

**VOLUME I  
ENFORCEMENT PROCEDURES**

**PART 1  
EVALUATION OF VISIBLE EMISSIONS**

REF:        Regs.    6,        11-2  
                      10,        12-4  
                      California Health and Safety Code section 41701

**1) INTRODUCTION**

Various District regulations contain a visible emission standard. Compliance with these standards is determined by visual observation. Observers are trained to make field evaluations by a certification process involving repeated observation of smoke plumes with a known darkness or opacity.

This Part of the Manual of Procedures adopts as District procedure a U.S. Environmental Protection Agency (EPA) method for certifying observers and making observations in the field. The EPA method is modified to permit its use with District regulations, state law, and federal standards.

**2) APPLICABILITY**

Modified EPA Method 9 is to be used for certifying observers and for determining compliance with District regulations, with state law, or with certain federal standards enforced by the District. All field observations of visible emissions will comply with this Part.

**3) ADOPTION OF MODIFIED METHOD 9**

EPA Method 9 (40 C.F.R., Part 60, Appendix A, Method 9) is hereby adopted for certifying observers and for field evaluations of visible emissions. Method 9 is modified in the following respects: 1) readings may be expressed in Ringelmann numbers or in opacity, and 2) violations may be established by readings showing emissions of the magnitude and duration specified in the applicable standard.

## 1. EVALUATION OF VISIBLE EMISSIONS

REF: Regs. 6-301, 6-303, 6-304,  
10-1-302,  
12-4-301, 12-4-302

### 1.1 INTRODUCTION

The following guidelines have been developed to assure the uniform evaluation of visible emissions by a trained observer, and should be utilized with every observation to the extent they are applicable, and to whatever extent time and physical circumstances reasonably permit.

### 1.2 OBSERVERS LOCATION

1.2.1 Observations shall be made such that the line of sight is approximately at a right angle ( $90^{\circ}$ ) to the path of the plume.

1.2.2 The plume should be observed against a suitable background, at its point of maximum obscuration. Whenever possible, black plumes should be evaluated using a blue sky background and white plumes should be evaluated using a dark contrasting background.

1.2.3 Daylight observations should be made with the observer facing away from the sun.

1.2.4 Observations during hours of darkness should be made with the aid of a light source. This source of light may be ambient or artificial depending upon prevailing conditions and should emanate from behind the plume, opposite the observer.

1.2.5 When evaluating an elevated source the observer should be located at a suitable distance from the source. This location, depending upon viewing conditions, should normally fall somewhere between two stack heights and a quarter of a mile from the source.

### 1.3 TIME INTERVAL BETWEEN READINGS

Readings shall be noted at approximately 15 seconds intervals during the observation. Each 15 second momentary observation recorded shall be deemed to represent the average value of emissions for that 15 second period.

Reading intervals up to 1 minute shall be permitted where the appearance of the emission does not vary during such interval.

### 1.4 INTENSITY AND DURATION OF EXCESSIVE VISIBLE EMISSIONS

Regulation 2 states that any visible emission as dark or darker than a Ringelmann #1, for more than 3 minutes in any 60 minute period, is considered to be excessive. Our current policies and procedures, recognizing the subjectivity of the Ringelmann system, specify that a visible emission must be as dark or darker than a Ringelmann 1 1/2 to be considered excessive.

### 1.5 WET PLUMES

Wet plumes are defined as "Those plumes where the presence of uncombined water is the only reason for the failure of an emission to meet the limitations of Regulations 6-301, 6-303 and 10-1-302.

The guidelines for the evaluation of "Wet" plumes are as follows:

1.5.1 Residual plume is that part of the plume which continues to exist after the apparent evaporation of the water droplets emitted.

1.5.2 No violations will be written on wet plume without a residual plume.

1.5.3 Residual plumes which appear, in the judgment of the viewer, to be more than Ringelmann #1 when the relative humidity is less than 60 percent, will be considered to be in violation.

1.5.4 Changes in staff practices will be publicized and made available, particularly to those known to us to be interested in regulations on wet plumes.

## 1.6 QUALIFICATION CRITERIA FOR EVALUATION OF VISIBLE EMISSIONS

1.6.1 Certification. The Inspector must qualify on both black and white plumes at the plume evaluation training school. Qualification on either plume shall consist of meeting the following requirements during both Daylight and Night training sessions.

Observe and successfully evaluate the opacity of one run of black smoke and one run of white smoke in accordance with the following requirements:

1.6.1.1 The deviation of any reading must not be greater than 15%.

1.6.1.2 The average deviation for both black and white runs must be less than 7.5%.

1.6.2 The following definitions apply:

1.6.2.1 A "run" consists of 25 consecutive observations.

1.6.2.2 "Single reading deviation" means the absolute value of the difference between the calibrated meter's reading and the Inspector's record on an individual observation. This single reading deviation is expressed as a percentage on the basis that each full Ringelmann number represents 20%. Each one quarter Ringelmann then represents 5%.

1.6.2.3 "Average deviation" of a run is obtained by adding the absolute values of all the single reading deviations of the run, disregarding plus and minus signs, and dividing by the total number of single readings in the run.

1.6.3 Maintenance of certification -

1.6.3.1 The Inspector must satisfactorily complete the Certification Procedure every 6 months (twice/year) in order to maintain certification.