

April 18, 1997

## **Region 7 Policy on Periodic Monitoring for Opacity**

### **Purpose and Scope**

The purpose of this document is to provide guidance to permitting agencies and sources in EPA Region 7 on selecting appropriate periodic opacity monitoring for Title V sources which are subject to an opacity requirement. This policy is intended to encourage consistent application of the periodic monitoring requirements of 40 CFR §70.6(a)(3) and corresponding requirements of permitting agencies. Failure by a permitting agency to consider the policy and to document periodic monitoring in the permits' public record may result in an EPA objection to the permit.

### **Initial Compliance Certification for Opacity**

Part 70 requires that the Title V permit application include an initial compliance certification. It is anticipated that any Title V application not yet submitted as of the date of this guidance will include whatever information is available to document the source's compliance with any generic opacity standard at the time of submission, including the results of any annual state or local agency inspection.

### **Ongoing Compliance Certification for Opacity**

#### **General Principles**

Opacity limitations apply during all periods of source operation, except for certain time periods due to startup, shutdown, or malfunction as specified by rule.

Once-a-year or other infrequent inspections by a state or local agency do not satisfy the requirements for ongoing periodic monitoring of opacity. Periodic monitoring is a *source* responsibility.

A source has an obligation to certify, at least once per year or more often as required by the permit authority, whether compliance with the applicable opacity standard was continuous or intermittent. Implicit in this obligation is that the *source* has collected data throughout the compliance period for which they can then rely on when making the certification.

To the extent possible, a source should use the appropriate reference method to verify compliance with opacity limits. However, Reference Method 9 and continuous opacity monitors (COMS) are not a practical solution for all situations.

Routine source surveillance, along with record keeping and reporting of the results of the surveillance should provide some assurance that sources are meeting their visible emissions requirements. This daily, routine operation and maintenance practice results in more environmental benefit than less frequent, “official” compliance determinations.

It is not practical for a state or local agency to inspect every facility on a frequency that provides meaningful assurance that they are meeting their visible emission requirements on a continuous basis. To minimize any doubts, the permit authority should require the source to certify at least annually -- or more frequently -- that they conducted a visible emissions survey each day the plant operated and that they were in compliance with, or in violation of, with the applicable opacity requirements. Public complaints and department inspections should also help to verify the validity of source observations.

## **General Strategy**

Even though preferred, COMS or Method 9 readings may not be appropriate for every situation. For example, COMS or Method 9 readings on clean gas-fired boilers or internal combustion engines, or other infrequently operated equipment may not provide fruitful results. The following approach outlines a hierarchy that can be used to select the appropriate “monitoring” technique for each piece of air pollution equipment at a plant. Where appropriate, the permit authority may elect to mix the “tiers” to match the appropriate situation.

### **Tier 1**

COMS are the preferred visible emissions measurement technique. COMS create an unbiased, continuous, and permanent record of opacity. In conjunction with a periodic quality assurance program and the regulatory authority’s ability to use “any credible evidence” to establish a violation, COMS may be used to assess whether a source is in compliance. Where the source already has a COMS, the instrument would be used as the periodic monitoring device.

COMS are appropriate for vents or stacks which carry a major portion of the plant’s particulate or other condensible emission streams. For example, coal-fired boilers are good candidates for COMS. In addition, any other equipment for which an NSPS establishes a COMS requirement -- whether NSPS affected or not -- should be considered strong candidates for COMS. EPA has already verified that COMS are both technically and economically feasible for a large number of emission units, including industrial, institutional, commercial, and utility steam boilers firing other than natural gas or “clean” fuel oil, fluidized catalytic cracking units, portland cement kilns and clinker coolers, primary metal smelters, ferroalloy and steel arc furnaces, pulp mill recovery furnaces, glass melting furnaces, rotary lime kilns, and phosphate rock and other mineral dryers, calciners, and grinders. The above list is not meant to limit the source types for which COMS may be appropriate, but instead provides examples of the sources types for which COMS already work.

When evaluating Title V permit applications that involve emissions units at the source types described above, the presumption is that COMS will be specified by the permit authority as the opacity measurement method. The responsibility to show that COMS are not technically or economically feasible for a particular installation, and that lesser monitoring under Tiers 2 or 3 is more appropriate, rests with the permit applicant.

## **Tier 2**

Alternatives to COMS may be acceptable if such devices are not technically or economically practical. For example, wet, condensible plumes or roof vents that exceed the practical path length of an opacity monitor present technical challenges for which COMS may not be appropriate. In addition, the economics of installing COMS on multiple opacity emission points or low capacity factor units may not be justifiable. In these cases, lesser monitoring under Tiers 2 and 3 may be appropriate. Reasons for selecting lesser monitoring requirements under Tiers 2 and 3 should be fully explained in the permit statement of basis or other documents contained in the permit administrative record.

“Lesser monitoring” may include visual observations by Reference Method 9, a plant-wide visible emissions survey, measurement of other surrogate parameters, or a combination of one or more of these measures to evaluate whether opacity is likely being met or not.

