

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report for 2015 8-Hour Ozone Standard Reasonably Available Control Technology (RACT) Demonstration

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Table of Contents

1. INTRODUCTION	1
<i>Defining RACT</i>	1
<i>RACT Applicability</i>	3
<i>Regulatory History</i>	3
2. SOUTH COAST AQMD APPROACH AND EVALUATION	4
<i>CTG Sources</i>	4
<i>Non-CTG Major Stationary Sources</i>	7
3. CALIFORNIA ENVIRONMENTAL QUALITY ACT	9
4. PUBLIC PROCESS	9
5. CONCLUSION	10
Appendix I – RACT Demonstration CTG Checklist	
Appendix II – Negative Declaration for Control Techniques Guideline for Paper, Film and Foil Coatings	
Appendix III – Recently Adopted (March 2014 to February 2020) Rules and Regulations and Federal Guidance Evaluated for RACT Demonstration (NOx and VOCs only)	
Appendix IV – Evaluation of South Coast AQMD VOC Rules	
Appendix V – Evaluation of South Coast AQMD NOx Rules	

1. INTRODUCTION

In 1979, the United States Environmental Protection Agency (U.S. EPA) established primary and secondary national ambient air quality standards (NAAQS or standards) for ozone at 0.12 parts per million (ppm) averaged over a 1-hour period. In 1997, the U.S. EPA set a new health protective 8-hour ozone standard at 80 parts per billion (ppb), replacing the previous 1-hour ozone standard. In 2008, the U.S. EPA revoked the 1997 8-hour ozone standard, and promulgated the 2008 8-hour ozone NAAQS (75 ppb). Subsequently in 2015, U.S. EPA revised the 8-hour ozone standard to 70 ppb.

With respect to the 2015 8-hour Ozone NAAQS, in 2018, the U.S. EPA published a final rule that addressed the classifications for nonattainment areas.¹ Accordingly, the South Coast Air Basin (Basin) was classified as an “extreme” nonattainment area and the Coachella Valley was classified as a “severe-15” nonattainment area. The Coachella Valley Planning Area is defined, for the purposes of this discussion, as the desert portion of Riverside County in the Salton Sea Air Basin, and is part of the South Coast Air Quality Management District (South Coast AQMD), which also includes the Basin. The Clean Air Act (CAA) requires that areas classified as moderate nonattainment or higher must develop and submit a demonstration that their current air pollution regulations and emission sources fulfill the Reasonably Available Control Technology (RACT) requirements. The RACT demonstration provides a comparison of the South Coast AQMD rules and regulations with the guidelines established by the U.S. EPA as well as with the existing regulations from other air agencies within California and throughout the U.S. The purpose of the RACT demonstration is to review, and where applicable, update an agency’s existing regulations to meet the current state of the science and emission controls. The RACT demonstration must be submitted to the U.S. EPA through California Air Resources Board (CARB) by August 3, 2020 for inclusion into the State Implementation Plan (SIP).

Defining RACT

The U.S. EPA defines RACT as “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.”² To establish a “presumptive” RACT level across the nation, the CAA requires the U.S. EPA to develop several Control Techniques Guidelines (CTGs) for VOC sources, and Alternative Control Techniques (ACTs) documents for volatile organic compounds (VOC) and oxides of nitrogen (NO_x) sources. The CTG documents contain mandated emission standards and work practices whereas the ACT documents contain recommended

¹ 83 FR 25776 (June 4, 2018).

² 44 FR 53762 (September 17, 1979).

measures, but not mandated. The U.S. EPA is also required to revise and update these documents as new or updated information becomes available.

To facilitate the development of the RACT Demonstration for the 1997 8-hour ozone standard, the U.S. EPA Region IX issued a guidance letter³ in 2006, which specifies the areas of information that the U.S. EPA is looking for in a minimally acceptable RACT Demonstration. The five-step guidance of the U.S. EPA Region IX is presented below.

1. *Describe efforts to identify all source categories within the District requiring RACT, including CTG sources (i.e., covered by an EPA Control Technique Guideline document) and major non-CTG sources.*
2. *Submit negative declarations where there are no facilities (major or minor) within the District subject to a CTG.*
3. *For all categories needing RACT, list the state/local regulations that implement RACT. It may also be helpful to list the date EPA approved these regulations as fulfilling RACT.*
4. *Describe the basis for concluding that the regulations fulfill RACT. Documents useful in establishing RACT include CTGs, Alternative Control Technique guidance (ACT), Maximum Achievable Control Technology (MACT) standards, New Source Performance Standards (NSPS), California Suggested Control Measures (SCM) and RACT/Best Available Retrofit Control Technology (BARCT) determinations, regulations adopted in other Districts, and guidance and rules developed by other state and local agencies.*
5. *Some Districts may use California Air Pollution Control Officers Association (CAPCOA)'s September 2003 Potential All Feasible Measures (AFM) Report to help demonstrate RACT. If so, the RACT SIP should certify that local regulations are equivalent to AFM, justify the assumption that the AFM fulfilled RACT in 2003, and include some sort of certification/demonstration that no additional controls have become more reasonably available since then.*

In the Final Rule for “Implementation of the 2015 National Ambient Air Quality Standards for Ozone,” the U.S. EPA retains its existing general RACT requirements for the purpose of the 2015 ozone NAAQS, and that “air agencies should also consider all other relevant information (including recent technical information and information received during the state’s public comment period) that is available at the time they develop their RACT SIPs.”⁴

³ Letter from Andrew Steckel to Kurt Karperos, titled “RACT SIPs”, March 9, 2006.

⁴ 83 FR 62998 (November 7, 2018).

RACT Applicability

Nonattainment areas classified as moderate or higher are required to implement RACT for all major sources of VOC. Section 182(b)(2) of the CAA describes the sources subject to RACT requirements:

- (A) Each category of VOC sources in the area covered by a CTG document issued by the Administrator between the date of the enactment of the Clean Air Act Amendments of 1990 and the date of attainment.
- (B) All VOC sources in the area covered by any CTG issued before the date of the enactment of the Clean Air Act Amendments of 1990.
- (C) All other major stationary sources of VOCs located in the area.

Section 182(b)(2) and section 182(f) of the CAA call for the implementation of RACT for both VOC and NO_x sources, since both VOC and NO_x are ozone precursors, and identify the sources that are subject to RACT in the South Coast AQMD:

- Sources subject to CTG located in South Coast Air Basin and Coachella Valley
- Non-CTG stationary sources⁵ exceeding 10 tons per year of VOC or NO_x emissions located in South Coast Air Basin
- Non-CTG stationary sources exceeding 25 tons per year of VOC or NO_x emission located in Coachella Valley

Regulatory History

South Coast AQMD developed RACT demonstrations with respect to the 1997 8-hour ozone standard in 2006, and subsequently in 2014 with respect to 2008 8-hour ozone standard. The 2006 RACT demonstration certified that South Coast AQMD's rules and regulations fulfilled the 1997 8-hour ozone RACT requirements, and was approved by the U.S. EPA on December 18, 2008.⁶ For the 2008 8-hour ozone NAAQS, the South Coast AQMD adopted the RACT Demonstration on June 6, 2014, which provided a comprehensive assessment of the South Coast AQMD rules and regulations. The analysis indicated that South Coast AQMD rules and regulations closely matched those of the other agencies and identified eight South Coast AQMD rules covering six source categories that could be further evaluated as areas for improvements in the 2016 Air Quality Management Plan (AQMP) Reasonably Available Control Measures (RACM) analysis and control measure development. In 2017, The U.S. EPA fully approved this RACT demonstration.⁷

⁵ Major sources that are not covered by the U.S. EPA CTG are called major non-CTG sources.

⁶ 73 FR 76947 (December 18, 2008).

⁷ 82 FR 43850 (October 20, 2017).

More recently, the 2016 AQMP included a RACM and a Best Available Control Measures (BACM) demonstration for South Coast Air Basin with respect to the Annual PM_{2.5} and 24-hour PM_{2.5} NAAQS, respectively. The U.S. EPA reclassified the Basin as “serious” nonattainment for the 2006 24-hour standard with an attainment date of December 31, 2019 on February 12, 2016. Under CAA, a “serious” nonattainment area’s attainment plan has to demonstrate that the BACM, including Best Available Control Technology (BACT), for stationary sources are implemented no later than four years after the designation (or reclassification) with the exception of source categories that the U.S. EPA has determined to not contribute significantly to the levels that exceed the standard in the area. Furthermore, the South Coast Air Basin was classified as “moderate” nonattainment for the 2012 PM_{2.5} NAAQS of 12 µg/m³ on April 15, 2015. A RACM, including RACT, was required as part of the attainment plan for nonattainment areas. As a result, the 2016 AQMP included a RACT demonstration for the 2012 PM_{2.5} NAAQS. The U.S. EPA approved the BACT/BACM demonstration in 2019⁸ but has not yet taken any actions for the RACT/RACM demonstration for the annual PM_{2.5} standard.

2. SOUTH COAST AQMD APPROACH AND EVALUATION

This section discusses the approach and evaluation for the RACT demonstration, and is outlined in three applicable RACT categories (1) CTG sources; (2) non-CTG major stationary sources of VOCs and (3) non-CTG major stationary sources of NO_x.

CTG Sources

The Clean Air Act section 183 requires the U.S. EPA to provide guidance to the air districts on the “presumptive” RACT levels. As a result, the U.S. EPA has developed several CTGs for VOC sources and ACT documents for VOC and NO_x sources. Most of the CTGs were issued prior to 1990, and most of the ACT documents were issued in the mid-1990s. The CTGs contain mandated emission standards and work practices whereas the ACTs describe available control techniques and their cost effectiveness, but do not define “presumptive” RACT levels. The U.S. EPA is required to update existing CTGs/ACTs, or develop new guidelines, on a frequent basis as new or updated control technologies become available.

The CAA section 182(b)(2) further requires the air districts to revise their SIPs to include the mandated RACT levels covered by the CTGs issued after November 15, 1990 and prior to the area’s attainment date. To satisfy this requirement, the South Coast AQMD developed and submitted to CARB and the U.S. EPA a demonstration and certification that the South Coast AQMD’s rules and regulations fulfill the 1997 8-hour ozone RACT requirements in 2006, which the U.S. EPA approved in December 2008⁹ certifying that South Coast AQMD rules implement

⁸ 84 FR 3305 (March 14, 2019).

⁹ 73 FR 76947 (December 18, 2008).

