

APPENDIX D
VENTURA COUNTY
STATIONARY SOURCE
REASONABLY AVAILABLE CONTROL MEASURE ASSESSMENT

Background

Federal Clean Air Act (CAA) require the Ventura County Air Pollution Control District (District) to demonstrate that it has adopted all control measures necessary to attain the 2015 federal 8-hour ozone standard as expeditiously as practicable and to meet Reasonable Further Progress (RFP) requirements. Reasonably Available Control Measures (RACM) applies to stationary source control measures, transportation control measures, and mobile source control measures. Reasonably Available Control Technology, or RACT, is a subset of stationary source RACM.

A potential control measure is considered “reasonably available” and must be implemented if it would advance attainment by at least one year, either alone or in combination with other reasonably available control measures. This means the combined emission reductions from RACM must be sufficient to reduce the emission inventory projected for 2025 (or earlier) to the inventory currently projected for 2026, the attainment year, or lower. For the purpose of this analysis, estimated emission reductions are calculated for achievability by 2025 to advance this date. If such emission reductions can be demonstrated, the combined RACM measures must be implemented.

Stationary Source RACM

The District has been classified as a serious nonattainment area for all historical ozone National Ambient Air Quality Standards (NAAQS). The District has a mature and comprehensive set of prohibitory rules which are some of the strictest in the nation. The stringency and comprehensiveness of existing reactive organic gases (ROG) and nitrogen oxides (NO_x) emission control requirements in the District significantly reduce the availability of new measures that could provide additional emission reductions sufficient to advance the attainment year.

The projected anthropogenic NO_x and ROG emissions are 27.4 and 30.1 tons per day, respectively, in the attainment year 2026. The projected 2025 NO_x and ROG emissions are 27.6 and 30.3 tons per day, respectively. Therefore, in order to be considered RACM, the combined control measures must reduce NO_x emissions by 0.2 tons per day.

In addition, the actual and projected ROG emissions are stable at 31.3 ± 0.2 tons per day for nine years from 2018 through 2026. During this time the ozone design value is projected to decline by 7 ppb, apparently due to NO_x emissions reductions. Therefore, at this stage in the attainment planning for Ventura County, it is unclear what level of anthropogenic ROG emission reductions would advance the attainment year.

2020 RACT State Implementation Plan (SIP)

The District approved its RACT SIP on June 9, 2020 and sent it to the California Air Resources Board (CARB) for submittal to the United States Environmental Protection Agency (EPA). CARB submitted the District’s RACT SIP to EPA on July 28, 2020 and EPA has yet to take final action to approve. The RACT SIP found that all applicable District rules that apply to ozone precursor emissions fulfill RACT requirements for the 8-hour ozone NAAQS.

However, RACT equivalency does not ensure that those rules meet RACM requirements. As presented by EPA on February 11, 2021, their *Reasonably Available Control Measure Demonstration for Ozone National Ambient Air Quality Standards* requires all rules and potential rules to be evaluated for RACM emission reductions.

RACM Evaluations

All District ROG and/or NO_x prohibitory rules were evaluated for potential RACM emission reductions. Staff compared District rules to equivalent rules adopted or proposed as control measures by other air districts with higher or “worse” nonattainment classifications, namely the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Staff also reviewed equivalent rules from other air districts such as the Bay Area Air Quality Management District (BAAQMD). Table D-1 lists the District rules reviewed for the stationary source RACM requirement.

District staff also evaluated rules or proposed Control Measures from other air districts that apply to unregulated source categories in Ventura County. District staff conducted preliminary evaluations of the potential emission reductions, including the cost effectiveness and timing of the potential reductions. The identified source categories are shown in Table D-2.

A very conservative estimate of the total emission reductions achievable under RACM with new and amended District rules are as follows:

NO_x: 0.013 tons per day

ROG: 0.436 tons per day

As noted above, in order to advance attainment by one year, emission reductions of at least 0.2 tons of NO_x per day must be achieved. The potential RACM identified by the District could only achieve approximately one tenth of the required NO_x reductions.

Since the ROG inventory remains stable for the eight years prior to the District’s modeled attainment, it is unclear how much ROG emissions reductions would be required to advance the attainment date. However, District staff believes reducing ROG emissions less than 2% of the county’s anthropogenic emissions inventory is insufficient to advance the attainment date. Such a reduction is well within the margin of error for the emissions inventory and the annual variability of emissions due to other factors.

**Table D-1
District Rules Evaluated for RACM Determination**

VCAPCD Rule	Rule Name	Other District Rule/CM Number(s)	Other District Rule(s) Stricter?	NOx Emission Reduction Potential (tons/day)	ROG Emission Reduction Potential (tons/day)
59	Electrical Power Generating Equipment - Oxides of Nitrogen Emissions	SC L-CMB-06 SJ 4306	Yes+	0	0
62.6	Ethylene Oxide - Sterilization and Aeration	SJ 7021 SC 1405	No	0	0
70	Storage and Transfer of Gasoline	SJ 4621 SC 462	Yes	0	0.020
71.1	Crude Oil Production and Separation	SJ 4623 SC 1178	No	0	0
71.2	Storage of Reactive Organic Compound Liquids	SJ 4623 SC 1178	Yes	0	0.045
71.3	Transfer of Organic Reactive Compound Liquids	SJ 4624 SC 462	No	0	0
71.4	Petroleum Sumps, Pits, Ponds, and Well Cellars	SJ 4402 SC 1176	No	0	0
71.5	Glycol Dehydrators	SJ 4408 SC 1148.1	No	0	0
74.2	Architectural Coatings	The rule will be considered as a contingency measure if required.			
74.3	Paper, Fabric and Film Coating Operations	SJ 4607 SC 1128	Yes+	0	0
74.4	Cutback Asphalt	SJ 4641 SC 1108	Yes+	0	0
74.5.1	Petroleum Solvent Dry Cleaning	SJ 4672 SC 1102	Yes	0	0.012
74.5.2	Synthetic Solvent Dry Cleaning	SC 1102	Yes+	0	0
74.6	Surface Cleaning and Degreasing	SJ 4662 SJ 4663 SC 1122 SC 1171	No	0	0
74.6.1	Batch Loaded Vapor Degreasers	SJ 4662 SC 1122	No	0	0

**Table D-1
District Rules Evaluated for RACM Determination**

VCAPCD Rule	Rule Name	Other District Rule/CM Number(s)	Other District Rule(s) Stricter?	NOx Emission Reduction Potential (tons/day)	ROG Emission Reduction Potential (tons/day)
74.7	Fugitive Emissions of ROC at Petroleum Refineries and Chemical Plants (VOC)	SJ 4455 SC 1173	Yes ⁺	0	0
74.8	Refinery Vacuum Producing Systems, Wastewater Separators, and Process Turnarounds	SJ 4453 SC 465	Yes ⁺	0	0
74.9	Stationary Internal Combustion Engines	SJ 4702 SC 1110.2	Proposed as Control Measure		
74.10	Components at Crude Oil and Natural Gas Production and Processing Facilities	SJ 4409 SC 1173 SC FUG-01	Planned 2023 Amendment		
74.11	Natural Gas-Fired Water Heaters	SJ 4902 SC 1146.2 SC R-CMB-01	Yes ⁺	0	0
74.11.1	Large Water Heaters and Small Boilers	SJ 4308 SC 1146.2 SC R-CMB-01	Yes	0.008	0
74.12	Surface Coating of Metal Parts and Products	SJ 4603 SC 1107 SC CTS-01	Yes ⁺	0	0
74.13	Aerospace Assembly and Component Manufacturing Operations	SJ 4605 SC 1124	Yes	0	0.001*
74.14	Polyester Resin Material Operations	SJ 4684 SC 1162	Yes	0	0.02
74.15	Boilers, Steam Generators and Process Heaters (1 to 5 MMBTUs)	SJ 4320 SC 1146 SC C-CMB-01	Yes ⁺	0	0
74.15.1	Boilers, Steam Generators and Process Heaters	SJ 4307 SC 1146.1	Yes	0.005	0
74.16	Oilfield Drilling Operations		N/A	0	0
74.17.1	Municipal Solid Waste Landfills	SJ 4642 SC 1150.1	No	0	0

