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**Proposed language change for BAAQMD 2-1-603:**

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- 2-1-603.1     **Particulate Matter Emission Measurements:** The method for measurement of filterable PM<sub>2.5</sub> and/or PM<sub>10</sub> shall be selected according to its applicability to the source; EPA Method 201A where applicable (e.g. stack gas not saturated with water vapor, stack temperature low enough for practical use of the apparatus, etc.), or EPA Method 5 or Method 17, or other applicable method upon approval of the BAAQMD. The method for measurement of condensable PM shall be EPA Method 202, or other applicable method upon approval of the BAAQMD. Other methods, including dilution techniques such as EPA CTM-039, may be used upon approval of the BAAQMD.
- 2-1-603.2     **Particulate Matter Ambient Air Measurements:** PM<sub>2.5</sub> and PM<sub>10</sub> concentrations in ambient air shall be measured as prescribed in 40 CFR Parts 50, 53 and 58.

I would like to formally comment on the content of Section 2-1-603. Much attention has been paid to the permitting aspects of the proposed new Rule, yet little attention has been paid to the test methods meant to prove compliance. **THIS IS VERY IMPORTANT!**

Background: The Avogadro Group is one of the 10 largest emission testing companies in the US. We have attended more than 25 technical conferences on the subject of measurement of PM<sub>2.5</sub> emissions in the last 3 years, and have often presented papers and/or chaired sessions on the subject. Avogadro is nationally recognized for technical expertise with development, operation and application of the test methods.

The present language in the proposed Section 2-1-603 will prevent proper application of the test methods in many cases. While we understand the need to provide unambiguous direction, the application of these methods is more complicated.

The testing challenges or complications include:

1. Method 201A is not applicable to “wet” sources.
2. Method 201A is not usable in sources above about 450 to 500 degrees F.
3. Method 201A has a higher detection limit – or it requires a longer test run to collect the same amount of sample and meet the same detection limit. A source operator may prefer to measure the total filterable PM and report it all as PM<sub>2.5</sub> in order to save time and cost of longer operation at full load conditions, and to save the extra expense of the longer test runs. Note that at some sources, nearly all of the filterable PM may be PM<sub>2.5</sub> anyway.

EPA Method 201A, Section 1.5, states that,  
“You cannot use this method to  
measure emissions in which water droplets are present...”  
and also states that,  
“Because of the temperature limit of the O-rings used in this sampling  
train, you must follow the procedures in Section 8.6.1 to  
test emissions from stack gas temperatures exceeding 205oC (400oF).”

EPA Method 201A, Section 8.6.1, states that,  
“This method may not be suitable for sources  
with stack gas temperatures exceeding 260oC (500oF) because  
the threads of the cyclone components may gall or seize,  
thus preventing the recovery of the collected PM and  
rendering the cyclone unusable for subsequent use.

You may use stainless steel cyclone assemblies constructed with  
bolt-together rather than screw-together assemblies at  
temperatures up to 538oC (1,000oF). You must use “breakaway”  
or expendable stainless steel bolts that can be overtorqued  
and broken if necessary to release cyclone  
closures, thus, allowing you to recover PM without damaging  
the cyclone flanges or contaminating the samples. You may  
need to use specialty metals to achieve reliable  
particulate mass measurements above 538oC (1,000oF). The  
method can be used at temperatures up to 1,371oC (2,500oF)  
using specially constructed high-temperature stainless  
steel alloys (Hastelloy or Haynes 230) with bolt-together  
closures using break-away bolts.”

Since at present no equipment manufacturer makes a high-temperature, break-away bolt type cyclone set, the cost to acquire such a device could easily exceed \$10K to \$15K. This is an idea that EPA had, but has not been tried in the field (even by them) due to the expense. Most emission sources would in such a case opt to measure filterable total PM using Method 5 and report it all as PM<sub>2.5</sub> emissions.

The BAAQMD Rule should allow the flexibility to apply the test methods appropriately, but with as little ambiguity as possible. I have attached proposed language for Section 2-1-603. We welcome the opportunity to discuss language that would be technically accurate and legally defensible.

Regards,  
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