RACT for those CTG sources. In the 2006–2008 timeframe, the U.S. EPA developed 12 new CTGs to update the requirements for several types of coatings. South Coast AQMD staff conducted an analysis comparing the requirements in the South Coast AQMD’s rules with those requirements in the 12 new CTGs as part of the 2012 AQMP (Table VI-4 of 2012 AQMP). The emission limits or standards as well as monitoring, testing, recordkeeping, and work practice requirements in South Coast AQMD rules were compared with those in these CTGs. The RACT/RACM demonstration in the 2012 AQMP was approved by U.S. EPA on October 3, 2014.¹⁰

In 2016, the U.S. EPA issued a new CTG for the Oil and Natural Gas Industry.¹¹ The CTG provides recommendations to air agencies as to what constitutes RACT for select oil and natural gas industry emission sources. States must revise their SIPs for ozone nonattainment areas to include RACT for each category of sources of VOC emissions. California’s Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities¹² (Oil and Gas Methane Regulation), adopted in 2017, establishes methane emission standards for crude oil and natural gas facilities in furtherance of the California Global Warming Solutions Act. Methane is not considered a VOC, but many methane controls also reduce VOC emissions as a co-benefit since both VOCs and methane are found in oil and gas operations. The CTG and the Oil and Gas Methane Regulation cover similar sources because they emit both VOC and methane. In September 2018, CARB released a staff report that provides a comparison of the Oil and Gas Methane Regulation to the 2016 U.S. EPA Oil and Gas CTG. Each source that was selected for RACT recommendations in the CTG was evaluated to determine whether the Oil and Gas Methane Regulation complies with the CTG. For each emission source, the Oil and Gas Methane Regulation was determined to comply with its CTG counterpart as the requirement in the Oil and Gas Methane Regulation was deemed equivalent or more stringent, or it achieved equivalent or greater VOC reductions, than the comparable CTG requirement. On October 25, 2018, CARB Board approved the staff report and the submission of the Oil and Gas Methane Regulation to U.S. EPA as a revision to the California SIP. This SIP revision, in combination with South Coast AQMD rules and a Memorandum of Agreement between CARB and South Coast AQMD¹³ to implement greenhouse gas emission standards, satisfies the RACT requirement for this source category for the South Coast AQMD.

The 2015 8-hour ozone standard RACT evaluation for CTG sources builds on the previously submitted and approved RACT/RACM demonstration with updated analysis where applicable. Appendix I provides a summary of the evaluation from the previously submitted RACT analysis

¹⁰ 79 FR 52525 (October 3, 2014).

¹¹ US EPA. (2016). Control Techniques Guidelines for the Oil and Natural Gas Industry. <https://www.epa.gov/sites/production/files/2016-10/documents/2016-ctg-oil-and-gas.pdf>.

¹² California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4. Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.

¹³ <https://ww2.arb.ca.gov/sites/default/files/2018-10/South%20Coast%20MOA.pdf>.

and the updated analysis based on a checklist that was provided by the U.S. EPA staff covering all CTGs.¹⁴ For each CTG, there is a corresponding South Coast AQMD rule(s) or a State regulation that fulfills the RACT requirement. Overall, with the exception of the 2008 CTG for Automobile and Light-Duty Truck Assembly Coatings,¹⁵ all CTG sources in the South Coast AQMD are subject to either South Coast AQMD rules or California State regulations that meet or exceed RACT requirements.

With respect to the CTG for Automobile and Light-Duty Truck Assembly Coatings, South Coast AQMD Rule 1115 (Motor Vehicle Assembly Line Coating Operations, last amended in 1995) regulates VOC emissions from this source category. Rule 1115 is not as stringent as the U.S. EPA's CTG for several coatings and products for facilities emitting greater than 15 pounds per day. CTG has more stringent limits for electrophoretic primer at 84 grams per liter (145 grams per liter in Rule 1115); spray primer, primer-surfacer, and topcoat at 1,440 grams per liter (1,800 grams per liter in Rule 1115); and trunk coatings, interior coatings, sealers, and deadeners at 650 grams per liter (Rule 1115 provides an exemption for these categories). Rule 1115 applies to both light-duty and heavy-duty vehicle assembly lines, whereas the U.S. EPA's CTG applies to automobiles and light-duty trucks. For heavy-duty vehicles, the CTG provides an option to satisfy the requirement through metals products or plastic parts coatings. Specifically, the CTG says that "states consider structuring their RACT rules to provide facilities that coat bodies and/or body parts for new heavier vehicles with the option of meeting either the state RACT requirements for the automobile and light-duty truck coating category or the state RACT requirements for the miscellaneous metal products or plastic parts coatings categories. Heavier vehicle coatings are included in the Miscellaneous Metal Products and Plastic Parts Coatings categories under section 183(e) and are therefore covered in the CTG for Miscellaneous Metal and Plastic Parts Coatings." In the 2014 RACT analysis, all facilities subject to Rule 1115 were heavy-duty vehicles manufacturers, and RACT was fulfilled through South Coast AQMD Rule 1107 (Coatings of Metal Parts and Products). Since then, new light-duty motor vehicle manufacturing facilities are operating in the Basin that are subject to this CTG. Accordingly, light-duty motor vehicle manufacturing emission sources do not meet the U.S. EPA's CTG requirements and South Coast AQMD commits to amend Rule 1115 to meet the CTG requirements.

In addition, for the 2007 Paper, Film and Foil coatings CTG (EPA 453/R-07-003), South Coast AQMD is submitting a negative declaration. A negative declaration is a statement that there are no such operations in the South Coast AQMD that are subject to the CTG. The 2007 U.S. EPA's CTG requires an overall 90 percent control efficiency for facilities emitting greater than 15 pounds per day and coating lines emitting greater than 25 tons per year. South Coast AQMD Rule 1128 (Paper, Fabric and Film Coating Operations, last amended in 1996) sets VOC emission limits for this source category, and is not as stringent as the 2007 U.S. EPA's CTGs (85.5 percent overall

¹⁴ Handout 2 for a conference call title "70 ppb Ozone Stand – SIP Working Group" on May 22, 2019.

¹⁵ https://www3.epa.gov/airquality/ctg_act/200809_voc_epa453_r-08-006_auto_ldtruck_assembly_coating.pdf.

control efficiency in Rule 1128). CTG's alternative compliance emission limit of 80 grams per liter is also more stringent than the limit of 265 grams per liter in Rule 1128. For this CTG, South Coast AQMD staff has reviewed the permit database and consulted with knowledgeable permitting and inspection staff. Based on this analysis and to the best of staff's knowledge, out of the active Title V facilities that do not use add-on controls for the coating operations subject to Rule 1128, no facilities exceed the CTG's applicable threshold (i.e., 25 tons per year of VOC per coating line). For the Title V facilities with add-on controls for the coating operations, their controls meet RACT requirements and are listed on federally enforceable Title V permits. A formal written statement is included in Appendix II of this document.

In summary, based on the above analysis, all CTG sources in the South Coast AQMD are subject to either South Coast AQMD rules or California State Regulations that meet RACT requirements with the exception of the CTG for Automobile and Light-Duty Truck Assembly Coatings. These rules are either SIP-approved or have been submitted to the U.S. EPA for consideration for inclusion into the SIP.

Non-CTG Major Stationary Sources

RACT is a moving target that changes over time as new technologies and products become feasible and cost effective. Staff focused its evaluation on changes in technologies and low-emission products since the last 2014 8-hour ozone RACT Demonstration and evaluated South Coast AQMD's existing rules against federal rules, regulations, and any comparable rules from the nation's most technologically progressive air agencies.

In preparing the RACT Demonstration for non-CTG major stationary sources, staff identified all source categories within the South Coast AQMD requiring RACT. To identify the active major stationary source facilities of NO_x and VOC, a search was conducted of the South Coast AQMD's permitting database to create a universe of Title V facilities.¹⁶ Title V facilities have federal enforceable permits with clearly identified SIP-approved rules. For the South Coast Air Basin, Title V applies to facilities with a Potential to Emit (PTE) equal to or more than 10 tons of NO_x and VOC per year. For the Coachella Valley, the major source threshold is currently at 25 tons per year. These thresholds are consistent with the definition of major stationary sources for the 2015 8-hour ozone standard. A total of 356 Title V facilities were identified from the database among of which 353 facilities are in the South Coast Air Basin and 3 facilities are in the Coachella Valley. Staff then identified all the applicable source-specific rules for these Title V facilities.

Next, staff reviewed California air districts and other states' rules and regulations which were adopted or amended after the last ozone RACT Demonstration submittal for SIP approval in 2014. The 2015 8-hour ozone RACT Demonstration builds upon on the 2014 RACT analyses as well as the RACT/RACM and BACT/BACM analyses in the previously submitted 2016 AQMP and

¹⁶ <http://www.aqmd.gov/home/permits/title-v/what-is-title-v->

focuses on recently adopted rules and regulations by other agencies in California and the nation. In conducting this review, staff worked closely with the U.S. EPA adhering to their criteria and guidance mentioned in the previous section. The air districts in California included:

- Antelope Valley Air Quality Management District (Antelope Valley AQMD)
- Bay Area Air Quality Management District (Bay Area AQMD)
- Mojave Desert Air Quality Management District (Mojave Desert AQMD)
- Sacramento Metropolitan Air Quality Management District (Sacramento Metropolitan AQMD)
- San Joaquin Valley Air Pollution Control District (San Joaquin Valley APCD)
- Ventura County Air Pollution Control District (Ventura County APCD)

and state agencies in states which are highly impacted by ozone pollution:

- Delaware
- Maryland
- Texas

These air agencies were selected based on the severity of their ozone pollution. The 2015 8-hour ozone RACT analysis evaluated more than 60 rules recently developed and/or amended by other ozone nonattainment air districts from March 2014 to February 2020. Appendix III lists the rules that were evaluated for the 2015 8-hour Ozone RACT Demonstration.

To determine whether the South Coast AQMD rules satisfy RACT, staff evaluated the difference between the rule requirements in other districts and states to the corresponding requirements in the South Coast AQMD rules and regulations. In addition to the state and local air districts rules and regulations, staff also reviewed the federal regulations for some of the VOC and NO_x emission source categories, including U.S. EPA 40 CFR Parts 60 and 63 as listed in Appendix III.

