

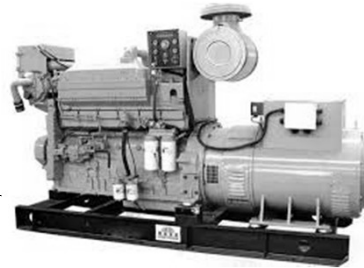


Proposed Amended Rule 1110.2

Emissions from Gaseous- and Liquid- fueled Engines and

Proposed Amended Rule 1100

Implementation Schedule for NOx Facilities



WORKING GROUP MEETING NO. 3
February 6, 2019
South Coast AQMD Headquarters – Room GB

Agenda

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- Review of Working Group Meeting #2
- Status of Rule Development
- Comparison of CEMS Requirements
- Remote Radio Transmission Towers' Permitting Exemption
- Next Steps and Proposed Schedule

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Summary of Working Group Meeting #2

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Summary of Working Group Meeting #2

- Review of rules – Rules 1110.2 & 1470
- Revised universe and equipment
- BARCT overview
- Regulatory comparison of Rule 1110.2 with other air districts
- Distribution of RECLAIM engines
 - Emission levels
 - Fuel type
 - Rated horsepower
- Assessment of emission limits for existing equipment
- Survey questionnaire

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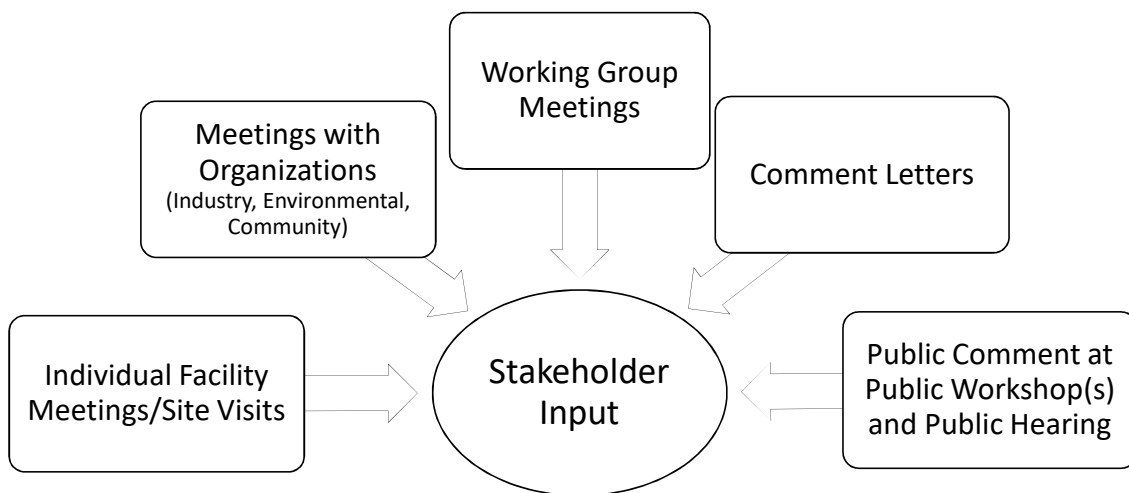
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Status of Rule Development

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Status of Rule Development

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Status of Rule Development

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- Received survey questionnaire responses from RECLAIM and non-RECLAIM facilities
- Reviewed 3 Comment Letters
- Scheduled site visits with affected facilities

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Survey Questionnaire

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Survey Questionnaire

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- Sent to affected sources – RECLAIM (25) and non-RECLAIM (426)
- Information used to update existing equipment information
 - Prime vs emergency status
 - Equipment no longer used or sold
 - Change of ownership/operator
- Information also used to develop/complete equipment inventory for cost analysis

Rule 1110.2 Survey – September 2018

Facility ID – 12458 (Example)

Device ID	Application No.	Year	Primary Fuel Type	D-Walks engine (Y/N)	Line Rank	Age of Engine (Yrs)	Primary Engine Use	Type of Emission Control	Assessment Status	Assessment Type
D01	252225	150	3SG	Y	Rich					
D01	252226	150	3SG	Y	Rich					
D01	252227	150	3SG	Y	Rich					
D01	323232	300	Diesel	N	Lean					

Device ID	Engine Portable (Y/N)	Year Rating	Engine Efficiency (%)	Typical Load Factor	Age Related (Y/N)	Fuel Usage Units	Annual Fuel Usage	Annual Operating Hours		
D01							CY 2016	CY 2017	CY 2018	CY 2017
D01										
D01										

Additional Comments:

Instructions:

- Please review data (1) – (6) for each engine.
- Please provide data (A) – (D) for each engine.
- Attach most recent emissions data for each engine (e.g. source test report, hand-held portable data, etc.).
- For any IC engines not identified, please list them in the Additional Comments section.

