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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX AIR DIVISION**

Technical Support Document  
for  
EPA's Proposed Rulemaking  
for the  
California State Implementation Plan

San Joaquin Valley Unified Air Pollution Control Rule 4566  
Pertaining to Organic Material Composting Operations

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## Regulation Adoption and Submittal Chronology

Date	Action
June 14, 2007	The California Air Resources Board (ARB) adopts SJVUACPD 2007 Ozone Plan. Plan includes a commitment to reduce VOCs from green material composting by 1 <sup>st</sup> Quarter 2009. (S-GOV-5).
December 18, 2008	SJVUAPCD revises the control measure completion date for Composting Green Waste to 4th Quarter 2010.
August 18, 2011	SJVUAPCD adopts Rule 4566.
September 13, 2011	SJVUAPCD submits Rule 4566 to ARB.
November 18, 2011	ARB submits Rule 4566 to EPA as requested by SJVUAPCD.
December 22, 2011	EPA finds that ARB’s submittal fulfilled the completeness criteria in 40 Code of Federal Regulations Part 51, Appendix V.

## Background

This regulation applies to operations that compost and stockpile organic material in the San Joaquin Valley. Organic material is defined in the rule as food material, green material, or a mixture thereof, and may include wood material and a total of less than 100 wet tons per year of biosolids, animal manure, or poultry litter. Composting operations with more than 100 wet tons of biosolids, animal manure, or poultry litter are subject to SJVUAPCD Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations) for that portion of the organic material.

Based on the August 18, 2011 SJVUAPCD Rule 4566 final staff report, Appendix D, there are 16 compost operations in the San Joaquin Valley that are subject to the rule. Several additional facilities have compost permits to stockpile compostable material but they do not produce compost. The demand for greenwaste and foodwaste composting operations is expected to increase, largely due to California’s Strategic Directive 6.1, which requires 50% organic waste diversion from landfills by the year 2020.<sup>1</sup>

The San Joaquin Valley Air Basin is extreme nonattainment for the National Ambient Air Quality Standard (NAAQS) for 8-hour ozone.<sup>2</sup> Degradation of organic material, such as occurs in composting, releases volatile organic compounds (VOCs). VOCs are precursors to the formation of ground-level ozone. The SJVUAPCD estimates that compost facilities release 14 tons per day of VOCs. The SJVUAPCD’s goal in adopting Rule 4566 is “to reduce VOC emissions through requirements that can be feasibly implemented without resulting in operational expenses or finished product costs that would render composting operations economically inoperable.” The SJVUAPCD committed in the 2007 Ozone Plan to develop this rule. The SJVUAPCD directed a field study (2009- 2010) to measure effectiveness of four best management practices (finished

<sup>1</sup> <http://www.calrecycle.ca.gov/Archive/IWMBPlans/2007/SD06.htm>

<sup>2</sup> 40 CFR 81.305.

compost cover, watering system, interactive management, and smaller piles).<sup>3</sup> The field study analysis showed that, of the measures studied, application of a finished compost cover at each turn and watering prior to turning are the most effective of the four best management practices studied to reduce VOCs.<sup>4</sup> Rule 4566 requires either implementation of watering systems, finished compost cover and watering systems, or an 80% emission control measure (e.g. aerated static pile with biofilter) depending on the operation's actual annual throughput. None of the current facilities in the District trigger the requirement to use the 80% emission control device. This rule is designed to reduce VOC emissions by 4.16 tons/day. The SJVUAPCD collaborated with South Coast Air Quality Control Management District (SCAQMD) as they developed SCAQMD Rule 1133.3 to regulate greenwaste composting. SCAQMD adopted Rule 1133.3 on July 8, 2011, and ARB submitted it to EPA (with SJV 4566) on November 18, 2011.

On January 10, 2012, EPA partially approved and partially disapproved the RACT SIP submitted by California on June 18, 2009 for the SJV extreme ozone nonattainment area (2009 RACT SIP), based in part on our conclusion that the State had not fully satisfied CAA section 182 RACT requirements for certain source categories, including organic material composting operations. See 77 FR 1417, 1425 (January 10, 2012). At the time, EPA had not yet made a RACT determination for this source category. Final approval of Rule 4566 will satisfy California's obligation to implement RACT under CAA section 182 for this source category for the 1-hour ozone and 1997 8-hour ozone NAAQS.