Non-CTG Major Stationary Sources of VOCs

Based on the process described above, rules regulating VOC emissions from major stationary sources were evaluated for RACT determination. The details of the evaluation, including South Coast AQMD's existing rule requirements, the requirements in other air agencies, state and federal guidance are included in Appendix IV. Appendix IV is formatted to present a summary of comparison between South Coast AQMD and other air districts/states rules. The analysis indicates that South Coast AQMD rules and regulation closely matched those of the other agencies with the exception of South Coast AQMD Rule 1115 (Motor Vehicle Assembly Line Coating Operations) which was identified in the previous section as not meeting the U.S. EPA's CTG requirements for this emission source category. A brief description of the emission sources and VOC limits in Rule 1115 compared to other districts rules with more stringent emission limits is presented here:

Motor Vehicle Assembly Line Coating Operations

South Coast AQMD Rule 1115 applies to both light-duty and heavy-duty vehicles assembly line coating operations. Antelope Valley AQMD Rule 1115.1 and San Joaquin Valley APCD Rule 4602 are the two corresponding rules that apply to all motor vehicle assembly coating operations, including light-duty and heavy-duty vehicles. Rule 1115 VOC emission limits are not as stringent as the Antelope Valley AQMD and San Joaquin Valley APCD's emission limits for several coating types for facilities emitting greater than 15 pounds per day. Both Antelope Valley AQMD and San Joaquin Valley APCD's rules have more stringent VOC limits for electrophoretic primer at 0.7 pounds per gallon (1.2 pounds per gallon of coating in Rule 1115). For the spray primer, primer-surfacer, and topcoat categories, the South Coast AQMD's Rule 1115 emissions limits are slightly higher than those in Antelope Valley AQMD and San Joaquin Valley APCD (15 pounds per gallon of applied solids versus 12 pounds per gallon of deposited solids). In addition, the VOC emission limit for the trunk coatings, interior coatings, sealers, and deadeners categories is 650 grams per liter in Antelope Valley AQMD and San Joaquin Valley APCD rules whereas South Coast AQMD Rule 1115 provides an exemption for these categories. Accordingly, South Coast AQMD commits to amend Rule 1115 to address these deficiencies.

Non-CTG Stationary Sources of NOx

Rules regulating NOx emissions from major stationary sources were evaluated for RACT determination. The details of the evaluation, including South Coast AQMD's existing rule requirements, the requirements in other air agencies, State and Federal guidance are included in Appendix V. The evaluation indicates that South Coast AQMD rules and regulations closely matched those of the other agencies, and meet or exceed the RACT level of control for all applicable NOx source categories.

3. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l) and South Coast AQMD Rule 110), the South Coast AQMD, as lead agency, is reviewing the proposed project to determine if it will result in any potential adverse environmental impacts. Appropriate CEQA documentation will be prepared based on the analysis.

4. PUBLIC PROCESS

South Coast AQMD staff will hold a Public Consultation Meeting online and through video/audio conferencing on April 8, 2020, to solicit information, comments, and suggestions from the public, affected businesses, and stakeholders. Furthermore, the 2022 AQMP Advisory Group will also

provide feedback on the Draft RACT Demonstration. The AQMP Advisory Group represents a diverse cross section of stakeholders such as large and small businesses, government agencies, environmental and community groups, and academia. The Draft 2015 8-hour Ozone Standard RACT Demonstration will be presented to the AQMP Advisory Group on April 16, 2020 and to the Stationary Source Committee on May 15, 2020. The South Coast AQMD Governing Board will hold a public hearing and consider approval of the RACT Demonstration at the South Coast AQMD Governing Board meeting on June 5, 2020. Following the South Coast AQMD Governing Board approval, the Draft 2015 8-hour Ozone Standard RACT Demonstration will be submitted to CARB for review and subsequent submittal to U.S. EPA for inclusion into the SIP.

5. CONCLUSION

As part of the SIP requirements for the 2015 8-hour Ozone NAAQS, South Coast AQMD conducted a RACT analysis for the ozone precursors of NO_x and VOC based on an evaluation of South Coast AQMD rules and regulations with the U.S. EPA's CTGs and the recently adopted/amended rules in other air agencies. Based on this analysis, South Coast AQMD makes the following findings:

1. For the U.S. EPA's CTG category of Automobile and Light-Duty Truck Assembly Coatings, there are new light-duty automobile manufacturing facilities in the Basin since the last ozone RACT analysis. South Coast AQMD Rule 1115 (Motor Vehicle Assembly Line Coating Operations, last amended in 1995) is not as stringent as the U.S. EPA's CTG requirements for several coatings and products for facilities emitting greater than 15 pounds per day. In addition, the VOC emission limits in Rule 1115 for several coating types are less stringent than those in the corresponding Antelope Valley AQMD and San Joaquin Valley APCD's rules. Therefore, South Coast AQMD commits to amend Rule 1115 to address these deficiencies.
2. With the exception of Rule 1115, South Coast AQMD's current rules for all sources of VOC and NO_x meet or exceed federal RACT requirements and meet the U.S. EPA's criteria for RACT acceptability and inclusion into the SIP.

In summary, staff concludes that with the exception of the CTG for Automobile and Light-Duty Truck Assembly Coatings, all applicable RACT emissions sources in the South Coast AQMD are subject to either South Coast AQMD rules or California State Regulations that meet or exceed RACT requirements. These rules are either SIP-approved or have been submitted to the U.S. EPA for consideration for inclusion into the SIP. As part of the ongoing efforts to identify additional emission reduction opportunities, South Coast AQMD commits to amend Rule 1115 by evaluating more stringent emission control requirements, as appropriate, working closely with affected sources and stakeholders through a public process.

Appendices to Draft Staff Report for 2015 8-Hour Ozone Standard Reasonably Available Control Technology (RACT) Demonstration

- Appendix I - RACT Demonstration CTG Checklist**
- Appendix II - Negative Declaration for Control Techniques Guideline for Paper, Film and Foil Coatings**
- Appendix III - Recently Adopted (March 2014 to February 2020) Rules and Regulations and Federal Guidance Evaluated for RACT Demonstration (NO_x and VOCs only)**
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- Appendix V - Evaluation of South Coast AQMD NO_x Rules**

Appendix I
RACT Demonstration CTG Checklist

	CTG #	CTG Title	South Coast AQMD Rule Meeting RACT	Negative Declaration Submitted
1	EPA-450/R-75-102	Design Criteria for Stage I Vapor Control – Gasoline Service Stations	Rule 461	No
2	EPA-450/2-77-008	Surface Coating of Cans	Rule 1125	No
3	EPA-450/2-77-008	Surface Coating of Coils	Rule 1125	No
4	EPA-450/2-77-008	Surface Coating of Paper	Rule 1128	No
5	EPA-450/2-77-008	Surface Coating of Fabric	Rule 1128	No
6	EPA-450/2-77-008	Surface Coating of Automobiles and Light-Duty Trucks	Rule 1151	No
7	EPA-450/2-77-022	Solvent Metal Cleaning	Rule 1122, Rule 1171	No
8	EPA-450/2-77-025	Refinery Vacuum Producing Systems, Wastewater Separators, and Process Unit Turnarounds	Rule 465	No
9	EPA-450/2-77-026	Tank Truck Gasoline Loading Terminals	Rule 461, Rule 462	No
10	EPA-450/2-77-032	Surface Coating of Metal Furniture	Rule 1107	No
11	EPA-450/2-77-033	Surface Coating of Insulation of Magnet Wire	Rule 1126	No
12	EPA-450/2-77-034	Surface Coating of Large Appliances	Rule 1107, Rule 1132	No
13	EPA-450/2-77-035	Bulk Gasoline Plants	Rule 462	No
14	EPA-450/2-77-036	Storage of Petroleum Liquids in Fixed-Roof Tanks	Rule 463, Rule 1178	No

	CTG #	CTG Title	South Coast AQMD Rule Meeting RACT	Negative Declaration Submitted
15	EPA-450/2-77-037	Cutback Asphalt	Rule 1108, Rule 1108.1	No
16	EPA-450/2-78-015	Surface Coating of Miscellaneous Metal Parts and Products	Rule 1107	No
17	EPA-450/2-78-029	Manufacture of Synthesized Pharmaceutical Products	Rule 1103	No
18	EPA-450/2-78-030	Manufacture of Pneumatic Rubber Tires	Rule 442 and 40 CFR Part 60 Subpart BBB adopted by reference without change to Regulation IX	No
19	EPA-450/2-78-032	Factory Surface Coating of Flat Wood Paneling	Rule 1104	No
20	EPA-450/2-78-033	Graphic Arts-Rotogravure and Flexography	Rule 1130	No
21	EPA-450/2-78-036	Leaks from Petroleum Refinery Equipment	Rule 1173	No
22	EPA-450/2-78-047	Petroleum Liquid Storage in External Floating Roof Tanks	Rule 463, Rule 1178	No
23	EPA-450/2-78-051	Leaks from Gasoline Tank Trucks and Vapor Collection Systems	Rule 461, Rule 462	No
24	EPA-450/3-82-009	Large Petroleum Dry Cleaners	Rule 1102, Rule 1102.1	No
25	EPA-450/3-83-006	Leaks from Synthetic Organic Chemical Polymer and Resin Manufacturing Equipment	Rule 1141	No
26	EPA-450/3-83-007	Leaks from Natural Gas/Gasoline Processing Plants	Rule 1173	No
27	EPA-450/3-83-008	Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins	Rule 1141	No
28	EPA-450/3-84-015	Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry	Rule 442, 40 CFR Part 60 Subpart NNN, RRR adopted by reference without change to Regulation IX	No
29	EPA-450/4-91-031	Reactor Processes and Distillation Operations in Synthetic Organic Chemical Manufacturing Industry		No

	CTG #	CTG Title	South Coast AQMD Rule Meeting RACT	Negative Declaration Submitted
30	EPA-453/R-96-007	Wood Furniture Manufacturing Operations	Rule 1136	No
31	EPA-453/R-94-032 61 FR 44050; 8/27/96	ACT Surface Coating at Shipbuilding and Ship Repair Facilities Shipbuilding and Ship Repair Operations (Surface Coating)	Rule 1106	No
32	EPA-453/R-97-004 59 FR 29216; 6/06/94	Aerospace MACT and Aerospace (CTG & MACT)	Rule 1124	No
33	EPA-453/R-06-001	Industrial Cleaning Solvents	Rule 1171	No
34	EPA-453/R-06-002	Offset Lithographic Printing and Letterpress Printing	Rule 1130	No
35	EPA-453/R-06-003	Flexible Package Printing	Rule 1130	No
36	EPA-453/R-06-004	Flat Wood Paneling Coatings	Rule 1104	No
37	EPA 453/R-07-003	Paper, Film, and Foil Coatings	Rule 1128	Yes ¹⁷
38	EPA 453/R-07-004	Large Appliance Coatings	Rule 1107	No
39	EPA 453/R-07-005	Metal Furniture Coatings	Rule 1107	No
40	EPA 453/R-08-003	Miscellaneous Metal Parts Coatings Table 2 – Metal Parts and Products	Rule 1107	No
41	EPA 453/R-08-003	Miscellaneous Plastic Parts Coatings Table 3 – Plastic Parts and Products	Rule 1145	No

¹⁷ See Appendix II of this submittal.

