BOARD MEETING DATE: December 4, 2020 AGENDA NO. 33

PROPOSAL: Determine that Proposed Amendments to Rule 1146 - Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters are Exempt from CEQA; and Amend Rule 1146

SYNOPSIS: Rule 1146 establishes an ammonia slip limit for new and modified pollution control equipment with ammonia emissions, such as Selective Catalytic Reduction (SCR). Proposed Amended Rule 1146 will remove the ammonia slip limit, which is currently addressed under Regulation XIII - New Source Review.

COMMITTEE: Stationary Source, October 16, 2020, Reviewed

RECOMMENDED ACTIONS:
Adopt the attached Resolution:
1. Determining that proposed amendments to Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters are exempt from the requirements of the California Environmental Quality Act; and
2. Amending Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters

Wayne Nastri
Executive Officer

PF:SN:MK:HF:ZB

Background

Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters was adopted on September 9, 1988 to reduce NOx emissions from boilers, steam generators, and process heaters with heat input capacity equal to or greater than 5 million Btu per hour used in industrial, institutional, and commercial operations. Rule 1146 was amended on December 7, 2018 to update the NOx emission limits to reflect BARCT and to expand the applicability to facilities with units in or formerly in the RECLAIM program. The December 7, 2018 amendments updated the NOx emission limits to reflect BARCT and included a concentration limit for ammonia for new and modified air pollution control equipment with ammonia emissions in the exhaust.

Proposed Amendment
Proposed Amended Rule 1146 (PAR 1146) removes the ammonia concentration limit of 5 ppm for new and modified pollution controls with ammonia emissions in the exhaust to prevent conflicts with implementing Regulation XIII - New Source Review. Currently, if pollution control equipment, such as selective catalytic reduction (SCR), is installed to meet a BARCT NOx limit and the SCR results in increased ammonia emissions of one pound per day or more, Rule 1303 - Requirements requires BACT for the ammonia emissions. Under New Source Review, for SCR installations the BACT ammonia emission limit is 5 ppm, the same ammonia emission limit in Rule 1146. Staff believes it is more appropriate to address the ammonia emission limit for new and modified pollution controls, such as SCR, through Regulation XIII during the permitting process, rather than in Rule 1146. This allows permit engineers to evaluate the ammonia limit for new and modified SCRs on a case-by-case basis to ensure that the NOx limit in Rule 1146 can be achieved.

PAR 1146 retains the compliance demonstration requirements under paragraph (d)(3) for new, replaced, or modified air pollution control equipment with ammonia emissions in the exhaust. Since the ammonia limits in PAR 1146 are removed, the compliance demonstration under paragraph (d)(3) are required when the owner or operator installs, replaces, or modifies air pollution control equipment with ammonia emissions in the exhaust that is subject to an ammonia emission limit in a South Coast AQMD permit. The compliance demonstration requirements include quarterly source tests for the first year of operation and annual source tests requirements thereafter or utilizing an ammonia Continuous Emissions Monitoring System (CEMS) certified under an approved South Coast AQMD protocol.

Public Process
PAR 1146 was presented to the RECLAIM Working Group and a separate Public Workshop was held on October 8, 2020.

Public Comments
Staff received two comments at the Public Workshop regarding the current implementation dates of Rule 1146 and if there would be an increase in ammonia emissions. There are no proposed changes to the implementation dates for Rule 1146 and there are no expected increases in ammonia emissions since the ammonia limit in Rule 1146 and BACT are the same.

Key Issues
Staff is not aware of any key issues.

California Environmental Quality Act
Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062, and is included as Attachment F to this Board Letter.

If the proposed project is approved, the Notice of Exemption will be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research to be posted on their CEQAnet Web Portal, which may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/nav/about/publicnotices/ceqa-notices/notices-of-exemption/noe---year-2020. The electronic filing and posting of the Notice of Exemption is being implemented in accordance with Governor Newsom's Executive Orders N-54-20 and N-80-20 issued on April 22, 2020 and September 23, 2020, respectively, for the State of Emergency in California as a result of the threat of COVID-19.

Socioeconomic Impact Assessment
The proposed amendment is exempt from the requirement to prepare a socioeconomic assessment because the proposed amendment will not have a significant effect on emissions limitations or air quality, which are required to trigger Health & Safety Code § 40440.8.

Comparative Analysis
Health and Safety Code Section 40727.2(g) is not applicable because the proposed amended rule does not impose a new or more stringent emissions limit or standard, or other air pollution control monitoring, reporting, or recordkeeping requirements. As a result, a comparative analysis is not required.

AQMP and Legal Mandates
Health and Safety Code Section 40460(a) requires the South Coast AQMD to adopt an AQMP to meet state and federal ambient air quality standards in the South Coast Air Basin. In addition, the Health and Safety Code requires the South Coast AQMD to adopt rules and regulations that carry out the objectives of the AQMP. Rule 1146 is part of a control measure (CMB-05) in the 2016 AQMP which will reduce NOx emissions and facilitate the transition of the NOx RECLAIM program to a command-and-control regulatory structure, but the ammonia limit was not addressed by a control measure.

Resource Impacts
Existing staff resources are adequate to implement the proposed amendments.

Attachments
A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F. CEQA Notice of Exemption
G. Rule Language for Proposed Amended Rule 1146 (This Board Letter serves as Staff Report for PAR 1146)

H. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters
• Removes the ammonia concentration limit for new and modified pollution controls to prevent conflicts with implementing Regulation XIII - New Source Review

ATTACHMENT B

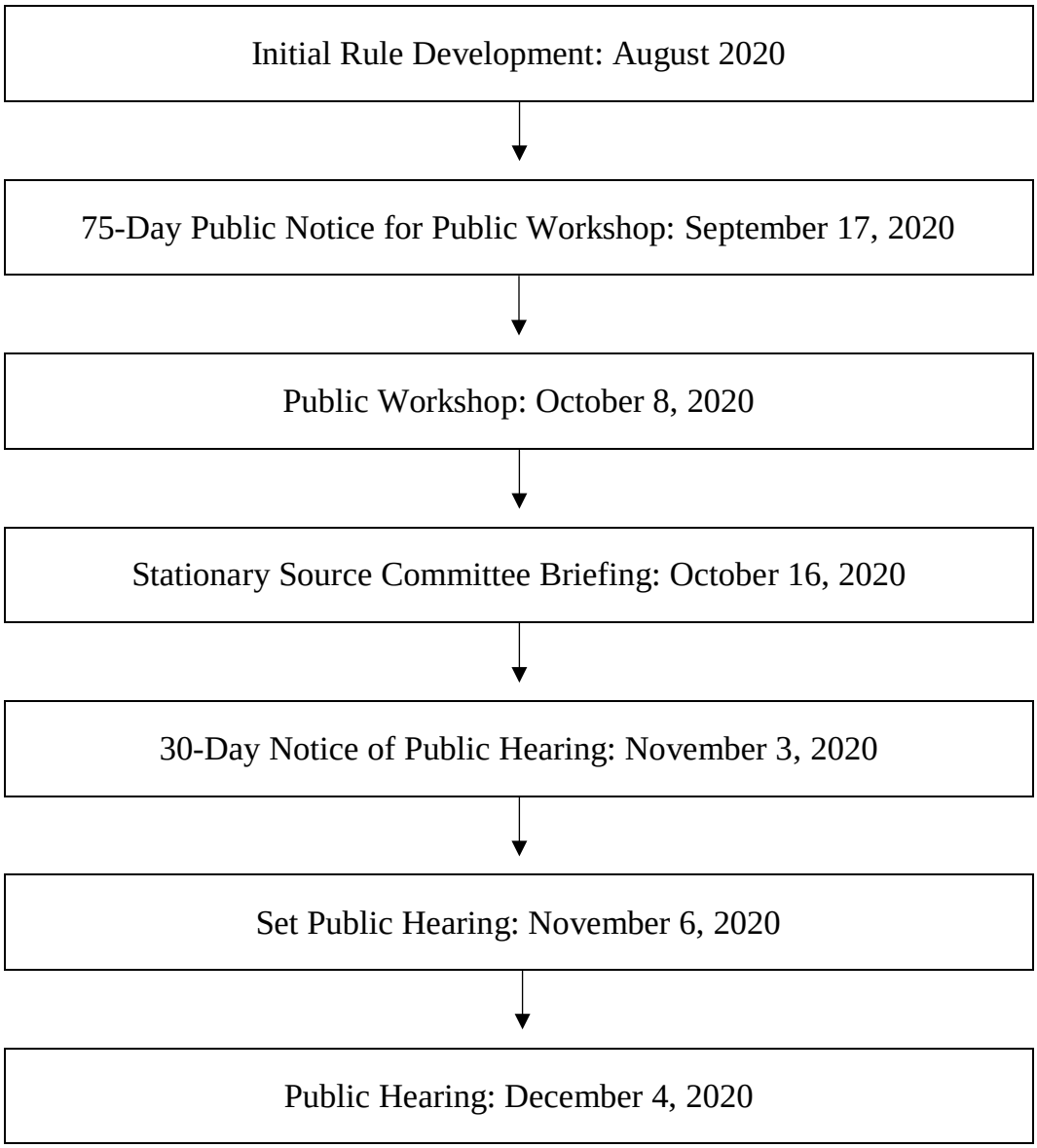
KEY ISSUES AND RESPONSES

Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters
Staff is not aware of any key issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters



Four (4) months spent in rule amendment development

One (1) Public Workshops

One (1) Stationary Source Committee Meetings

ATTACHMENT D

KEY CONTACTS LIST

Air-Conditioning, Heating and Refrigerant Institute
Alta Environmental
Anheuser-Busch Companies, LLC
Boiler Dynamics Inc.
California Air Resources Board
California Council for Environmental and Economic Balance (CCEEB)
California Resources Corporation
California State University Monterey Bay
California State University Northridge
Chevron Corp.
Coast Packing Company
Eastern Municipal Water District
Inland Empire Utilities Agency
Los Angeles World Airports
M&C TechGroup
Marathon Petroleum Corporation
Montrose Environmental Group, Inc.
Natural Resources Defense Council
Ramboll Group
SAI Global Equipment Sales Inc.
San Joaquin Valley Air Pollution Control District
Southern California Gas Company
The Boeing Company
Torrance Refining Company
Trinity Consultants, Inc.
University of Southern California
Waste Management, Inc.
Western Municipal Water District

ATTACHMENT E

RESOLUTION NO. 20-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters is exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the South Coast AQMD Governing Board amending Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1146 is considered a "project" as defined by CEQA; and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of Proposed Amended Rule 1146 pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board finds and determines after conducting a review of the proposed project in accordance with CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA, and CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA, that Proposed Amended Rule 1146 is exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that, because the proposed project relies on the continued implementation of the existing ammonia emission limits in Regulation XIII – New Source Review during the permitting process as part of implementing equipment-specific Best Available Control Technology (BACT) requirements and removing the identical ammonia concentration limit requirement in Rule 1146 would alleviate any potential conflicts with implementing Regulation XIII; it can be seen with certainty that there is no possibility that Proposed Amended Rule 1146 may have any significant effects on the environment, and is therefore, exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption; and

WHEREAS, the South Coast AQMD staff has prepared a Notice of Exemption for Proposed Amended Rule 1146 that is completed in compliance with CEQA Guidelines Section 15062 – Notice of Exemption; and

WHEREAS, Proposed Amended Rule 1146 and the December 4, 2020 South Coast AQMD Governing Board letter, including the Notice of Exemption and other supporting documentation, were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (codified as Section 30.5(4)(D)(i) of the Administrative Code), that there were no modifications to Proposed Amended Rule 1146 since the Notice of Public Hearing was published that are so substantial as to significantly affect the meaning of the proposed amended rule within the meaning of Health and Safety Code Section 40726 because: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because the proposed project is exempt from CEQA; and

WHEREAS, Proposed Amended Rule 1146 will be submitted for inclusion into the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Board Letter (that serves as the Staff Report); and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 1146 to remove the ammonia concentration limit for new and modified pollution controls to prevent conflicts with implementing Regulation XIII - New Source Review; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, 41508, and 41700 of the Health and Safety Code; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 1146, as proposed to be amended, is written and displayed so that its meaning can be easily understood by persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 1146, as proposed to be amended, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 1146, as proposed to be amended, does not impose the same requirements as any existing state or federal regulations, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending the regulation, references the following statute which the South Coast AQMD hereby implements, interprets or makes specific: Health and Safety Code Section 40440 (c) (adoption of rules and regulations to assure efficiency of administrative practice); and

WHEREAS, the South Coast AQMD Governing Board has determined that a Socioeconomic Impact Assessment is not required, pursuant to Health and Safety Code Section 40440.8 or 40728.5, because Proposed Amended Rule 1146 will not have a significant impact on air quality or emissions limitations; and

WHEREAS, the South Coast AQMD staff conducted a Public Workshop regarding Proposed Amended Rule 1146 on October 8, 2020; and

WHEREAS, the public hearing has been properly noticed in accordance with all provisions of Health and Safety Code Section 40725; and

WHEREAS, the South Coast AQMD Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the South Coast AQMD specifies that the Planning and Rules Manager of Rule 1146 is the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of the proposed amendments is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board does hereby determine, pursuant to the authority granted by law, that Proposed Amended Rule 1146 is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. This information has been presented to the South Coast AQMD Governing Board, whose members exercised their independent judgment and reviewed, considered and approved the information therein prior to acting on Proposed Amended Rule 1146; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1146 as set forth in the attached, and incorporated herein by this reference.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 1146 to the California Air Resources Board for approval and subsequent submittal to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan.

DATE: _____ _____

CLERK OF THE BOARDS

ATTACHMENT F

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **PROPOSED AMENDED RULE 1146 – EMISSIONS OF OXIDES OF NITROGEN FROM INDUSTRIAL, INSTITUTIONAL, AND COMMERCIAL BOILERS, STEAM GENERATORS, AND PROCESS HEATERS**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

If the proposed project is approved, the Notice of Exemption will be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research to be posted on their CEQAnet Web Portal which, upon posting, may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2020. The electronic filing and posting of the Notice of Exemption is being implemented in accordance with Governor Newsom's Executive Orders N-54-20 and N-80-20 issued on April 22, 2020 and September 23, 2020, respectively, for the State of Emergency in California as a result of the threat of COVID-19.

NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

To: Governor's Office of Planning and Research - State Clearinghouse
1400 Tenth St, Suite 222
Sacramento, CA 95814-5502

From: South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Project Title: Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters

Project Location: The project is located within the South Coast Air Quality Management District's (South Coast AQMD) jurisdiction, which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project: To prevent conflicts with applying the existing ammonia emission limits in Regulation XIII – New Source Review during the permitting process, amendments to Rule 1146 are proposed that would remove the ammonia concentration limit of five parts per million (ppm). Based on a review of recently approved permits, an ammonia concentration limit of five ppm has been imposed as Best Available Control Technology (BACT); therefore, removal of the five ppm limit from Rule 1146 is not expected to cause any significant adverse impacts.

Public Agency Approving Project:
South Coast Air Quality Management District

Agency Carrying Out Project:
South Coast Air Quality Management District

Exempt Status:
CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption

Reasons why project is exempt: South Coast AQMD, as Lead Agency, has reviewed the proposed project pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. Since the proposed project relies on the continued implementation of the existing ammonia emission limits in Regulation XIII during the permitting process as part of implementing equipment-specific BACT requirements and removing the ammonia concentration limit in Rule 1146 would alleviate any potential conflicts with implementing Regulation XIII, it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment. Therefore, the project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption.

Date When Project Will Be Considered for Approval (subject to change):
South Coast AQMD Governing Board Public Hearing: December 4, 2020

CEQA Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Ryan Bañuelos	(909) 396-3479	rbanuelos@aqmd.gov	(909) 396-3982
Rule Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Zoya Banan	(909) 396-2332	ZBanan@aqmd.gov	(909) 396-3324

Date Received for Filing: _____ **Signature:** *(Signed Upon Board Approval)*

Barbara Radlein
Program Supervisor, CEQA
Planning, Rule Development, and Area Sources

(Adopted September 9, 1988)(Amended January 6, 1989)(Amended May 13, 1994)
(Amended June 16, 2000)(Amended November 17, 2000)(Amended September 5, 2008)
(Amended November 1, 2013)(Amended December 7, 2018)
(Proposed Amended Rule 1146 December 4, 2020)

PROPOSED AMENDED RULE 1146. EMISSIONS OF OXIDES OF NITROGEN FROM INDUSTRIAL, INSTITUTIONAL, AND COMMERCIAL BOILERS, STEAM GENERATORS, AND PROCESS HEATERS

(a) Applicability

This rule applies to boilers, steam generators, and process heaters of equal to or greater than 5 million Btu per hour rated heat input capacity used in all industrial, institutional, and commercial operations.