**Table D-1
District Rules Evaluated for RACM Determination**

VCAPCD Rule	Rule Name	Other District Rule/CM Number(s)	Other District Rule(s) Stricter?	NOx Emission Reduction Potential (tons/day)	ROG Emission Reduction Potential (tons/day)
74.18	Motor Vehicle and Mobile Equipment Coating Operations	SC 1151 SC CTS-01	No	0	0
74.19	Graphic Arts	SJ 4607 SC 1130 SC 1171	No	0	0
74.19.1	Screen Printing Operations	SC 1130.1 SC 1171	Yes	0	0.022
74.20	Adhesives and Sealants	SJ 4653 SC 1168 SC CTS-01	No	0	0
74.21	Semiconductor Manufacturing	SC 1164 BA 8-30	No	0	0
74.22	Natural Gas-Fired, Fan-Type Central Furnaces	SJ 4905 SC 1111 SC R-CMB-02	Proposed as Control Measure		
74.23	Stationary Gas Turbines	SJ 4703 SC 1134 SC L-CMB-05	Yes†	0	0
74.24	Marine Coatings Operations	SC 1106	Yes	0	0.007
74.24.1	Pleasure Craft Coating and Commercial Boatyard Operations	SC 1106.1	No	0	0
74.25	Restaurant Cooking Operations	SC C-CMB-03	Yes†	0	0
74.26	Crude Oil Storage Tank Degassing	SC 1149	Yes	0	0.023
74.27	Gasoline and ROC Liquid Storage Tank Degassing Operations	SC 1149	Yes	0	0.001*
74.28	Asphalt Roofing Operations	MD 471	No	0	0
74.29	Soil Decontamination Operations	SJ 4651 SC 1166	Yes	0	0.12
74.30	Wood Products Coating	SJ 4606 SC 1136	No	0	0

**Table D-1
District Rules Evaluated for RACM Determination**

VCAPCD Rule	Rule Name	Other District Rule/CM Number(s)	Other District Rule(s) Stricter?	NOx Emission Reduction Potential (tons/day)	ROG Emission Reduction Potential (tons/day)
74.31	Metalworking Fluids and Direct Contact Lubricants	SC 1144	No	0	0
74.32	Organic Material Handling and Conversion	SC 1133.3	Proposed as Control Measure		
74.33	Liquified Petroleum Gas Transfer or Dispensing	SC 1177	No	0	0
74.34	NOx Reductions from Miscellaneous Sources	SJ 4309 SC 1147 SC L-CMB-01	Yes†	0	0

Notes:

SC = South Coast Air Quality Management District

SJV = San Joaquin Valley Air Pollution Control District

BA = Bay Area Air Quality Management District

MD = Mojave Desert Air Quality Management District

N/A = Not applicable – this rule does not include restrictions or mandate reductions in NOx or ROG emissions

* All values between 0 and 0.001 were rounded up to 0.001

† See discussion below

Table D-2
Stationary Source Categories for Which Other Districts Have Either Adopted Rules or Proposed as Control Measures and VCAPCD Has No Equivalent Rule

Rule Name	Other District Rule Number(s)	Applicable Sources in Ventura County?	NOx Emission Reduction Potential (tons/day)	ROG Emission Reduction Potential (tons/day)
Composting and Organic Material Conversion Operations	SC 1133 SJV 4566	New District Rule 74.32 will be adopted as discussed in Chapter 3 as part of control measure R-607		
Flares at Petroleum Refineries	BA 12-12 SC 1118	NO	None	None
Vacuum Truck Operations	BA 8-53	YES	Potential Increase*	0.16
Emissions of Oxides of Nitrogen from Commercial Food Ovens	SC 1153.1	YES	None	None
Food Products Manufacturing and Processing Operations	SC 1131	YES†	None	0.006
Residential Combustion Equipment	SC R-CMB-03 SC R-CMB-04	YES†	None	None
Emissions from Commercial Space Heating	SC C-CMB-02	YES†	None	None
Emergency Standby Engines	SC L-CMB-04	YES†	None	None

Notes:

BA = Bay Area Air Quality Management District

SC = South Coast Air Quality Management District

SJV = San Joaquin Valley Air Pollution Control District

MD = Mojave Desert Air Quality Management District

* If a combustion process is used to comply with emissions abatement requirements, this rule will increase NOx emissions

** All values between 0 and 0.001 were rounded up to 0.001

† See discussion below

The summaries below discuss the RACM evaluations and provide a determination whether rule updates or new rules could be considered RACM.

RULE 59: ELECTRICAL POWER GENERATING EQUIPMENT – OXIDES OF NITROGEN EMISSIONS (Last Revised 7/15/1997)

Rule 59 reduces NOx emissions from electric power generating steam boilers with a rated heat input capacity of greater than three hundred (300) million British thermal units (BTU) per hour and any auxiliary boiler with an electric power generating steam boiler not subject to Rule 74.15, *Boilers, Steam Generators, and Process Heaters*. In the 2020 RACT SIP, it was determined that Rule 59 was equivalent to SJVAPCD 4306 and met RACT requirements.

SCAQMD is proposing Control Measure L-CMB-06 to reduce the emissions from electrical generating facility equipment including turbines and the associated duct burners, boilers, and diesel internal combustion engines. Emission reductions for this control measure are associated with implementation of zero-emission technology and repowering with lower emission combustion units.

There is currently one facility in Ventura County that is subject to Rule 59, which is expected to decommission between 2025 and 2027 due to State regulations eliminating the use of once-through-cooling technology, which is utilized by this facility. VCAPCD will monitor potential emission reductions from this source category but at this time, it does not qualify for RACM due to emission reductions being realized before the attainment date of 2026.

RULE 62.6: ETHYLENE OXIDE – STERILIZATION AND AERATION (Last Revised 7/16/1991)

Rule 62.6 reduces ethylene oxide emissions from sterilizers using ethylene oxide. During the 2020 RACT analysis, it was determined there were two known and permitted facilities that employ ethylene oxide sterilizers in Ventura County. Cumulative permitted consumption was limited to 238 pounds of ethylene oxide per year.

SCAQMD Rule 1405 (last amended 1/4/1991) and SJVUAPCD Rule 7021 (last amended 12/17/1992) apply to similar process emissions as Rule 62.6 with nearly identical requirements. VCAPCD will monitor potential emission reductions from this source category but since Rule 62.6 is equivalent to SCAQMD and SJVAPCD rules at this time, no additional emission reductions are expected from this source category.

RULE 70: STORAGE AND TRANSFER OF GASOLINE (Last Revised 3/10/2009)

Rule 70 reduces ROG emissions from the storage and transfer of gasoline at bulk plants, terminals, and vehicle dispensing facilities (service stations). The storage of gasoline in containers with more than 40,000 gallons capacity is also regulated by the Rule 71.2, *Storage of Reactive Organic Compound Liquids*.

The CARB sets vapor recovery system standards for gasoline dispensing and is responsible for certifying fuel systems to meet those standards. California's local air districts have the primary authority for regulating gasoline dispensing facilities under vapor recovery rules. CARB began implementing enhanced vapor recovery requirements starting in 2001. BAAQMD amended its rules applicable to gasoline bulk terminals and plants, Rules 8-33 and 8-39, in April of 2009. The revised rules include lower emission limits (0.4 lb. ROG per 1,000 gallons transferred vs. 0.8 lb. ROG per 1,000 gallons transferred in Rule 70). Emission reductions for amendments to Rule 70 were estimated from improving bulk loading vapor control.

RULE 71.1: CRUDE OIL PRODUCTION AND SEPARATION (Last Revised 6/16/1992)

Rule 71.1 controls ROG emissions from equipment used in the production, gathering, storage, processing, and separation of crude oil and natural gas from any petroleum production unit prior to custody transfer.

SCAQMD Rule 1148.1 (last amended 9/4/2015) requires 95% control of produced gas that is not recovered, whereas Rule 71.1 requires 90% control of ROG emissions for produced gas not recovered or flared. SJVAPCD Rule 4623 (last amended 5/19/2005) tailors tank requirements based on tank size and vapor pressure of tank constituents, but the strictest requirements allow for vapor recovery systems similar to those allowed by Rule 71.1.

Currently, Ventura County has forty permitted facilities of which six are considered major sources (42 U.S.C. §7511a) of ROG subject to Rule 71.1. A review of all facilities' permits confirmed that most facilities route their produced gas into a fuel system, sales gas system, and/or flare, with only one facility utilizing a permanent carbon adsorption system which already achieves greater than 95% vapor control. The 90% control alternative does not apply to any existing source complying with Rule 71.1, therefore the requirement has no effect. It is important to note facilities operating a properly designed flare will achieve 98% destruction efficiency or greater. Any new source would be subject to BACT which would require a greater ROG destruction efficiency than required by Rule 71.1.

