Proposed Amended Rule 1110.2

Emissions from Gaseous- and Liquid- fueled Engines and

Proposed Amended Rule 1100

Implementation Schedule for NOx Facilities

WORKING GROUP MEETING NO. 6

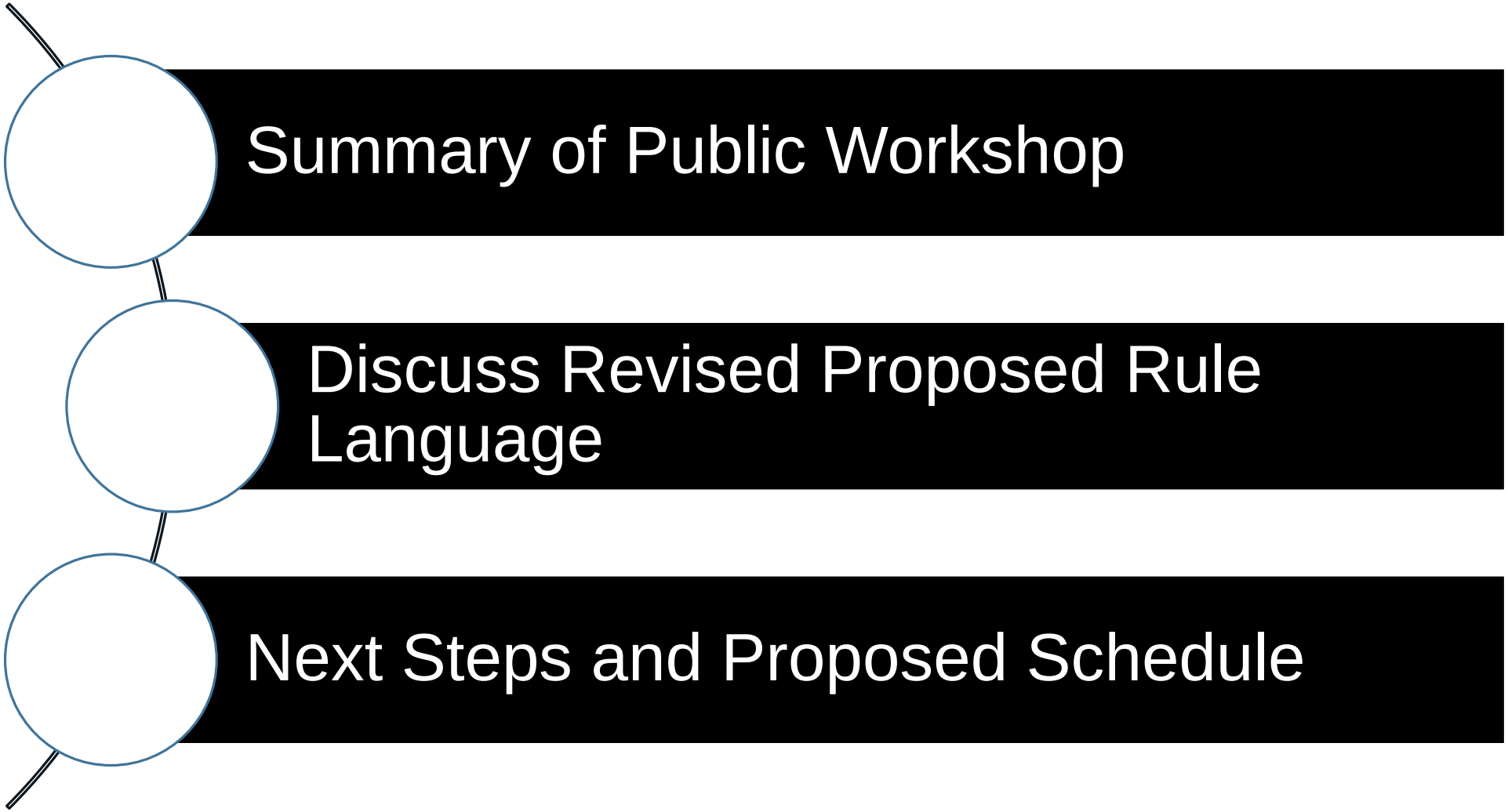
August 20, 2019

South Coast AQMD Headquarters – Room GB

Teleconference Number: 1-866-705-2554

Passcode: 654338

Agenda


Summary of Public Workshop
Discuss Revised Proposed Rule Language
Next Steps and Proposed Schedule