## Rule Summary

SJVUAPCD Rule 4566 established VOC emission reduction requirements for composting operations. The requirements are based on actual throughputs, rather than the maximum allowable capacity limits. The requirements include the following:

- Composting operations receiving less than 200,000 wet tons per year of organic material are subject to specific watering system requirements or alternative mitigation measures that demonstrate at least a 19% reduction, by weight, in VOC emissions.
- Composting operations receiving greater than or equal to 200,000 tons per year and less than 750,000 tons per year are subject to both the watering systems and the finished compost cover requirements or alternative mitigation measures that demonstrate at least a 60% reduction, by weight, in VOC emissions.
- Composting operations receiving 750,000 tons or more per year or more are subject to mitigation measures that demonstrate at least 80% reduction, by weight, in VOC emissions for organic material.

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<sup>3</sup>Compost VOC Emission Factors, September 15, 2010, September 15, 2010,

[http://www.valleyair.org/busind/pto/emission\\_factors/criteria/criteria/composting/compost%20ef.pdf](http://www.valleyair.org/busind/pto/emission_factors/criteria/criteria/composting/compost%20ef.pdf)

<sup>4</sup>The draft study found that finished compost cover provided 53% reduction of VOC, and surface irrigation before turning provided at least 24% reduction. Based on discussion with SJVUAPCD staff these numbers were revised to 60% and 19% respectively, due to a calculation error.

- Stockpiled organic material must be removed or covered within 10 days for composting operations that receive less than 100,000 tons per year of organic material, and within 3 days for operations receiving 100,000 or more tons per year.

## Evaluation Criteria

EPA is primarily evaluating Rule 4566 regulations pertaining to composting against three criteria:

Enforceability: Consistent with Section 110(a)(2)(A) of the Clean Air Act (CAA), SIP 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.<sup>5</sup> Guidance used to help evaluate enforceability includes the Bluebook and the Little Bluebook.<sup>6</sup>

Anti-Backsliding: We evaluate a SIP revision to determine whether it would interfere with any applicable requirement concerning attainment and reasonable further progress (RFP) or any other applicable requirement of the Act (CAA 110(l)) or modify, in a nonattainment area, any SIP-approved control requirement in effect before November 15, 1990 (CAA §193).

Stringency: CAA Section 182(b)(2) directs ozone nonattainment areas to adopt and submit SIP provisions implementing RACT for all major stationary sources of VOC. RACT is “the lowest emission limitation that a particular source (can meet using) control technology that is reasonably available, considering technological and economic feasibility.” (44 FR 53762, September 17, 1979).

SJV is also subject to CAA section 172(c)(1), which requires implementation of all reasonably available control measures (RACM) necessary for expeditious attainment of the NAAQS. EPA generally takes action on a RACM demonstration as part of our action on the State’s attainment demonstration for the relevant NAAQS, based on an evaluation of the control measures submitted as a whole and their overall potential to advance the applicable attainment date in the area. *See, e.g.*, 77 FR 12652 (March 1, 2012) (final rule approving 8-hour ozone attainment plan for SJV). Thus, in this action, we are evaluating Rule 4566 with respect to RACT only.

## Summary of Evaluation

Enforceability: The rule applies to composting facilities (as defined in the rule) that compost and/or stockpile organic material. The standards of compliance are clearly stated (Section 5.0).

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<sup>5</sup> “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>.

<sup>6</sup> “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).

The rule allows for rule requirements to be met based on alternative test methods approved by the APCD and EPA (Section 6.4.2). It contains the process and criteria for obtaining alternative methods (Sections 5.2 and 6.2). Methods used to determine compliance include the following: the requirements of the operator to submit a Facility Emission Mitigation Plan (Section 7.1); an alternative mitigation measures compliance plan (as applicable) (Section 6.2); using the ball test for moisture (Section 6.3.4.1.2); keeping records for the dates and amounts of throughput received, and the date and time (as applicable) that mitigation measures are implemented (Section 6.3). Finally, the rule contains a schedule for compliance (Section 7.0). Based on this information, we believe that rule 4566 is clear and adequate to ensure that the submitted rule can be enforced consistent with the requirements of CAA Section 110(a)(2)(A).

Anti-backsliding: There is no prior version of SJVAPCD Rule 4566 in the SIP. We propose to determine that our approval of the submittal would comply with CAA sections 110(l) and 193, because the proposed SIP revision would not interfere with the on-going process for ensuring that requirements for RFP and attainment of the NAAQS are met, and the submitted SIP revision is more stringent than the requirements previously approved into the SIP.

