Combustion Testing: How to Prepare for Proposed Control Device Testing & other Regulation 7 Changes

Alliance Technical Group| Trinity Consultants

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Alliance TECHNICAL GROUP

alliancetechnicalgroup.com

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Introductions

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Industries served include oil & gas, railroad, general manufacturing, and more.

Office Location: Denver, CO

Proposed Regulation 7 Revisions Again?

How to Prepare for Control Device Testing & Other Changes

Kim Ayotte – Trinity Consultants

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Air Quality is a Dynamic, Changing Field

Air quality and other environmental requirements are dynamic – what we describe today may change

The information provided in this presentation, while up-to-date when printed, is subject to change as regulatory authorities update forms, policies and regulations. You are encouraged to use this manual as an educational reference, but it is not a substitute for independent research and verification and the application of sound professional judgment and analysis in permitting and compliance situations.

Agenda

Proposed Regulation 7 Changes

- **Summary of Regulation 7 Proposed Changes**
- **Additional Inspection and Monitoring Requirements**
- **ECD Stack Test Requirements**
- **Alliance – Stack Testing Procedures**

Proposed Regulation 7 Revisions

The proposed changes are in response to direction under Senate Bill (SB) 19-181, SB 19-096, House Bill (HB) 19-1261 and HB 21-1266, which aim to reduce emissions from Colorado's O&G sector

Proposed revised requirements for:

- Monitoring of control devices
- New sources requiring emission capture/control
- LDAR
- AIMM inspections for well production facilities
- Natural gas processing plant rod packing and pneumatic controllers
- Emission inventory requirement updates

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https://cdphe.colorado.gov/aqcc

Proposed Regulation 7 Revisions

Visual Inspections
Flow Meters

Visual Inspection Requirements

***PROPOSED** Regulation 7, Part D, Section II.B.2.f.*

- **Proposed requirements include:**
  - Weekly visual inspections for all Regulation 7, Part D, Section II required air pollution control equipment.
    - Storage tanks (not new)
    - TEG Dehydrators
    - Hydrocarbon liquid loadout
  - Proposed compliance dates:
    - February 14, 2022 for storage tanks subject to Section II.C.1.
    - May 1, 2022 for control equipment that commenced operation before February 14, 2022
    - Within 30 days of commencement of operation for control equipment constructed on or after February 14, 2022

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Flow Meter Requirements

***PROPOSED** Regulation 7, Part D, Section II.B.2.g.*

Proposed requirements include:

- Flow meters must be installed at the inlet to the air pollution control equipment.
- Not required for:
  - Portable air pollution control equipment used at a location for < 180 days
  - VRUs used in connection with separation equipment or dehydrators
  - Control equipment used during VRU downtime associated with dehydrators
  - Where operator demonstrates installation of flow meter is technically or economically infeasible (Division approval required)
- Proposed compliance dates:
  - May 1, 2022 for control equipment that commenced operation before February 14, 2022
  - Commencement of operation for control equipment constructed on or after February 14, 2022.

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Proposed Regulation 7 Revisions

ECD Performance Tests

Enclosed Combustor Performance Test Requirements

PROPOSED Regulation 7, Part D, Section II.B.2.h.

Proposed requirement for performance tests for each enclosed combustion device (ECD) required by Regulation 7 to achieve 95% DRE for hydrocarbons

- < 95% DRE is a failed test

Performance tests are NOT required for:

- ECDs that serve solely as control devices during VRU downtime
- ECDs where gas flow to the device has been shut-in for > 30 days

ECD Performance Test Requirements

PROPOSED Regulation 7, Part D*, Section II.B.2.h. (continued)*

- **Proposed ECD Performance Test Requirements:**
  - Must test all ECDs used to control the same piece of equipment or operation over the source of the same testing event
  - Performance tests must be conducted in accordance with a Division-approved test protocol
    - EPA outlet-only test method – coming soon?
    - Division approved statewide test protocol – coming soon?
    - Potential for future Division approved protocols for different types of control devices