RULE 71.2: STORAGE OF REACTIVE ORGANIC COMPOUND LIQUIDS (Last Revised 9/26/1989)

Rule 71.2 reduces ROG emissions from equipment used to store crude oil or ROG liquids with a Modified Reid Vapor Pressure (MRVP) greater than 0.5 psia. The rule does not apply to any storage equipment subject to Rule 71.1, gasoline storage container with a capacity equal to or less than 40,000 gallons, or to any other storage container with a capacity equal to or less than 5,000 gallons.

SCAQMD Rules 463 (last amended 11/4/2011) and 1178 (last amended 11/6/2020) and SJVAPCD Rule 4623 (last amended 5/19/2005) apply to similar equipment as Rule 71.2. Rule 71.2 includes an exemption for tanks <5,000 gallons, while Rule 463 applies to all tanks >1,100 gallons. Rule 463 applies to above-ground tanks >19,815 gallons and above-ground gasoline tanks with capacities between 251 and 19,815 gallons. Rule 1178 applies only to tanks at petroleum facilities with greater than 20 tons of ROG emissions reported in the year 2000 and to tanks with capacities greater than 19,815 gallons. The rules contain many similar provisions and requirements for tanks containing volatile organic liquids. The rules all have minor differences in the detailed requirements. The provisions for fixed roof tanks are equivalent in all of the above-mentioned rules – a pressure-vacuum relief valve or vapor recovery system. Most of the differences relate to floating roof tanks.

The combined permitted emissions of the seven existing floating roof tanks in Ventura County are less than 17.33 tons ROG per year. By implementing BACT for Rule 71.2 (incorporating domed

coverings with 95% vapor control) ROG emissions would be reduced from the current permitted equipment by approximately 16.46 tons per year (0.045 tpd ROG). During the 2006 RACT SIP analysis, such retrofits had an estimated cost effectiveness of \$12 per pound reduced, which is less than the current BACT threshold of \$15 per pound. Due to differences between permitted emissions, actual emissions, and cost-effectiveness considerations which may influence rule language the actual emission reductions would likely be much less than this.

RULE 71.3: TRANSFER OF REACTIVE COMPOUND LIQUIDS (Last Revised 5/11/2021)

Rule 71.3 reduces ROG emissions from equipment used to transfer ROG liquids with a MRVP greater than or equal to 0.5 psia. The provisions of this rule do not apply to the transfer of gasoline or the transfer of ROG liquids via pipeline. This rule implemented BARCT on 5/11/2021 and achieved the maximum amount of emission reductions for this source equipment.

RULE 71.4: PETROLEUM SUMPS, PITS, PONDS, AND WELL CELLARS (Last Revised 6/8/1993)

Rule 71.4 controls ROG emissions from sumps, pits, ponds and well cellars at facilities where crude oil or petroleum material is produced, gathered, separated, processed, or stored. SCAQMD Rule 1176 (amended 9/13/1996) and SJVAPCD Rule 4402 (amended 12/15/2011) apply to similar equipment as District Rule 71.4.

Rule 71.4 requires covers on allowed sumps that physically cover 90% of the liquid surface area. Both SCAQMD and SJVAPCD's equivalent rules require sump covers that have very limited gaps at the edges. Alternatively, they must cover the liquid completely and have no open hatches, etc. However, Rule 71.4 includes a provision that the cover must not leak per the definition located in Rule 71.1 (1,000 ppm ROG as methane above background). In addition, Rule 71.4 applies to liquids with significantly lower ROG concentrations (5 mg ROG/L vs 35 mg ROG/L for Rule 4402). VCAPCD will monitor potential emission reductions from this source category but at this time no potential emission reductions are expected by increasing surface coverage with the existing leak-free requirements established in Rule 71.4.

RULE 71.5: GLYCOL DEHYDRATORS (Last Revised 12/13/1994)

Rule 71.5 controls and/or reduces ROG emissions from glycol dehydrators anywhere natural gas is dehydrated. SJVAPCD Rule 4408 (adopted 12/19/2002) applies to the same type of equipment as Rule 71.5. The rules are essentially equivalent, but Rule 71.5 has a lower exemption threshold and therefore applies to all glycol dehydrators in the District. SCAQMD Rule 1148.1 (last amended 9/4/2015) has a similar 95% emission control requirement on systems handling produced gas, but SCAQMD does not specifically regulate glycol dehydrators. VCAPCD will monitor potential emission reductions from this source category but since Rule 71.5 is equivalent to the SCAQMD and SJVAPCD rules at this time, no additional emission reductions are expected from this source category at this time.

RULE 74.2: ARCHITECTURAL COATINGS (Last Revised 11/10/2020)

Rule 74.2 reduces ROG emissions from architectural coatings and is applicable to any person who supplies, sells, offers for sale, or manufactures any architectural coating for use within the District, as well as any person who applies or solicits the application of any architectural coating within the District. Rule 74.2 was amended on 11/10/2020 which implemented the 2019 CARB SCM. The existing potential emission reductions from this source category due to the elimination of the small container exemption may be considered as a contingency measure if additional measures are required.

RULE 74.3: PAPER, FABRIC AND FILM COATING OPERATIONS (Last Revised 12/10/1991)

Rule 74.3 reduces ROG emissions from any application process involving the coating of paper, fabric or film. SCAQMD Rule 1128 (last amended 3/8/1996) and SJVAPCD Rule 4607 (last amended 12/18/2008) apply to the same operations as District Rule 74.3. The only comparable deficiencies found in Rule 74.3 with respect to both SCAQMD Rule 1128 and SJVAPCD Rule 4607 is the lack of plastisol ROG limits and not requiring application methods equivalent to the use of HVLP equipment.

Review of the District sources found no sources with emissions from activities which would be regulated by Rule 74.3. Any newly permitted sources would have to comply with more stringent BACT requirements pursuant to Rule 26, New Source Review. No further emission reductions are available from processes regulated by Rule 74.3.

RULE 74.4: CUTBACK ASPHALT (Last Revised 7/5/1983)

Rule 74.4 reduces ROG emissions from application of rapid cure cutback asphalt for highway or street paving or maintenance and applies to any person who manufactures, sells, or offers for sale cutback asphalt for such use or application. Rule 74.4 is equivalent to the cutback asphalt restrictions in other air districts in California. All reviewed rules prohibit the use of cutback asphalts with greater than 0.5% organic compounds with boiling points less than 500°F. Some rules, including Rule 74.4, have exemptions for material used at temperatures less than 50°F and therefore Rule 74.4 is considered BACT.

RULE 74.5.1: PETROLEUM SOLVENT DRY CLEANING (Last Revised 12/4/1990)

Rule 74.5.1 reduces ROG emissions from petroleum solvent dry cleaning operations through emission control, filtration equipment, and operating requirements. SCAQMD Rule 1102 (amended 11/17/2000) and SJVAPCD Rule 4672 (amended 12/17/1992) apply to similar equipment as District Rule 74.5.1. Rule 4672 has similar emission limits and operational requirements with the addition of a leak inspection and leak repair cycle information label requirement. Rule 1102 includes detailed leak check and repair requirements with time limits for repairing leaks. The Ventura County rule prohibits operating leaking equipment but does not include specific leak check and repair requirements or allowances for operating leaking equipment.

Rule 1102 prohibits operation of transfer machines effective January 1, 2005. District Rule 74.5.1 does not prohibit transfer machines and a review of District emissions inventory indicates petroleum-based dry-cleaning solvents contributed 14.34 tons of ROG in the base year 2018. SCAQMD discussed in their staff report for the 2000 amendments to Rule 1102 that banning transfer machines would reduce category emissions by 30%. If VCAPCD were to ban such equipment it would have the maximum emission reduction potential of 4.302 tons per year (0.012 tpd ROG), which is an upper bound estimate since any petroleum-based dry-cleaning operations permitted since 2000 would be required to implement BACT, not allowing the use of transfer machines.