Please return survey to:
 South Coast Air Quality Management District
 Attn: Kevin Ornelas
 21865 Cooper Drive
 Thousand Oaks, California 91320-4178
 Or via E-mail: kornelas@scqmd.com

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Responses from RECLAIM and non-RECLAIM

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- 25 RECLAIM sites / 426 non-RECLAIM sites
- 76.0% response from RECLAIM sites
- 30.3% response from non-RECLAIM sites

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Survey Summary – Non-RECLAIM Facilities	11
<ul style="list-style-type: none"> • Emergency engines coded as prime engines • Several facilities no longer have equipment • Portable diesel engines used as wood chippers or concrete pumping • Tier 1 portable engines in operation (review ATCM applicability) • Stationary prime engines used in water pumping activities • Few cogen units in operation, but many others reported out of service 	
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Survey Summary – RECLAIM Facilities	12
<p>Changes to original universe of RECLAIM facilities affected by PAR 1110.2</p> <ul style="list-style-type: none"> • Two sites – equipment decommissioned and out of service • One site – equipment transferred from PAR 1110.2 to PAR 1146 • One site – equipment permitted for testing purposes and then shipped out of state 	
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Survey Summary – RECLAIM Facilities (Cont.)

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Changes to original universe of RECLAIM engines

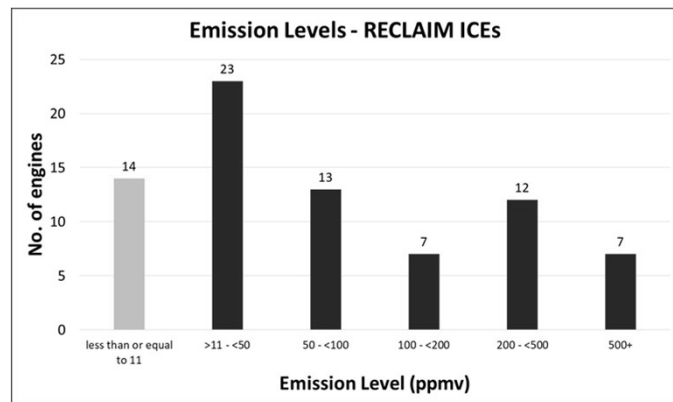
- Initial universe contained 98 engines
- 76 remain in the universe
 - 14 comply with current R1110.2 limit of 11 ppmv NOx
 - 62 would not currently comply with limit

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Survey Summary – RECLAIM Facilities (Cont.)

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Distribution of Engines versus Emission Levels (update)	
	No. of Engines
less than or equal to 11	14
>11 - <50	23
50 - <100	13
100 - <200	7
200 - <500	12
500+	7

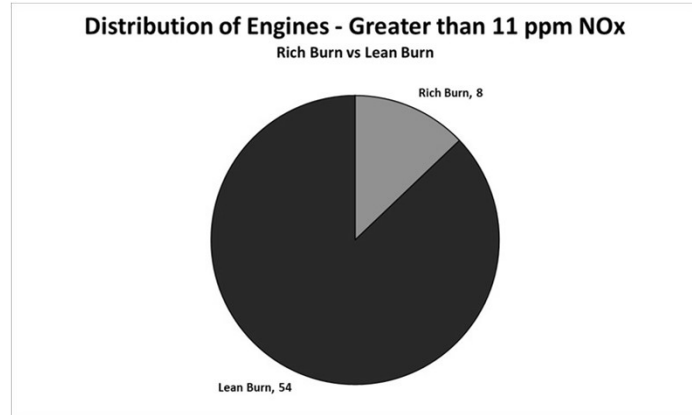


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Survey Summary – RECLAIM Facilities (Cont.)

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Distribution of Engines Greater than 11 ppm NOx Rich Burn vs Lean Burn	
Rich Burn	8
Lean Burn	54



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Site Visits

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Site Visits

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- San Diego Gas and Electric – Moreno Valley
- So Cal Gas Company
 - Aliso Canyon
 - Honor Rancho
 - Playa del Rey
- Snow Summit
- Miller Coors



Any facility that wants us to visit them, please let us know.