### Visual Observations

Method 9 is the preferred visual observation method. To the extent practicable, a source should attempt to record daily opacity measurements on each emission point subject to an opacity standard. Of course, readings would only be required when the emission unit is operating and when the weather conditions allow. Method 9 data may be used by EPA, the state or local agency, and the public as direct evidence of an opacity violation.

In those cases where Method 9 readings are impractical because of a large number of emission points or because a certified Method 9 observer is not available, the source representative would note the visible emissions performance of the plant each operating day. Specifically, the source would first conduct a quick survey of the entire plant. In most cases, this “qualitative” assessment shouldn’t take more than 10-15 minutes, even for complex sources. The source representative would maintain a daily log noting 1) whether any air emissions (except for water vapor) were visible from the plant, 2) all emission points from which visible emissions occurred, and 3) whether the visible emissions were normal for the process. If no visible or other significant emissions are observed then no further observations would be required.

For those emission points with visible emissions perceived or believed to exceed the applicable opacity standard, the source representative would attempt to record formal Method 9 readings for the emission points of concern. If Method 9 readings can not be obtained, the source would also indicate 1) the color of the emissions, 2) whether the emissions were light or heavy, 3) the cause of the abnormal emissions, and 4) any

corrective action taken. For a source with many emission points, such as a quarry operation, the representative could make a statement or use a check sheet that, for example, would indicate that “all 57 emission points had normal visible emissions today, except for emission points 1, 3, and 5”, and further describe any corrective action taken. Whether recording “qualitative” visible emission characteristics or taking Method 9 readings, the source operator should also document the total duration of any visible emission incident as part of the log described above.

Where a source opts to record “qualitative” visible emissions data, rather than record official Method 9 readings on a daily basis, it may be prudent for the source to bring in a certified Method 9 observer to periodically “quantify” visible emissions. For example, if the permit authority requires the source to make an annual compliance certification, these periodic Method 9 readings along with the daily survey results would give the responsible official some reasonable assurance that the source is meeting its opacity obligations.

In all cases, we recommend that all persons responsible for making visible emission observations acquire basic training in the general principles and practices of “reading” opacity. At a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water. EPA’s Reference Method 22, found at 40 CFR Part 60, Appendix A, suggests two references in Section 7 that may be helpful.

#### Other Surrogate Means

A source may also propose alternative methods that relate other process measurements to the level of opacity. For example, a source may be able to show that a properly functioning baghouse should result in no excess visible emissions as long as it operates within an established pressure drop range. As another example, a source of particulate emissions controlled by a fabric filter may choose to perform periodic monitoring of opacity with a triboflow monitor reading as a surrogate indicator. Any increase in the triboflow reading would be assumed to result in an increase in opacity. Like COMS, these methods likely produce a continuous and unbiased record of emission unit performance.

The responsibility for establishing the relationship between the process parameter and opacity rests solely with the source operator. As described above, the source would make measurements, at least daily, to establish a reasonable assurance that they are in compliance with the opacity standards on a continuous basis.

These “qualitative” data, collected via the source site survey or by surrogate means, would only be indicators of a problem, prompting the state to step up its surveillance if opacity problems persist. In addition, quality-improvement- principles could be used to select the appropriate visible emissions measurement method to require the source to step up to the next “higher” monitoring system Tier if opacity problems are repeated. In other words, if a source continually

has problems with opacity, it may be appropriate for the permit authority to revise the monitoring method to Method 9, or to go straight to an opacity monitor.

### **Tier 3**

Certain sources may not benefit from evaluating and recording opacity on a daily basis, where little or no opacity problems are expected. For example, a boiler firing natural gas may only experience opacity problems during startup, shutdown, or malfunction, or during use of an emergency fuel like oil. In these cases, the source could easily observe the appropriate emission points during these special periods of time. Other sources for which opacity problems would be expected to be minimal include natural gas fired IC engines, natural gas fired turbines, and other gaseous streams where particulate matter or other condensibles are not expected to present problems. In these cases, the source may submit a justification in its application to the permit authority to approve less frequent opacity monitoring.

### **Effect of the Policy**

This policy may not be used to relax any compliance methodology required by the SIP, NSPS, NESHAP, MACT, federally enforceable preconstruction or operating permit, or other federally imposed standard without first completing the proper rulemaking procedures.

Nothing in this policy precludes the permit authority from establishing more rigorous opacity monitoring requirements.

Nothing in this strategy precludes the permit authority, EPA, or the public-at-large from pursuing enforcement where opacity excursions are deemed excessive.

This policy does not preclude EPA from objecting to a permit as authorized under Part 70.

This policy is not intended as rulemaking or other action described in Section 307(b) of the Clean Air Act nor does it create new requirements not already required by the periodic monitoring provisions under Title V. As permit authorities gain more experience in working with periodic monitoring this policy may be revised to better reflect that experience.

### **Public Availability**

The Region will place this policy on our web site [[www.epa.gov/region07/](http://www.epa.gov/region07/)] under “Air Program, Policies and Guidance”. Title V permit authorities are also free to distribute to sources potentially affected by the policy.