ECD Performance Test Requirements

PROPOSED Regulation 7, Part D*, Section II.B.2.h. (continued)*

- **Proposed ECD Performance Test Requirements (cont.):**
  - For the calendar year of the performance test, the most recent performance test results must be used to calculate ECD emissions (or the emissions for the source controlled) pursuant to Reg. 7 emission inventory requirements.
  - If an ECD fails a performance test, manufacturer repair instructions or best combustion engineering practices must be followed to return the ECD to compliant operation within 30 days or shut-in all equipment or operations controlled by the ECD
  - ECDs must be retested within 90 days of a failed test or upon return to operation if shut-in occurred
    - Alternative is to replace the failed ECD but the replacement has to be tested upon commencement of operation (unless the replacement ECD is “new” and it was tested by the manufacturer per NSPS OOOOa)

ECD Initial Performance Test Schedule

PROPOSED Regulation 7, Part D, Section II.B.2.h. (continued)

ECDs that commenced operation before December 31, 2021 must be tested according to the following schedule.

Location of enclosed combustion device	12/31/22	12/31/23	12/31/24	12/31/25	12/31/26	12/31/27
	% of ECDs required to be tested					
Within a DI community	At least 25%	At least 50%	At least 75%	At least 100%	NA	NA
Within the 8-hour ozone control area and northern Weld County	At least 20%	At least 40%	At least 60%	At least 80%	100%	NA
Outside the 8-hour ozone control area and northern Weld County	At least 10%	At least 20%	At least 35%	At least 50%	At least 75%	100%

- ECDs that commence operation after December 31, 2021 will have to be tested within 2 years unless they are “new”.

ECD Periodic Performance Test Schedule

PROPOSED Regulation 7, Part D, *Section II.B.2.h. (continued)*

Location of Enclosed Combustion Device	Subsequent Performance Test	
	(Existing ECD)	(Newly Manufactured ECD)*
Within a DI community	5 years	8 years
Within the 8-hour ozone control area and northern Weld County	5 years	8 years
Outside the 8- hour ozone control area and northern Weld County	10 years	10 years

*Newly manufactured ECDs must not have operated anywhere else and must have been tested by the manufacturer per NSPS OOOOa, Section 60.5413a(d) (June 3, 2016).

Notification & Recordkeeping Requirements

PROPOSED Regulation 7, Part D*, Section II.B.2.h.(*iii)

Owners or operators with ECDs subject to the performance test requirements are required to notify the Division by July 31, 2022

- List of all ECDs that commenced operation prior to December 31, 2021, including:
  - Name of facility
  - Location
  - AIRS ID (if assigned)
  - Manufacturer model
  - Serial Number
  - Identification of the equipment the ECD controls
  - Year the ECD will be tested according to the proposed schedule

Extensive recordkeeping will be required – maintain for 5 years

Proposed Regulation 7 Revisions

Expansion of Control Requirements for Upstream & Midstream Sources

Expansion of Control Requirements for Upstream & Midstream Sources

***PROPOSED** Regulation 7, Part D, Sections II.F. and II.H.*

- Proposed requirement to control hydrocarbon emissions from separators, produced during normal operation from **any** oil and gas production well:
  - Route to gas gathering line OR
  - Control with control equipment with an average hydrocarbon control efficiency of 95%
  - Proposed compliance date of February 14, 2022

- Proposed emission control requirements for hydrocarbon emissions – Pigging & Blowdown Events
  - Midstream pigging operations that occur > 1 time per month
    - Capture and recover hydrocarbon emissions
    - If capture / recover is not feasible, can control pigging emissions with emission control equipment.
    - BMPs required for pigging that occurs < 1 time per month
  - Blowdowns of pipelines and equipment at natural gas compressor stations and natural gas processing plants are required to be captured or controlled
  - Blowdowns outside of the boundaries of compressor stations and processing plants must implement BMPs
- Control equipment will be subject to Section II.B. requirements
- Proposed compliance date of January 1, 2023
- Recordkeeping requirements

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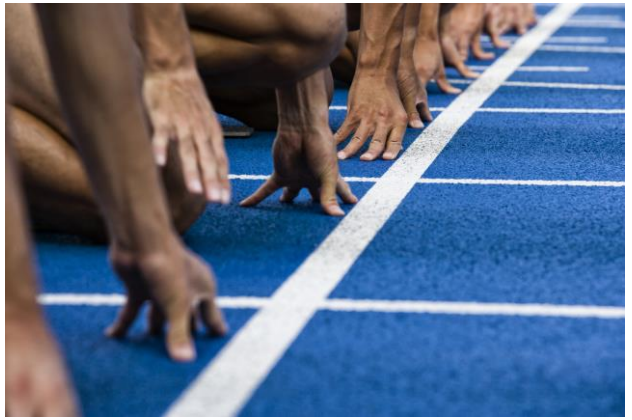
What can you do to prepare now?



