



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

April 11, 1991

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

**MEMORANDUM**

SUBJECT: Capture Efficiency Test Method

FROM: John Calcagni, Director  
Air Quality Management Division (MD-15)

TO: Michael H. Shapiro, Deputy Assistant Administrator  
For Air and Radiation (ANR-443)

THRU: John S. Seitz, Director  
Office of Air Quality Planning and Standards (MD-10)

During your visit to Region IV, the Air Division staff discussed concerns about timely State submission of capture efficiency test methods as part of the effort to correct regulations that represent reasonably available control technology (RACT) for volatile organic compounds (VOC's). This memorandum provides some background on the issue and presents the Office of Air Quality Planning and Standards' (OAQPS') current position.

**BACKGROUND**

As you may be aware, many kinds of sources of evaporative VOC's (e.g., graphic arts printers, surface coating operations) may control their emissions by collecting those emissions (through hoods, fans, ductwork, etc.) and venting those emissions to a control device (e.g., a carbon adsorber or incinerator). To ascertain the level of control applied in these cases, a control agency needs to know not only the destruction or removal efficiency of the control device, but also the relative collection efficiency of the hooding, fans, etc.

Historically, many States had not specified a method in their State implementation plan (SIP) regulations for measuring capture efficiency. When States did specify methods, they were not precise enough to allow appropriate EPA enforcement. Therefore, as part of the overall effort to correct deficient ozone regulations, EPA took steps to develop guidance to aid States in adopting capture efficiency test methods. Those steps are presented in Attachment 1.

**CURRENT POSITION**

Since all of our guidance relative to capture efficiency was issued prior to the November 1990 passage of the Clean Air Act Amendments of 1990, States are required by the new Act revisions to make appropriate changes by May 15, 1991. In response to the Gerald Emison memorandum dated May 25, 1989, however, several Regions (at least Regions IV and VI) have negotiated grant conditions relating to correction of capture efficiency problems, and these schedules extend beyond the May 15, 1991 deadline. It was the OAQPS staff's understanding that the John Seitz memorandum dated April 16, 1990 (Attachment E) "started the clock" for the States to develop and submit capture efficiency

test methods. Nevertheless, the language in the April 16, 1990 memorandum was apparently not clear to some on this point and may have resulted in a misunderstanding. Therefore, States that are following the memorandum of May 25, 1989 from Gerald Emison (Attachment C), and that have committed to adopt capture efficiency test methods by a near-term date after May 15, 1991 should not receive notices of failure to submit the methods on the same schedule that results from failure to submit other required revisions. The Regional Offices should ensure that all States that lack a capture efficiency test method have submitted a commitment to adopt a method by a near-term date after May 15, 1991. Until they adopt a test method, however, States (and EPA Regional Offices) are expected to use the recommended methods on a case-by-case basis consistent with the May 25, 1989 Gerald Emison memorandum.

## **OTHER SIMILAR ISSUES**

Several Regional Offices have informed us of other similar issues related to the May 15, 1991 deadline for submission of RACT corrections. A discussion of these follows.

1. Late Identification of Deficiencies--Although all Regional Offices identified deficiencies in their original SIP calls in 1988 and 1989, a number of Regional Offices subsequently became aware of other deficiencies and so notified their States. In some cases, the States were not notified of these deficiencies until after the date of enactment of the Clean Air Act Amendments of 1990 (November 15, 1990). We believe that, although the Act still requires that these deficiencies be corrected, it would be unfair to require correction by the May 15, 1991 deadline. Therefore, we are instructing the Regional Offices not to make findings of failure to submit if a State does not submit such corrections by the May 15, 1991 deadline. The Regional Offices should, however, develop a schedule that requires submission of the corrected rules by a near-term date after May 15, 1991.
2. RACT for Major Sources Not Covered by Control Techniques Guidelines (CTG's) -- A number of identified deficiencies by States to submit RACT rules for major non-CTG sources. Although these regulations are also part of the RACT "fix-up" required to be submitted by May 15, 1991, a number of States may not be able to submit such rules by that time. These rules must generally be developed on a source-by-source basis with little previous technical guidance available to aid the State. Furthermore, even if a State fails to submit such a rule, EPA may not have sufficient resources to develop replacement rules for proposal as a Federal implementation plan in many cases. Therefore, we are advising the Regional Offices that they should avoid making findings of failure to submit if a State fails to submit a non-CTG RACT rule by the May 15, 1991 deadline. We recommend that States be given until the time that the RACT "catch-ups" under section 182(b)(2) are due (by November 15, 1992).