Summary of Public Workshop

Remaining Key Issues

- Concerns with emission limits and implementation schedule for compressor gas lean-burn engines
- Request for one-hour averaging time instead of 15 minutes to address transient emissions
- Concerns related with meeting emission limits for larger, remote diesel engines
- Request to extend startup and overhaul provisions to allow for enhanced tuning of equipment

Comments from the Public Workshop

- Comment: Engines at biogas facilities should be covered by a separate industry-specific rule
  - Response: Staff is discussing this issue internally and with the PR 1150.3 (landfill) and PR 1179 (POTW) Working Groups

- Comment: Ammonia quarterly testing not needed and too costly
  - Response: Quarterly testing will be for the first year and annually thereafter, if emission limits are met. This only applies for new SCR installations. Ammonia CEMS is still under development.

Comments from the Public Workshop

Continued

- Comment: Full I&M plans should not apply to engines that are equipped with CEMS and opt for longer averaging times
  - Response: Staff agrees with comment and will revise language to identify specific requirements for these engines
- Comment: Can source testing requirements between permits and Rule 1110.2 that are different be harmonized?
  - Response: Permits can be stricter than the applicable rule. Facilities may submit a permit application for a change of conditions.
- Comment: Source testing frequency should be based on hours
  - Response: Currently, the rule does provide an option based on hours

Revised Rule 1110.2 Language

Definitions (c)

(c)(5) – Added Compressor Gas lean-burn engine definition	
Public Workshop Rule Language	Revised Rule Language
• No definition previously included	• COMPRESSOR GAS LEAN-BURN ENGINE is a stationary gaseous-fueled two-stroke or four-stroke lean-burn engine used to compress natural gas or pipeline quality natural gas for delivery through a pipeline or into storage.
Justification - Added definition for clarity and to streamline proposed amended rule	

Requirements (d)

(d)(1)(B)(vi) – Increased averaging time for NOx compliance determination for compressor gas lean-burn engines	
Public Workshop Rule Language	Revised Rule Language
• 60 minute averaging time	• Increasing averaging time to 180 minutes
Justification – Staff recognizes unique operational issues with this class of engine and provides flexibility with compliance determination	

Requirements (d)

(d)(1)(B)(vii) – Ammonia limit for new or retrofit SCRs

Public Workshop Rule Language	Revised Rule Language
• Upon startup after *[Date of Amendment]*, any new engine installation with selective catalytic reduction pollution control equipment or retrofit for an existing engine with selective catalytic reduction pollution control equipment that results in ammonia emissions in the exhaust shall not discharge into the atmosphere ammonia emissions in excess of 5 ppmvd (referenced at 15 percent volume stack gas oxygen on a dry basis, averaged over a period of 60 consecutive minutes).	• After *[Date of amendment]*, upon startup any new lean-burn engine installation or retrofit with selective catalytic reduction pollution control equipment, shall not exceed 5 ppmvd ammonia (referenced at 15 percent volume stack gas oxygen), averaged over a period of 60 consecutive minutes at the exhaust of the air pollution control equipment.
Justification: Streamlined and clarified provision. No change to requirement.	

Requirements (d)

(d)(1)(B)(iii) – Emission limits for low use engines	
Public Workshop Rule Language	Revised Rule Language
• Exempts engines from limits post-2010 that are less than 500 hours per year or use less than 1 x 10^9 British Thermal Units (Btus) per year (higher heating value) of fuel	• Clarified that pre-2010 emissions apply to engines that are less than 500 hours per year or use less than 1 x 10^9 British Thermal Units (Btus) per year (higher heating value) of fuel
Justification: Streamlined and clarified provision. No change to requirement.	

