ICAPCD must similarly require an additional CMP for cropland, or demonstrate why that is not appropriate.
- i. Windblown dust from non-pasture agricultural lands is also a significant source of PM₁₀ that requires BACM independent of agricultural tilling. The CMPs in Rule 806 Section E, however, mainly control emissions by reducing the number of vehicle passes across fields, and sources are not required to select BACM level practices for controlling windblown dust from active or fallow agricultural fields. ICAPCD must revise Rule 806 to require BACM level windblown dust controls. In general, EPA believes that the evaluation of BACM level

24 For instance, one of the CMPs that is both in the land preparation and cultivation menu in Section E.1 and the harvest menu in Section E.2 is "equipment changes/technological improvements" which is defined in Section C.15 as "To modify the equipment such as tilling; increase equipment size; modify land planning and land leveling; match the equipment to row spacing; granting to new varieties or other technological improvements. It reduces the number of passes during an operation, thereby reducing soil disturbance." This definition is too broad to ensure enforceability. Moreover, because there is no mechanism to narrow the definition for a particular agricultural operation, a CMP may be implemented in a manner less stringent than a BACM level of control. In a similarly broad fashion, Section C.34 defines "speed limits," a CMP that is both in the unpaved roads menu in Section E.3 and the unpaved traffic areas menu in Section E.4, as "enforcement of speeds that reduce visible dust emissions. The dust emissions from unpaved roads are a function of speed, meaning reducing speed reduces dust." However, an appropriate speed limit or range of speed limits is not specified or otherwise ensured.

25 Section II.B identifies tilling and unpaved farm roads as significant source categories for which BACM is required. These sources are addressed by the CMP menus in Rule 806 Sections E.1 (land preparation and cultivation) and E.3 (unpaved roads). The CMPs in Rule 806 Sections E.2 (harvesting) and E.4 (unpaved traffic area) must also be fully enforceable at a BACM level because the activities occur at the same facilities and are integrally related to other activities identified as significant (i.e., tilling and unpaved roads respectively). By analogy, where enforceable VOC reasonably available control technology (RACT) level controls are required for refineries, SIP rules generally impose leak detection and repair requirements on valves, flanges, threaded connections, and other related equipment even if emissions from any one of these taken individually might be much smaller than the major source threshold requiring RACT.

controls for a particular source or activity should include consideration of U.S. Department of Agriculture (USDA) approved conservation systems and activities. Although these guidelines may not specifically be designed to minimize air pollution, they are intended to be feasible and effective techniques that will reduce windblown dust, and thus would be appropriate measures to consider for BACM for such sources or activities for PM₁₀. SCAQMD Rule 403 provides an example of such controls. See Section III.B.4 below for further discussion.

2. Non-BACM Deficiency

Rule 802 Section D.1 allows the Air Pollution Control Officer (APCO) to set aside controls that might be used instead of water to stabilize surfaces of bulk materials. This discretion allows ICAPCD to approve alternatives to the applicable SIP without following the SIP revision process described in CAA Section 110. Moreover, ICAPCD has not demonstrated why such discretion is needed for measures such as covering, enclosing or sheltering material piles. While we prefer removal of the exemption and APCO discretion, SJVAPCD Rule 8031 remedies the enforceability issue by requiring EPA approval.²⁶

III. Additional Information

A. Additional Recommendations for the Next Revision of Regulation VIII

The following revisions are not currently the basis for rule disapproval, but are recommended for the next time the rules are amended.

1. Rule 800 Sections C.36 and E.7 provide a broad exemption for DOD “tactical training” that may be difficult to enforce. We could not find a similar exemption in analogous SCAQMD and SJVAPCD rules and believe this exemption should be further defined and limited in Rule 800.
2. If Rule 800 Section F.5.e. remains after addressing the deficiency summarized in section II.D.1.a above, we note that the term “off-road event and/or competitions” is undefined, making it unclear as to when dust control plan and recreation area management plan (RAMP) requirements must be implemented by BLM. The 2005 BACM Analysis states that 5-10 events occur per year, suggesting uncertainty about the threshold and magnitude of these events.²⁷ Depending on the response to the issues we raise in section II.D.1.a, it may be appropriate for the rule to identify regular annual events and incorporate a visitor count threshold.
3. We recommend that ICAPCD add a 0% opacity at the fenceline standard to Rules 801, 802, 804 and 805, in addition to the 20% opacity standard. SCAQMD, MCAQD, and

²⁶ See Little Bluebook, pg. 17.