I will keep you informed of our progress on these issues. I hope that this provides clarification of the issue raised by Region IV.

Attachments

cc: Director, Air, Pesticides and Toxics Management Division, Regions I, IV, VI  
Director, Air and Waste Management Division, Region II  
Director, Air Management Division, Regions II, IX  
Director, Air and Radiation Division, Region V  
Director, Air and Toxics Division, Regions VII, VIII, X

bcc: J. Silvasi  
T. Helms  
J. Calcagni

## Attachment 1

### DEVELOPMENT OF CAPTURE EFFICIENCY TEST METHOD GUIDANCE

#### --RECENT CHRONOLOGY--

1. November 24, 1987--EPA publishes proposed post-1987 ozone policy. Appendix D of that proposed policy noted that deficient test methods must be corrected. Specifically on page 45108, the notice emphasizes the need for accurate capture efficiency tests (see Attachment A).
2. May 1988--EPA publishes the document, Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations (the "Blue Book"). Page 2-12 of that document indicates that capture efficiency test methods must be specified where capture efficiency is discussed or implied in the VOC emission limit (see Attachment B). The document, however, indicated that States were to use the most recent EPA guidance on capture efficiency testing.
3. May-June 1988--EPA Regional Offices (RO's) issue SIP calls. These calls were made to States for areas that had not attained the national ambient air quality standard for ozone by the end of 1987. (Additional SIP calls were made in mid 1989 based on new air quality data collected in 1988.) As part of the SIP calls, the RO's identified cases where State rules lacked capture efficiency test methods.
4. May 25, 1989--Gerald Emison memorandum issued. This guidance to the RO's indicated that an acceptable response to the SIP calls would be a commitment by the State to use test methods consistent with the most recent EPA guidance on capture efficiency testing on a case-by-case basis and a commitment to develop generally applicable test methods after EPA issues final capture efficiency test methods (see Attachment C).
5. December 27, 1989--Chicago Federal Implementation Plan (FIP) proposed in Federal Register. EPA was required, under court-approved settlement agreement, to propose VOC RACT rules for Chicago. The notice proposed that protocols for determining capture efficiency conform to the Draft Guideline Document for Measuring Capture Efficiency (June 14, 1989). The proposal indicated that the "final version of this document shall replace the subject draft document when the draft document is finalized."
6. March 16, 1990--John Seitz memorandum issued. This memorandum provided guidance on how to address capture efficiency when enforcing current SIP regulations and required the Regions to use the test protocols attached to the memorandum (not attached here for brevity). (See Attachment D.)
7. April 16, 1990--John Seitz memorandum issued. This guidance to the RO's transmitted the capture efficiency procedures that States should use in specifying test methods in their rules. This guidance was considered sufficient for States to develop capture efficiency test methods for inclusion in their SIP's (see Attachment E; enclosure to attachment not included because of length).
8. June 29, 1990--Chicago FIP published. EPA was required, under court- approved settlement agreement, to publish the VOC RACT rules in final form for Chicago. This rule delineated the capture efficiency test method which was based on the final capture efficiency protocols contained in the April 16, 1990 memorandum. The final capture efficiency guidance was substantially the same as the draft on which the December 27, 1989 proposal was based.