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Review of Comment Letters

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Review of Comment Letters

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Issue	Industry Comment	Staff Response
Sampling Protocol	Include EPA Method 18 to test for VOCs	<ul style="list-style-type: none"> Only EPA Method 25.1 is supported by SCAQMD Source Testing for diesel-fueled emissions testing
CEMS Applicability	Modify Rule 1110.2 CEMS requirements to match RECLAIM – large sources	<ul style="list-style-type: none"> Modifying Rule 1110.2 towards RECLAIM may be considered backsliding
Limited use provision	Consider different emissions limits for diesel ICEs that operate less than 2,190 hours per year	<ul style="list-style-type: none"> At a minimum, diesel engines should be at Tier 4 limits
Accessibility Issues	Request consideration for equipment at high elevations with limited infrastructure	<ul style="list-style-type: none"> Staff is considering different options

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Review of Comment Letters

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Issue	Industry Comment	Staff Response
Sampling time for source testing	Reduce sampling time during source testing from 30 minutes to 5 minutes	<ul style="list-style-type: none"> Sampling may be conducted in smaller canisters – time of sampling dependent on size Lowering to 5 minutes may produce non-representative samples Lowering to 15 minutes may be allowed based on operational considerations
Data smoothing	Increase averaging time from 15 minutes to 1 hour for compliance determination	<ul style="list-style-type: none"> Past review of similar requests indicated that increasing the averaging time may not solve all of the issues In addition, increasing averaging time may mask significant emissions or out-of-compliance situations

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Current Regulations

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SCAQMD Regulatory Requirements

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Currently, SCAQMD Rule 1110.2 requires that all non-RECLAIM stationary, non-emergency internal combustion engines comply with the following emissions standards for any gaseous or liquid fuel:

- 11 ppmv¹ NO_x
- 30 ppmv¹ VOC
- 250 ppmv¹ CO

These emission limits have been in effect within our District since 2011

¹Parts per million by volume, corrected to 15% oxygen on a dry basis and averaged over 15 minutes

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Federal Standards

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Current U.S. EPA Non-Road and Stationary Emissions Regulations Tier 4 Final - NOx

75 – 750 hp 0.30 g/bhp-hr 27 ppm^{1,2}

> 750 hp 0.50 g/bhp-hr 45 ppm^{1,2}

At a minimum, new diesel engines must meet these emission limits

Note: ¹Parts per million by volume, corrected to 15% oxygen on a dry basis and averaged over 15 minutes
²Conversion from g/bhp-hr to ppm based on 40% thermal efficiency

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Airborne Toxic Control Measure

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- The State Airborne Toxic Control Measure (ATCM) contains a schedule for the retirement of older portable diesel-fueled engines
- On 1/1/2020, portable Tier-1 engines rated at 50 hp and greater will be prohibited engines from operating in California
- Designated low use engines operating less than 200 hours per year exempted

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Airborne Toxic Control Measure

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- ATCM for diesel particulate matter from portable engines (≥ 50 bhp) prohibits engines from operating in California on or after the dates listed below
- New replacements must meet Federal standards (Tier 4 Final)

Engine Certification	Engines rated 50 to 750 bhp		Engines rated >750 bhp
	Large Fleet	Small Fleet	
Tier 1	1/1/2020	1/1/2020	1/1/2022
Tier 2 built prior to 1/1/2009	1/1/2022	1/1/2023	1/1/2025
Tier 2 built on or after 1/1/2009	NA	NA	1/1/2027
Tier 3 built prior to 1/1/2009	1/1/2025	1/1/2027	NA
Tier 3 built on or after 1/1/2009	1/1/2027	1/1/2029	NA
Tier 1, 2, and 3 flexibility engines	<ul style="list-style-type: none"> • Dec. 31 of the year 17 years after the date of manufacture • This provision shall not apply to any engine operation before the effective date of this regulation 		

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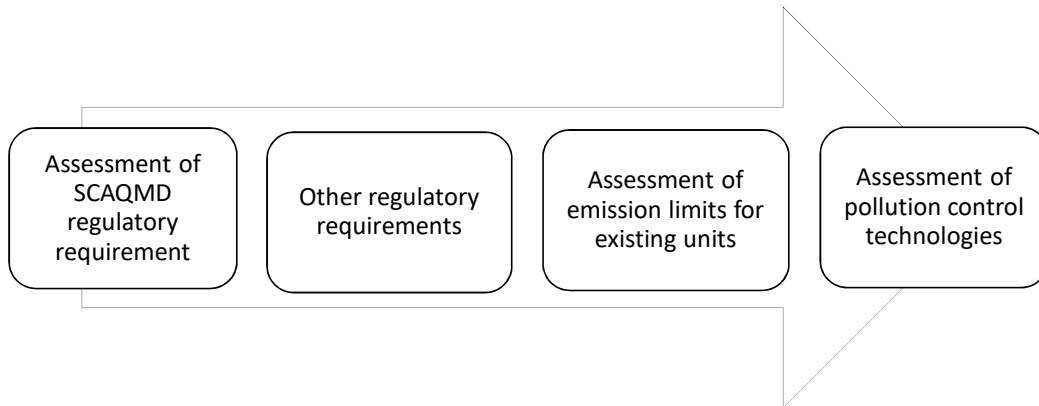
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BARCT Approach