Stringency: SJVUAPCD's RACT analysis presents several arguments in support of its conclusion that Rule 4566 adequately implements RACT. These include the following:

1. There is no federal policy or guidance (e.g., EPA Control Techniques, Alternative Control Technology Guidelines, New Source Performance Standard, National Emission Standard for Hazardous Air Pollutants, or Maximum Achievable Control Technology) describing reasonably available controls for organic material composting.
2. Based on the District's cost-effectiveness analysis, it would not be economically feasible for operators to implement more stringent controls than what is proposed in the rule.

EPA concurs with SJVUAPCD's conclusion that Rule 4566 adequately implements RACT based on the points summarized above and considering additional information including the following:

1. There is little, if any regulatory history regarding compost operations. The SCAQMD is the only other nonattainment area that has compost regulations (1133.3 Greenwaste Composting), and these were adopted about a month prior to Rule 4566 adoption.
2. Given the lack of regulatory history for this category, there is not sufficient precedent to clearly define additional RACT compost controls at this time.
3. Based on our analysis, we have no basis to conclude that additional controls are reasonably available.

## **Additional Recommendations for the Next Rule Revision**

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

1. Adjust the compost emission factor as more data become available. The estimated greenwaste emission factor (5.71 lbs-VOC/ton) used for this rule is based on the average VOC/ton of four facilities in California. These facilities had a relatively wide range of results (0.85 – 10.03 lbs-VOC/ton).<sup>7</sup>
2. Develop and incorporate food waste emission factors to more accurately characterize the VOC emissions from composting that contains food material.
3. Rule 4566 sections 5.2.1.2, 5.2.2.2, and 5.2.3 allow APCO- and EPA-approved alternative mitigation measures that demonstrate at least 19%, 60%, or 80% reduction in VOC. However, these sections do not specify the test methods that will be used to demonstrate these VOC control efficiencies. EPA recommends the District to include in the next revision to Rule 4566, the appropriate test methods and test protocol guidelines to determine percent VOC reduction (See, for example, South Coast Rule 1133.3). Until the rule is so revised, alternative mitigation measures submitted to EPA for approval should include the test methods and protocol on how the percent VOC reduction will be determined before EPA will consider the submittal complete and ready for review.

## **EPA Action**

The submitted regulation is enforceable, strengthens the SIP, and meets CAA requirements for RACT. Therefore, EPA recommends its approval.

## **References**

1. SJVUAPCD Rule 4566: Organic Material Composting Operations, adopted August 18, 2011.
2. “Final Draft Staff Report, Revised Proposed New Rule 4566: Organic Material Composting Operations.” SJVUAPCD, August 18, 2011 and its Appendices.
3. “Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations,” (a.k.a., Bluebook) EPA OAQPS, May 25, 1988.
4. “Guidance Document for Correcting Common VOC & Other Rule Deficiencies,” (a.k.a., Little Bluebook), EPA Region 9, August 21, 2001
5. Portions of the proposed post-1987 ozone and carbon monoxide policy that concern RACT, 52 FR 45044, November 24, 1987.
6. “State Implementation Plans, General Preamble for the Implementation of Title I of the Clean Air Amendments of 1990,” 57 FR 13498, April 16, 1992.
7. “Preamble, Final Rule to Implement the 8-hour Ozone National Ambient Air Quality Standard,” 70 FR 71612, November 29, 2005.
8. “Reasonably Available Control Technology (RACT) Demonstration for Ozone State Implementation Plans (SIP)” SJVUAPCD, April 16, 2009.

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<sup>7</sup> Compost VOC Emission Factors, September 15, 2010. <http://valleyair.org/Workshops/postings/2010/9-22-10-rule4566/SJVAPCD%20Compost%20VOC%20EF%20Report%209-15-10.pdf> (SJVUACPD Workshop September 22, 2010)

9. Letter from William T. Hartnett to Regional Air Division Directors, “RACT Qs & As – Reasonable Available Control Technology (RACT): Questions and Answers,” EPA, May 18, 2006.
10. SCAQMD Proposed Rule 1133.3: Emission Reductions from Greenwaste Composting Operations, adopted July 8, 2011
11. “Final Staff Report for Proposed amended Rule 1133.1 – Chipping and Grinding Activities; Proposed Rule 133.3 – Emission Reductions from Greenwaste Composting Operations, SCCQMD, July 2011
12. Partial Approval and Partial Disapproval of Air Quality Implementation Plans; California; San Joaquin Valley; Reasonably Available Control Technology for Ozone, 77 FR 1417, January 10, 2012