(b) Definitions

(1) ADSORPTION CHILLER UNIT means any natural gas fired unit that captures and uses waste heat to provide cold water for air conditioning and other process requirements.

(2) ANNUAL HEAT INPUT means the total heat input to a unit during a calendar year.

(3) ATMOSPHERIC UNIT means any natural gas fired unit with a heat input less than or equal to 10 million Btu per hour with a non-sealed combustion chamber in which natural draft is used to exhaust combustion gases.

(4) BOILER or STEAM GENERATOR means any combustion equipment fired with liquid and/or gaseous (including landfill and digester gas) and/or solid fossil fuel and used to produce steam or to heat water, and that is not used exclusively to produce electricity for sale. Boiler or Steam Generator does not include any open heated tank, adsorption chiller unit, or waste heat recovery boiler that is used to recover sensible heat from the exhaust of a combustion turbine or any unfired waste heat recovery boiler that is used to recover sensible heat from the exhaust of any combustion equipment.

(5) BTU means British thermal unit(s).

(6) COMMERCIAL OPERATION means any office building, lodging place, or similar location designed for tenancy by one or more business entities or residential occupants.

(7) FIRE-TUBE BOILER means any boiler that passes hot gases from a fire box through one or more tubes running through a sealed container of water. The

heat of the gases is transferred through the walls of the tubes by thermal conduction, heating the water and ultimately creating steam.

(8) FORMER RECLAIM FACILITY means a facility, or any of its successors, that was in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX – Regional Clean Air Incentives Market (RECLAIM), that has received a final determination notification, and is no longer in the RECLAIM program.

(9) GROUP I UNIT means any unit burning natural gas with a rated heat input capacity greater than or equal to 75 million Btu per hour, excluding thermal fluid heaters and units operated at schools and universities.

(10) GROUP II UNIT means any unit burning gaseous fuels, excluding digester and landfill gases, with a rated heat input capacity less than 75 million Btu per hour down to and including 20 million Btu per hour, excluding thermal fluid heaters and units operated at schools and universities.

(11) GROUP III UNIT means any unit burning gaseous fuels, excluding digester and landfill gases, with a rated heat input capacity less than 20 million Btu per hour down to and including 5 million Btu per hour, and all units operated at schools and universities greater than or equal to 5 million Btu per hour, excluding atmospheric units and thermal fluid heaters.

(12) HEALTH FACILITY has the same meaning as defined in Section 1250 of the California Health and Safety Code.

(13) HEAT INPUT means the chemical heat released due to assumed complete combustion of fuel in a unit, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.

(14) INDUSTRIAL OPERATION means any entity engaged in the production and/or provision of chemicals, foods, textiles, fabricated metal products, real estate, personal services or other kindred or allied products or services.

(15) INSTITUTIONAL OPERATION means any public or private establishment constituted to provide medical, educational, governmental, or other similar services to promote safety, order, and welfare.

(16) MODIFICATION means any physical change that meets the criteria set forth in Rule 1302 – Definitions.

(17) MUNICIPAL SANITATION SERVICES means basic sanitation services provided to the residents of a municipality by sewage treatment plants and municipal solid waste landfills.

(18) NON-RECLAIM FACILITY means a facility, or any of its successors, that was not in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX.

(19) NOx EMISSIONS means the sum of nitric oxides and nitrogen dioxides emitted, calculated as nitrogen dioxide.

(20) OPEN HEATED TANK means a non-pressurized self-heated tank that may include a cover or doors that can be opened or detached to put in or remove parts, components or other material for processing in the tank. Tanks heated solely by an electric heater, boiler, thermal fluid heater or heat recovered from another process using heat exchangers are excluded from this definition.

(21) PROCESS HEATER means any combustion equipment fired with liquid and/or gaseous (including landfill and digester gas) and/or solid fossil fuel and which transfers heat from combustion gases to water or process streams. Process Heater does not include any kiln or oven used for drying, curing, baking, cooking, calcining, or vitrifying; or any unfired waste heat recovery heater that is used to recover sensible heat from the exhaust of any combustion equipment.

(22) RATED HEAT INPUT CAPACITY means the heat input capacity as specified by the permit issued by the Executive Officer, or if not specified on the permit, as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity specified on the nameplate, the new maximum heat input shall be considered as the rated heat input capacity.

(23) RECLAIM FACILITY means a facility, or any of its successors, that was in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX.

(24) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for purposes of the education of more than 12 children at the school, including in kindergarten and grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property, but does not include unimproved school property.

(25) THERM means 100,000 Btu.

(26) THERMAL FLUID HEATER means a natural gas fired process heater in which a process stream is heated indirectly by a heated fluid other than water.

(27) UNIT means any boiler, steam generator, or process heater as defined in paragraph (b)(4) or (b)(21) of this subdivision.

(c) Requirements

Notwithstanding the exemptions contained in Rule 2001 – Applicability, Table 1 – Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, the owner or operator of any unit(s) subject to this rule shall not operate the unit in a manner that exceeds the applicable emission limits specified in paragraphs (c)(1), (c)(2), and (c)(3), and ~~(c)(4)~~ shall comply with the applicable requirements in paragraphs (c)(4) to (c)(10).

(1) The owner or operator shall subject all of the units within the facility to comply with the applicable NOx emission limits specified in Table 1146-1:

Table 1146-1 – NOx Emission Limits and Compliance Schedule

Rule Reference	Category	Limit[1]	Compliance Schedule for Non-RECLAIM Facilities	Compliance Schedule for RECLAIM and Former RECLAIM Facilities
(c)(1)(A)	All Units Fired on Gaseous Fuels	30 ppm or for natural gas fired units 0.036 lbs/10^6 Btu	September 5, 2008	See Rule 1100 – Implementation Schedule for NOx Facilities
(c)(1)(B)	Any Units Fired on Non-gaseous Fuels	40 ppm	September 5, 2008	
(c)(1)(C)	Any Units Fired on Landfill Gas	25 ppm	January 1, 2015	
(c)(1)(D)	Any Units Fired on Digester Gas	15 ppm	January 1, 2015	
(c)(1)(E)	Atmospheric Units	12 ppm or 0.015 lbs/10^6 Btu	January 1, 2014	
(c)(1)(F)	Group I Units	5 ppm or 0.0062 lbs/10^6 Btu	January 1, 2013	
(c)(1)(G)	Group II Units (Fire-tube boilers with a previous NOx limit less than or equal to 9 ppm and greater than 5 ppm prior to December 7, 2018)	7 ppm or 0.0085 lbs/10^6 Btu	See (c)(~~7~~6)(A)	
(c)(1)(H)	Group II Units (All others with a previous NOx limit less than or equal to12 ppm and greater than 5 ppm prior to December 7, 2018)	9 ppm or 0.011 lbs/10^6 Btu	January 1, 2014	
(c)(1)(I)	Group II Units (All others)	5 ppm or 0.0062 lbs/10^6 Btu	December 7, 2018	
(c)(1)(J)	Group III Units (Fire-tube boilers, excluding units with a previous NOx limit less than or equal to 12 ppm and greater than 9 ppm prior to December 7, 2018)	7 ppm or 0.0085 lbs/10^6 Btu	December 7, 2018 or See (c)(~~7~~6)(B) for units with a previous NOx limit less than or equal to 9 ppm prior to December 7, 2018	
(c)(1)(K)	Group III Units (All others)	9 ppm or 0.011 lbs/10^6 Btu	January 1, 2015 or See (c)(~~8~~7) for units with a previous NOx limit less than or equal to 12 ppm prior to September 5, 2008	
(c)(1)(L)	Thermal Fluid Heaters	12 ppm or 0.015 lbs/10^6 Btu	December 7, 2018 or See (c)(~~7~~6)(C) for units with a previous NOx limit less than or equal to 20 ppm prior to December 7, 2018 or See (e)(2) for units with a previous NOx limit greater than 20 ppm prior to December 7, 2018	

[1]All parts per million (ppm) emission limits are referenced at 3 percent volume stack gas oxygen (O_2) on a dry basis averaged over a period of 15 consecutive minutes or pounds per million Btu (lbs/10^6 Btu).