Requirements (d)

(d)(1)(H) – Emission limits for low use biogas engines	
Public Workshop Rule Language	Revised Rule Language
• Exempts engines from limits post-2017 that are less than 500 hours per year or use less than 1 x 10^9 British Thermal Units (Btus) per year (higher heating value) of fuel	• Clarified that pre-2017 emissions apply to engines that are less than 500 hours per year or use less than 1 x 10^9 British Thermal Units (Btus) per year (higher heating value) of fuel
Justification: Streamlined and clarified provision. No change to requirement.	

Requirements (d)

(d)(1)(I) – Biogas engines option for longer averaging time

Public Workshop Rule Language	Revised Rule Language

• Proposed amended rule required an I&M plan for bio-gas engines equipped with CEMS that chose longer averaging time
• Included procedures to show compliance with 24 hour averaging option
• Included procedures to revert back from 24 hours to 15 minutes if out of compliance
	• Removed I&M plan, and four-month demonstration period
	• Upon startup for a new or retrofit biogas engine with catalytic controls and CEMS must meet:
	  • NOx and CO limits in Table III-B averaged over 1 hour, for 15 minute intervals; or
	  • 9.9. ppmv for NOx and 225 ppmv for CO (if CO is selected for averaging), averaged over 24 hours

Justification – Permit conditions referencing rule provisions would provide better enforceability Simplified to meet rule limit or 10 percent below rule limit for longer averaging period	

Monitoring, Testing, Recordkeeping and Reporting (f)

(f)(1)(A)(x) – Hourly averaging provisions versus 15 minutes averaging

Public Workshop Rule Language	Added Rule Language
• No provision previously included	• Hourly averaging may be used provided that all CEMS generate and record data once for each successive 15-minute period on the hour and at equally spaced 15 minute intervals thereafter. • CEMS operation subject to Rule 218 and 218.1
Justification – Provides a longer averaging time to allow more time to address emission-related transient excursions before shutting down engines *Averaging time is consistent with RECLAIM averaging provisions*	

Monitoring, Testing, Recordkeeping and Reporting (f)

(f)(1)(A)(xi) and (xii) – Raising bhp threshold of individual engine for CEMS at an Essential Public Service

Public Workshop Rule Language	Added Rule Language

• No provision previously included	• Added provision for engines at Essential Public Services that allows for an engine that is between 1,000 bhp to 1,200 bhp to:
	  • Install CEMS; or
	  • Comply with the provisions for I&M plans that that require weekly or every 150 operating hours of diagnostic testing
	• CEMS required if engine exceeds emission limits in 3 tests in any 12-month period

Justification – Provides operational flexibility for public agencies	

Monitoring, Testing, Recordkeeping and Reporting (f)

(f)(1)(C) – Source Testing	
Public Workshop Rule Language	Revised Rule Language
• Source testing to be conducted within the same calendar month as the previous source test	• Not to exceed specified date from previous testing pursuant to applicable testing frequency • The source test shall be conducted within 30 days of resuming operation of engines
Justification – Provides flexibility for facilities to schedule a source test anytime up to the calendar date of the previous test	

Monitoring, Testing, Recordkeeping and Reporting (f)

(f)(1)(C)(iii) – Engine with SCR System and not using certified ammonia CEMS	
Public Workshop Rule Language	Revised Rule Language
• Requires quarterly source testing within first 12 months of operation for engines with an SCR system and no certified CEMS • Provides option to annual testing based on four consecutive source tests • Provides extension options for testing	• Revises consecutive testing to consecutive **quarterly** tests to be used for annual compliance option
Justification – Added for clarification	

Monitoring, Testing, Recordkeeping and Reporting (f)

(f)(1)(D)(i)(I) – Inspection and Monitoring (I&M) plans for bio-gas engines (withdrawn)	
Public Workshop Rule Language	Revised Rule Language
• Proposed requiring an I&M plan for bio-gas engines equipped with CEMS that chose longer averaging time	• Proposal withdrawn
Justification – Based on stakeholders' comments and feedback, staff re-evaluated utility of requirement and recommend no additional conditions were warranted	

Exemptions (i)