9. August 3, 1990--The OAQPS distributed model regulatory language to the Regions (see Attachment F; enclosure to Attachment F not enclosed here for brevity). This guidance was intended to facilitate State adoption of capture efficiency test procedures into their regulations; this was based on the language developed for the Chicago FIP. Note, however, that the Regions had all the necessary information to adopt test methods from the memorandum of April 16, 1990, so States had over a year before the Clean Air Act's mandatory date of May 15, 1991 to correct all VOC RACT rules. (Even if they did not, the Clean Air Act's deadline would appear to override any date EPA may have established administratively.)

Attachment A

Page 45108

Federal Register/Vol. 52, No. 226/Tuesday, November 24, 1987/Notices

## Attachment B

### TEST METHODS AND CAPTURE EFFICIENCY

- Use most current VOC test methods (See Attachment 4). For auto topcoating operations, see page 2-22.
- All methods must be specified in the SIP.
- Procedures should allow verification of accuracy of test data.
- Prescribe capture efficiency test method where capture efficiency is discussed or implied in limit (e.g., web-coating operations with add-on control).
- Employ most recent EPA guidance on capture efficiency testing.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
RESEARCH TRIANGLE PARK, NC 27711

May 25, 1989

**OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS**

**MEMORANDUM**

**SUBJECT:** Correcting Capture Efficiency (CE) Regulations

**FROM:** Gerald A. Emison, Director  
Office of Air Quality Planning (MD-10)

**TO:** Director, Air Management Division  
Regions I, III, IX  
Director, Air and Waste Management Division  
Region II  
Director, Air, Pesticides, and Toxics Division  
Regions IV, VI  
Director, Air and Radiation Division  
Region V  
Director, Air and Toxics Division  
Regions VII, VIII, X

The Office of Air Quality Planning and Standards (OAQPS) has received a number of requests for additional guidance and clarification relative to CE requirements for volatile organic compound (VOC) emission limiting regulations. This memo is to provide information on the status of that guidance and our expectation regarding State implementation plan (SIP) submittals.

**STATUS OF GUIDANCE**

A generally applicable test method for CE cannot be published at this time because of the variety of configurations of sources that would be subject to the tests.

Basic principles for determining CE are presented in a July 7, 1980 memo entitled "Determination of Capture Efficiency" from Jim Berry of the Emission Standards and Engineering Division [now the Emission Standards Division (ESD)] to Region IV (copy attached). The Technical Support Division (TSD) will shortly issue a memo that provides guidance on the sampling regimen and describes procedures and conditions that cause inaccuracies which should be considered. Test methods developed in accordance with the principles set forth in the above-noted memos should standardize measurements of CE insofar as possible. Standardization is often difficult, however, considering the diversity of processes for which CE must be measured or the variety of feed streams which must be metered and analyzed as part of a conventional material balance. Thus, it is not presently possible to specify a generic method to be applied in all cases.

Separate protocols are being developed with details for conducting any of three kinds of tests; these draft protocols may form the basis for a State to develop case-by-case test methods. The first, developed around the concept of temporarily enclosing the process and measuring all VOC's that exit from the enclosure, is now available from ESD. The others include, a comprehensive liquid-to-gas

material balance and a gas-to-gas material balance without a temporary enclosure. These protocols should be available by late this summer, after which EPA will conduct confirming tests for all three protocols. The EPA has also proposed a CE test for the rubber tire manufacturing industry (54 FR 6850, February 14, 1989) that includes a simplified liquid-to-gas material balance method. This method would be applicable in some unique cases when only a single solvent is used and the coatings dry by evaporation (no reaction by-products are formed).

A separate memorandum currently under development will provide guidance on ongoing enforcement cases that involve CE testing.

### **IMPLICATIONS FOR "SIP CALL" SUBMITTALS**

The May 25, 1988 document entitled "Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations" (also known as the "blue book") says, in regard to CE, that State regulations must:

- “ • Specify CE test method where CE is discussed or implied in the limit (e.g., webcoating operations with add-on control)
- Employ the most recent guidance on CE testing (guidance forthcoming).”

Until EPA issues final CE test methods, an acceptable response to the SIP call will be a commitment to develop test methods consistent with the most recent EPA guidan