- Prepare for weekly inspections for subject sources
- Flow meter purchase and installation planning
- Prepare notification list of ECDs subject to source testing
- Determine ECDs that will be in first phase of testing and initiate performance test scheduling
- Initiate planning for capture and control of upstream separators, midstream pigging and blowdown operations
- Review other proposed Regulation 7 revisions and keep your eyes on potential changes before final!

https://www.trinityconsultants.com/training/159744/Complimentary-Webinar:-How-to-Prepare-for-Proposed-Control-Device-Testing-and-other-Regulation-7-Changes-with-Trinity-Consultants-and-Alliance-Source-Testing

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CDPHE Rulemaking Important Dates

Public Comment Session will be **December 14, 2021**

Party Testimony & Deliberations **December 15-17, 2021**

CDPHE Hearing Notice website: https://cdphe.colorado.gov/aqcc

Written comments should be submitted no later than **November 30, 2021,** by emailing **cdphe.aqcc-comments@state.co.us** or mailing to:

Colorado Air Quality Control Commission
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South, EDO-AQCC-A5
Denver, Colorado 80246

Instructions for registering to provide oral comments will be posted on **December 3, 2021,** at https://cdphe.colorado.gov/aqcc

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Rocky Mountain EHS Peer Group
Combustor Stack Testing

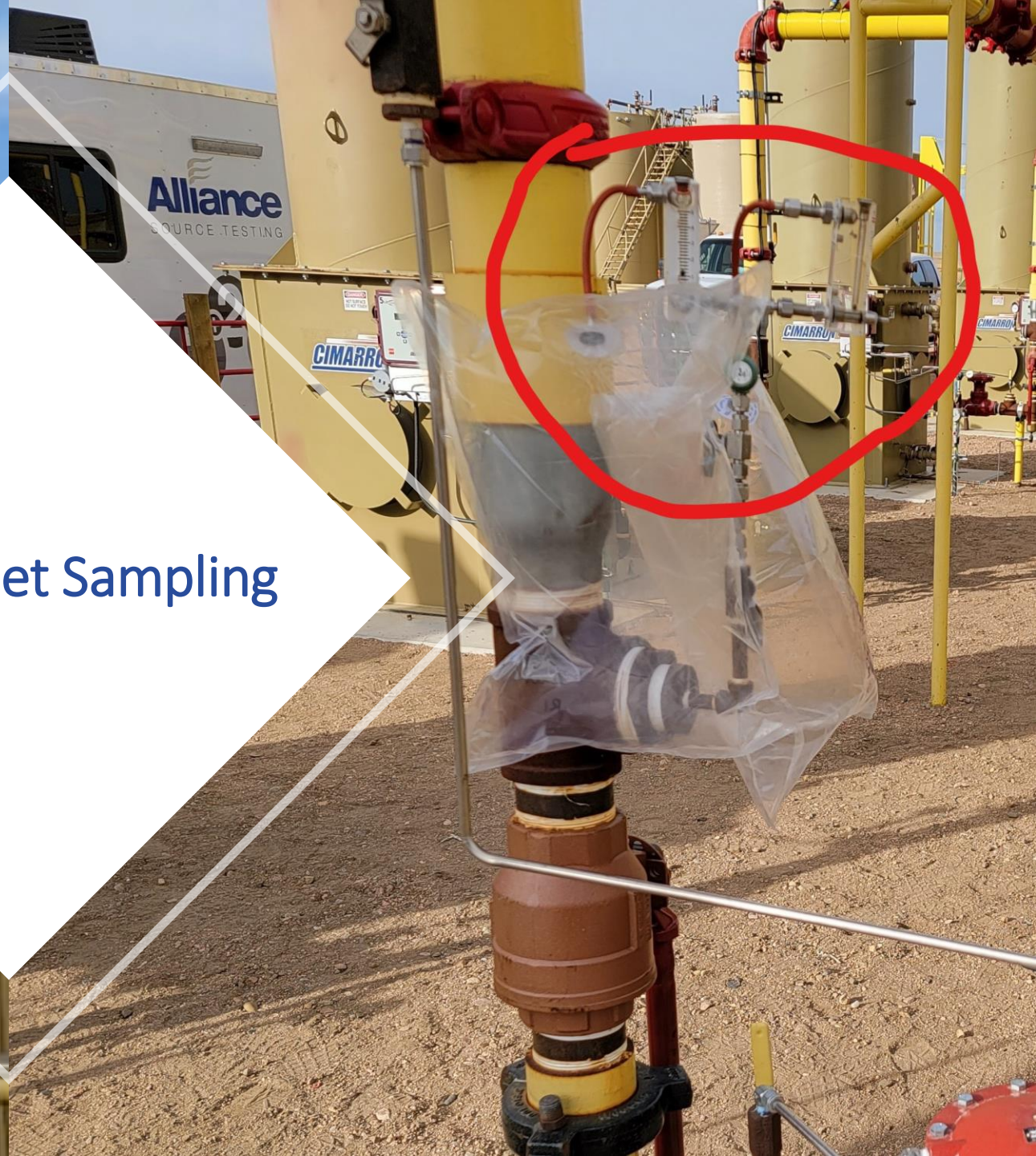
Jordan Laster, Curtis Schohn, Mike O'Brien - Alliance Technical Group