(i)(3) – Landfill and POTW exemption	
Public Workshop Rule Language	Revised Rule Language
• No provision previously included	• Provides exemption to units located at landfills and publicly owned treatment works (POTW) that are subject to a NOx emission limit in a Regulation XI rule
Justification – Recognizes on-going rule development for landfills and POTWs	

Attachment 1 – I&M Plan Detail

G. – Inspection and Monitoring (I&M) plans for bio-gas engines (withdrawn)

Public Workshop Rule Language	Revised Rule Language
• Required operator of a bio-gas engines equipped with CEMS that uses longer averaging period to submit a plan, as applicable, to include procedures demonstrating compliance and how the unit would revert back to a 15-minute average if found out of compliance	• Proposal withdrawn
Justification – Based on stakeholders' comments and feedback, staff re-evaluated utility of requirement and recommend no additional conditions were warranted	

Revised Rule 1100 Language

Definitions (c)

(c)(2) – Compressor Gas Lean-burn Engine

Public Workshop Rule Language	Revised Rule Language
• COMPRESSOR GAS ENGINE is a stationary gaseous-fueled engine used to compress natural gas or pipeline quality natural gas for delivery through a pipeline or into storage. This includes two-stroke and four-stroke lean-burn engines and four-stroke rich-burn engines.	• COMPRESSOR GAS LEAN-BURN ENGINE is a stationary gaseous-fueled two-stroke or four-stroke lean-burn engine used to compress natural gas or pipeline quality natural gas for delivery through a pipeline or into storage.
Justification – Updated language	

Implementation Schedule (d)

(d)(1) – Require submission of a permit application by specific date for stationary engines

Public Workshop Rule Language	Added Rule Language
• No provision previously included	(A) On or before July 1, 2021, submit a permit application for each stationary engine that does not meet the NOx concentration limit specified in Rule 1110.2; and (B) On or before December 31, 2023, meet the emission limits specified in Rule 1110.2 paragraph (d)(1).
Justification – Provides timing when any permit application for modification(s) or replacement(s) of engines should be submitted prior to the compliance date.	

Implementation Schedule (d)

COMPRESSOR GAS LEAN-BURN ENGINES	
(3)	• General compliance requirement
(4)	• 24-month extension option
(5)	• Alternative emission limits and replacement option
(6)	• Facility-wide modernization option
(7)	• Mitigation fee for approved time extensions
Justification: Staff recognizes the unique challenges with this engine class	

Implementation Schedule (d)

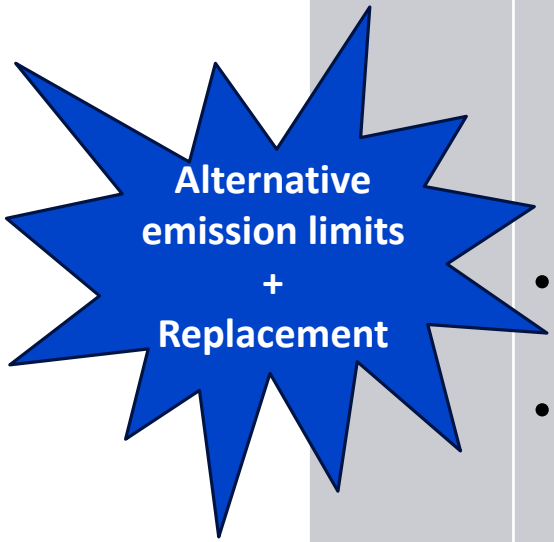
COMPRESSOR GAS LEAN-BURN ENGINES	
(d)(3)	• On or before July 1, 2021, submit permit application for modification/replacement to meet emission limits in (d)(1) • On of before 24 months after Permit to Construct is issued, meet emission limits

Implementation Schedule (d)