~~(2) The owner or operator of any unit(s) operating with air pollution control equipment that results in ammonia emissions in the exhaust shall not discharge into the atmosphere ammonia emissions in excess of 5 ppm (referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 60 consecutive minutes), except for units complying with paragraph (c)(9).~~

(~~3~~2) For dual fuel co-fired combustion units a weighted average emission limit calculated by Equation 1146-1 may be used in lieu of the emission limits of Table 1146-1 provided a totalizing fuel flow meter is installed pursuant to paragraph (c)(~~10~~8), for units burning a combination of both fuels.

$$\textbf{Weighted Limit} = \frac{(CL_A \times Q_A) + (CL_B \times Q_B)}{Q_A + Q_B} \qquad \textbf{Equation 1146-1}$$

Where:

CL_A = compliance limit for fuel A
CL_B = compliance limit for fuel B
Q_A = heat input from fuel A
Q_B = heat input from fuel B

(~~4~~3) The owner or operator of any unit(s) with a rated heat input capacity greater than or equal to 5 million Btu per hour shall not discharge into the atmosphere carbon monoxide (CO) emissions in excess of 400 ppm (referenced at three~~3~~ percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) or for natural gas fired units 0.30 lbs/10^6 Btu.

(~~5~~4) In lieu of complying with the applicable emission limits specified in paragraphs (c)(1), (c)(2), (c)(3), ~~(c)(4),~~ (e)(1), and (e)(2), the owner or operator of any unit(s) in operation prior to September 5, 2008 at non-RECLAIM facilities, or in operation prior to December 7, 2019 at RECLAIM or former RECLAIM facilities with an annual heat input less than or equal to 9.0 x 10^9 Btu (90,000 therms) per year, shall:

(A) ~~o~~Operate the unit(s) in a manner that maintains stack gas oxygen concentrations at less than or equal to ~~3~~three percent on a dry basis for any 15-consecutive-minute averaging period; or

(B) ~~t~~Tune the unit(s) at least twice per year, (at intervals from ~~4~~four to ~~8~~eight months apart) in accordance with the procedure described in Attachment 1 or the unit manufacturer's specified tune-up procedure. If a different tune-up procedure from that described in Attachment 1 is used, then a copy of this procedure shall be kept on site. The owner or operator of any unit(s) selecting the tune-up option shall maintain records for a rolling ~~twenty four~~24-month period verifying that the required tune-ups have been performed. If the unit does not operate throughout a continuous six-month period within a ~~twelve~~12-month period, only one tune-up is required for the ~~twelve~~12-month period that includes the entire period of non-operation. For this case, the tune-up shall be conducted within ~~thirty(~~30~~)~~ days of start-up. No tune-up is required during a rolling ~~twelve~~12-month period for any unit that is not operated during that rolling ~~twelve~~12-month period; this unit may be test fired to verify availability of the unit for its intended use but once the test firing is completed the unit shall be shutdown. Records of test firings shall be maintained for a rolling ~~twenty four~~24-month period~~,~~ and shall be made accessible to ~~an authorized District representative~~ the Executive Officer upon request.

(~~6~~5) Notwithstanding the exemptions contained in Rule 2001 – Applicability, Table 1 – Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, an owner or operator of any unit(s) with a rated heat input capacity greater than or equal to 40 million Btu per hour and an annual heat input greater than 200 x 10^9 Btu per year shall have a continuous in-stack nitrogen oxides monitor or equivalent verification system in compliance with Rule 218 – Continuous Emission Monitoring, Rule 218.1 – Continuous Emission Monitoring Performance Specifications, and 40 Code of Federal Regulations (CFR) Part 60 Appendix B Specification 2. Maintenance and emission records shall be maintained and made accessible for a period of two years to the Executive Officer.

(~~7~~6) Notwithstanding paragraph (c)(1), an owner or operator that has installed, modified, or has been issued a South Coast AQMD Permit to Construct or Permit to Operate for the following units prior to December 7, 2018, at a non-RECLAIM facility, shall meet the NOx emission limit specified in

Table 1146-1 by December 7, 2033 or when 50 percent or more of the unit's burners are replaced, whichever is earlier:

(A) Group II fire-tube boilers subject to subparagraph (c)(1)(G) complying with a previous NOx emission limit that is less than or equal to 9 ppm and greater than 5 ppm; or

(B) Group III fire-tube boilers subject to subparagraph (c)(1)(J) complying with a previous NOx emission limit that is less than or equal to 9 ppm; or

(C) Thermal fluid heaters subject to subparagraph (c)(1)(L) complying with a previous NOx emission limit that is less than or equal to 20 ppm.

(~~8~~7) Notwithstanding the NOx emission limit specified in Table 1146-1 of paragraph (c)(1), by December 7, 2033 or when 50 percent or more of the unit's burners are replaced, whichever is earlier, the owner or operator that has installed, modified, or has been issued a South Coast AQMD Permit to Operate prior to September 5, 2008 for a Group III natural gas fired unit complying with a previous NOx emission limit of 12 ppm or less and greater than 9 ppm shall not operate in a manner that discharges NOx emissions (reference at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) in excess of 9 ppm.

~~(98) An owner or operator that has installed, modified, or has been issued a SCAQMD Permit to Construct or Permit to Operate prior to December 7, 2018 for any unit(s) operating with air pollution control equipment that results in ammonia emissions in the exhaust complying with an ammonia emission limit greater than 5 ppm, when the air pollution control equipment is replaced or modified, the owner or operator shall:~~

~~(A) Meet the ammonia emission limit in specified in (c)(2); and~~

~~(B) During the first 12 months of operation, demonstrate compliance according to the schedule specified in paragraph (d)(3).~~

(~~10~~8) Any owner or operator who chooses the pound per million Btu compliance option specified in paragraph~~(s)~~ (c)(1) or (c)(~~4~~3) or chooses the weighted average emission limit using Equation 1146-1 under paragraph (c)(~~3~~2) shall install a non-resettable totalizing fuel meter to measure the total of each fuel used by each individual unit, as approved by the Executive Officer.

(~~11~~9) An owner or operator of any landfill or digester gas (biogas) unit co-fired with natural gas shall not operate the unit in a manner that exceeds the

emission concentration limits specified in subparagraph~~s~~ (c)(1)(C) or (c)(1)(D), provided that the facility monthly average biogas usage by the biogas units is 90~~%~~ percent or more, based on the higher heating value of the fuels used.

(A) The Executive Officer may approve the burning of more than 10~~%~~ percent natural gas up to:

(i) 25~~%~~ percent natural gas in a biogas fired unit at the 15 ppm (digester gas) or 25 ppm (landfill gas) NOx level, when it is necessary, if the only alternative to limiting natural gas to 10~~%~~ percent would be shutting down the unit and flaring more biogas.

(ii) 50~~%~~ percent natural gas in a digester gas-fired unit at the 15 ppm NOx level, when it is necessary as specified in clause (c)(~~11~~9)(A)(i) and for any unit~~s~~ installed on or after September 5, 2008 provided the unit has demonstrated compliance with the NOx limits in paragraph (c)(1) applicable to units fired exclusively on natural gas.

For any unit~~s~~ subject to this subparagraph, the percent natural gas usage shall be based on the facility monthly average biogas usage by the biogas units and the higher heating value of the fuels used.

(B) Any biogas-fired unit burning more than the approved percent natural gas as determined under subparagraph (c)(~~11~~9)(A) shall comply with the weighted average NOx limit specified in paragraph (c)(~~3~~2).

(~~12~~10) Notwithstanding the NOx emission limits specified in Table 1146-1 of paragraph (c)(1) and paragraph (e)(3), and until a Regulation XI rule referenced in paragraph (f)(5) is adopted or amended and that rule compliance date occurs, an owner or operator shall not operate units at a municipal sanitation service facility in a manner that discharges NOx emissions (referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) in excess of:

(A) 9 ppm for Group II and Group III units; or

(B) 9 ppm, upon burner replacement, for Group III units that were installed or modified prior to September 5, 2008 complying with a previous NOx emission limit of 12 ppm or less; or

(C) 30 ppm for thermal fluid heaters; or

(D) 30 ppm~~,~~ upon burner replacement, for any low-fuel use unit complying with paragraph (c)(~~5~~4).

(d) Compliance Determination

The owner or operator of any unit(s) subject to this rule shall meet the following requirements for determining compliance:

(1) An owner or operator of any unit(s) shall have the option of complying with either the pound per million Btu or parts per million emission limits specified in paragraphs (c)(1), (c)(~~3~~2), and (c)(~~4~~3).

(2) All emission determinations shall be made in the as-found operating condition, except no compliance determination shall be established during start-up, shutdown, or under breakdown conditions. Start-up and shutdown intervals shall not last longer than is necessary to reach stable conditions. Compliance determination as specified in paragraph (d)(6) shall be conducted at least 250 operating hours, or at least ~~thirty~~30 days subsequent to the tuning or servicing of any unit, unless it is an unscheduled repair.