²⁷ 2005 BACM Analysis, pg. 19.

CCDAQEM employ some version of this standard to aid enforcement.

4. Rule 802 Section D.4 exempts transport and hauling of bulk material within a worksite from the requirement to cover loads and clean haul beds. We recommend that ICAPCD remove these exemptions. SJVAPCD Rule 8031, for example, requires onsite haul trucks to cover loads.
5. Regardless of vehicle size and number of trips, Rule 803 Section D.2 waives all carry-out and track-out control requirements for operations that remain at a location no more than 10 days in a 90 day period. In theory, this could waive these basic controls for operations with thousands of truck trips. We recommend that ICAPCD revise this consistent with SJVAPCD Rule 8041, for example, which uses only vehicle trips per day to determine applicability.
6. ICAPCD should consider revising Rule 804 Section B to apply requirements to smaller sources. MCAQD Rule 310.01, for example, applies similar requirements to 0.1 acres with 500 square feet (sq. ft.) of disturbed surface area compared to Rule 804's 0.5 acres in urban areas and 3.0 acres in rural areas with 1000 sq. ft. of disturbed surface area.
7. ICAPCD should consider revising Rule 805 requirements for unpaved traffic areas in light of more stringent requirements in other areas, such as MCAQD Rule 310.01. Specifically, Rule 805 Section E.5 exempts areas smaller than one acre and 75 ADT from control while Rule 310.01 only exempts lots serving four or fewer residential units. Rule 310.01 also establishes track-out clean-up requirements, while Rule 805 does not.
8. ICAPCD projects that the 199 miles of County roads exceeding Rule 805's 50 ADT threshold will be stabilized using gravel, a control measure estimated to be 60% effective. For the most highly traveled roads, we recommend that ICAPCD consider requiring paving, which is estimated to be 99% effective in reducing entrained dust emissions and provides a longer lasting stabilized surface preventing windblown emissions. See Section III.B.2 below.
9. ICAPCD estimates that canal roads contribute the most unpaved road mileage and PM₁₀ emissions, but projects that no canal roads meet Rule 805's applicability threshold and are subject to control requirements. To address this large source of emissions, ICAPCD could consider a lower trip threshold in Rule 805 Section E.4. See Section III.B.2 below. We also recommend that ICAPCD consider strengthening the clarity and enforceability of canal bank control options described in Rule 805 Section F.2. For example, "canal bank surface maintenance" is vague and may be difficult to enforce.
10. We recommend further refinements to the unpaved road inventory. Specifically, ICAPCD's ADT and VMT estimates may come partly from a 1993 SIP.²⁸ However, the ICAPCD documentation does not describe how these estimates were derived, whether they were based

28 2005 BACM Analysis, Appendix B.

on traffic counts, or whether they remain valid many years later. See Section III.B.2 below.

11. Rule 806 Section C.7 defines “Chemigation/Fertigation,” while Section E.1 and the CMP Plan refer to “Chemical/Fertigation” and “Chemical Fertigation,” respectively. We recommend using consistent names to enhance rule clarity.
12. Rule 806 Section D.1 exempts agricultural sources that are below 40 acres. While SJVAPCD Rule 4550 exempts farms below 100 acres, Maricopa’s BMP rule²⁹ and SCAQMD Rule 403 exempt farms below 10 acres. The 2009 PM₁₀ SIP notes that “According to information obtained from USDA/NRCS, parcels of size ≥ 40 acres account for approximately 96.95% of the area of all agricultural parcels in Imperial County. Thus, if emissions per acre of agricultural parcel are equal for all parcels (regardless of size), then Rule 806 applies to ~ 97% of total emissions from all agricultural parcels.”³⁰ We question the assumption that emissions per acre of agricultural parcel are equal for all parcels in light of variability in crops, management practices, soil type, and other factors. As a result, we recommend ICAPCD consider lowering the exemption in Rule 806 from 40 acres to 10 acres.
13. Rule 806 Section E.3 includes CMPs that are not designed to stabilize unpaved farm roads and therefore only minimally control windblown dust (i.e., restricted access, speed limit, track-out control and wind barriers). Particularly since ICAPCD estimates 6.01 tpd of windblown emissions and only 1.35 tpd of entrained emissions from unpaved farm roads, we recommend that ICAPCD revise this section to allow only CMPs that stabilize unpaved roads (i.e., dust suppressants, gravel, paving and watering). See Section III.B.2 below.

