

which equates to about 0.06 weight percent sulfur or 600 parts per million by weight (ppmw). When natural gas is combusted, there is no possibility of exceeding the subpart GG sulfur limit of 0.8 weight percent.

4. Sulfur and Nitrogen Content for Turbines Firing Gaseous Fuels Other Than Natural Gas

Units that fire a gaseous fuel that is supplied without intermediate bulk storage, but is not natural gas, must determine and record the sulfur content and (if applicable) nitrogen content once per day. Alternatively, these units may follow one of two custom sulfur sampling schedules outlined in the direct final rule, or they may develop a custom schedule that is approved by the Administrator. One custom schedule requires daily sampling for 30 consecutive unit operating days. Provided the data indicate compliance, the frequency can then be reduced according to specific criteria. Unit operating day is now defined in 40 CFR 60.331.

Units may also follow a custom schedule based on the 720-hour sulfur sampling demonstration described in 40 CFR part 75, appendix D. Under both schedules, if the margin of compliance is large, the sampling frequency can eventually be reduced to annually. We are codifying these two custom schedules that have routinely been approved under the subpart GG provision that allows sources to develop custom schedules for fuel sampling that must be approved by the Administrator.

D. Steam Injection

Sources that are using water injection currently can monitor the ratio of water to fuel, as well as fuel consumption, to demonstrate compliance with the NO_x standard. We are allowing sources that are using steam injection to monitor the ratio of steam to fuel and fuel consumption to demonstrate compliance. Steam injection is another method of NO_x control, and water and steam injection are the wet methods usually used. Steam injection monitoring is an acceptable type of parametric emission monitoring method.

E. Test Methods for Sulfur Content and Nitrogen Content of Fuel

When subpart GG was originally promulgated, no test methods were specified for monitoring the nitrogen content of the fuel. We are specifying American Society of Testing and Materials (ASTM) D2597-94(1999), ASTM D6366-99, ASTM D4629-02, or ASTM D5762-02 as acceptable methods

for liquid fuels. As the National Technology Transfer and Advancement Act requires, we have identified these voluntary consensus standards and are citing them for use. We are not adding any methods for determining the fuel-bound nitrogen content of the fuel being fired for gaseous fuels because none were identified. We do not expect any source owner to use a gaseous fuel with sufficient fuel bound nitrogen present to claim a credit. Any source owner proposing credit for fuel bound nitrogen in a gaseous fuel will have to document an acceptable method. We have amended subpart GG to allow the use of most of the methods specified in sections 2.2.5 and 2.3.3.1.2 of 40 CFR part 75, appendix D to determine the total sulfur content of gaseous fuel. The alternative methods for total sulfur provide more flexibility and harmonize with the requirements in 40 CFR part 75. The method ASTM D3031-81 has been deleted from the final rule because it was discontinued by the ASTM in 1990 with no replacement. If the total sulfur content of the fuel being fired in the turbine is less than 0.4 weight percent, we are adding a provision that the following methods may be used to measure the sulfur content of the fuel: ASTM D4084-82 or 94, D5504-01, D6228-98, or the Gas Processors Association Method 2377-86. This provision is consistent with the provision in 40 CFR 60.13(j)(1) allowing alternatives to reference method tests to determine relative accuracy of CEMS for sources with emission rates demonstrated to be less than 50 percent of the applicable standard.

F. Performance Testing

To measure the NO_x and diluent concentration during the performance test, we are adding EPA Method 7E of 40 CFR part 60, appendix A used in conjunction with EPA Method 3 or 3A of 40 CFR part 60, appendix A as an acceptable alternative to EPA Method 20. In addition, we are adding ASTM D6522-00 as another alternative to EPA Method 20. If ASTM D6522-00 or EPA Methods 7E and 3 or 3A are used, sampling must be conducted at a minimum of three traverse points, due to concerns about potential stratification of pollutant concentrations in the turbine stack.

Subpart GG previously required the NO_x initial compliance testing to be conducted at four different loads across the unit's operating range. This testing was required because of the difficulty in predicting which operating load will represent worst case conditions when monitoring operational data. Testing, therefore, was done across the operating

range to determine the water to fuel ratio and fuel consumption needed to maintain NO_x compliance across the unit's normal operating range. One of the tests was required to be conducted at 100 percent of peak load. We are revising the final rule to allow one test point at 90 to 100 percent of peak load. Due to conditions that are beyond the control of the turbine operator, such as ambient conditions, it is often not possible for a turbine to be operated at 100 percent of the manufacturer's design capacity. Therefore, the requirement to test at 100 percent of peak load has been made more flexible.

Another change is that the initial performance test can be performed at 90 to 100 percent of peak load only, instead of at four different loads, if the owner or operator chooses to use the NO_x CEMS monitoring option. The NO_x CEMS will provide realtime data on NO_x emissions for any given time of operation. This data provides credible evidence which can be used to determine the unit's compliance status on a continuous basis following the initial test. The availability of this continuous information through the use of NO_x CEMS after the initial performance testing justifies testing at a single load for the initial compliance testing. We are also clarifying how data collected during a relative accuracy test audit (RATA) of the NO_x CEMS may be used to demonstrate compliance with the performance tests required by 40 CFR 60.8. The RATA consists of a minimum of nine 21-minute runs using EPA reference test methods, for a total of 189 minutes or just over 3 hours. This amount of sampling accompanied by sampling at multiple traverse points during a RATA provides enough representative emissions data to determine the unit's compliance status.

Finally, a statement has been added to clarify that if the turbine combusts both oil and gas, separate performance testing is required for each type of fuel combusted by the turbine, except for emergency fuel. We believe that this is appropriate due to the fact that NO_x emissions vary by fuel type.

G. Measurement After Duct Burner

For sources that are combined cycle turbine systems using supplemental heat, we have added an option that the turbine NO_x emissions may be measured after the duct burner rather than directly after the turbine. No additional NO_x allowance is given. A definition for duct burner has also been added to the definitions section of the final rule. For combined cycle units, there are several concerns with testing and monitoring NO_x at the turbine