(3) An owner or operator ~~of a unit~~ that installs, replaces, or modifies air pollution control equipment with ammonia emissions in the exhaust that is subject to ~~the~~ an ammonia emission limit in a South Coast AQMD permit ~~specified in paragraph (c)(2)~~ shall:

(A) Conduct quarterly a source test to demonstrate compliance with the ammonia emission limit, according to the procedures in District Source Test Method 207.1 for Determination of Ammonia Emissions from Stationary Sources, during the first 12 months of unit operation and thereafter, except that source tests may be conducted annually within 12 months thereafter when four consecutive quarterly source tests demonstrate compliance with the ammonia emission limit. If an annual test is failed, four consecutive quarterly source tests must demonstrate compliance with the ammonia emissions limits prior to resuming annual source tests; or

(B) Utilize an ammonia Continuous Emissions Monitoring System (CEMS) certified under an approved South Coast AQMD protocol to demonstrate compliance with the ammonia emission limit.

(4) Compliance with the NO_x and CO emission requirements of paragraphs (c)(1), (c)(~~3~~2), and (c)(~~4~~3) and the stack-gas oxygen concentration requirement in ~~of~~ subparagraph (c)(~~5~~4)(A) shall be determined using a

~~District~~South Coast AQMD approved contractor under the Laboratory Approval Program according to the following procedures:

(A) ~~District~~South Coast AQMD Source Test Method 100.1 - Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling (March 1989), or

(B) ~~District~~South Coast AQMD Source Test Method 7.1 - Determination of Nitrogen Oxide Emissions from Stationary Sources (March 1989) and ~~District~~South Coast AQMD Source Test Method 10.1 - Carbon Monoxide and Carbon Dioxide by Gas Chromatograph/Non-Dispersive Infrared Detector (GC/NDIR) - Oxygen by Gas Chromatograph-Thermal Conductivity (GC/TCD) (March 1989); or

(C) United States Environmental Protection Agency (U.S. EPA) Conditional Test Method CTM-030, Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers and Process Heaters Using Portable Analyzers; or

(D) ASTM D6522-00(2005) Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers

(E) ~~a~~Any other test method determined to be alternative and approved before the test in writing by the Executive Officer~~s~~ of the ~~District~~South Coast AQMD and the California Air Resources Board and the Regional Administrator of the ~~United States Environmental Protection Agency~~U.S. EPA, Region IX; or

(F) ~~a~~A continuous in-stack nitrogen oxide monitor or equivalent verification system as specified in paragraph (c)(~~6~~5).

Records of all source tests shall be made available to ~~District~~South Coast AQMD personnel upon request. Emissions determined to exceed any limits established by this rule through the use of any of the above-referenced test methods shall constitute a violation of this rule.

(5) For any owner or operator who chooses the pound per million Btu of heat input compliance option of paragraph (c)(1), (c)(~~3~~2), or (c)(~~4~~3), NO_{x} emissions in pounds per million Btu of heat input shall be calculated using

procedures in 40 CFR Part 60, Appendix A, Method 19, Sections 2 and 3 and CO emissions in pounds per million Btu of heat input shall be calculated according to the Protocol for the Periodic Monitoring of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Units Subject to South Coast ~~Air Quality Management District~~AQMD Rules 1146 and 1146.1.

(6) Compliance determination with the NOx emission requirements in paragraph (d)(4) shall be conducted once:

(A) ~~e~~Every three years for units with a rated heat input capacity greater than or equal to 10 million Btu per hour, except for units subject to paragraph (c)(~~6~~5).

(B) ~~e~~Every five years for units with a rated heat input capacity less than 10 million Btu per hour down to and including 5 million Btu per hour.

(7) Provided the emissions test is conducted within the same calendar year as the test required in paragraph (d)(6), an owner or operator may use the following emissions tests to comply with paragraph (d)(6):

(A) Periodic monitoring or testing of a unit as required in a Title V permit pursuant to Regulation XXX – Title V Permits, or

(B) Relative accuracy testing for continuous emissions monitoring verification pursuant to Rule 218.1 or 40 CFR Part 60 Appendix B Specification 2.

(8) Except for units subject to paragraph (c)(~~6~~5), any owner or operator of units subject to this rule shall perform diagnostic emission checks of NOx emissions with a portable NOx, CO, and oxygen analyzer according to the Protocol for the Periodic Monitoring of Nitrogen Oxides, Carbon Monoxide, and Oxygen from Units Subject to South Coast ~~Air Quality Management District~~ AQMD Rules 1146 and 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters according to the following schedule:

(A) The owner or operator of units subject to paragraphs (c)(1), (c)(~~3~~2), or (c)(~~4~~3) shall check NOx emissions at least monthly or every 750 -unit operating hours, whichever occurs later. If a unit is in compliance for three consecutive diagnostic emission checks, without any adjustments to the oxygen sensor set points, then the unit may be checked quarterly or every 2,000 unit operating hours,

whichever occurs later, until the resulting diagnostic emission check exceeds the applicable limit specified in paragraph~~s~~ (c)(1)or (c)(~~3~~2).

(B) The owner or operator of units subject to the requirements specified in paragraph (c)(~~5~~4) shall check NOx emissions according to the tune-up schedule specified in subparagraph (c)(~~5~~4)(B).

(C) Records of all monitoring data required under subparagraphs (d)(8)(A) and (d)(8)(B) shall be maintained for a rolling twelve month period of two years (~~5~~five years for Title V facilities) and shall be made available to ~~District~~South Coast AQMD personnel upon request.

(D) The portable analyzer diagnostic emission checks required under subparagraph~~s~~ (d)(8)(A) and (d)(8)(B) shall only be conducted by a person who has completed an appropriate ~~District~~South Coast AQMD-approved training program in the operation of portable analyzers and has received a certification issued by the ~~District~~South Coast AQMD.

(9) An owner or operator shall comply with the requirements as applied to CO emissions specified in paragraph (d)(8) and subparagraph:

(A) (d)(6)(A) for units greater than or equal to 10 million Btu per hour, or

(B) (d)(6)(B) for units less than 10 million Btu per hour.

(10) A diagnostic emission check conducted under the requirements specified in paragraph (d)(8) that finds emissions in excess of those allowed by this rule or a permit condition shall not constitute a violation of this rule if the owner or operator corrects the problem and demonstrate compliance with another emission check within 72 hours from the time the owner or operator knew of excess emissions, or reasonably should have known, or shutdown the unit by the end of an operating cycle, whichever is sooner.

(11) Notwithstanding the requirements specified in paragraph (d)(10) any diagnostic emission check conducted by ~~District~~South Coast AQMD staff that finds emissions in excess of those allowed by this rule or a permit condition is a violation.

(12) An owner or operator may opt to lower the unit's rated heat input capacity. The lowered rated heat input capacity shall not be less than or equal to 2 million Btu per hour and shall be based on manufacturer's identification or rating plate or permit condition.

(e) Compliance Schedule

(1) The owner or operator of any unit(s) at a RECLAIM or former RECLAIM facility subject to paragraph (c)(1) shall meet the applicable NOx emission limit in Table 1146-1 in accordance with the schedule specified in Rule 1100 – Implementation Schedule for NOx Facilities.

(2) An owner or operator of a non-RECLAIM facility with any thermal fluid heaters with a NOx emission limit greater than 20 ppm shall:

(A) On or before December 7, 2019, submit a complete South Coast AQMD permit application for each thermal fluid heater that does not currently meet the limit specified in subparagraph (c)(1)(L); and

(B) On or before January 1, 2022, meet the applicable NOx emission limit in Table 1146-1 for thermal fluid heaters subject to subparagraph (c)(1)(L).

(3) By December 7, 2033 or when 50 percent or more of the unit's burners are replaced, whichever is earlier, no person shall operate in the ~~District~~South Coast AQMD any unit subject to paragraph (c)(~~5~~4) that discharges into the atmosphere NOx emissions in excess of 12 ppm (referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes).

(4) ~~a~~Any unit subject to the requirements specified in paragraph (c)(~~5~~4) that exceeds 90,000 therms of annual heat input from all fuels used shall constitute a violation of this rule. In addition, the owners or operators shall:

(A) ~~w~~Within ~~4~~four months after exceeding 90,000 therms of annual heat input, submit required applications for permits to construct and operate; and

(B) ~~w~~Within 18 months after exceeding 90,000 therms of annual heat input, demonstrate and maintain compliance with all applicable requirements of paragraphs (c)(1), (c)(2), (c)(3), and (c)(~~4~~5)~~, and (c)(6)~~ for the life of the unit.