B. Additional Background on Selected Deficiencies and Recommendations

This section provides additional information regarding some of the issues identified above.

1. Emissions from OHV Activity

ICAPCD estimates that windblown dust from dunes, grassland and other open areas account for 60% of annual PM₁₀ emissions,³¹ and estimates that up to 22 tpd³² of windblown PM₁₀ from these areas are emitted from over 250 square miles (164,000 acres)³³ used by recreational OHV.³⁴ ICAPCD projects an additional 1.34 tpd of emissions from non-wind emissions partly from OHV

29 Arizona Administrative Code Section R18-2-611, “Agricultural PM₁₀ General Permit; Maricopa PM₁₀ Nonattainment Area and Maricopa County Portion of Area A.”

30 2009 PM₁₀ SIP, pg. 4-8.

31 See last table in Section II.B above.

32 2009 PM₁₀ SIP, Table III.B.4, Appendix III.B, pg III.B-8; 22 tpd = 7.77 + 1.43 + 0.8 + 11.0 + 1.1.

33 2009 PM₁₀ SIP, Table III.B.4, Appendix III.B, pg III.B-8.

34 OHV activity indirectly increases PM₁₀ emissions by disturbing vegetation and surface crusts, leaving the surface less stable and more vulnerable to emissions during subsequent winds.

activity on BLM and U.S. Forest Service roads.³⁵ Additional emissions from OHVs directly entraining dust in open areas (i.e., not on established roads/paths) are not addressed in existing emission inventories for Imperial County.

In 1992, EPA identified OHV limitations as a required RACM for moderate PM₁₀ areas under CAA Section 189(a)(1)(C), and listed three example controls: confining operations to specific areas, requiring use permits, and banning OHV activity outright.³⁶ ICAPCD Rule 804 Section E.1 requires all persons (defined at Rule 800 Section C.29 to include both public and private entities) who own or otherwise have jurisdiction over open areas to restrict OHV activity in Imperial County by requiring them to maintain a stabilized surface and to meet a 20% opacity limit. Rule 805 may also control some emissions from OHVs on unpaved roads. The 20% opacity limit in Rules 804 and 805 and the stabilization standards and methods found in Rule 800 Appendices A and B are common PM₁₀ controls and are generally consistent with other serious PM₁₀ area fugitive dust rules. However, ICAPCD estimates that Rule 804 addresses only 1% of emissions from Imperial County's open land.³⁷

Most emissions from OHV activity in Imperial County occur on BLM lands that are exempted from Rule 804 and Rule 805 requirements by Rule 800 Section E.6. ICAPCD Rule 800 also requires BLM to submit and implement DCPs to limit PM₁₀ from OHVs, although there are no requirements that they contain specific BACM for OHV activity. OHV activity also occurs in Ocotillo Wells State Park³⁸ even though State lands are not exempted from Rule 804's opacity and stabilization requirements.

BLM, DOD, U.S. Fish and Wildlife, Bureau of Reclamation, and California prohibit or limit, independent of Rule 804, OHV activity on substantial open areas under their control in Imperial County³⁹ State/Federal agencies also charge a nominal fee for OHV areas, such as \$50/year for an OHV day use annual pass.⁴⁰ While these OHV restrictions include some features of the 1992 RACM guidance, the State has not demonstrated that current RACM, much less BACM, is implemented for these sources. For example:

- a. None of the OHV restrictions on BLM lands (either through the DCPs or the restrictions to specific areas) are in regulatory form and submitted for inclusion in the SIP pursuant to CAA Sections 110 and 189.
- b. Despite the fees and other programs that may reduce OHV activity and hence PM₁₀

35 2009 PM₁₀ SIP, Table III.2, Appendix III.A, pg. III.A-6. This accounts for direct PM₁₀ emissions caused by OHV activity by entraining dust through contact between tires and unpaved surfaces.