Combustor Testing

- Combustor Testing Methods
  - EPA Method 1-4, 7E, 10, 25A, 320
  - EPA Method 2B/D, ASTM 1945/1946

- DRE Testing Basics
  - DRE Testing: Mass in vs. Mass out
  - Sampling Location
    - *46Ft Aerial boom lift capability*
  - Sampling Procedures
  - Inlet Bag Sampling
    - In House Analysis

Inlet & Outlet Sampling

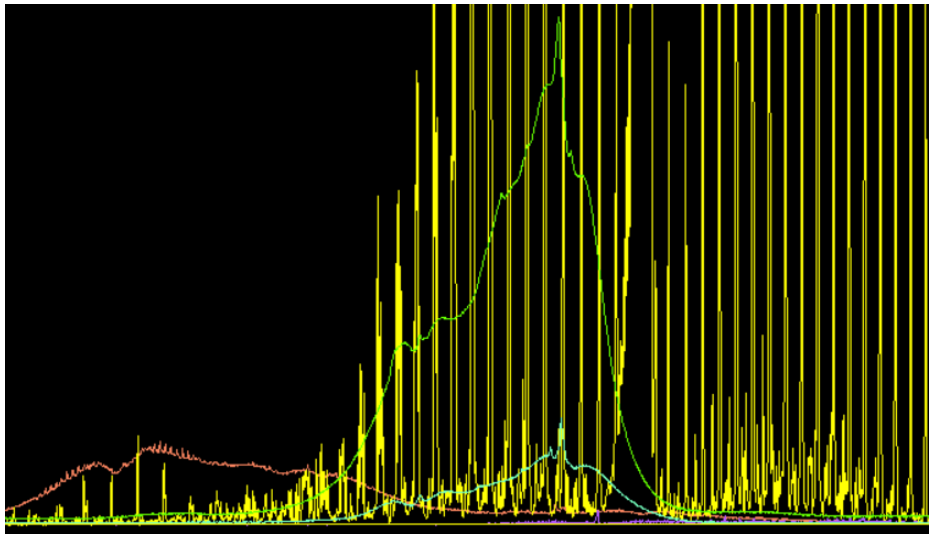


VOC Measurement Details

- VOC data with 25a
  - Traditional method, draws a flat line over response factors
  - Suitable for very simple or very complex gas streams
  - Drawback – assumes constant response factor

- VOC data with speciated approaches (18, 320)
  - Specific calibrations for every compound
  - Suitable for very simple, or slightly complex gas streams
  - Not suitable where the components are not clearly known

- With combustion – inlet matrix is not the same as the outlet matrix
  - Products of incomplete combustion
  - Carbon mass balance



- Alliance & Trinity will continue working with industry & regulatory agencies to navigate rule changes.
- Alliance is proactively adding equipment and personal to keep up with the regulatory environment.
- Alliance had recently conducted local DRE comparative analysis using both approved methodologies and future possibilities.
- Outlet only testing options are a possibility.

ECD Initial Performance Test Schedule

PROPOSED Regulation 7, Part D, Section II.B.2.h. (continued)

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★ ECDs that commence operation after December 31, 2021 will have to be tested within 2 years unless they are “new”.

THANK YOU

QUESTIONS?

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