(5) The Executive Officer shall grant in writing a time extension to the full compliance date with the applicable NOx compliance limits specified in subparagraphs (c)(1)(E) through (c)(1)(K) for any health facility as defined in Section 1250 of the California Health and Safety Code that can demonstrate that the Office of Statewide Health Planning and Development has approved an extension of time to comply with seismic safety requirements pursuant to Health and Safety Code Sections 130060 and

130061.5. The extension of time granted by the Executive Officer shall be consistent with the time extension granted pursuant to Health and Safety Code Section 130060 but not to exceed January 1, 2015 and shall be consistent with the time extension granted pursuant to Health and Safety Code Section 130061.5 but not to exceed January 1, 2020. Those health facilities granted a time extension shall submit a compliance plan to the Executive Officer on or before January 1, 2010.

(f) Exemptions

The provisions of this rule shall not apply to:

(1) ~~b~~Boilers used by electric utilities to generate electricity; or

(2) ~~b~~Boilers and process heaters with a rated heat input capacity greater than 40 million Btu per hour that are used in petroleum refineries; or

(3) ~~s~~Sulfur plant reaction boilers; or

(4) ~~a~~Any unit at a RECLAIM or former RECLAIM facility that is subject to a NOx emission limit in a different rule for an industry-specific category defined in Rule 1100 – Implementation Schedule for NOx Facilities; or

(5) ~~a~~Any unit at a municipal sanitation service facility that is subject to a NOx emission limit in a Regulation XI rule adopted or amended after December 7, 2018.

ATTACHMENT 1

A. Equipment Tuning Procedure[1] for Forced-Draft Boilers, Steam Generators, and Process Heaters

Nothing in this Equipment Tuning Procedure shall be construed to require any act or omission that would result in unsafe conditions or would be in violation of any regulation or requirement established by Factory Mutual, Industrial Risk Insurers, National Fire Prevention Association, the California Department of Industrial Relations (Occupational Safety and Health Division), the Federal Occupational Safety and Health Administration, or other relevant regulations and requirements.

Should a different tuning procedure be used, a copy of this procedure should be kept with the unit records for two years and made available to the ~~District~~South Coast AQMD personnel on request.

1. Operate the unit at the firing rate most typical of normal operation. If the unit experiences significant load variations during normal operation, operate it at its average firing rate.
2. At this firing rate, record stack gas temperature, oxygen concentration, and CO concentration (for gaseous fuels) or smoke-spot number[2] (for liquid fuels), and observe flame conditions after unit operation stabilizes at the firing rate selected. If the excess oxygen in the stack gas is at the lower end of the range of typical minimum values[3], and if CO emissions are low and there is not smoke, the unit is probably operating at near optimum efficiency - at this particular firing rate.

   However, complete the remaining portion of this procedure to determine whether still lower oxygen levels are practical.

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[1] This tuning procedure is based on a tune-up procedure developed by KVB, Inc. for the United States EPA.

[2] The smoke-spot number can be determined with ASTM Test Method D-2156 or with the Bacharach method. -ASTM Test Method D-2156 is included in a tuneup kit that can be purchased from the Bacharach Company.

[3] Typical minimum oxygen levels for boilers at high firing rates are:

1. For natural gas: 0.5~~%~~ - 3~~%~~ percent
2. For liquid fuels: 2~~%~~ - 4~~%~~ percent

3. Increase combustion air flow to the furnace until stack gas oxygen levels increase by one to two percent over the level measured in Step 2. As in Step 2, record the stack gas temperature, CO concentration (for gaseous fuels) or smoke-spot number (for liquid fuels), and observe flame conditions for these higher oxygen levels after boiler operation stabilizes.
4. Decrease combustion air flow until the stack gas oxygen concentration is at the level measured in Step 2. From this level gradually reduce the combustion air flow, in small increments. After each increment, record the stack gas temperature, oxygen concentration, CO concentration (for gaseous fuels) and smoke-spot number (for liquid fuels). Also observe the flame and record any changes in its condition.
5. Continue to reduce combustion air flow stepwise, until one of these limits is reached:
    a. Unacceptable flame conditions - such as flame impingement on furnace walls or burner parts, excessive flame carryover, or flame instability.
    b. Stack gas CO concentrations greater than 400 ppm.
    c. Smoking at the stack.
    d. Equipment-related limitations - such as low windbox/furnace pressure differential, built in air-flow limits, etc.
6. Develop an O_2/CO curve (for gaseous fuels) or O_2/smoke curve (for liquid fuels) similar to those shown in Figures 1 and 2 using the excess oxygen and CO or smoke-spot number data obtained at each combustion air flow setting.

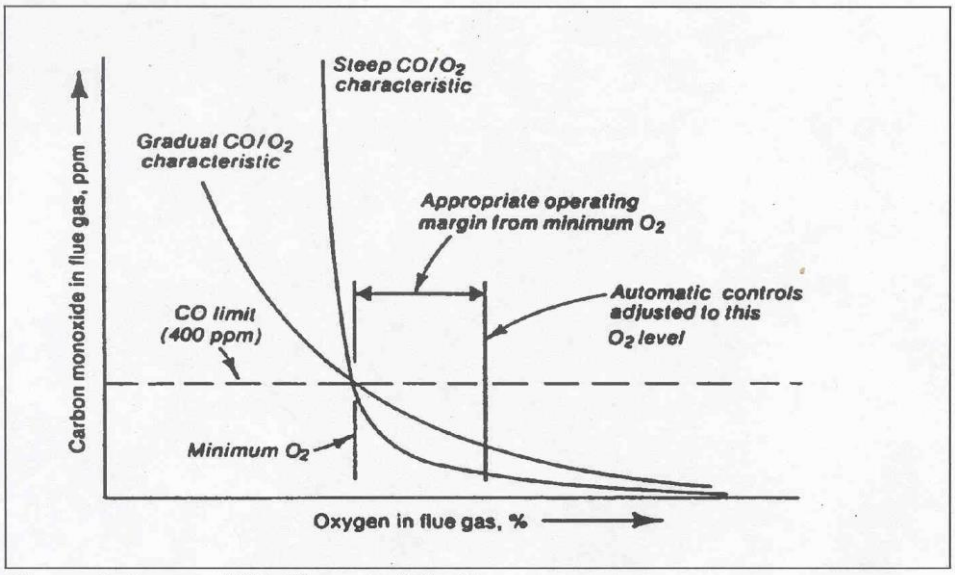


Figure 1 Oxygen/CO Characteristic Curve

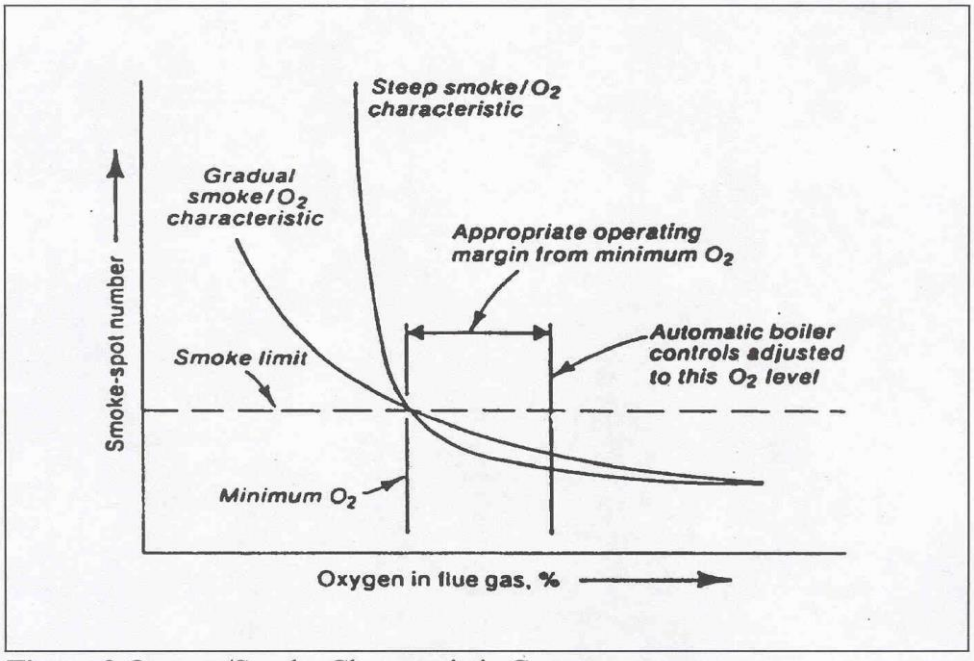


Figure 2 Oxygen/Smoke Characteristic Curve

7. From the curves prepared in Step 6, find the stack gas oxygen levels where the CO emissions or smoke-spot number equal the following values:

Fuel	Measurement	Value
Gaseous	CO Emissions	400 ppm
#1 and #2 oils	smoke-spot number	number 1

#4 oil	smoke-spot number	number 2
#5 oil	smoke-spot number	number 3
Other oils	smoke-spot number	number 4

The above conditions are referred to as the CO or smoke thresholds, or as the minimum excess oxygen level.