36 57 FR 18072, Appendix C1 (April 28, 1992).

37 BACM Amendments to Regulation VIII, Fugitive Dust Rules, ICAPCD Staff Report, November 8, 2005, Table 3, pg 6.

38 2009 PM₁₀ SIP, Table III.B-1, Appendix III.B, pg III.B-2

39 2009 PM₁₀ SIP, Table III.B-1, Appendix III.B, pg III.B-2.

40 California State Parks, Off-Highway Motor Vehicle Recreation Passes and Fees Schedule, 2009, http://ohv.parks.ca.gov/?page_id=25760

emissions, there are still over 1.4 million users per year to the dunes area alone,⁴¹ and over 250 square miles open to OHVs in Imperial County. No evidence was presented to suggest that fees and OHV restrictions on public land in Imperial County have been designed for and/or are effective in reducing PM₁₀ emissions and impacts.

- c. ICAPCD has not provided an analysis of potential BACM controls for OHV activity. Previous ICAPCD BACM analysis for Regulation VIII in general relied largely on comparison to SJVAPCD 's analogous Regulation VIII.⁴² However, SJVAPCD does not have large OHV open areas such as those in Imperial County.⁴³ In addition, other areas currently regulate this specific source category. See Arizona Revised Statute §49-457.03 which prohibits recreational OHVs on PM₁₀ high pollution advisory days. This regulation was developed with the support of the local OHV industry. See also Clark County Air Quality Regulations, Section 90, which effectively restricts OHV activity on BLM and other open areas greater than 5,000 square feet within the Las Vegas PM₁₀ nonattainment area.⁴⁴
- d. Among other things, it seems reasonable to expect that ICAPCD's BACM analysis would evaluate the feasibility and impacts of additional restrictions in OHV areas, such as closing some of the 250 square miles that are particularly likely to impact populations, or restricting OHV activity during summer months when there is virtually no rain to reform surface crusts.

2. Emissions from Unpaved Roads

2005 PM₁₀ Emissions and Unpaved Road Emissions Inventory Data

Road Category	Rule 805 Threshold (miles)	Inventory Assumed ADT	Road Miles	Windblown Emissions (tpd)	Entrained Emissions (tpd)	Reg VIII Reduction (tpd)
Cnty <50 ADT	exempt	10	1155	6.64	11.11	0
Cnty >50 ADT	50	70	199	1.14	13.4	8.73
City Roads	50	10	7.5	0.03	0.07	0
Canal Roads	20	5	6148	16.32	29.57	0
Federal Roads	50	10	139	0.37	1.35	0
Farm Roads			2263	6.01	1.35	1.11
Total	--	--	7648.5	24.5	55.5	9.84

Inventory assumed ADT level taken from Appendix B, 2005 BACM Analysis. Road mileage and estimated annual average emissions from 2009 PM₁₀ SIP, Table 3.2, pg 3-3. Emission reductions from 2009 PM₁₀ SIP, Table 4.1, pg. 4-5 .

3. BACM Implementation for Unpaved Non-Farm Roads

41 Imperial Sand Dunes Recreation Area Management Plan (RAMP), U.S. DOI, BLM, El Centro Field Office, May 2003, pg. 5.

42 ICAPCD Staff Report, BACM Amendments to Regulation VIII, Fugitive Dust Rules, November 8, 2005.

43 See <http://www.blm.gov/ca/st/en/prog/recreation/ohv.html>

44 PM₁₀ State Implementation Plan for Clark County, Adopted by Clark County Board of Commissioners, June 19, 2001, pg. 4-81. <http://www.accessclarkcounty.com/depts/daqem/daq/planning/Pages/pm10sip2001.aspx>.