	CTG #	CTG Title	South Coast AQMD Rule Meeting RACT	Negative Declaration Submitted
42	EPA 453/R-08-003	Miscellaneous Plastic Parts Coatings Table 4 – Automotive/Transportation and Business Machine Plastic Parts	Rule 1145	No
43	EPA 453/R-08-003	Miscellaneous Plastic Parts Coatings Table 5 – Pleasure Craft Surface Coating	Rule 1106, Rule 1145	No
44	EPA 453/R-08-003	Miscellaneous Plastic Parts Coatings Table 6 – Motor Vehicle Materials	Rule 1145, Rule 1151	No
45	EPA 453/R-08-004	Fiberglass Boat Manufacturing Materials	Rule 1162	No
46	EPA 453/R-08-005	Miscellaneous Industrial Adhesives	Rule 1168	No
47	EPA 453/R-08-006	Automobile and Light-Duty Truck Assembly Coatings ¹⁸	Rule 1115 ¹⁹ , Rule 1107	No
48	EPA 453/B16-001	Oil and Natural Gas Industry	California's Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities ²⁰	No

¹⁸ The U.S. EPA's CTG applies to automobiles and light-duty trucks. For heavy-duty vehicles, the CTG provides an option to satisfy the requirement through metals products or plastic parts coatings.

¹⁹ In the 2014 RACT analysis, all facilities subject to Rule 1115 were heavy-duty vehicles manufacturers, and RACT was fulfilled through Rule 1107 (Coatings of Metal Parts and Products). Since then, new light-duty motor vehicle manufacturing facilities are operating in the Basin that are subject to this CTG. Rule 1115 is not as stringent as the U.S. EPA's CTG for several coatings and products for facilities emitting greater than 15 pounds per day. Accordingly, light-duty motor vehicle manufacturing emission sources do not meet U.S. EPA's CTG requirements and South Coast AQMD commits to amend Rule 1115 to meet the CTG requirements.

²⁰ On October 25, 2018, the California's Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities was submitted to the U.S. EPA for consideration for inclusion into the California SIP.
<https://ww2.arb.ca.gov/sites/default/files/2018-09/O%26G%20CTG%20-%20Staff%20Report.pdf>.

Appendix II
Negative Declaration for Control Techniques Guideline
for Paper, Film and Foil Coatings

To ensure compliance with Reasonably Available Control Technology (RACT) requirements found in Clean Air Act (CAA) section 182te, a negative declaration for the 2007 Paper, Film and Foil Coatings CTG (EPA 453/R-07-003) is provided here. A negative declaration is a statement that there are no such operations in the South Coast AQMD that are subject to the CTGs.

South Coast AQMD staff has completed its evaluation with respect to the negative declaration for the 2007 Paper, Film and Foil Coatings CTG. Specifically, South Coast AQMD staff has examined its permit database, emissions inventory, and has also had discussions with knowledgeable South Coast AQMD's permit and inspection staff. Accordingly, it has been determined that to the best of staff's knowledge, out of the active Title V facilities that do not use add-on controls for the coating operations subject to Rule 1128, no facilities exceed the CTG's applicable threshold (i.e., 25 tons per year of VOC per coating line). For the Title V facilities with add-on controls for the coating operations, their controls meet RACT requirements and are listed on federally enforceable Title V permits.

This documentation certifies that the South Coast AQMD does not have any major stationary sources that exceed the applicable threshold of the 2007 Paper, Film and Foil Coatings CTG with no add-on controls. The information presented here supports a negative declaration for the 2007 Paper, Film and Foil Coatings CTG. South Coast AQMD requests that the U.S. EPA approve this negative declaration with respect to the 2015 8-hour Ozone Standard and include it in the State Implementation Plan (SIP) for South Coast AQMD.

Appendix III
Recently Adopted (March 2014 to February 2020) Rules and Regulations and Federal Guidance
Evaluated for RACT Demonstration (NO_x and VOCs only)

AGENCY	RULE NUMBER (TITLE)
Antelope Valley Air Quality Management District	Rule 462 (Organic Liquid Loading); Rule 1110.2 (Emissions from Stationary, Non-Road and Portable Internal Combustion Engines); Rule 1151.1 (Motor Vehicle Assembly Coating Operations); Rule 1171 (Solvent Cleaning Operations)
Bay Area Air Quality Management District	Regulation 8 Rule 18 (Equipment Leaks); Regulation 9 Rule 13 (Nitrogen Oxides, Particulate Matter, and Toxic Air Contaminants from Portland Cement Manufacturing); Regulation 11 Rule 10 (Hexavalent Chromium Emissions From All Cooling Towers And Total Hydrocarbon Emissions From Petroleum Refinery Cooling Towers)
Mojave Desert Air Quality Management District	Rule 461 (Gasoline Transfer and Dispensing); Rule 462 (Organic Liquid Loading); Rule 463 (Storage of Organic Liquids); Rule 464 (Oil-Water Separators); Rule 1104 (Organic Solvent Degreasing Operations); Rule 1106 (Marine and Pleasure Craft Coating Operations); Rule 1114 (Wood Products Coating Operations); Rule 1115 (Metal Parts & Products Coating Operations); Rule 1118 (Aerospace Assembly, Rework and Component Manufacturing Operations); Rule 1157 (Boilers and Process Heaters); Rule 1158 (Electric Power Generating Facilities); Rule 1160 (Internal Combustion Engines); Rule 1161 (Portland Cement Kilns); Rule 1162 (Polyester Resin Operations)
Sacramento Metropolitan Air Quality Management District	Rule 414 (Water Heaters, Boilers and Process Heaters Rated Less Than 1,000,000 BTU Per Hour); Rule 419 (NO _x from Miscellaneous Combustion Units); Rule 442 (Architectural Coatings); Rule 464 (Organic Chemical Manufacturing Operations); Rule 468 (Surface Coating of Plastic Parts and Products)
San Joaquin Valley Air Pollution Control District	Rule 4307 (Boilers, Steam Generators, and Process Heaters - 2.0 MMBTU/HR TO 5.0 MMBTU/HR; Rule 4307 (Certified Units); Rule 4692 (Commercial Charbroiling); Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)
Ventura County Air Pollution Control District	Rule 74.15.1 (Boilers, Steam Generators and Process Heaters) (1 to 5 MMBTUs); Rule 74.20 (Adhesives and Sealants); Rule 74.31 (Metalworking Fluids and Direct-Contact Lubricants); Rule 74.33 (Liquefied Petroleum Gas Transfer or Dispensing); Rule 74.34 (NO _x Reductions from Miscellaneous Sources)
Delaware Department of Natural Resources and Environment Control	Regulation 1124 (Control of Volatile Organic Compound Emissions); Regulation 1142 (Specific Emission Control Requirements); Regulation 1150 (Outer Continental Shelf Air Regulations)
Maryland Department of the Environment	The Code of Maryland Regulations (COMAR) Section 26.11.08 (Control of Incinerators); Section 26.11.09 (Control of Fuel-Burning Equipment, Stationary Internal Combustion Engines, and Certain Fuel-Burning Installations); Section 26.11.10 (Control of Iron and Steel Production Installations); Section 26.11.13 (Control of Gasoline and Volatile Organic Compound Storage and Handling); Section 26.11.14 (Control of Emissions from Kraft Pulp Mills); Section 26.11.19 (Volatile Organic Compounds from Specific Processes); Section 26.11.24 (Vapor Recovery at Gasoline Dispensing Facilities); Section 26.11.29 (Control of NO _x Emissions from Natural Gas Pipeline Compression Stations); Section 26.11.30 (Control of Portland Cement Manufacturing Plants); Section 26.11.36 (Distributed Generation); Section 26.11.38 (Control of NO _x Emissions from Coal-Fired Electric Generating Units); Section 26.11.39 (Architectural and Industrial Maintenance (AIM) Coatings); Section 26.11.40 (NO _x Ozone Season Emission Caps for Non-trading Large NO _x Units)
Texas Commission on Environmental Quality	Chapter 115 Subchapter B Division 1 (Storage Tanks); Chapter 115 Subchapter B Division 2 (Vent Gas Control); Chapter 115 Subchapter B Division 3 (Water Separation); Chapter 115 Subchapter C Division 1 (Loading and Unloading Operations of Volatile Organic Compounds); Chapter 115 Subchapter C Division 3 (Transport Vessels); Chapter 115 Subchapter D Division 2 and Division 3 (Fugitive Emissions); Chapter 115 Subchapter E Division 1 (Degreasing Processes); Chapter 115 Subchapter E Division 2 and Division 5 (Surface Coating Processes); Chapter 115 Subchapter E Division 4 (Offset Lithographic Printing); Chapter 115 Subchapter E Division 6 (Industrial Cleaning Solvents); Chapter 115 Subchapter E Division 7 (Miscellaneous Industrial Adhesives); Chapter 115 Subchapter F Division 1 (Cutback Asphalt); Chapter 117 Subchapter B (Combustion Control at Major Industrial, Commercial, and Institutional Sources in Ozone Nonattainment Areas); Chapter 117 Subchapter C (Combustion Control at Major Utility Electric Generation Sources in Ozone Nonattainment Areas)
U.S. Environmental Protection Agency	40 CFR Part 60 Subpart Ea (Standards of Performance for Municipal Waste Combustors) and Subpart Eb (Standards of Performance for Large Municipal Waste Combustors); 40 CFR Part 63 Subpart GG (National Emission Standards for Aerospace Manufacturing and Rework Facilities), Subpart QQQQ (National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products), Subpart VVVV (National Emissions Standards for Hazardous Air Pollutants: Boat Manufacturing), and Subpart WWWW (National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production)

Evaluation of South Coast AQMD VOC Rules

To determine whether South Coast AQMD rules satisfy RACT, VOC rules and regulations from other ozone-impacted California air districts and states were identified and compared with the corresponding South Coast AQMD rules.²¹ The key requirements were compared between South Coast AQMD and other agencies' rules and any discrepancies were identified and evaluated. The details of this evaluation, including South Coast AQMD's existing rule requirements and the requirements in other air agencies, states, and federal guidance are included in Appendix IV.

²¹ The 2014 RACT demonstration addressed the rules from other districts and states adopted or amended prior to March 2014. The current RACT demonstration provides updates on rules and regulations that were adopted between March 2014 and February 2020.