RULE 74.5.2: SYNTHETIC SOLVENT DRY CLEANING (Last Revised 5/9/1995)

Rule 74.5.2 reduces ROG emissions from synthetic solvent dry cleaning equipment that does not use perchlorethylene through emission control, filtration equipment, and operating requirements. SCAQMD Rule 1102 (amended 11/17/2000) applies to any dry cleaning equipment not using perchloroethylene solvent. SJVAPCD Rule 4672 applies only to petroleum solvent dry cleaning equipment and so is not applicable to the same sources. Rule 1102 includes detailed leak check and repair requirements with time limits for repairing leaks. Rule 74.5.2 prohibits operating leaking equipment but does not include specific leak check and repair requirements or allowances for operating leaking equipment. Rule 1102 prohibits operation of transfer machines effective January 1, 2005. District Rule 74.5.2 prohibits installation of transfer machines effective December 4, 1990. A review of District permits during the 2020 RACT SIP analysis indicated no transfer equipment using synthetic solvent remain operating in Ventura County.

RULE 74.6: SURFACE CLEANING AND DEGREASING (Last Revised 11/10/2020)

Rule 74.6 reduces ROG emissions from surface cleaning conducted outside of degreasing tanks (e.g., hand wipe cleaning, cleaning with handheld spray bottles) or using cold cleaning apparatus.

Due to comments received from EPA in 2020, BACT for Rule 74.6 was implemented with the 11/10/2020 amendments. During the rule development process, no further emission reductions were cost-effective for this source category.

RULE 74.6.1: BATCH LOADED VAPOR DEGREASERS (Last Revised 11/10/2020)

Rule 74.6.1 reduces ROG emissions from batch loaded vapor degreasers by specifying equipment and operating practice requirements.

SCAQMD Rule 1122 (amended 5/1/2009) and SJVAPCD Rule 4662 (amended 9/20/2007) regulate similar sources to those regulated by Rule 74.6.1. It should be noted that Rule 74.6.1 does not regulate conveyORIZED vapor degreasers but no equipment of that type is currently permitted in Ventura County. The rules are all essentially equivalent, although each has minor details in the requirements that the others do not. On 11/10/2020, Rule 74.6.1 was amended to eliminate an exemption for halogenated solvents and to require 85% control efficiency for degreasers. No further emission reductions were considered cost effective at the time of the amendment.

RULE 74.7: FUGITIVE EMISSIONS OF ROG AT PETROLEUM REFINERIES AND CHEMICAL PLANTS (Last Revised 10/10/1995)

Rule 74.7 reduces ROG emissions through operational and inspection requirements at petroleum refineries and chemical plants. Historically, only one petroleum refinery and only a few chemical plants have operated in Ventura County. The petroleum refinery has not operated since 1984. Only two facilities remain in the county, with a combined emissions of 8.95 tons per year.

SCAQMD Rule 1173 (last amended 2/6/2009) and SJVAPCD 4455 (last amended 4/20/2005) regulate similar sources to those regulated by 74.7. The leak repair requirements of Rule 1173 apply to any gaseous leak greater than 500 ppm while Rule 74.7 applies to leaks greater than 1,000 ppm. VCAPCD has no processes which are currently regulated by 74.7 at this time. Any new source would be subject to BACT which would require greater operational and inspection requirements than is found in Rule 74.7.

RULE 74.8: REFINERY VACUUM PRODUCING SYSTEMS, WASTEWATER SEPARATORS, AND PROCESS TURNAROUNDS (Last Revised 7/5/1983)

Rule 74.8 reduces ROG emissions from refinery vacuum producing systems, wastewater separators, and process turnarounds at petroleum refineries. Historically, only a single petroleum refinery operated in the county. The petroleum refinery has not operated since 1984. Rule 74.8 applies only to petroleum refineries. Therefore, Rule 74.8 does not have any potential emission reductions for the purpose of RACM.

RULE 74.9: STATIONARY INTERNAL COMBUSTION ENGINES (Last Revised 11/8/2005)

Rule 74.9 reduces NO_x emissions from stationary spark-ignited or diesel internal combustion engines rated at 50 or more horsepower, operated on any gaseous fuel, including liquefied petroleum gas (LPG), or liquid fuel, and not subject to the provisions of Rule 74.16. Because Rule 74.9 is proposed as a Further Study Control Measure in this AQMP, it is not subject to evaluation for RACM.

RULE 74.10: COMPONENTS AT CRUDE OIL AND NATURAL GAS PRODUCTION AND PROCESSING FACILITIES (Last Revised 3/10/1998)

Rule 74.10 reduces ROG emissions from components at crude oil and natural gas production facilities, including pipeline transfer stations and natural gas processing plants. ROG emissions from these facilities are controlled by active leak detection and repair. This rule is set to implement BARCT in 2023 and as such does not qualify for RACM evaluation.

RULE 74.11: NATURAL GAS FIRED WATER HEATERS (Last Revised 1/12/2010)

Rule 74.11 reduces NO_x emissions from residential water heaters and applies to residential water heaters, distributors, and installers.

In VCAPCD's 2020 RACT SIP Revision, it was discussed that this rule is essentially the same as SCAQMD Rule 1146.2 (last amended 12/7/2018) and SJVAPCD Rule 4902 (last amended 3/19/2009). Additionally, there are no known major sources of NO_x subject to this rule in the District.

SCAQMD is evaluating Rule 1146.2 for RACM emission reductions by proposing incentives for existing unit retrofits and requiring new installations to implement zero-emission technologies. However, VCAPCD does not have the financial resources to implement such incentives at this time. In addition, due to considerations regarding energy resiliency for our wildfire-prone area, with some facilities being subject to frequent Public Safety Power Shutoffs, known as PSPS events, it is not safe or feasible for requiring zero emission technology at this time. VCAPCD will monitor potential emission reductions from this source category but at this time Rule 74.11 does not have any potential emission reductions for the purpose of RACM.

RULE 74.11.1: LARGE WATER HEATERS AND SMALL BOILERS (Last Revised 9/11/2012)

Rule 74.11.1 is a point-of-sale rule that reduces NO_x emissions from large water heaters and small boilers that are sold, offered for sale, or installed in Ventura County through certain requirements and limits. Units subject to Rule 74.11.1 are required to not exceed 40 nanograms per joule of heat output.

SCAQMD Rule 1146.2 (last amended 12/7/2018) apply to similar sources as Rule 74.11.1. Rule 1146.2 regulates small boilers and water heaters with a rated heat input rating of between 75,000 BTU/hour and 2,000,000 BTU/hour, while Rule 74.11.1 applies to units 75,000 BTU/hour and 1,000,000 BTU/hour. Rule 1146.2 requires emissions of comparable units to not exceed 14 nanograms per joule of heat output.

SCAQMD is proposing to further reduce emissions with C-CMB-01 through providing incentives for voluntary installation of zero-emission water heaters and by amending regulations to require zero-emission technology or lower-emitting units for new installs. VCAPCD does not have the financial resources to implement such incentives at this time, and the implementation period for new installations would limit the emission reductions realized by the attainment deadline of 2027. Due to considerations regarding energy resiliency for our wildfire-prone area, with some residences being subject to frequent PSPS events, it is not safe or feasible for requiring zero emission technology at this time. There were 15.334 tpy of NO_x in 2018 for from EIC 600-300-1100-000. Emission reductions estimated for Rule 74.11.1 are based on reducing emission limits from 40 to 14 nanograms per joule of head output which could be realized before 2027. Because this equipment has an average lifespan of 10 years, we estimate after rule adoption each year will realize 10% of total emission reductions if the rule was amended in 2023. (ER = 15.334 tpy * (26/40) = 9.97 tpy = 0.0273 tpd at full saturation * (0.30) = 0.008 tpd NO_x)

RULE 74.12: SURFACE COATING OF METAL PARTS AND PRODUCTS (Last Revised 4/8/2008)

Rule 74.12 reduces ROG emissions by specifying ROG content limits in coatings used to coat metal parts and products and work practice requirements.

SCAQMD Rule 1107 (amended 2/7/2020) and SJVAPCD Rule 4603 (amended 9/17/2009) apply to similar sources as Rule 74.12. The coating ROG content restrictions are mostly equivalent, with Rule 74.12 including lower limits on a few specialty coatings. While minor differences in work practice requirements and exemptions exist, the differences do not impact the emissions. The most recent amendment to Rule 1107 implemented more stringent work practices and removed multiple exemptions but did not estimate any emission reductions. VCAPCD will monitor potential emission reductions from this source category but at this time Rule 74.12 does not have any potential emission reductions for the purpose of RACM.

RULE 74.13: AEROSPACE ASSEMBLY AND COMPONENT MANUFACTURING OPERATIONS (Last Revised 9/11/2012)

Rule 74.13 reduces ROG emissions from the manufacturing, assembling, coating, masking, bonding, paint stripping, and surface cleaning of aerospace components and the clean-up of equipment associated with these operations.