As discussed in Section I.C above, CAA Section 189(b)(1)(B) required BACM implementation in Imperial County by September 10, 2008. Despite the September 10, 2008 BACM implementation requirement, ICAPCD projects that the 199 miles of unpaved roads subject to Rule 805 will not be stabilized until 2015. This assumes that the County will gravel 19.9 miles of unpaved roadway each year for ten years beginning in 2006.⁴⁵

We recognize that some control measures, such as paving a network of unpaved roads, may involve significant costs to public entities. EPA has explained that, where economic feasibility of control depends on public funding, we will consider past funding and the future availability of funding sources to determine if a good faith effort is being made to implement BACM expeditiously. For example, an existing unpaved road stabilization program should retain its existing level of funding and the state should provide evidence of ambitious efforts to increase future funding and increase the future priority of the unpaved road stabilization program for existing revenue streams.⁴⁶ ICAPCD states that the County budget for paved road maintenance is \$2 million per year⁴⁷ but does not explain whether this entire amount is to be allocated to the unpaved road stabilization program. Assuming that the entire amount is to be so allocated, ICAPCD does not explain the relationship between this budget and the schedule for stabilizing unpaved roads, does not explain how this budget was derived in light of various federal, state, and local (including local Measure D) funding sources for public works construction and maintenance, or otherwise provide the demonstration contemplated by the relevant EPA guidance.

Using the per mile cost figures provided by the Imperial County Department of Public Works (ICDPW), and again assuming that the entire \$2 million annual budget will be used for unpaved road stabilization, we estimate the costs of twenty miles of annual road stabilization in the table below. Since ICAPCD projects that gravelling will be used predominantly,⁴⁸ it appears only 9% of the \$2 million annual budget would be needed for roadway stabilization to comply with the ten year schedule in Rule 805 Section E.7. It is not obvious from the information provided in the submittal, therefore, why Rule 805 Section E.7 does not require a more expedited schedule.

Estimated Unpaved Road Stabilization Annual Costs

Control Measure	Cost/mile	20 mile cost	% of ICDPW \$2M Budget
Apply dust suppressant	\$2,980	\$59,600	3%
Gravel, grade, compact & water	\$8,950	\$179,000	9%
Pave	\$131,000	\$2.62 M	131%

Cost factors taken from 2009 PM₁₀ Plan, pg. 4-8.

Implementation schedule taken from 2009 PM₁₀ Plan, Table IV.C-1, Appendix IV.C.

45 2009 PM₁₀ SIP, Table IV.C-1, Appendix IV.C-1, pg. IV.C-1.

46 59 FR 42013.

47 2009 PM₁₀ SIP, pg. 4-8. We did not find citations for ICAPCD's \$2 million/year budget estimate, such as funding documents or county budgets.

48 2009 PM₁₀ SIP, pg. 4-8, footnote 67.

4. Agricultural Windblown Dust

Rule 806 does not require BACM level controls for controlling windblown dust from active or fallow agricultural fields. In general, EPA believes that the evaluation of BACM level controls for a particular source or activity should include consideration of USDA approved conservation systems and activities. Although these guidelines may not specifically be designed to minimize air pollution, they are intended to be feasible and effective techniques that will reduce windblown dust, and thus would be appropriate measures to consider for BACM for such sources or activities for PM₁₀. USDA's National Agronomy Manual explains that controls for reducing wind erosion should be based on the following principles.⁴⁹

- a. Establish and maintain adequate vegetation or other land cover.
- b. Reduce unsheltered distance along the wind erosion direction.
- c. Produce and maintain stable clods or aggregates on the land surface.
- d. Roughen the land with ridge and/or random roughness.

For active agricultural fields, some CMPs in Rule 806, such as cover crops, are based on these principles and should help control windblown dust. Other CMPs in the rule, such as precision farming, mainly target entrained dust by reducing the number of vehicle passes across the field. While Imperial County farms may choose windblown dust control CMPs, they are not required to do so even though BACM for agricultural windblown dust emissions must be implemented in Imperial County as discussed in Section II.B above. We note SCAQMD requirements for active agricultural fields below. EPA would expect a meaningful BACM analysis to include a review of windblown dust requirements for active fields in SCAQMD and other areas.