Appendix IV
Evaluation of South Coast AQMD Rules and Regulations – VOC Rules

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
461	Gasoline Transfer and Dispensing (Amended 4/6/12)	For Phase I, underground storage tanks: an enhanced vapor recovery system having 98% control efficiency and emission factor not exceeding 0.15 lbs/1,000 gallons; aboveground storage tanks: a vapor recovery system having 95% control efficiency. For Phase II, a vapor recovery system having 95% efficiency and emission factor not exceeding 0.38 lbs/1,000 gallons.	n/a*	Meets RACT.
462	Organic Liquid Loading (Amended 5/14/99)	Class B facilities loading organic liquids with a true vapor pressure of 1.5 psi or greater: a CARB certified vapor recovery system with 90% recovery efficiency.	Mojave Desert Rule 462 (Amended 1/22/18) requires a CARB certified vapor recovery and/or disposal system with 95% recovery efficiency for Class B facilities.	For a subcategory of applicable sources (Class B facilities), South Coast AQMD rule is not as stringent as Mojave Desert AQMD Rule 462 (90 vs. 95% of minimum vapor recovery efficiency required to obtain a CARB certification). However, compliance records indicate that the actual control efficiency exceeds 95%. Together with other requirements in Rule 462, Rule 462 meets the RACT requirements.
463	Organic Liquid Storage (Amended 11/4/11)	Aboveground organic liquids storage tanks with 9,630 gallons or greater, a minimum true vapor pressure is 0.5 psia; tanks with 19,815 gallons or greater, a minimum true vapor pressure is 1.5 psia. The minimum control efficiency of a vapor recovery system is at 95%.	Texas Rule Chapter 115 (Amended 1/5/17) requires 95% control efficiency for aboveground or underground storage tanks storing VOC with a true vapor pressure of 1.5 psia. Exempted tank capacity varies by region ranging from 1,000 to 210,000 gallons. Mojave Desert Rule 463 (Amended 1/22/18) applies to aboveground and underground storage tanks with a capacity of 39,630 gallons or greater storing organic liquids with a true vapor pressure of 0.5 psia or greater.	To the best of staff's knowledge, there are seven underground storage tanks storing organic liquids other than gasoline in South Coast AQMD. These storage tanks are either below the tank capacity threshold or store organic liquids that are below the vapor pressure threshold in other Districts or Agencies' rules. Therefore, the applicable sources in South Coast AQMD meet RACT level of control.
1103	Pharmaceuticals and Cosmetics Manufacturing Operations (Amended 3/12/99)	For reactors, distillation columns, crystallizers, or centrifuges: 15 lbs/day VOC or use surface condensers. For air dryers: 90% control efficiency or 33 lbs/day VOC. Also include other various operating requirements.	Sacramento Metro Rule 464 (Amended 4/28/16) has various requirements that apply to chemical manufacturing and industrial operations. For pharmaceutical and cosmetics manufacturing facilities, a facility exemption limit at 10 lbs/day VOC; process tank VOC pressure at 0.5 psi and 90% control efficiency. Additional VOC vapor pressure requirements for Liquid Transfer and Storage Tanks.	The equivalent level of control is required in South Coast Rule 1103. Also, the three pharmaceutical facilities under Title V program are all minor sources for VOC emitting less than 10 tons per year and thus, not subject to RACT. Liquid transfer and storage tank categories are regulated in different South Coast AQMD rules (Rules 462 and 463) and they meet RACT.
1104	Wood Flat Stock Coating Operation (Amended 8/13/99)	2.1 lbs/gal, less water and exempt solvent. In lieu of VOC limit, use control device having 95% control efficiency (or 50 ppmv outlet) and 90% collecting efficiency	n/a*	Meets RACT.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1106	Marine and Pleasure Craft Coatings (Amended 5/3/19)	For pleasure craft coatings, antifoulant coatings-other substrate emission limit 330 g/L and clear wood coatings-sealers emission limit 550 g/L.	<p>Antelope Valley Rule 1161.1 (Amended 6/13/97) generally has the same limits as South Coast Rule 1106, except the limit for antifoulant coatings-other substrate VOC emissions 150 g/L (330 g/L in Rule 1106).</p> <p>Mojave Desert Rule 1106 (Amended 10/24/16) generally has the same limits as South Coast Rule 1106, except it has lower limit for clear wood finishes-sealers at 340 g/L (550 g/L in Rule 1106).</p>	<p>Rule 1106 meets or exceeds EPA CTG requirements.</p> <p>Rule 1106 varies in stringency when compared to other Agencies' requirements. For majority of the categories, Rule 1106 is as stringent as or more stringent than the other Agencies' rules and provides RACT level of control for this source category.</p>
1107	Coating of Metal Parts and Products (Amended 1/6/06)	Coating-specific emission limits from 2.3–3.5 lbs/gal. In lieu of complying with specific emission limits, operator can use air pollution control system with at least 95% control efficiency (or 5 ppmv outlet) and 90% capture efficiency. Solvent cleaning operations must comply with Rule 1171.	<p>Ventura Rule 74.12 (Amended 4/8/08) generally has the same coating-specific limits as South Coast Rule 1107, except in the following categories:</p> <ul style="list-style-type: none"> • Limit for metallic coating is 3 lbs/gal (3.5 lbs/gal in Rule 1107); • Limit for camouflage is 3 lbs/gal (3.5 lbs/gal in Rule 1107); • Limit of pretreatment coatings is 2.3 lbs/gal (3.5 lbs/gal in Rule 1107); • Overall minimum control efficiency is 90%, higher than Rule 1107 requirement at 85%. 	<p>Rule 1107 meets or exceeds EPA CTG requirements.</p> <p>South Coast AQMD Rule 1107 varies in stringency when compared to other Districts' requirements. For the majority of the categories, Rule 1107 is as stringent as or more stringent than the other Districts or Agencies' rules, and provides RACT level of control for this source category.</p>
1110.2	Emissions from Gaseous- and Liquid Fueled Engines (Amended 11/1/19)	<p>VOCs limits for all stationary and portable engines over 50 brake horsepower (bhp). VOC limits applicable to 1) stationary, non-emergency engines, and 2) biogas (landfill and digester gas) engines are: • 30 ppmvd VOC</p> <p>Limits for new non-emergency engines driving electrical generators are: • 0.10 lbs VOC per MW-hr</p> <p>Limits for low usage for landfill and biogas engines: • 40 ppmv VOC, landfill gas; • 250 x Efficiency Correction Factor ppmv VOC, digester gas</p> <p>Alternative limit for new non-emergency engines driving electrical generators installed prior to 1/1/24 with no NH3 emissions from add-on control are: • 10 ppmvd VOC</p> <p>Limits for general low usage engines: • 250 ppmvd VOC</p> <p>Engines not subject to the general limits listed above: Portable; Agricultural; Orchard wind machines; Emergency standby, fire-fighting and flood control limited by permit to 200 hours annually; Laboratory engines used in research and testing purposes; Engines operated for performance verification of other engines; Auxiliary engines used to power other engines/turbines' startups; Engines on San Clemente Island; Remote two-way radio transmission towers; Crane engines used on offshore platforms</p>	<p>San Joaquin Valley Rule 4702 (Amended 11/14/13) has NOx, VOC, CO and SOx limits for engines rated over 25 bhp.</p> <ul style="list-style-type: none"> • 250 ppmv VOC (rich-burn) and 750 ppmv VOC (lean burn), and • 2000 ppmv CO <p>-Engines used in agricultural operations (AO), or fueled with waste gas, or limited used, or cyclic loaded and field gas fueled are subject to higher limits than the above</p> <p>In general, all compression ignited engines must meet EPA Tier 4 standards Engines between 25 bhp – 50 bhp, non-agricultural operations (AO), must meet federal standards 40CFR Part 60 Subpart IIII and JJJJ.</p>	<p>In its Technical Support Document (TSD) for the approval of Rule 1110.2 into the California SIP published in 2008, EPA concluded that the rule's emissions limits are more stringent than the corresponding limits in the guidance and policy documents (specified in the TSD) or other California District rules on internal combustion engines. Overall, Rule 1110.2 is as stringent as or more stringent than the other Districts or Agencies' rules and meets the RACT requirements for this source category.</p>

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1113	Architectural Coatings (Amended 2/5/16)	The VOC content for Industrial Maintenance Coatings for color indicating safety coatings limits to 480 g/L, that is created to address hydrofluoric acid indicating paint use at refineries.	Sacramento Metro Rule 442 (Amended 9/24/15) limits the VOC contents for Industrial Maintenance Coating to 250 g/L.	Rule 1113 allows refineries that use hydrofluoric acid to use the higher-VOC coatings on color indicating safety coatings provided that they are in one-liter containers or smaller. For Sacramento AQMD, there is no such refinery source and thus, the limit on color indicating safety coatings is lower. Overall, Rule 1113 requirements are at least as stringent as those in other Districts or Agencies for the applicable sources, and Rule 1113 meets RACT.
1115	Motor Vehicle Assembly Line Coating Operations (Amended 5/12/95)	The VOC limits for electrophoretic primer at 145 g/L; spray primer, primer-surfacer, and topcoat at 1,880 g/L.	Antelope Valley Rule 1151.1 (Adopted 6/20/17) has VOC limits for electrophoretic primer at 84 g/L; primer-surfacer, topcoat, and primer-sealer at 1,440 g/L. CTG has VOC limits for electrophoretic primer at 84 g/L (145 g/L in Rule 1115); sprayable primer, primer-surfacer, and topcoat at 1,440 g/L (1,800 g/L in Rule 1115); and trunk coatings, interior coatings, sealers, and deadeners at 650 g/L (Rule 1115 provides an exemption for these categories).	For several coating categories, Rule 1115 is less stringent than the requirements in EPA CTG and other Districts. Also, in recent years, there are new light-duty motor vehicles manufacturing facilities in the South Coast Air Basin that are subject to this CTG. South Coast AQMD staff commits to amend Rule 1115 to provide RACT level of control for these coating categories.
1122	Solvent Degreasers (Amended 5/1/09)	Contain various work practice and design requirements.	n/a*	Meets RACT.
1124	Aerospace Assembly and Component Manufacturing Operations (Amended 9/21/01)	Coating-specific emission limits from 160–1,000 g/L. Specific high transfer coating applications (e.g., HVLP spray). In lieu of complying with specific emission limits, operator can use air pollution control system with at least 95% control efficiency (or 50 ppmv outlet) and 90% capture efficiency. Solvent cleaning operations must comply with Rule 1171.	Mojave Desert Rule 1118 (Amended 10/26/15) has the following limits that are more stringent than those in Rule 1124: • Non-Autoclavable Structural Adhesive (850 vs 700 g/L) • High-Temperature Coating (850 vs 720 g/L). Bay Area Rule 29 (Amended 10/25/95) has the following limits that are more stringent than those in Rule 1124: • Pretreatment Primer (780 vs 420 g/L) • Interior Topcoat (420 vs 340 g/L) • High-Temperature (850 vs 720 g/L).	Rule 1124 meets or exceeds the CTG requirements. The categories with lower limits in Mojave Desert and Bay Area rules are low usage. South Coast AQMD Rule 1124 varies in stringency when compared to other Districts' requirements. For the majority of the categories, Rule 1124 is as stringent as or more stringent than the other Districts or Agencies' rules, and provides RACT level of control for this source category.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1127	Emission Reductions from Livestock Waste (Adopted 8/6/04)	<p>Requires Good housekeeping practices for dairy farms with 50 or more cows, heifers and/or calves.</p> <p>Note: The South Coast AQMD adopted Rule 223 in June 2006 to reduce emissions for large confined animal facilities. Rule 223 targets various types of large confined animal facilities and includes series of best management practices that are more stringent than Rule 1127.</p>	<p>Sacramento Rule 496 – Large Confined Animal Facilities (Adopted 8/24/06), has more stringent control and good management practices than South Coast Rule 1127 (e.g., venting to control system with at least 80% control efficiency). The more stringent requirements are targeted towards silage emissions, which is not applicable in South Coast for dry feed lot operations.</p> <p>San Joaquin Valley Rule 4570 (Amended 10/21/10) has required best management practices for manure management and other areas to reduce VOC and ammonia emissions. Note that direct comparison with Rule 1127 is difficult due to the significant differences in source operations (dry feed lot in South Coast vs. flushing and lagoon operations in San Joaquin, the focus on corral waste control in South Coast AQMD vs. feed and silage and milk parlor in San Joaquin Valley APCD, etc.). In addition, San Joaquin Valley Rule 4570 applies to all types of large confined animal facilities, while Rule 1127 applies only to dairies with a much lower applicability threshold.</p>	<p>Together with Rule 223, Rule 1127 achieves RACT equivalency for this source category.</p>
1128	Paper, Fabric and Film Coating Operations (Amended 3/8/96)	<p>Coating-specific emission limits from 20–265 g/L. Specific high transfer coating applications (e.g. HVLP spray). Alternatively, operator can also use control system with at least 95% control efficiency (or 50 ppmv outlet) and 90% capture efficiency. Solvent cleaning operations must contain 15% or less VOC or 85% VOC must be collected and disposed of.</p>	<p>The 2007 EPA CTG requires an overall 90% control efficiency for facilities emitting > 15 lbs/day and coating lines emitting > 25 tpy. Rule 1128 is not as stringent as the 2007 EPA CTGs (85.5% overall control efficiency in Rule 1128). CTG alternative compliance emission limit of 80 g/L is also more stringent than the limit of 265 g/L in Rule 1128.</p>	<p>Rule 1128 is not as stringent as the 2007 EPA CTGs (CTG 80 g/L vs. Rule 1128 265 g/L) for facilities emitting > 15 lbs/day and coating lines emitting > 25 tpy. To the best of staff's knowledge, out of the active Title V facilities without add-on control, no facilities exceed the CTG applicable threshold (25 tpy of VOC per coating line) in the Basin, and a negative declaration regarding this source category is submitted in Appendix II of this document.</p> <p>In addition, the incremental increase from 85% to 90–97% in control efficiency is not cost-effective for the existing sources in the Basin. Rule 1128 does not include a trigger for when it is considered implementable and the rule pertains to all paper, fabric, and film coating operations. Rule 1128 covers more sources/facilities regardless of potential emission level. As such, Rule 1128 provides RACT level of control for this source category.</p>

