

Ohio EPA

Office of Air Pollution Control

Engineering Guide #17

Question:

Under what authority may we require a company to perform a compliance test for a boiler at the normal operating rate? Please cite specific language in the regulations. Under what circumstances should we require such a test? If we require a company to conduct compliance tests at both the maximum capacity and the normal operating rate, and the company has requested an equivalent visible emissions limitation (EVEL), should separate EVELs be established for each operating rate? When is the difference between the maximum capacity and the normal operating rate sufficient to justify two separate compliance tests? (These questions were submitted by Dennis Bush of the Northeast District Office on May 21, 1980.)

Answer :

OAC rule 3745-17-10 gives the maximum allowable emission rate for any existing boiler with a maximum capacity greater than 1.0 MM BTU/hr. The maximum allowable emission rate is given in terms of pounds of particulate emissions per million BTU (lbs/MM BTU) of actual heat input. Although this allowable emission rate is based upon the maximum capacity of a boiler, or upon the total heat input for two or more boilers which are physically and/or operationally united, the allowable emission rate must be met during any actual heat input including heat inputs that are less than the boiler's maximum capacity.

The goal of any compliance testing is to accurately quantify the actual or controlled emission rate during operating conditions that realistically reflect the highest emission rate for the source. Such operating conditions would not include malfunctions, start-ups or shutdowns.

Normally, the highest emission rate for a particular source will be obtained while the source is operating at its maximum capacity. However, for coal-fired boilers that are controlled with multiple cyclones that were designed to comply with OAC rule 3745-17-10 while the boiler is operating at maximum capacity, the highest emission rate (lbs/MM BTU) may occur while the boiler is operating at the normal operating rate. This assumes that there is a significant difference between the maximum capacity and the normal operating rate and that a "normal" operating rate can be clearly discerned. (For example, if the steam load for a boiler fluctuates dramatically versus time as with a swing-load unit, it will not be possible to clearly discern a normal operating rate.) For such boilers, it

is not unreasonable to require the facility to conduct compliance tests at both the maximum capacity and the normal operating rate of the boiler. This is especially true if substantially higher opacities are evident from the boiler at the normal operating rate.

The authority to require this additional stack testing is clearly provided within paragraphs (C)(1) and (C)(3) of OAC rule 3745-35-02 and/or paragraph (A) of OAC rule 3745-15-04, provided such testing is necessary to ensure compliance with the limitation prescribed by OAC rule 3745-17-10.

If it is necessary to require an additional compliance test at the normal operating rate and the owner of the source also requests an EVEL, visible emission readings should be performed during the stack testing for both operating rates in accordance with Engineering Guide #13. If the entity demonstrates compliance with OAC rule 3745-17-10, and an EVEL is necessary, the EVEL should be based upon the operating rate that would give the higher opacity limitations. Separate EVELs should not be established for each operating rate.

Finally, it is difficult, if not impossible, to give a general rule as to when the difference between the maximum capacity and the normal operating rate would be sufficient to warrant two separate compliance tests. This determination is relatively complicated and would depend upon such factors as the allowable emission rate, the controlled emission rate at maximum capacity, the results of visible emissions readings, the actual difference between the two operating rates and how that difference affects the gas flow rates from the boiler, and the design specifications of the multiple cyclone. Due to the complexity of the determination, it must, of necessity, be left to the good judgment of the field office personnel. If after evaluating these factors, the field office personnel believe that compliance with OAC rule 3745-17-10 is questionable at the normal operating rate, then additional stack testing should be required.

JO/JC/jse

August 26, 1980

(reviewed and revised [with only minor changes] on 11/13/06)