SCAQMD Rule 1124 (amended 9/21/2001) and SJVAPCD Rule 4605 (amended 6/16/2011) apply to sources similar to those subject to Rule 74.13. Rule 74.13 limits the emissions of ROG from the application of coatings or adhesives on aerospace components. This rule contains limits on the ROG content of coatings, adhesives and cleaners used at aerospace component manufacturing operations. The ROG control requirements of this rule are equivalent to SCAQMD Rule 1124, *Aerospace Assembly and Component Manufacturing Operation*, with a few variations in limits for specialty coatings or adhesives.

The main differences between Rule 74.13 and Rule 1124 are Adhesion Promoters at 850 g/L versus 250 g/L, Adhesive Bond Primer at 780 g/L versus the new commercial aircraft limit of 250 g/L, Long and Short Term Adhesive Bond Primers at 780 g/L versus 250 g/L, and Extrudable, Rollable or Brushable Sealants at 600 g/L versus 280 g/L.

In the base year of 2018, there was 0.02 tpy of ROG emissions from operations regulated by Rule 74.13. For the purpose of RACM, emission reductions are estimated assuming all emissions are from the previously mentioned categories where VCAPCD's ROG limits are higher than neighboring districts.

RULE 74.14: POLYESTER RESIN MATERIAL OPERATIONS (Last Revised 4/12/2005)

Rule 74.14 reduces ROG emissions from operations that manufacture products from or otherwise use polyester resin material. ROG emissions from this manufacturing process are controlled by limiting loss rate, monomer ROG content, application technique, or by requiring emission control equipment. Limits are also placed on the ROG content of cleaning materials.

SCAQMD Rule 1162 (amended 7/8/2005) and SJVAPCD Rule 4684 (amended 8/18/2011) apply to sources similar to those subject to Rule 74.14. The required ROG content limits are equivalent to 74.14, generally not exceeding 35%, excluding specialty resins.

Rule 74.14 currently requires the monomer ROG content of the polyester resin material to be no more than 35 percent by weight, excluding specialty resins, and does not contain limits for the ROG content of non-monomer. The maximum potential emission reductions for Rule 74.14 would require a non-monomer content ROG limit of no more than 5 percent by weight. (0.02 tpd ROG, or 36% reduction)

RULE 74.15: BOILERS, STEAM GENERATORS AND PROCESS HEATERS (Equal to or Greater than 5 MMBTU) (Last Revised 11/10/2020)

This rule reduces NO_x emissions from boilers, steam generators and process heaters used in all industrial, institutional and commercial operations, except utility electric power generating units and any auxiliary boiler used with a utility electric power generating unit and water heaters.

Rule 74.15 was recently amended implementing BARCT. No additional cost-effective emission reductions are possible from this source category.

RULE 74.15.1: BOILERS, STEAM GENERATORS AND PROCESS HEATERS (1 TO 5 MMBTU) (Last Revised 6/23/2015)

This rule is a point-of-sale rule that reduces NO_x emissions by requiring large water heaters and small boilers that are sold, offered for sale, or installed in Ventura County to meet certain requirements.

The NO_x and CO control requirements of this rule are equivalent to SCAQMD Rule 1146.1 (amended 12/7/2018) and SJVAPCD Rule 4307 (amended 4/21/2016) for most categories with some minor differences. For example, SJVAPCD Rule 4307 has only two categories, Atmospheric and Non-atmospheric while Rule 74.15.1 contains additional categories such as Landfill Gas, Biogas and LPG.

Rule 74.15.1 includes tables of NO_x limits for different categories of combustion sources. The NO_x emission limits range from 9 ppm for Pressurized Natural Gas-fired units to 25 ppm for Landfill Gas-fired units. Both Rule 1146.1 and Rule 4320 include similar limits as baseline limits for all subject units not eligible for a low use exemption. All three rules include a compliance option for units with total annual fuel use less than 1.8×10^9 BTU. Such units may comply with the rule by performing regular tune ups (twice per year, with different specific scheduling requirements) in accordance with rule requirements.

Rule 1146.1 includes a stricter NO_x limit on fire-tube category sources. However, the SCAQMD staff report associated with the adoption of that limit indicates the cost effectiveness ranges from \$11,000 to \$36,000 per ton of NO_x emissions reduced, which is close to the VCAPCD BACT threshold of \$30,000 per ton of NO_x reduced. SCAQMD is proposing to further reduce emissions from this source category through the use of incentives and requiring lower NO_x emission limits through L-CMB-02.

Due to considerations regarding energy resiliency for our wildfire-prone area, with some facilities being subject to frequent PSPS events, it is not safe or feasible for requiring zero emission

technology at this time. Emission reductions estimated for Rule 74.15.1 are based on reducing emission limits to current SCAQMD Rule 1146.1 requirements. Baseline emissions were identified as 25.38 tpy of NO_x for all equipment subject to Rule 74.15.1, fire-tube boilers represent a small portion of these units, but to conservatively estimate emission reductions all units were assumed to be fire-tube design. Because this equipment has an average lifespan of 10 years, we estimate after rule adoption each year will realize 10% of total emission reductions if the rule was amended in 2023. $(ER = 2/9 * \text{fire tube inventory} * 0.3) = 1.692 \text{ tpy} = 0.005 \text{ tpd NO}_x$

RULE 74.16: OILFIELD DRILLING OPERATIONS (Last Revised 1/8/1991)

Rule 74.16 reduces NO_x emissions by requiring oilfield drilling rigs to be powered by electric utility grid power. The rule requires the District to grant an exemption from this requirement in cases where the cost of bringing grid power to the drilling site makes electric drilling economically infeasible. In cases where the District grants such an exemption, Rule 74.16 requires the diesel engines used in oilfield drilling rigs to meet NO_x limits equivalent to Tier 1 diesel engines. No oil well drilling rigs currently hold a District Permit to Operate. To obtain a Permit to Operate, oil well drilling engines would have to comply with more stringent BACT requirements pursuant to Rule 26, New Source Review. No additional emission reductions are available from equipment regulated by Rule 74.16.

RULE 74.17.1: MUNICIPAL SOLID WASTE LANDFILLS (Last Revised 2/9/1999)

Rule 74.17.1 reduces fugitive ROG emissions from municipal solid waste landfills by means of requiring a landfill gas collection and control system. All municipal solid waste landfills in Ventura County are subject to either the federal New Source Performance Standard (40 CFR part 60 subpart WWW) or Rule 74.17.1, as applicable. SCAQMD Rule 1150.1 (amended 4/1/2011) and SJVAPCD Rule 4642 (amended 4/16/1998) have similar processes and do not contain more stringent requirements; no emission reductions are estimated from amendments to Rule 74.17.1. VCAPCD will monitor potential emission reductions from this source category but at this time, Rule 74.17.1 does not have any potential emission reductions for the purpose of RACM.

RULE 74.18: MOTOR VEHICLE AND MOBILE EQUIPMENT COATING OPERATIONS (Last Revised 11/11/2008)

Rule 74.18 limits ROG emissions from the application of automotive refinish coatings. This rule contains limits on the ROG content of refinish coatings used to coat both repaired auto bodies and entire vehicles in addition to ROG content limits on cleaners used for surface preparation and application equipment cleanup. CARB amended the statewide Suggested Control Measure (SCM) for Automotive Coatings on October 20, 2005. On November 11, 2008, the District adopted the SCM. The vast majority of the emission reductions from this SCM results from auto body shops switching from solvent-based color base coats to new waterborne color base coats. Other provisions of the SCM and Rule 74.18 include new ROG limits of primer sealers, specialty coatings, and cleaning solvents used for cleaning application equipment.

SCAQMD Rule 1151 (last amended 9/2014) applies to similar operations and has similar ROG content limits except that Rule 74.18 has a few more coating categories. In addition, for non-

compliant coatings, Rule 74.18 requires 85% capture and control on all compliant & non-compliant coatings while Rule 1151 requires control on incremental differences between the emissions that would result from the use of compliant and non-compliant coatings. The transfer efficiency, cleanup and cleaning solvents requirements are the same and the rules are functionally equivalent.

SCAQMD is proposing to further reduce ROG emissions from Rule 1151 with CTS-01. The proposed reduction in emissions is through the required use of zero and near-zero ROG materials along with alternative curing technologies. VCAPCD will monitor potential emission reductions from this source category as SCAQMD implements new technology, but at this time no emission reductions are associated with processes regulated by Rule 74.18.