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1130	Graphic Arts (Amended 5/2/14)	<p>VOC content limits: 16–85 g/l for fountain solution, 150 g/l for adhesives, 225–300 g/l for inks and coatings. In lieu of meeting specific emission limits, control device with overall control efficiency from 90% to 95% can be used to achieve equal or better emission reductions.</p> <p>VOC limits for cleaning solutions for printing presses are in Rule 1171 ranging from 25 g/l (0.21 lbs/gal) for flexographic printing to 100 g/l (0.83 lbs/gal) for lithographic printing.</p>	Bay Area, Regulation 8, Rule 20 (Amended 11/19/08) requires 8% VOC content in fountain solution. In addition, the rule requires recordkeeping for digital printing, cleaning and stripping of UV or electron beam-cured inks for further study potential emission reductions in a near future.	South Coast AQMD Rule 1130 was amended (05/02/14) to be consistent with CTG requirements by updating the overall add-on control device efficiency requirements and VOC content limits for fountain solutions. Overall, Rule 1130 is as stringent as or more stringent than the other Districts' rules, and provides RACT level of control for this source category.
1131	Food Product Manufacturing and Processing Operations (Amended 6/6/03)	VOC content limits from 120–200 g/L, or air pollution control system with at least 95% control efficiency and 90% capture efficiency. Solvent cleaning operations must contain 15% or less VOC or 85% VOC must be collected and disposed of.	n/a*	Meets RACT.
1133.2, 1133.3	<p>Rule 1133.2 – Emission Reductions from Co-Composting Operations (Adopted 1/10/03)</p> <p>Rule 1133.3 – Emission Reductions from Greenwaste Composting Operations (Adopted 7/8/11)</p>	<p>Rule 1133.2 establishes various performance standards. Air pollution control must have 80% control efficiency or greater. Existing operations must reduce up to 70% baseline VOC and ammonia emissions. Baseline emission factors are 1.78 lbs VOC/ton throughput and 2.93 lbs NH3/ton throughput.</p> <p>Rule 1133.3 establishes operational best management practices for greenwaste composting operations. If the facility processes more than 5,000 tons per year of foodwaste, any active phase of composting containing more than 10% foodwaste, by weight, must use an emission control device with an overall control efficiency of at least 80% by weight of VOC.</p> <p>For operations less than 5,000 tons/year, require the composting piles to be covered, watered, and turned, or operated with measures that reduce at least 40% VOC emission and 20% NH3 emissions.</p>	San Joaquin Rule 4565 (Adopted 3/15/07) and Rule 4566 (Adopted 8/18/11) have various operational requirements for these operations as well as the operators who landfills, composts, or co-composts these materials. The applicability of Rules 4565/4566 is broader than the applicability of Rule 1133.2/1133.3. Rules 4565/4566 include additional mitigation measures to control VOC from composting active piles (e.g., maintain minimum oxygen concentration of 5%, moisture content of 40-70%, carbon to nitrogen ratio of 20:1).	<p>South Coast AQMD Rule 1133.2 is more stringent than San Joaquin Valley Rule 4565 for larger co-composting facilities and less stringent for smaller co-composting facilities. While South Coast AQMD Rule 1133.2 requires either 70 or 80% overall emission reductions from all parts of composting process, San Joaquin's Rule 4565 requires add-on controls to apply only to the active composting phase. Rule 1133.2 also has more stringent requirements for in-vessel composting.</p> <p>San Joaquin's rule does not address chipping and grinding as in Rule 1133.1.</p> <p>Overall, Rules 1133.2 and 1133.3 are as stringent as or more stringent than other Districts' rules, and meets the RACT requirement for this source category.</p>

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1136	Wood Products Coatings (Amended 6/14/96)	VOC content limits range from 275–750 g/L VOC. Averaging provisions and add-on control are allowed. Transfer efficiency is at least 65%, or operator must use certain type of equipment (e.g. HVLP). Solvent cleaning operations must comply with Rule 1171. VOC limits are 350 g/L for high-solids stains and 275 g/L for clear sealers categories.	Eastern Kern Rule 410.9 (Adopted 3/13/14) has more stringent limit for high-solids stains and clear sealer categories, with an emission limit of 240 g/L. San Joaquin Valley Rule 4606 (Amended 10/16/08) is more stringent in the high-solids stain category with an emission limit of 240 g/L.	Rule 1136 meets or exceeds the CTG requirements. Rule 1136 varies in stringency when compared to other Agencies' requirements. For majority of the categories, Rule 1136 is as stringent as or more stringent than the other Agencies' rules, and provides RACT level of control for this source category.
1138	Control of Emissions from Restaurant Operations (Adopted 11/14/97)	Pursuant to the Protocol Determination of PM and VOC Emissions from Restaurant Operations of Rule 1138, 83% reduction of VOC emissions from chain-driven charbroilers are required.	San Joaquin Valley Rule 4692 (Amended 6/21/18) requires 86% reduction of VOC emissions from chain-driven charbroilers.	Rule 1138 is primarily intended to reduce PM emissions. However, existing controls are expected to achieve similar level of VOC reductions because San Joaquin Valley requires chain-driven charbroilers/catalytic oxidizers combinations be certified by South Coast AQMD test protocol that are deemed compliant with their Rule 4692. South Coast AQMD Rule 1138 VOC control requirements are similar to San Joaquin Valley Rule 4692 and meet RACT.
1141	Control of Volatile Organic Compound Emissions from Resin Manufacturing (Amended 11/17/00)	95–98% control or 0.12–0.5 lbs/1,000 lbs of resin produced	n/a*	Meets RACT.
1143	Consumer Paint Thinners and Multi-purpose Solvents (Amended 12/3/10)	Set VOC content of 25 g/l for consumer paint thinner and multi-purpose solvent beginning 1/1/2011	n/a*	Meets RACT.
1144	Metalworking Fluids and Direct-contact Lubricants (Amended 7/9/10)	Various limits from 50–340 g/L. Add-on control at 90% capture efficiency, 95% control efficiency (or 5 ppmv outlet)	n/a*	Meets RACT.
1145	Plastic, Rubber, Leather and Glass Coatings (Amended 12/4/2009)	VOC limits: 50–800 g/L (0.4–6.7 lbs/gal). Average provisions and add-on control at 95% control efficiency (50 ppmv outlet), 90% capture efficiency. High transfer coating equipment (e.g. HVLP). Solvent cleaning operations must comply with Rule 1171.	n/a*	Meets RACT.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1149	Storage Tank Degassing (Amended 5/2/08)	Degassing operations must be controlled such that the VOC concentration within the tank is reduced to less than 5,000 ppmv for a minimum time limit estimated in the rule based on volume of the gas to be freed in the tank and the flow rate through control device.	Ventura Rule 74.26, 74.27 (Adopted 10/12/04) requires degassing of crude oil, gasoline and other high TVP liquid storage tanks be controlled by vapor recovery or flare having 95% control efficiency until the vapor concentration in the tanks is less than 10,000 ppmv. Bay Area Rule 8-10 (Adopted 1/21/04) sets requirements for depressurizing process vessels at petroleum refineries and chemical plants. The gases must be vented to control devices until the vapor concentration in the tanks is less than 10,000 ppmv.	Rule 1149 is as stringent as or more stringent than the other Districts' rules, and provides RACT level of control for this source category.
1150	Control of Gaseous Emissions from Active Landfills (Amended 4/1/11)	98% control or 20 ppmv non-methane organic compounds. 50–500 ppmv total organic compounds above background	n/a*	Meets RACT.
1151	Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations (Amended 9/5/14)	VOC content limits range from 250–840 g/L. Averaging provisions are allowed. High transfer coating equipment (e.g. HVLP) is required. Solvent cleaning operations must comply with Rule 1171.	San Joaquin Valley Rule 4602 (Amended 9/17/09) is more stringent in the following areas: 1) adhesive at 250 g/L (540 g/L in Rule 1151) and 2) truck bed liner coating at 200 g/L (310 g/L in Rule 1151) Sacramento Rule 459 (Amended 8/25/11) is more stringent in the following areas: 1) multi-color coating at 520 g/L for mobile equipment driven on rails (680 g/L in Rule 1151) and 2) truck bed liner coating at 200 g/L (310 g/L in Rule 1151).	South Coast AQMD Rule 1151 varies in stringency when compared to other Districts' requirements. For the majority of the categories, Rule 1151 is as stringent as or more stringent than other Districts' rules, and provides RACT level of control for this source category.
1153	Commercial Bakery Ovens (Adopted 1/13/95)	Emission reduction of 70% or more is required for existing ovens emitting between 50–100 lbs VOC/day, 95% or more for ovens emitting more than 100 lbs/day, and 95% or more for new ovens.	n/a*	Meets RACT.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1162	Polyester Resin Operations (Amended 7/8/05)	VOC limits (monomer content) from 10-48% by weight or alternatively 90% control efficiency for add-on control.	<p>Mojave Desert Rule 1162 (Amended 4/23/18) VOC limit:</p> <ul style="list-style-type: none"> • Tooling Resin Atomized (spray) is 30% weight average monomer (South Coast AQMD Rule 1162's limit for Other Polyester Resin Materials is 35% monomer by weight as applied) • Mojave Desert limits the weighted average monomer VOC content for fiberglass boat manufacturing operations (South Coast AQMD has no limits specifically for boat manufacturing operations). <p>Maryland Rule 26.11.19 (Amended 5/26/14) has the following VOC limits for fiberglass boat manufacturing coating categories:</p> <ul style="list-style-type: none"> • Production resin by atomized resin application (spray): 28% of total monomer (35% in Rule 1162) • Tooling resin by atomized resin application (spray): 30% of total monomer (35% in Rule 1162). 	<p>Rule 1162 meets or exceeds the CTG requirements.</p> <p>Rule 1162 varies in stringency when compared to other Agencies' requirements. For majority of the categories, Rule 1162 is as stringent as or more stringent than the other Agencies' rules, and provides RACT level of control for this source category.</p>
1164	Semiconductor Manufacturing (Amended 1/13/95)	VOC limit for cleanup solvents is 200 g/L or low vapor pressure of 0.64 psia at 68 degrees Fahrenheit. Photoresist applications must be vented to control.	n/a*	Meets RACT.
1166	Volatile Organic Compound Emissions from Decontamination of Soil (Amended 5/11/01)	<p>Requires that contaminated soil be covered and removed within 30 days. Treatment facilities using negative pressure enclosures are required to treat low VOC contaminated soil (< 1,000 ppm) within 30 days of excavation and high VOC contaminated soil (≥ 1,000 ppm) should immediately be placed in a sealed container or trucked off-site or by any other alternative approved by the Executive Officer.</p> <p>Requires from the responsible contractors as follows:</p> <ol style="list-style-type: none"> 1. Prompt monitoring and detection of contaminated soil; 2. Mitigation of VOC emissions through spraying and prompt covering of stockpiles; 3. Prompt transport and/or treatment of soil; and 4. Maintenance of verifiable chain of custody records for the soil that is handled and treated. 	<p>Ventura Rule 74.29 – Soil Decontamination Operations (Amended 4/8/08) has standards for soil decontamination (e.g., 50–100 ppmv). Leaking agricultural tanks is exempted.</p> <p>Bay Area Rule 8-40 (Amended 6/15/05) for soil decontamination and tank degassing. All vapor exceeding the specified limit based on organic content and aeration rate must be vented to control devices with ≥ 90% efficiency until meeting 5,000 ppmv.</p> <p>San Joaquin Valley Rule 4651 (Amended 9/20/07) employs management practices similar to those in South Coast AQMD. For ex-situ decontamination, VOC emissions must be vented to control devices with 95% efficiency or more.</p>	<p>South Coast AQMD Rule 1166 varies in stringency when compared to other Districts' requirements.</p> <p>Note that at the end of 1998, most excavation activities relating to gasoline underground tanks were completed in accordance to the Federal and State requirements.</p> <p>VOC emission emanating from current/new decontamination sites exceeding the major source threshold is unlikely and therefore, Rule 1166 meets RACT.</p>

