COLORADO
Air Pollution Control Division
Department of Public Health & Environment

Questions and Answers to Public Comments

on the Draft Performance Test Protocol for Enclosed Combustion Devices

October 31, 2022

The Air Pollution Control Division solicited and received several public comments on the Draft Performance Test Protocol for Enclosed Combustion Devices, published for public comment on July 29, 2022. Rather than addressing each received comment individually, the division has grouped similar comments and provided a common *Response* for each category of comments. The final Performance Test Protocol for Enclosed Combustion Devices is now available both at the Compliance & Enforcement and Oil & Gas Recordkeeping web pages.

Table of Contents

1. General Comments

1.1. Scope of Regulation 7 Section II.B.2.h.

Several commenters pointed out areas of the "standard protocol" go outside of the scope of the regulation. These comments recommend the exclusion of measuring and reporting air pollutants such as methane, ethane, carbon monoxide, and other air pollutants.

Response:
The division initially proposed to include requirements to measure various air pollutants beyond the minimum required for compliance in Reg 7, Part D, Section II.B.2.h. to fulfill the duties outlined in the statement of basis and purpose in Reg 7. These duties include utilizing ECD test data to update the State emissions inventory and gathering information regarding the lifecycle of ECDs. The division's "standard protocol" language is revised to require measurement and reporting of all data related to determining the Destruction Removal Efficiency (DRE) for ECD's. The division included a variety of methodologies that can be used to determine compliance with Reg 7, Part D Section II.B.2.h.. Some combinations of methodologies result in more analytes measured as compared to others. If analytes are measured outside of the scope of Reg 7 section II.B.2.h., the operator is not required to disclose that information but is encouraged to do so in order to fulfill the duties in the statement of basis and purpose. Future revisions or addendums of the division's standard protocol may require the disclosure of analytes indirectly related to ECD DRE. The division updated the Protocol's language in section 3, 4, and 7; strong language using the term "must" is removed from the sections that refer to optional methodologies and subsequent informational outputs. Requirements for measuring air pollutants that are non-essential to compliance in Reg 7 Section II.B.2.h. (such as methane, ethane, and Carbon Monoxide) are removed.

1.2. Special Circumstances and Complexities

Several commenters inquired as to how a piece of equipment's special circumstances will be overcome in order to satisfy a compliance test. Commenters were specifically curious as to how compliance with Reg 7, Part D, Section II.B.2.h. could be met in situations where EPA Method 1 conditions are not satisfied, the device operates under low flow, and or the device operates under periodic flow.

Response:
The division recognizes the breadth and depth of what it means for companies to comply with Reg 7, Part D, Section II.B.2.h. The division's Standard Protocol is meant to satisfy testing requirements for a majority of the ECDs in operation in Colorado. As directed in the Reg 7 statement of basis and purpose, the division is evaluating possible options to provide as

addendums to the "standard protocol" possible solutions in order to address issues such as low flow, intermittent flow, and ECD design uncooperative with Method 1 criteria. The development and availability of these addendums is contingent upon participation from stakeholders. Specific information on Colorado's ECD inventory and testing methods that produce a representative sample are needed before the division can approve a standardized way to address ECD testing complications. The standard protocol should be used for ECD compliance testing when applicable. If units at a given location cannot be tested according to the standard protocol, a site specific test protocol must be submitted to the division through the ECD Inbox consistent with normal stack testing notification and submission procedure.

1.3. Removal of EPA Methods 1 and 22

Several commenters requested for the removal of requirement for EPA Method 22 along with Method 1 specifically for the inlet.

Response:
EPA Test Method 22 cannot be used in any way to determine THC DRE. Requirements for measuring visible emissions non-essential to compliance in Section Reg 7 part D II.B.2.h. will be removed. The division has also approved the removal of Method 1 specifically for the inlet only. This requirement was proved to be implausible due to the design of the inlet of most ECDs.

1.4. Proposal for additional test methods

Several commenters requested the use of EPA test methods 2B on inlet measurements and 2C and 2D on outlet measurements. These test methods are used to determine the gas flow velocity. Other commenters asked for the inclusion of EPA Test Methods 25B and 320, along with ASTM 6348 and 2286. These test methods are used to determine THC concentrations

Response:
The division has confirmed these test methods are applicable to finding THC DRE. These test methods can be used to determine compliance with Section Reg 7 Part D II.B.2.h.

1.5. Additional Test Methods from 40 CFR Subpart Y 98.254D(d)

Several commenters requested the use of additional test methods including, ASTM-D1945, ASTM-D1946, and GPA 2261. These test methods, along with all other test methods from 40 CFR Subpart Y 98.254D(d), accurately determine the gas composition and average molecular weight using either FTIR or Gas Chromatography. Noting that the use of these test methods further strengthens the accuracy of the results of EPA method 2B.

Response:
The division has confirmed the use of the test methods listed above because the division has previously approved them in PS Memo 14-03 and 17-01. These test methods can be used to

determine compliance with Reg 7 Part D II.B.2.h.

1.6. Section 4.1.1

A few commenters requested to allow for different frequencies due to the flow meter manufacturer may not be able to read every minute.