RULE 74.19: GRAPHIC ARTS (Last Revised 6/14/2011)

Rule 74.19 reduces ROG emissions from the use of inks, fountain solutions, coatings, adhesives, and cleaners used at graphic arts operations through limits on the ROG content of inks, coating, adhesives, fountain solutions, and solvent cleaners. On June 14, 2011, the District adopted new lower ROG content limits in Rule 74.19 for some fountain solutions and cleaning solutions used in this source category. The new limits are equivalent to or stricter than limits in SCAQMD Rule 1130 (amended 5/2/2014), SJVAPCD Rule 4607 (amended 12/18/2008) and, for the solvent cleaning aspects of the rule, SCAQMD Rule 1171 (amended 5/1/2009). VCAPCD will monitor potential emission reductions from this source category but at this time no emission reductions are associated with emissions associated with Rule 74.18.

RULE 74.19.1: SCREEN PRINTING OPERATIONS (Last Revised 11/11/2003)

Rule 74.19.1 reduces ROG emissions from the use of inks, coatings, adhesives, and cleaners used at screen printing operations. The rule specifies limits on the ROG content of inks, coating, adhesives and fountain solutions, whereas ROG emissions from cleaning solvents are limited by ROG content and ROG composite vapor pressure requirements.

SCAQMD Rule 1130.1 (last amended 12/13/1996) applies to similar processes in Rule 1171 (last amended 5/1/2009) applying to the use of solvents for the cleaning of equipment. Rule 74.19.1 has as stringent or more ROG content requirements as Rule 1130.1, while Rule 1171 has lower ROG content requirements for certain categories of solvents used for screen printing activities. However, Rule 1171 does provide the ability to use higher ROG content solvents if at least 70 percent vapor capture and 95 percent control is achieved, while Rule 74.19.1 requires a combined 75% capture and control for solvents that exceed required ROG content limits. For the purpose of RACM analysis, all emissions are assumed to be controlled by 75% and emission reductions are calculated if this was increased to 95%. (ER = 0.0273 tpd baseline * .80) = 0.022 tpd ROG

RULE 74.20: ADHESIVES AND SEALANTS (Last Revised 10/09/2018)

Rule 74.20 reduces ROG emissions from the use of adhesives, sealants, adhesive primers, sealant primers, and cleaning solvents used at bonding operations. Rule requirements limit ROG emissions by limiting the ROG content of adhesives, sealants, primers, and cleaners.

In VCAPCD's 2020 RACT SIP Revision, it was discussed that this rule is equivalent to SCAQMD Rule 1168 (amended 10/6/2017) and SJVAPCD Rule 4653 (Amended 9/16/2010) with some minor differences. Furthermore, there are no major sources in this source category in Ventura County.

SCAQMD is evaluating Rule 1168 for RACM emission reductions by requiring zero and near-zero ROG technology which would reduce emissions from this source category, but cost-effectiveness has not been determined. The use of incentives to encourage lower-emitting materials is also being considered by SCAQMD; however, VCAPCD does not have the financial resources to implement similar incentives at this time. VCAPCD will monitor potential emission reductions from this source category but at this time there are no potential emission reductions.

RULE 74.21: SEMICONDUCTOR MANUFACTURING (Last Revised 4/6/1993)

Rule 74.21 reduces ROG emissions from semiconductor manufacturing operations through various operational requirements and solvent concentration limits. Rule requirements limit ROG emissions by limiting ROG content of maskants, developers, or cleaning solvents used as part of a semiconductor manufacturing operation or to anyone who manufactures or supplies such products.

SCAQMD Rule 1164 (last amended 1/13/95) and BAAQMD Rule 8-30 (last amended 10/7/1998) applies to similar processes. Rule 74.21 regulates ROG content for more categories and at a more restrictive level than both Rule 1164 and 8-30, while all require an emission control system with at least 90 percent efficiency. VCAPCD will monitor potential emission reductions from this source category but at this time there are no further potential emission reductions.

RULE 74.22: NATURAL GAS-FIRED, FAN-TYPE CENTRAL FURNACES (Last Revised 11/9/1993)

Rule 74.22 reduces ROG emissions by prohibiting the sale and installation of forced air space heaters that do not meet specified NO_x limits. Amendments to Rule 74.22 are already proposed as a Control Measure and therefore, does not qualify for RACM analysis as the maximum emissions reductions from this source category will be implemented.

RULE 74.23: STATIONARY GAS TURBINES (Last Revised 11/12/2019)

Rule 74.23 reduces NO_x emissions from stationary turbines with rated output greater than 0.3 MW fueled with gaseous or liquid fuels. This applicability limit is the same as SCAQMD Rule 1134 (amended 2/4/2022) and SJVAPCD Rule 4703 (amended 9/20/2007).

Rule 74.23's 2019 amendments implemented BARCT, achieving all emission reductions from this source category that was considered cost-effective. VCAPCD will monitor potential emission reductions from this source category but at this time there are no further potential emission reductions.

RULE 74.24: MARINE COATINGS OPERATIONS (Last Revised 9/11/2012)

Rule 74.24 reduces ROG emissions from coating and cleaning solvents used to coat marine or freshwater vessels, excluding boatyard repair facilities and marinas. Rule requirements limit ROG emissions by limiting the ROG content of topcoats and primers. Emissions of ROG from cleaners are also controlled by limiting the ROG content of surface prep cleaners and application equipment cleaners.

The ROG control requirements of this rule are equivalent to South Coast AQMD Rule 1106 (last amended 5/3/2019) with some minor differences. Rule 74.24 has additional coating categories that Rule 1106 does not have, while Rule 1106 requires lower ROG limits for baked and air-dried High Gloss Coatings and Pretreatment Wash Primer. Additionally, the following coatings specified in Rule 74.24 would be subject to the default ROG coating limits of 275 g/L for baked and 340 g/L for air dried: Air Flask Coatings, Military Exterior, Rubber Camouflage Coatings, Specialty Interior, and Wood Sealer. For the purpose of RACM evaluation, all emission reductions were estimated for the more restrictive baked limit for Rule 1106's default category, i.e., reducing allowed ROG content 65 g/L from 340 g/L to 275 g/L. (ER = 0.03570 tpd from category * 65/340 = 0.006825 tpd ROG)

RULE 74.24.1: PLEASURE CRAFT COATING AND COMMERCIAL BOATYARD OPERATIONS (Last Revised 11/10/2020)

Rule 74.24.1 reduces ROG emissions from the use of coatings and cleaning solvents used to coat marine or freshwater vessels at commercial boatyard repair facilities and marinas. This rule also contains a sales prohibition for non-complying coatings sold at marine stores that sell pleasure craft coatings. Rule requirements limit ROG emissions through ROG content limits on topcoats and primers. Emissions of ROG from cleaners are also controlled by limits on the ROG content of surface prep cleaners, the ROG composite vapor pressure of cleaning solvents, and requiring the use of enclosed spray gun washers. Also, this rule requires use of high transfer efficiency spray equipment such as HVLP spray equipment.

Rule 74.24.1 was most recently amended to reduce ROG limits for Pleasure Craft Antifoulant Coatings, Topcoat categories, and added a Low-Solids Coating category to demonstrate equivalence to RACT. A separate category was created for Commercial Antifoulant Coatings at this time, as there were no products which were able to meet a lower ROG content limit.

SCAQMD Rule 1106 (amended 5/3/2019) applies to similar processes as 74.24.1. Rule 74.1 is as stringent as Rule 1106, and no additional emission reductions were found to be available from this category.

RULE 74.25: RESTAURANT COOKING OPERATIONS (Adopted 10/12/2004)

Rule 24.25 reduces ROG and PM emissions from conveyORIZED charbroilers that are used to cook 875 pounds of meat or more per week. It is similar to SCAQMD Rule 1138 (last amended 11/14/1997) and SJVAPCD Rule 4692 (last amended 6/21/2018). Rule 4692 has a few provisions that are slightly more restrictive than Rule 74.25. Rule 74.25 requires at least 83% reduction of

both ROG and PM10 from applicable units, while Rule 4692 requires at least 83% reduction in PM10 and 86% reduction in ROG. In addition, SJVAPCD applies to charbroilers used to cook more than 400 pounds of meat per week.