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1168	Rule 1168 - Adhesive and Sealant Applications (Amended 10/6/17)	VOC content limit for Foam Insulation Sealants is 250 g/L with a future VOC limit of 50 g/L in 2023.	n/a*	Meets RACT.
1171	Rule 1171 - Solvent Cleaning Operations (Amended 5/1/09)	VOC content limit in a solvent for general solvent cleaning operations is 25 g/L.	n/a*	Meets RACT.
1173	Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (Amended 2/6/09)	Requires to connect atmospheric pressure relief devices (PRDs) to vapor recovery or add-on control by first turnaround, if the facility experiences: <ul style="list-style-type: none"> • a second release of more than 500 lbs VOC within any five year period, or • any release of 2,000 lbs VOC in any 24 hour period. In lieu of connecting PRDs to control, operator may elect to pay mitigation fee of \$350,000 for any release exceeding the threshold. Leak Detection and Repair (LDAR) program to reduce fugitive emissions. Leak thresholds are: <ul style="list-style-type: none"> • for light liquid/gas/vapor service >10,000 ppmv, • for PRDs > 200 ppmv, • for pumps in heavy liquid > 100 ppmv. 	n/a*	Meets RACT.
1174	Control of Volatile Organic Compound Emissions from the Ignition of Barbecue Charcoal (Amended 10/5/90)	VOC emissions less than 0.02 lbs VOC per start.	n/a*	Meets RACT.
1175	Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products (Amended 11/5/10)	VOC limit for expandable polystyrene molding operations is less than 2.4 lbs/100 lbs of raw material processed.	n/a*	Meet RACT.
1176	VOC Emissions from Wastewater Systems (Amended 9/13/96)	<ul style="list-style-type: none"> • Wastewater and closed vent systems: 500 ppmv • Sumps and wastewater separators must have floating cover with seals; or fixed cover vented to control • Sewer lines: totally enclosed • Process drains: with South Coast AQMD approved water seals • Junction boxes: totally enclosed • Control device: 95% efficiency or 500 ppmv leak above background • Monthly to annually inspection. 	Bay Area Rule 8-8 (Amended 9/15/04) in general is similar to South Coast Rule 1176, with the following exceptions: <ul style="list-style-type: none"> • Floating covers must have double seals; and • Semi-annual inspection is allowed. 	Rule 1176 is as stringent as or more stringent than other Districts' rules, and provides RACT level of control for this source category.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – VOC Rules (concluded)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1177	Liquefied Petroleum Gas Transfer and Dispensing (Adopted 6/1/12)	Requires all LPG bulk loading facilities to have an LPG vapor recovery or equalization system. LPG transfer and dispensing facilities equip a low emission fixed liquid level gauge (FLLG), use low emission connector, and conduct daily inspections.	n/a*	Meets RACT.
1178	Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (Amended 4/6/18)	Applicable to high emitting facility that has 20 tpy VOC emissions or more and tanks >19,815 gals with liquids having true vapor pressure > 0.1 psia. Rule 1178 requires doming for high emitting external floating roof tanks, better seals and better control for all tanks. (Note that Rule 463 is applicable for tanks >19,815 gals at all facilities and have requirements for fixed roof tanks and floating roof tanks.)	Texas Rule Chapter 115 (Amended 1/5/17) requires 95% control efficiency for aboveground or underground storage tanks storing VOC with a true vapor pressure of 1.5 psia. Exempted tank capacity varies by region ranging from 1,000 to 210,000 gallons. Mojave Desert Rule 463 (Amended 1/22/18) applies to aboveground and underground storage tanks with a capacity of 39,630 gallons or greater storing organic liquids with a true vapor pressure of 0.5 psia or greater.	South Coast AQMD Rule 1178 applies only to aboveground storage tanks. To the best of staff's knowledge, there is a 1.5 million barrel-capacity underground storage tank located at a petroleum facility that stores gas oil having true vapor pressure < 0.1 psia, which is below the applicability threshold in Texas or Mojave Desert. Therefore, Rule 1178 meets RACT.
1179	Publicly Owned Treatment Works Operations (Amended 3/6/92)	Include recordkeeping and emission testing requirements.	n/a*	Meets RACT.
1183	Outer Continental Shelf (OCS) Air Regulations (Adopted 3/12/93)	Adopt by reference Code of Federal Regulations, Part 55, Title 40.	n/a*	Meets RACT.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD NO_x Rules

To determine whether South Coast AQMD rules satisfy RACT, NO_x rules and regulations from other ozone-impacted California air districts and states were identified and compared with the corresponding South Coast AQMD rules.²² The key requirements were compared between South Coast AQMD and other agencies' rules and any discrepancies were identified and evaluated. The details of this evaluation, including South Coast AQMD's existing rule requirements and the requirements in other air agencies, states, and federal guidance are included in Appendix V.

²² The 2014 RACT demonstration addressed the rules from other districts and states adopted or amended prior to March 2014. The current RACT demonstration provides updates on rules and regulations that were adopted between March 2014 and February 2020.

Appendix V
Evaluation of South Coast AQMD Rules and Regulations – NOx Rules

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
476	Steam Generating Equipment (Amended 10/8/76)	<p>For equipment with maximum heat input rate > 50 MMBTU/hr, NOx emission limits are 125 ppm at 3% O2 on gas-fired equipment and 225 ppm at 3% O2 on liquid or solid-fired equipment, averaged over 15 minutes.</p> <p>In South Coast AQMD, one facility (Long Beach City SERFF) has 3 combustors subject to NOx limit of 150 ppm (24-hr average) per 40 CFR Part 60 Subpart Ea and Eb.</p>	<p>Maryland (Section 26.11.08 Control of Incinerators) NOx emission limits for two applicable facilities are 140 and 150 ppm respectively at 24-hr average, and 105 and 145 ppm respectively at 30-day average.</p>	<p>Steam generating equipment in South Coast AQMD is subject to requirements similar to those in Maryland on a 24-hr average basis (140 to 150 ppm in Maryland vs. 150 ppm in South Coast). Thus, the emission source is subject to RACT level of control.</p>
1110.2	Emissions from Gaseous- and Liquid Fueled Engines (Amended 11/1/19)	<p>NOx limits for all stationary and portable engines over 50 brake horse power (bhp). In general, the NOx limits applicable to 1) stationary, non-emergency engines, and 2) biogas (landfill and digester gas) engines are:</p> <ul style="list-style-type: none"> • 11 ppmvd NOx <p>Limits for new non-emergency engines driving electrical generators are:</p> <ul style="list-style-type: none"> • 0.07 lbs NOx per MW-hr <p>Alternative limits for new non-emergency engines driving electrical generators installed prior to 1/1/24 with no ammonia emissions from add-on control are:</p> <ul style="list-style-type: none"> • 2.5 ppmvd NOx <p>Limits for general low usage engines:</p> <ul style="list-style-type: none"> • 36 ppmvd NOx, engines ≥ 500 bhp • 45 ppmvd NOx, engines < 500 bhp <p>Limits for low usage for landfill and biogas engines:</p> <ul style="list-style-type: none"> • 36 × Efficiency Correction Factor ppmvd NOx, engines ≥ 500 bhp • 45 × Efficiency Correction Factor ppmvd NOx, engines < 500 bhp 	<p>San Joaquin Valley Rule 4702 (Amended 8/19/11) has NOx, VOC, CO and SOx limits for engines rated over 25 bhp.</p> <p>For engines over 50 bhp:</p> <ul style="list-style-type: none"> - By 1/1/2017, the limits for spark-ignited engines are: <ul style="list-style-type: none"> • 11 ppmv NOx - Engines used in agricultural operations (AO), or fueled with waste gas, or limited used, or cyclic loaded and field gas fueled are subject to higher limits than the above - In general, all compression ignited engines must meet U.S. EPA Tier 4 standards. <p>Engines between 25–50 bhp, non-AO, must meet federal standards 40CFR Part 60 Subpart IIII and JJJJ.</p>	<p>In its Technical Support Document for the approval of Rule 1110.2 into the California SIP published in 2008, U.S. EPA concluded that the rule's emissions limits are more stringent than the corresponding limits in the guidance and policy documents or other California District rules on internal combustion engines.</p> <p>Rule 1110.2 provides RACT level of control for this source category.</p>