Rule 806 does not apply to fallow agricultural fields,⁵⁰ and hence cannot provide BACM level controls for these fields. IID currently has a Fallowing Program which compensates volunteer farmers for fallowing. From July 2007 to June 2008, about 16,000 acres were in the 2007-2008 IID Fallowing Program.⁵¹ During approximately the same period, between about 27,000 and 32,000 acres were fallow in Imperial County outside of IID's Fallowing Program.⁵² While IID's

49 *National Agronomy Manual*, USDA NRCS, October 2002, pg. 502-17. The National Agronomy Manual also lists the following principle which does not seem to be applicable to Imperial sources: "Reshape the land to reduce erosion on knolls where converging windflow causes increased velocity and shear stress."

50 The CMPs from which sources are required to select in order to reduce emissions from on-field sources are for reducing PM₁₀ emissions from land preparation and cultivation (Rule 806 Section E.1) and for reducing PM₁₀ emissions from harvest (Section E.2). If implemented in certain ways, some of the CMPs in these categories, such as cover crop, may also reduce emissions from fields that become fallow. However, there are no requirements in Rule 806 to address emissions from fallow fields.

51 IID's program started in 2003 and will continue until 2017. "Imperial Irrigation District Fallowing Program Status Report," February 19, 2008, on web page <http://www.iid.com/Water/FallowingPrograms>, direct link: <http://www.iid.com/Media/Fallowing-Program-Summary-2003-2008-Presentation.pdf>. See page 11 for acreage during the 2007-2008 Fallowing Program.

52 See Imperial Irrigation District Water Department Monthly Crop Acreage Report, August 13, 2008, pgs. 13 and 22, for data on fallow acreage outside of IID's program from August 2007 to August 2008. IID's Monthly Crop

Program requires some dust mitigation, we were unable to identify any requirements for controlling emissions from the fields that are outside IID's program. EPA would expect a meaningful BACM analysis to include a comparison of the requirements that are currently in place for mitigating emissions from fallow fields both within and outside of IID's program with requirements in other areas, including SCAQMD.

SCAQMD, for comparison, enforces several requirements designed to reduce agricultural windblown dust from active and inactive fields. SCAQMD Rule 403 and the associated handbooks⁵³ for the South Coast and Coachella air basins were developed with extensive input from NRCS and the agricultural community and mainly seem based on the principles in USDA's National Agronomy Manual. Among other things, SCAQMD Rule 403 and the associated handbooks require growers to:

- a. Cease certain soil preparation and maintenance activities when winds exceed 25 miles per hour.
- b. Implement one of four specific practices to reduce windblown dust from actively disturbed fields. Active conservation options include soil moisture monitoring (ensuring soil moisture to prevent visible dust emissions beyond 100 feet), irrigation systems (irrigating or bedding fields as soon as feasible after land leveling to prevent the field being left smooth and dry), minimum tillage and mulching.
- c. Implement three of nine specific practices to reduce windblown dust from inactive (fallow) fields. Inactive conservation options include cover crop, crop residue management, surface roughness, minimum tillage, cross wind stripcropping, field windbreaks, ridge roughness and wind barriers.

IV. EPA's Proposed Action

The submitted Regulation VIII rules strengthen the SIP and largely meet the relevant CAA Section 110 and part D requirements, but the deficiencies discussed above preclude full approval. EPA staff recommends a simultaneous limited approval pursuant to CAA Sections 110(k)(3) and 301(a) and limited disapproval pursuant to Sections 110(k)(3), 110(a) and 189(a)(1)(C) and (b)(1)(B) of the seven inter-related Regulation VIII rules. If finalized as proposed, the deficiencies identified in Section II.D.1 of this Technical Support Document would trigger CAA Section 179 sanctions and a Section 110 federal implementation plan (FIP) obligation. The deficiency identified in Section II.D.2 would not trigger sanctions or a FIP obligation at this time because it does not appear associated with SIP revisions that are required by the CAA.

Acreage Report, June 13, 2007, has similar data for June 2006 through June 2007. IID uses the term 'idle' if there is no crop on the field for less than a year, and codes a field as 'fallow' if it does not have a crop for over a year.
53 The South Coast and Coachella Valley Agricultural Handbooks are relied on for certain compliance options within SCAQMD Rule 403.