Compare this minimum value of excess oxygen to the expected value provided by the combustion unit manufacturer. If the minimum level found is substantially higher than the value provided by the combustion unit manufacturer, burner adjustments can probably be made to improve fuel and air mixing, thereby allowing operation with less air.

8. Add 0.5 to 2.0 percent O_2 to the minimum excess oxygen level found in Step 7 and reset burner controls to operate automatically at this higher stack gas oxygen level. This margin above the minimum oxygen level accounts for fuel variations, variations in atmospheric conditions, load changes, and nonrepeatability or play in automatic controls.

9. If the load of the combustion unit varies significantly during normal operation, repeat Steps 1-8 for firing rates that represent the upper and lower limits of the range of the load. Because control adjustments at one firing rate may affect conditions at other firing rates, it may not be possible to establish the optimum excess oxygen level at all firing rates. If this is the case, choose the burner control settings that give best performance over the range of firing rates. If one firing rate predominates, settings should optimize conditions at that rate.

10. Verify that the new settings can accommodate the sudden load changes that may occur in daily operation without adverse effects. Do this by increasing and decreasing load rapidly while observing the flame and stack. If any of the conditions in Step 5 result, reset the combustion controls to provide a slightly higher level of excess oxygen at the affected firing rates. Next, verify these new settings in a similar fashion. Then make sure that the final control settings are recorded at steady-state operating conditions for future reference.

11. When the above checks and adjustments have been made, record data and attach combustion analysis data to boiler, steam generator, or heater records indicating name and signature of person, title, and date the tune-up was performed.

B. Equipment Tuning Procedure for Natural Draft-Fired Boilers, Steam Generators, and Process Heaters.

Nothing in this Equipment Tuning Procedure shall be construed to require any act or omission that would result in unsafe conditions or would be in violation of any regulation or requirement established by Factory Mutual, Industrial Risk Insurers, National Fire Prevention Association, the California Department of Industrial Relations (Occupational Safety and Health Division), the Federal Occupational Safety and Health Administration, or other relevant codes, regulations, and equipment manufacturers specifications and operating manuals.

Should a different tuning procedure be used, a copy of this procedure should be kept with the unit records for two years and made available to the ~~District~~South Coast AQMD personnel on request.

1. **PRELIMINARY ANALYSIS**

   a. CHECK THE OPERATING PRESSURE OR TEMPERATURE.

   Operate the boiler, steam generator, or heater at the lowest acceptable pressure or temperature that will satisfy the load demand. This will minimize heat and radiation losses. Determine the pressure or temperature that will be used as a basis for comparative combustion analysis before and after tune-up.

   b. CHECK OPERATING HOURS.

   Plan the workload so that the boiler, steam generator, or process heater operates only the minimum hours and days necessary to perform the work required. Fewer operating hours will reduce fuel use and emissions. For units requiring a tune-up to comply with the rule, a totalizing non-resettable fuel meter will be required for each fuel used and for each boiler, steam generator, and heater to prove fuel consumption is less than the heat input limit in therms per year specified in the rule.

   c. CHECK AIR SUPPLY.

   Sufficient fresh air supply is essential to ensure optimum combustion and the area of air supply openings must be in compliance with applicable codes and regulations. Air openings must be kept wide open when the burner is firing and clear from restriction to flow.

   d. CHECK VENT.

Proper venting is essential to assure efficient combustion. Insufficient draft or overdraft promotes hazards and inefficient burning. Check to be sure that vent is in good condition, sized properly and with no obstructions.

e. COMBUSTION ANALYSIS.

Perform an "as is" combustion analysis (CO, O_2, etc.) with a warmed-up unit at high and low fire, if possible. In addition to data obtained from combustion analysis, also record the following:

i. Inlet fuel pressure at burner (at high & low fire)

ii. Draft at inlet to draft hood or barometric damper

1) Draft hood: high, medium, and low

2) Barometric Damper: high, medium, and low

iii. Steam pressure, water temperature, or process fluid pressure or temperature entering and leaving the boiler, steam generator, or process heater.

iv. Unit rate if meter is available.

With above conditions recorded, make the following checks and corrective actions as necessary:

2. **CHECKS & CORRECTIONS**

a. CHECK BURNER CONDITION.

Dirty burners or burner orifices will cause boiler, steam generator, or process heater output rate and thermal efficiency to decrease. Clean burners and burner orifices thoroughly. Also, ensure that fuel filters and moisture traps are in place, clean, and operating properly, to prevent plugging of gas orifices. Confirm proper location and orientation of burner diffuser spuds, gas canes, etc. Look for any burned-off or missing burner parts~~,~~ and replace as needed.

b. CHECK FOR CLEAN BOILER, STEAM GENERATOR, OR PROCESS HEATER TUBES & HEAT TRANSFER SURFACES.

External and internal build-up of sediment and scale on the heating surfaces ~~c~~reates an insulating effect that quickly reduces unit efficiency. Excessive fuel cost will result if the unit is not kept clean. Clean tube surfaces, remove scale and soot, assure proper process fluid flow and flue gas flow.

c. CHECK WATER TREATMENT & BLOWDOWN PROGRAM.

Soft water and the proper water or process fluid treatment must be uniformly used to minimize scale and corrosion. Timely flushing and periodic blowdown must be employed to eliminate sediment and scale build-up on a boiler, steam generator or process heater.

d. CHECK FOR STEAM, HOT WATER OR PROCESS FLUID LEAKS. Repair all leaks immediately since even small high-pressure leaks quickly lead to considerable fuel, water and steam losses. Be sure there are no leaks through the blow-off, drains, safety valve, by-pass lines or at the feed pump, if used.

3. **SAFETY CHECKS**

a. Test primary and secondary low water level controls.

b. Check operating and limit pressure and temperature controls.

c. Check pilot safety shut off operation.

d. Check safety valve pressure and capacity to meet boiler, steam generator or process heater requirements.

e. Check limit safety control and spill switch.

4. **ADJUSTMENTS**

While taking combustion readings with a warmed-up boiler, steam generator, or process heater at high fire perform checks and adjustments as follows:

a. Adjust unit to fire at rate; record fuel manifold pressure.

b. Adjust draft and/or fuel pressure to obtain acceptable, clean combustion at both high, medium and low fire. Carbon Monoxide (CO) value should always be below 400 parts per million (PPM) at 3~~%~~ percent ~~0~~O_2. If CO is high make necessary adjustments.

Check to ensure boiler, steam generator, or process heater light offs are smooth and safe. A reduced fuel pressure test at both high and low fire should be conducted in accordance with the manufacturer's instructions and maintenance manual~~s~~.

c. Check and adjust operation of modulation controller. Ensure proper, efficient and clean combustion through range of firing rates.

When above adjustments and corrections have been made, record all data.

5. **FINAL TEST**

Perform a final combustion analysis with a warmed-up boiler, steam generator, or process heater at high, medium and low fire, whenever possible. In addition to data from combustion analysis, also check and record:

a. Fuel pressure at burner (High, Medium, and Low).

b. Draft above draft hood or barometric damper (High, Medium and Low).

c. Steam pressure or water temperature entering and leaving boiler, steam generator, or process heater.

d. Unit rate if meter is available.

When the above checks and adjustments have been made, record data and attach combustion analysis data to boiler, steam generator, or process heater records indicating name and signature of person, title, company name, company address and date the tune-up was performed.

Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters

BOARD MEETING

DECEMBER 4, 2020

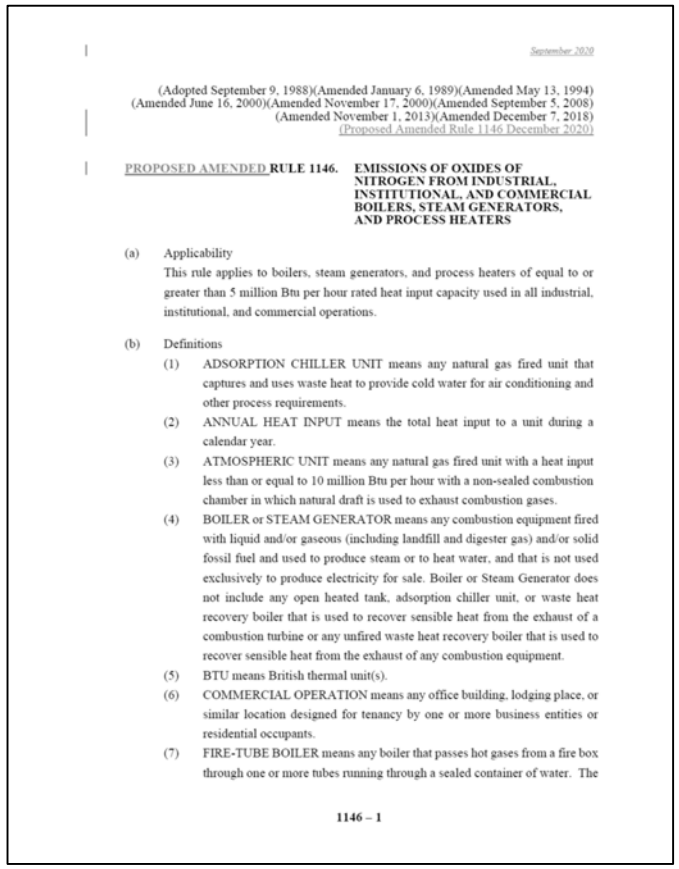
Rule 1146 Background

- Adopted on September 9, 1988
- Establishes NOx emission limits for boilers, steam generators, and process heaters ≥ 5 million BTU per hour
- Last amended on December 7, 2018
  - Expanded applicability to include RECLAIM facilities
  - Updated NOx limits to reflect Best Available Retrofit Control Technology (BARCT)
  - Included an ammonia limit for new and modified air pollution control equipment with ammonia emissions such as Selective Catalytic Reduction (SCR)

Regulation XIII - New Source Review Requirements for Ammonia Emissions

- Ammonia emissions from new and modified SCRs will trigger Regulation XIII – New Source Review during the permitting process
- Under Regulation XIII the increased ammonia emissions must meet a Best Available Control Technology limit of 5 ppm
  - Rule 1146 ammonia limit for new and modified SCRs is also 5 ppm
- Based on evaluation of Regulation XIII and Rule 1146, staff concluded that the ammonia emission limit is a Regulation XIII issue and should be evaluated in the permitting process rather than Rule 1146
  - Allows permit engineers to evaluate the ammonia limit for new and modified SCRs on a case-by-case basis to ensure the Rule 1146 NOx limit can be achieved

Proposed Amendments



September 2020

(Adopted September 9, 1988)(Amended January 6, 1989)(Amended May 13, 1994)
(Amended June 16, 2000)(Amended November 17, 2000)(Amended September 5, 2008)
(Amended November 1, 2013)(Amended December 7, 2018)
(Proposed Amended Rule 1146 December 2020)

PROPOSED AMENDED **RULE 1146. EMISSIONS OF OXIDES OF NITROGEN FROM INDUSTRIAL, INSTITUTIONAL, AND COMMERCIAL BOILERS, STEAM GENERATORS, AND PROCESS HEATERS**

(a) Applicability

This rule applies to boilers, steam generators, and process heaters of equal to or greater than 5 million Btu per hour rated heat input capacity used in all industrial, institutional, and commercial operations.

(b) Definitions

(1) ADSORPTION CHILLER UNIT means any natural gas fired unit that captures and uses waste heat to provide cold water for air conditioning and other process requirements.

(2) ANNUAL HEAT INPUT means the total heat input to a unit during a calendar year.

(3) ATMOSPHERIC UNIT means any natural gas fired unit with a heat input less than or equal to 10 million Btu per hour with a non-sealed combustion chamber in which natural draft is used to exhaust combustion gases.

(4) BOILER or STEAM GENERATOR means any combustion equipment fired with liquid and/or gaseous (including landfill and digester gas) and/or solid fossil fuel and used to produce steam or to heat water, and that is not used exclusively to produce electricity for sale. Boiler or Steam Generator does not include any open heated tank, adsorption chiller unit, or waste heat recovery boiler that is used to recover sensible heat from the exhaust of a combustion turbine or any unfired waste heat recovery boiler that is used to recover sensible heat from the exhaust of any combustion equipment.

(5) BTU means British thermal unit(s).

(6) COMMERCIAL OPERATION means any office building, lodging place, or similar location designed for tenancy by one or more business entities or residential occupants.

(7) FIRE-TUBE BOILER means any boiler that passes hot gases from a fire box through one or more tubes running through a sealed container of water. The

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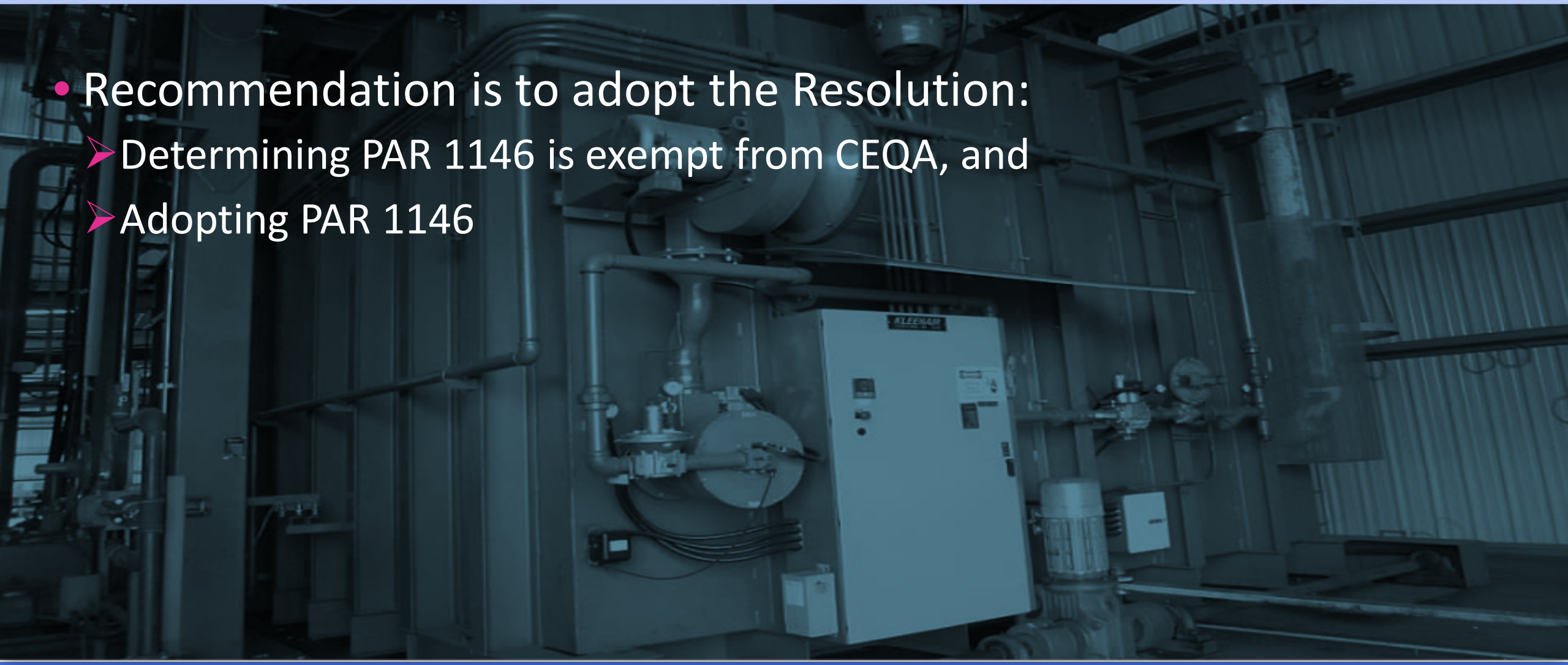
- Removes ammonia limit of 5 ppm for new and modified pollution controls with ammonia emissions
  - ➢ Ammonia limits will be addressed under Regulation XIII
  - ➢ Prevents conflicts with implementing Regulation XIII
- Retains compliance demonstration requirements for new, replaced and modified pollution control equipment with ammonia limits

Staff Recommendation



- Recommendation is to adopt the Resolution:
  - Determining PAR 1146 is exempt from CEQA, and
  - Adopting PAR 1146