While the additional restrictions in the SVJAPCD rule could be added to Rule 74.25, it would not be likely to help advance attainment of the ozone NAAQS in Ventura County. The rulemaking process takes approximately one year, which would allow for adoption at about 2024. It is necessary to provide time for industry to adjust to the new requirements and either demonstrate compliance or purchase new equipment that meets the requirements of a new rule. Therefore, any new reductions would not likely occur until the ozone season of 2026, which is the attainment year for Ventura County. In addition, the incremental cost effectiveness of increasing the control efficiency from 83% to 86% would likely be astronomical, due to the minimal reduction in emissions. Many of the catalytic oxidizers currently in use likely meet the 86% ROG reduction requirement in Rule 4692, and these changes to Rule 74.25 would not result in actual emission reductions from those units.

RULE 74.26: CRUDE OIL STORAGE TANK DEGASSING (Last Revised 11/8/1994)

Rule 74.26 reduces ROG emissions by prohibiting the venting of ROG vapors to the atmosphere from above-ground tanks with a capacity of 2,000 barrels or greater used to store crude oil or produced water. When such tanks are undergoing maintenance or being decommissioned, the rule requires ROG vapors to be treated rather than released to the air.

SCAQMD Rule 1149 (last amended 5/2/2008) applies to similar process as 74.26. Rule 1149 has a lower threshold of ROG for degassed tanks, 5,000 ppmv versus 10,000 ppmv for Rule 74.26. Rule 1149 also applies to pipeline degassing activities. Rule 1149 also applies to smaller tanks with a storage capacity of 500 gallons or greater.

Rule 74.26 was evaluated for emission reductions by including pipeline degassing activities in 2021. It was estimated that by including pipeline degassing in the requirements of Rule 74.26, it would result in an ROG emission reduction of 542 pounds per year. Cost estimates for similar degassing activities in Santa Barbara County were \$16,000 per event, with multiple pipeline degassing events occurring each year. Discussions with pipeline owners in Ventura County informed VCAPCD that there are at least 2 degassing events per year. At 2 events per year, emissions would be reduced at a cost of \$118,081 per ton of ROG reduced, exceeding the District's cost threshold for BACT of \$30,000 per ton. Of the larger tank emissions, about 97% of VCAPCD tank degassing is attributed to crude oil storage tanks with a capacity of 2,000 barrels or greater.

$$\text{(ER} = 50\% * \text{existing inventory} + 95\% \text{ control of tanks} \geq 500 \text{ gallons} < 2,000 \text{ bbl})$$

$$\text{ER} = (8.24 \text{ tpy} * 0.5) + (4.51 \text{ tpy} * .95) = (4.12 \text{ tpy}) + (4.28 \text{ tpy}) = 8.41 \text{ tpy} = 0.023 \text{ tpd}$$

RULE 74.27: GASOLINE AND ROC LIQUID STORAGE TANK DEGASSING OPERATIONS (Last Revised 11/8/1994)

Rule 74.27 reduces ROG emissions by prohibiting the venting of ROG vapors to the atmosphere from any gasoline storage tank that has a storage capacity greater than 5,000 gallons and any

storage tank that has a storage capacity greater than 5,000 gallons that stores ROG liquids, excluding petroleum liquids, having a true vapor pressure equal to or greater than that determined by: $TVP @ 68 \text{ }^\circ\text{F (psia)} = 2.3 + 23,000/V$, where V is the volume of the tank in gallons. When such tanks are undergoing maintenance or being decommissioned, the rule requires ROG vapors to be treated rather than released to the air.

SCAQMD Rule 1149 (amended 5/2/2008) has a lower ROG threshold, 5,000 ppmv versus 10,000 ppmv for Rule 74.27. SCAQMD also has a lower tank size applicability threshold for Rule 1149, applying to tanks with a volume of 500 gallons or greater.

(ER = existing emissions * 0.5, + comparable control (95%) to tanks $\geq 500 \leq 5000$ gal)
 $ER = (0.282 \text{ tpy} * 0.5) + (0.175 \text{ tpy} * 0.950) = 0.141 + 0.166 = 0.307 \text{ tpy} = 0.00084 \text{ tpd}$

RULE 74.28: ASPHALT ROOFING OPERATIONS (Last Revised 5/10/1994)

Rule 74.28 reduces ROG emissions from asphalt roofing equipment and operations by requiring close fitting container lids and temperature limits. Rule 74.28 applies to equipment used for melting, heating or holding asphalt or coal tar pitch.

MDAQMD Rule 471 (last amended 12/21/1994) applies to similar sources as Rule 74.28. The requirements are identical between these rules and no additional emission reductions were found to be available from this category.

RULE 74.29: SOIL DECONTAMINATION OPERATIONS (Last Revised 4/8/2008)

This rule established procedures by which ROG emissions are minimized during the aeration, treatment or removal of soil contaminated with petroleum fuel. Rule 74.29 applies to soil decontamination equipment and handling of contaminated soil.

SJVAPCD Rule 4651 (last amended 11/20/2007) and SCAQMD Rule 1166 (last amended 5/11/2001) apply to similar processes and have similar work practice requirements to reduce ROG emissions. Both Rule 4651 and Rule 1166 have similar prohibitory requirements with a 95% vapor control for aeration of contaminated soils which is comparable to the flat rate emission limit found in Rule 74.29 of 100 ppm for small aeration projects and 0.08 lbs/hour emission limit for larger projects. Both SJVAPCD and SCAQMD however do not exempt the use of certain contaminated soils for the use of daily cover at Class III Solid Waste Disposal Sites. Rule 74.29 allows the use of soils which contain equal to or less than 100 ppmw gasoline or 1,000 ppmw diesel for daily cover. One landfill within VCAPCD's jurisdiction uses contaminated soils as ADC and has used on average 369,002 tons of contaminated soil as cover per year over the last five years. Due to similar requirements between the three districts, the only emission reductions from amendments to Rule 74.29 would be removal of the contaminated soil exemption for use as a daily cover at landfills. (ER = tons of soil * gasoline ROG content [diesel evaporation from soil will be insignificant overnight] $ER = 396,002 \text{ tons soil/year} * 100 \text{ tons ROG}/1,000,000 \text{ tons soil} = 435.6 \text{ tpy ROG} = 0.12 \text{ tpd}$)

RULE 74.30: WOOD PRODUCTS COATING (Last Revised 6/27/2006)

Rule 74.30 reduces ROG emissions from wood products coatings and cleaning materials by ROG content limits and by requiring certain application methods. Rule 74.30, SCAQMD Rule 1136 (amended 6/4/1996), and SJVAPCD Rule 4606 (amended 10/16/2008) are equivalent in stringency and no additional emission reductions were found to be available from this rule at this time.

RULE 74.31: METALWORKING FLUIDS AND DIRECT CONTACT LUBRICANTS (Last Revised 11/12/2013)

Rule 74.31 applies to the production, sale and use of metalworking fluids and direct contact lubricants and reduces ROG emissions by requiring substitution of high-ROG metalworking fluids with low-ROG fluids, including medium naphthenic oils, paraffinic oils, vegetable oils, synthetic or semi-synthetic oils, or water-reducible fluids.

SCAQMD Rule 1144 (last amended 7/9/2010) applies to similar processes and is effectively identical to Rule 74.31 and no additional emission reductions were found to be available from this rule.

RULE 74.33: LIQUEFIED PETROLEUM GAS TRANSFER OR DISPENSING (Last Revised 1/11/2015)

Rule 74.33 applies to the transfer or dispensing of liquefied petroleum gas (LPG) and reduces the ROG emissions by requiring the use of proper transfer lines, fittings, gaskets, and gages as specified in the rule. This rule applies to the transfer of LPG to or from any cargo tank, any stationary or portable storage tank, or any cylinder.

SCAQMD Rule 1177 (adopted 6/1/2012) applies to similar processes and was the basis for the adoption of Rule 74.33. Rule 1177 has similar requirements on transfer for bulk transfer, transfer and dispensing facilities. VCAPCD will monitor potential emission reductions from this source category but at this time there are no potential emission reductions.

RULE 74.34: NOX REDUCTIONS FROM MISCELLANEOUS SOURCES (Last Revised 12/13/2016)

Rule 74.34 reduces NO_x and CO emissions from dryers, furnaces, heaters, incinerators, kilns, ovens, and duct burners where the total rated heat input for the unit is 5 million BTU per hour or greater.