Evaluation of South Coast AQMD Rules and Regulations – NOx Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1110.2 (continued)	Emissions from Gaseous- and Liquid Fueled Engines (Amended 11/1/19) (continued)	Engines not subject to the general limits listed above are: <ul style="list-style-type: none"> • Portable • Agricultural • Orchard wind machines • Emergency standby, fire-fighting and flood control limited by permit to 200 hours annually • Laboratory engines used in research and testing purposes • Engines operated for performance verification of other engines • Auxiliary engines used to power other engines/turbines' startups • Engines on San Clemente Island • Remote two-way radio transmission towers • Crane engines used on offshore platforms. 		
1134	Emissions of Oxides of Nitrogen from Stationary Gas Turbines (Amended 4/5/19)	Requirements that will remain in effect until 2024: Standard = Reference Limit x (Unit Efficiency/25%), where reference limit depends on size of units, varying from 9 ppmv to 25 ppmv. New emission limits become effective 1/1/24: <ul style="list-style-type: none"> • Liquid fuel turbines located on Outer Continental Shelf (OCS): 30 ppmv NOx / 5 ppmv NH3 • Natural gas, combined cycle turbine: 2 ppmv NOx / 5 ppmv NH3 • Natural gas, simple cycle turbine: 2.5 ppmv NOx / 5 ppmv NH3 • Produced gas: 9 ppmv NOx / 5 ppmv NH3 • Produced gas turbine located on OCS: 15 ppmv NOx / 5 ppmv NH3 • Other: 12.5 ppmv NOx / 5 ppmv NH3. 	Sacramento Rule 413 (Amended 03/24/05) has standards from 9–25 ppmv depending on size of units, but are independent on equipment efficiency. San Joaquin Rule 4703 (Amended 9/20/07) has standards from 5–50 ppmv depending on size of units. Combined cycle units > 10 MW has limit of 3 ppmv. Ventura Rule 74.9 (Amended 11/08/05) has standards from 25–125 ppmv depending on fuel type but are independent from equipment size and efficiency. Control efficiency 90–96%. In addition, all units have to meet 20 ppmv NH3.	South Coast AQMD Rule 1134 varies in stringency when compared to other Districts' requirements. For the majority of the categories, Rule 1134 is as stringent as or more stringent than the other Districts' rules. In late 2018 and early 2019, South Coast AQMD staff performed a BARCT analysis based on technological and economic feasibility, and established BARCT emission limits for equipment subject to Rule 1134. As such, Rule 1134 reflects up to date BARCT requirement, which is by definition more stringent than RACT, and provides RACT level of control for this source category.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – NOx Rules (continued)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1135	Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Amended 11/2/18)	Electricity generating facilities (EGF) have NOx emission limits at 5 ppmv for boilers (at 3% O2), 2 ppmv for combined cycle gas turbines, and 2.5 ppmv for simple cycle gas turbines (at 15% O2) that are fired on natural gas. Internal combustion engines firing diesel limit NOx emissions at 45 ppm (at 15% O2). All NOx limits are 60 minutes average.	n/a*	Meets RACT.
1146, 1146.1, 1146.2	<p>Rule 1146 - Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/7/18)</p> <p>Rule 1146.1 - Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/7/18)</p> <p>Rule 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (Amended 12/7/18)</p>	<p>For industrial and commercial boilers, steam generators, and process heaters > 5 MMBtu/hr:</p> <ul style="list-style-type: none"> • Gaseous fuel: 30 ppm • Non-gaseous fuel: 40 ppm • Landfill gas: 25 ppm • Digester gas: 15 ppm • Atmospheric units: 12 ppm • Group I units, natural gas ≥ 75 MMBtu/hr: 5 ppm • Group II units, gaseous fuels ≥ 20 and < 70 MMBtu/hr: 5–9 ppm • Group III units, gaseous fuels ≥ 5 and < 20 MMBtu/hr: 7–9 ppm • Thermal fluid heaters: 12 ppm <p>For industrial and commercial boilers, steam generators, and process heaters between 2 and 5 MMBtu/hr using the following fuels:</p> <ul style="list-style-type: none"> • Landfill gas: 25 ppm • Digester gas: 15 ppm • Natural gas using non-fire-tube boilers: 9 ppm • Natural using fire-tube boilers: 7 ppm • Thermal fluid heaters: 12 ppm • All other units: 30 ppm <p>For water heaters, small boilers, and process heaters < 2 MMBtu/hr using natural gas: NOx emission limit 30 ppmv.</p>	<p>Ventura County Rule 74.15.1 Boilers, Steam Generators and Process Heaters (1 to 5 MMBTU's), limits on units fired on liquefied petroleum gas to 20 ppm, on units fired on produced oilfield gas to 15 ppm (atmospheric), and on units fired on produced oilfield gas to 12 ppm (pressurized) while South Coast AQMD rules do not have specific requirements for these categories.</p> <p>San Joaquin Valley APCD Rule 4320 (Amended 10/15/08):</p> <ul style="list-style-type: none"> • 20+ MMBtu/hr: 7 ppm • 5-20 MMBtu/hr: 9 ppm 	<p>For units between 20 to 75 MMBtu/hr, South Coast emission limits vary from 5-9 ppm. Based on discussion with vendors, it is not technically feasible to lower emission limits to 7 ppm for non fire-tube boilers. Besides, San Joaquin's rule provides an option to comply with mitigation fee, while South Coast does not have such an option.</p> <p>In South Coast, LPG fired units are evaluated based on the same limit as natural gas equivalent units, and thereby are subject to more stringent requirements than Ventura's requirements at 20 ppm. Units fired by natural gas and field gas are subject to the more stringent natural gas limit varying from 7–12 ppm depending on unit type and size. Units fired exclusively by oilfield gas are subject to the limit of 30 ppm, which is higher than Ventura's limits of 12–15 ppm. To the best of staff's knowledge, there is only one active unit that is fired exclusively by oilfield gas in South Coast AQMD. The annual usage is below the low use threshold in Ventura's rule and would not be subject to the emission limit per Rule 74.15.1 (B)(3). Also, due to the low usage, it is not cost-effective to retrofit the unit to meet the 12/15 ppm requirement. As such, the requirements in South Coast Rule 1146.1 are at least as stringent as other agencies, and meet RACT level of control.</p> <p>Based on the above information, it is concluded that South Coast AQMD Rule 1146 series meet RACT.</p>

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

Evaluation of South Coast AQMD Rules and Regulations – NOx Rules (concluded)

RULE NO	RULE TITLE	CURRENT RULE REQUIREMENTS	OTHER AGENCIES' RULES AND FEDERAL GUIDANCE THAT ARE MORE STRINGENT	RACT EVALUATION (2022 AQMP RACT)
1147	NOx Reductions from Miscellaneous Sources (Amended 7/7/17)	Multiple NOx emission limits for gas and liquid fuel fired units. For unit heat rating ≥ 325,000 Btu/hr: Gaseous fuel-fired equipment, including burn-off furnace, incinerator with or without integrated afterburner, requires 60 ppm NOx at process temperature either below or above 1,200 degrees Fahrenheit. Asphalt manufacturing operations are at 40 ppm. Liquid fuel fired units are set at 40 ppm at process temperature below 1,200 degrees Fahrenheit and 60 ppm above 1,200 degrees Fahrenheit.	Ventura County Rule 74.34 NOx Reductions from Miscellaneous Sources, has a NOx emission limit of 30 ppm for Incinerators at process temperatures of less than 1200 degrees Fahrenheit while South Coast AQMD requires 60 ppm for Incinerators and Vapor Incinerators. VCAPCD has a NOx emission limit of 30 ppm for Furnaces at process temperatures of less than 1200 Fahrenheit while South Coast AQMD requires 60 ppm for Burn-Off Furnaces. Sacramento Metro Regulation 04 - Prohibitory Rules - Rule 419 NOx from Miscellaneous Combustion Units, limits NOx for Asphalt Manufacturing Operation to 40 ppmv for process temperatures greater than or equal to 1,200 degrees Fahrenheit while South Coast AQMD rules do not have such requirement.	South Coast AQMD Rule 1147 has a less stringent NOx emission limit for furnaces than Ventura County Rule 74.34 (60 vs. 30 ppm). South Coast AQMD Rule 1147 is currently being amended, and undergoing a BARCT evaluation. It is under consideration to lower the limit of burn-off furnaces (< 1,200 degrees Fahrenheit) from 60 ppm to at least 30 ppm. Staff's BARCT analysis shows going lower than 30 ppm is technically feasible, but cost-effectiveness is under evaluation. Therefore, upon amendment, South Coast AQMD rule is going to meet BARCT, which is more stringent than RACT. To the best of staff's knowledge, asphalt manufacturing operations in South Coast AQMD operate considerably below 1200 degrees Fahrenheit. Therefore, no further action is needed to address the requirements for process temperatures greater than or equal to 1,200 degrees Fahrenheit.
1153.1	Rule 1153.1 - Emissions of Oxides of Nitrogen from Commercial Food Ovens (Amended 11/7/14)	Commercial in-use food ovens set NOx limit at 40 ppm at process temperature ≤ 500 deg F and 60 ppm at > 500 ppm.	n/a*	Meets RACT.
2002	Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) (Amended 10/5/18)	Include facility allocations for NOx for RECLAIM facilities	Other Districts do not have RECLAIM, refer to individual rules such as Rule 1146, 1146.1, 1110.2 etc.	BARCT review completed in 2015 and revision to BARCT limits are incorporated in Rule 2002 (version 12/2015). The NOx Regional Clean Air Incentives Market (RECLAIM) program is transitioning to a command-and-control regulatory structure requiring BARCT as soon as practicable RECLAIM emission sources are or will be subject to source-specific landing rule(s). All landing rules include a comprehensive BARCT evaluation, which by definition is more stringent than RACT.

* There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.