Response:
The division has had several conversations with operators regarding the frequency of inlet flow meter readings during a performance test. To satisfy the requirements for flow, operators must measure a minimum of 12 points of flow in a test run, or once every 1 min 45 sec (Method 2D). The division understands that an observer will be monitoring the flow according to the method and should be near the flow meter to take a reading every 1 min 45 secs. The division encourages more measurements if possible to generate more accurate data. The division also notes that manufacturers should be developing equipment that meets the needs for testing methods, or the ability to modify the equipment to meet testing standards.

1.7. Section 4.1.2

A few commenters requested cleaning up the language of this section because of safety concerns with getting direct measurements from a flammable source.

Response:
The division has confirmed that the language needs editing. The division has specified the EPA Method 1 requirements for the inlet will not be used to determine if it is an acceptable site for testing, but rather as a schematic so the division can have an understanding of its location.

2. Specific Comments

2.1. Addition of CTM-030, CTM-034, & CTM-022

One commenter requested the inclusion of EMC Conditional Test Methods 030 and 034; along with 022 specifically for the measurement of oxides of nitrogen. The commenter also requested the use of Sauermann Group’s Si-8500 portable analyzer.

Response:
Based on EPA's recommendation, the division requires the use of ASTM D6522 instead of CTM-030. Furthermore as stated in 1.1 Applicability of each CTM, these methods should not be applied without complete investigation of possible interferences and a comparative evaluation with other EPA test methods. The division is aware of the importance of setting clear and high standards as this Standard Protocol will be one of the first of its kind to address 95% DRE for ECDs. The division has determined other test methods and instruments better suited to the testing needs.

2.2. Stratification Checks

One commentator requests the removal of stratification checks from the "standard protocol" because method 7E is not required to determine ECD DRE.

Response:
As addressed in general comment 1, the division has removed requirements for non-essential air pollutant testing. Removal of this requirement is permissible because alternative combinations of methodologies exist that measure DRE without conducting Method 7E. The division's rationale for including stratification checks was to make every effort to ensure that representative samples are being collected for ECD testing. As such, operators must still ensure that every possible practice is used to assist in the collection of a representative sample. Language that requires stratification testing in accordance with Method 7E will be removed. However, the "standard protocol" has been revised to explain that stratification checks will be required if Method 7E is included in the mix of methods used to determine compliance with Reg 7 section II.B.2.h..

2.3. Standard Protocol Section 9.3 - "Failure Criteria"

One commentator requests clarification of what a failed test is under this section.

Response:
Pursuant to AQCC Regulation No. 7,Part D, Section II.B.2.h, a performance test that does not demonstrate that an enclosed combustion device is achieving at least 95% control efficiency for hydrocarbons is considered a failing test.

2.4. Update EPA Method 25A QA/QC to reflect what is in the method

One commentator requests an update on the QA/QC procedures for Method 25A to better reflect what is in the method.

Response:
With the removal of the stratification check, this should reduce QA/QC questions. The division has updated this section to allow for a centroidal point for testing.

2.5. Update "normal operations" to "representative operations"

One commentator requests an update from "normal operations" to "representative conditions."

Response:
The division agrees and has changed the language to reflect this comment.

2.6. Section 2.0 - “use for intermittent and low-flow ECDs”

One commentator asks “Can the division please clarify if their intent is to only allow data points to be collected while waste gas is flowing to the ECD? This would be very challenging for intermittent flow and low-flow devices.”

Response:
See General Comment # 2 for a fulsome discussion of this comment.

2.7. Update equation for EPA Method 2B

One commentator requests to use the appropriate equations located in EPA Method 2B, specifically Equation 2B-1 to calculate Exhaust Gas Volume (V_{es}).

Response:
The division does state in this section that this does not encompass all of the potential equations to be used. With the addition of the other methods this section has been shortened to state that any equation used within the methods are appropriate to use to reach the final results.

2.8. Clarify Method 205 certification

One commentator requests clarification on what is needed for EPA Method 205 certification.

Response:
EPA Method 205 is for verifying the proper functioning of the dilution system. The division is requiring this method to ensure the data collected via a dilution system is accurate and has minimal error.

2.9. Add a sentence that any new EPA method would be approved for this test

One commentator recommends including a statement in the protocol that any type of EPA approved method applicable to ECD testing be allowed.

Response:
The division understands the want and need for an outlet only test to meet this testing requirement. If the EPA approves an outlet only test, the test would still need to follow all elements of the *Air Pollution Control Division Compliance Test Manual*. As of right now, the EPA study showed only one (1) run at a total length of 60 minutes. The APCD CTM requires three (3) test runs. The division would need time to review the new method and potentially make changes to ensure it complies with the APCD CTM. The division may revise this Standard Protocol in the future, incorporating other acceptable testing methods to satisfy the requirements of Section II.B.2.h.

2.10. Testing Replacement ECD testing

One commentator requests change in the language to allow for an ECD to have a period of optimization before performing the performance test as is common practice with engines and other equipment.

Response:
The division agrees that this is appropriate. The division has changed the language to “the performance test will be performed no sooner than seven (7) days after the optimization period is completed and no later than twenty one (21) days”