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BARCT Technology Assessment Approach

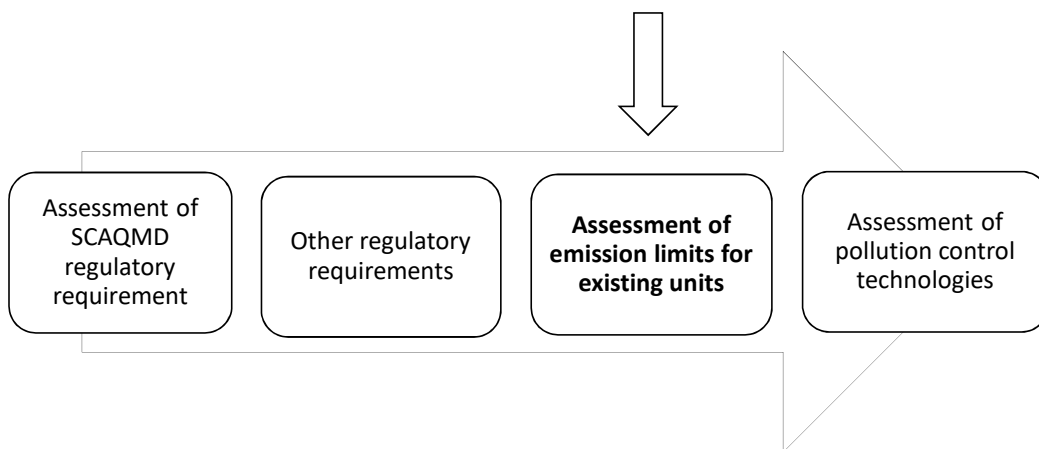
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Assessment of Pollution Control Technologies

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Comparison between 1110.2 and RECLAIM For CEMS

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CEMS Requirements: Engine Applicability

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- Under Rule 1110.2, engines ≥ 1000 bhp require CEMS
- Under RECLAIM, Major NO_x sources not Large sources require CEMS
 - Major NO_x source – engines $\geq 1,000$ bhp and operating $> 2,190$ hours per year
 - Large NO_x source – engines rated:
 - ❖ $\geq 1,000$ bhp and operating $< 2,190$ hours per year; or
 - ❖ ≥ 200 bhp but $< 1,000$ bhp and operating $> 2,190$ hours per year.

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CEMS Requirements: Facility Applicability	31
<ul style="list-style-type: none">• Under Rule 1110.2, there is a facility constraint determining if CEMS is required<ul style="list-style-type: none">• Combined rating ≥ 1500 bhp at the same location• Combined fuel usage $\geq 16 \times 10^9$ BTUs per year (HHV)• Engines < 500 bhp or permitted as a backup or having restricted use are not counted in the combined rating• Under RECLAIM, no equivalent facility constraint	
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CEMS Requirements: Impact of Sunsetting RECLAIM	32
<p><u>Summary</u></p> <ul style="list-style-type: none">• 6 RECLAIM facilities with an on-site aggregate horsepower rating ≥ 1500 hp would require CEMS under Rule 1110.2• 24 engines affected• Staff believes that changing Rule 1110.2 to match RECLAIM represents backsliding on MRR	
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Radio Transmission Towers' Permit Exemption

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Radio Transmission Towers' Permitting Exemption

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History

- Rule 219 exempts from permitting diesel, prime engines rated less than 100 bhp used exclusively at remote two-way radio transmission towers where no utility, electricity or natural gas is available within ½ mile radius
- Engines found to operate greater than 500 hours
- Rule 1110.2 does not exempt engines from emissions limits

Considerations

- Provide explicit exemption for emission limits
- Require compliance
- Establish phase-out schedule

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Schedule

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Next Steps and Proposed Rule Schedule

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Contacts

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Staff Contacts

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Please contact the following SCAQMD staff members with any questions or comments

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