COMPRESSOR GAS LEAN-BURN ENGINES	
(d)(4)	• Facility may be granted an extension up to 24 months if: ❖ Pollution controls to meet the emission limits in Rule 1110.2 (d)(1) are installed and operating ❖ Operator provides the steps that will be taken to meet the limits of in Rule 1110.2 (d)(1) • If an extension is approved, operator must comply with interim limits while still trying to meet limits in Rule 1110.2 (d)(1) ❖ NOx limit – 45 ppmvd, @15% O2, averaged over 180 minutes ❖ NH3 limit – 20 ppmvd, @15% O2, averaged over 60 minutes for units equipped with SCRs ❖ VOC limit – 30 ppmvd, measured as carbon, @15% O2 • Operator will be subject to a mitigation fee of $100,000/year or any portion of the year if a time extension is approved (paragraph (d)(7)) • If the time extension is denied, engine must comply with limits in Rule 1110.2 (d)(1) within 60 days of denial notification

Implementation Schedule (d)

COMPRESSOR GAS LEAN-BURN ENGINES	
(d)(5)	• At the end of the extension, if the engine cannot meet emission limits, the operator shall: ❖ Notify the Executive Officer ❖ Provide CEMS data and testing data for previous 2 years ❖ Include operations data (e.g., number of NOx exceedances, duration, and concentrations) • Executive Officer will review information and notify operator of the NOx emission limit • Operator will be required to either meet the NOx emission limit in Rule 1110.2 (d)(1) or an alternative NOx emission limit within 30 days of notification or replace/remove engine(s) within 12 months ❖ Operator will be subject to a mitigation fee of $100,000 for the 12-month time period, if engines are replaced or removed

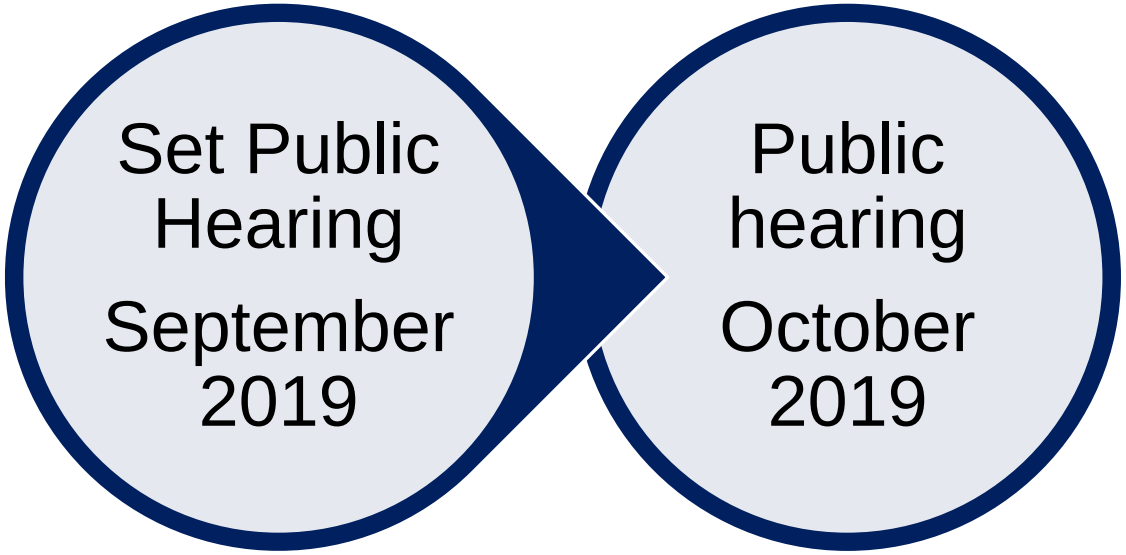


Implementation Schedule (d)

COMPRESSOR GAS LEAN-BURN ENGINES	
(d)(6) (d)(7)	• Includes a provision to allow facilities with compressor gas lean-burn engines to submit a Facility-Wide Modernization Compliance Plan (Plan) • Plan must be submitted on or before January 1, 2021 • Facility must commit to replace or remove all compressor gas lean-burn engines at single facility, with 20 percent of those engines using a zero-emission technology (electric motor or fuel-cell) • Operator has 3 years to implement Plan, with a possible 3-year extension for delays such as permitting, approvals, delivery of equipment ❖ Operator will be subject to a mitigation fee of $100,000/year if a time extension is approved

Schedule

Next Steps and Proposed Rule Schedule



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