SCAQMD Rule 1147 (amended 7/7/2017) and SJVAPCD Rule 4309 (adopted 12/15/2005) regulate sources similar to those regulated by Rule 74.34. The emission limits in Rule 1147 and Rule 4309 are similar to those in Rule 74.34, however Rule 1147 regulates emissions from units down to 1 million BTU per hour. Rule 4309 is more similar to Rule 74.34 in that it strictly regulates emissions from sources rated at 5 million BTU per hour or greater. The decision to regulate only the units rated at 5 million BTU per hour or greater was determined on cost-effectiveness. Rule 1147 was recently amended to make changes that provides relief to affected businesses by delaying

compliance dates for specific units, to raise the NO_x limit for low temperature units, and adds and clarifies a number of exemptions for a variety of equipment categories.

Rule 74.34 provides exemptions for combustion equipment operating as ROG control devices, such as afterburners, catalytic oxidizers, thermal oxidizers, and vapor incinerators. The emission inventory for the county indicates that there is only one thermal oxidizer used for ROG control rated at 5 million BTU per hour that might be subject to this rule. However, this unit is associated with the destruction of nitrogen-containing compounds and these NO_x emissions cannot be controlled by modifying combustion conditions. Additionally, an exemption is provided for gas flares and low-use units.

During the rule development of Rule 74.34, it was calculated that additional emission reductions from requiring lower NO_x concentrations through the use of SCR had an incremental cost-effectiveness between \$53 and \$141 per pound of NO_x reduced, which exceeds VCAPCD's BACT threshold of \$15 per pound. VCAPCD will monitor potential emission reductions from this source category but at this time there are no potential emission reductions.

VACUUM TRUCK OPERATIONS (BAAQMD Rule 8-53 – No VCAPCD Equivalent Rule)

Rule 8-53 was adopted April 18, 2012, and applies to the following facilities: petroleum refineries, bulk plants, bulk terminals, marine terminals, and organic liquid pipeline facilities. Moreover, on May 2, 2008, SCAQMD revised their Rule 1149, *Storage Tank and Pipeline Cleaning and Degassing*, to, among other provisions, require that until certain other provisions are met, vacuum trucks that remove residual product and sludge from pipeline and storage tanks subject to the rule must exhaust vapors into a control device and the exhaust concentration of control devices must not exceed 500 ppmv, measured as methane. BAAQMD staff estimate that Rule 8-53 will reduce ROG emissions from vacuum truck operations by 1.05 ton per day. This represents an 85 percent reduction in emissions from moving regulated materials and a 70 percent reduction of overall organic emissions from vacuum truck operations.

Opportunities for significant emission reductions from vacuum trucks are more limited in Ventura County than in the Bay Area AQMD and South AQMD regions. Ventura County no longer has any refineries or marine terminals and only a few bulk plants and terminals. It does, however, have numerous oil production, storage, and processing facilities, including storage tanks, sumps, boxes, and pipelines. Moreover, vacuum trucks are often used in Ventura County to transport produced crude oil from small and isolated production locations to storage and processing facilities.

Ventura County annual oil production amounts to 2.8% of the refinery capacity in the Bay Area (ratio of CalGEM 2015 oil production data for Ventura County to California Energy Commission refinery capacity data). Therefore, a conservative estimate of the emission reductions from a vacuum truck control rule in Ventura County is 15% of the BAAQMD rule, or 0.16 tons ROG per day. Note that due to rule development and implementation timelines, the soonest this could be in effect is 2026.

EMISSIONS OF NITROGEN OXIDES FROM COMMERCIAL FOOD OVENS (SCAQMD Rule 1153.1 – No VCAPCD Equivalent Rule)

SCAQMD Rule 1153.1 applies to in-use ovens, dryers, smokers, and dry roasters with NO_x emissions from fuel combustion that require SCAQMD permits and are used to prepare food or products for making beverages for human consumption. Preliminary calculations based on population ratio indicate possible NO_x reductions of 0.008 tons per day from commercial food ovens in Ventura County. This estimate is based on estimated reductions from SCAQMD Rule 1147 when it was originally adopted in November 2008.

SCAQMD adopted Rule 1153.1 to remove commercial food ovens from Rule 1147 applicability. Control technologies have not matured in a timely manner for commercial food ovens. In response, SCAQMD removed food ovens, including roasters and smokehouses, from Rule 1147 applicability and subjected them to new Rule 1153.1 with different emission limits and compliance dates.

Rule 1153.1 extends the compliance time for most applicable units to three years or more after the adoption date in 2014. In order to provide similar compliance timeframes in Ventura County, the emission reductions would not be required until 2026 or later so they would not affect the attainment date. Therefore, reductions from these sources would not be considered RACM at this time.

FOOD PRODUCTS MANUFACTURING AND PROCESSING OPERATIONS (SCAQMD Rule 1131 – No VCAPCD Equivalent Rule)

Rule 1131 was adopted September 15, 2000 (last amended 6/6/2003) and applies to food manufacturing facilities. Rule 1131 reduced ROG emissions from food manufacturing and processing operations by limiting the ROG content of process solvents and solvents used for sterilization of equipment; or requiring control equipment; or requiring equivalent reductions through reformulation or process modifications. Affected operations include distillation, extraction, reacting, blending, drying, crystallizing, granulation, separation, sterilization, and filtering.

SCAQMD staff estimated that Rule 1131 would reduce ROG emissions from food manufacturing operations by two tons per day. This represents an 81 percent reduction in emissions from subject operations.

During the last RACM analysis, it was determined that Ventura County has a number of food processing facilities, but they do not use the kind of processes cited above that require significant solvent use. None of the food processing facilities in Ventura County have permitted equipment or processes that use solvent as the rule indicates. Therefore, solvent use at the facilities must be below the exemption threshold of 200 pounds of ROG per year. Maximum solvent use at all food processing facilities combined is 2.7 tons of ROG per year, or 0.0074 tons ROG per day. Applying the estimated 81% reduction, a very conservative estimate, the potential emission reductions from this type of rule in Ventura County would be 0.006 tons ROG per day.

EMISSIONS FROM RESIDENTIAL COMBUSTION DEVICES (SCAQMD R-CMB-03, R-CMB-04 – No VCAPCD Equivalent Rule)

Residential combustion devices such as stoves, ovens, griddles, broilers, dryers, and other combustion equipment not regulated by other rules are currently not controlled by VCAPCD. Control of emissions from this equipment would be achieved by requiring new units to install low-NO_x or zero-emission technology. SCAQMD estimates 1.7 tons per day of NO_x reduced, a 70% reduction of their baseline emissions from this category of equipment.

For the purpose of RACM analysis, adoption of this regulation is estimated no sooner than 2024 and would likely include sell-through provisions for existing inventory, therefore, there are no emission reductions calculated for what can be realized by the 2026 attainment year. VCAPCD will monitor potential emission reductions from this source category but at this time there are no potential emission reductions for the purpose of RACM.

EMISSIONS FROM COMMERCIAL SPACE HEATING (SCAQMD C-CMB-02 – No VCAPCD Equivalent Rule)

Commercial sized space heating furnaces with a heat input rating between 175,000 BTU per hour and 5,000,000 BTU per hour are currently not controlled by VCAPCD. Control of emissions from this equipment would involve requiring installation of low-NO_x or zero-emission technology for new and replacement units and incentives to encourage early adoption. SCAQMD estimates 0.17 tons per day of NO_x reduced, a 62% reduction from baseline.

For the purpose of RACM analysis, adoption of this regulation is estimated no sooner than 2024 and would likely include sell-through provisions for existing inventory, therefore, there are no emission reductions calculated for what can be realized by the 2026 attainment year. VCAPCD will monitor potential emission reductions from this source category but at this time there are no potential emission reductions for the purpose of RACM.

EMERGENCY STANDBY ENGINES (SCAQMD L-CMB-04 – No VCAPCD Equivalent Rule)

Emergency standby internal combustion engines are required to obtain a District permit if rated at 50 brake horsepower or greater, but the emissions from this equipment is currently not regulated by VCAPCD. New installations are required to install a BACT equivalent, but many engines which were installed in the past have older technology and higher pollution emissions associated with them. SCAQMD is proposing to reduce emissions from this source category, evaluating the ability to require replacement with low-NO_x or zero-emission technology. Due to cost-effectiveness considerations, since these emergency engines are limited to less than 50 hours of operation per year, and the limited access to widely available zero-emission technology, emission reductions are not expected to be realized before VCAPCD's attainment date of 2026.

For the purpose of RACM analysis, adoption of this regulation is estimated no sooner than 2026 which will result in no emission reductions by VCAPCD's attainment year. VCAPCD will monitor potential emission reductions from this source category but at this time there are no potential emission reductions for the purpose of RACM.