Appendix C

Stationary and Area Source Control Strategy Evaluation

2013 Plan for the Revoked 1-hour Ozone Standard
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APPENDIX C: STATIONARY AND AREA SOURCE CONTROL STRATEGY EVALUATION

Introduction

The San Joaquin Valley air basin (Valley) faces significant challenges in meeting the National Ambient Air Quality Standards (NAAQS). The San Joaquin Valley Air Pollution Control District (District) has demonstrated leadership in developing and implementing groundbreaking regulatory strategies to reduce emissions. Tough and innovative rules, such as those for indirect source review, residential fireplaces, glass manufacturing, and agricultural burning, have set benchmarks for California and the nation.

The District has adopted many regulatory control measures under the District's air quality attainment plans, including but not limited to commitments made under the *2007 Ozone Plan*, *2008 PM2.5 Plan,* and *2012 PM2.5 Plan.* All of these commitments serve as control measures under the *2013 Plan for the Revoked 1-hour Ozone Standard*. Under the federal Environmental Protection Agency (EPA) policy, there is a preference for reliance on control measures that have already been adopted. The *2013 Plan for the Revoked 1-hour Ozone Standard* regulatory control measures that have already been adopted include both stationary and area source control measures as well as California Air Resources Board (ARB) rules for mobile sources. Refer to Chapter 3 for a discussion about the regulatory control measures that have already been adopted and will continue to get emissions reductions and state regulations contributing towards the Valley's attainment efforts.

This appendix consists of a literature review and evaluation of emission reduction opportunities for a variety of stationary and area source categories. District staff in multiple departments with expertise in these various sectors contributed to this effort. The evaluations in this appendix are intended to capture relevant background information, examine emission reduction opportunities for technological and economic feasibility, make recommendations for appropriate District actions moving forward, and to solicit public input during the plan development process. This appendix reflects the comprehensive evaluation performed by the District to examine the Valley's various emissions sources and identify additional potential emission reduction strategies for inclusion in this plan.

Regulations Contributing to Attainment

Table C-1 below identifies many stationary and area source control measures that the District has already adopted and that are contributing to achieving attainment. These adopted District rules are achieving new emissions reductions after 2007, the base year for this plan. However, even pre-2007 emissions reductions are contributing, and will continue to contribute, to the Valley's progress toward clean air.

Table C-1 District Stationary and Area Source Regulations Contributing to NAAQS Attainment of Ozone

Rule #	Adopted District Rules	Adoption/ Amendment Date
4103	Open Burning	04/15/2010
4106	Prescribed Burning and Hazard Reduction Burning	01/21/2001
4307	Boilers, Steam Generators, and Process Heaters – 2.0 MMBtu/hr to 5.0 MMBtu/hr	05/19/2011
4308	Boilers, Steam Generators, and Process Heaters - 0.075 MMBtu/hr to less than 2.0 MMBtu/hr	12/17/2009
4309	Dryers, Dehydrators, and Ovens	12/15/2005
4311	Flares	06/18/2009
4306 & 4320	Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr	10/16/2008
4352	Solid Fuel Fired Boilers, Steam Generators, and Process Heaters	12/15/2011
4354	Glass Melting Furnaces	05/19/2011
4550	Conservation Management Practices	08/19/2004
4565	Biosolids, Animal Manure, and Poultry Litter Operations	03/15/2007
4566	Organic Material Composting Operations	08/18/2011
4570	Confined Animal Facilities	10/21/2010
4601	Architectural Coatings	12/17/2009
4603	Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts	09/20/2007
4604	Can and Coil Coating Operations	09/20/2007
4605	Aerospace Assembly and Component Coating Operations	09/20/2007
4606	Wood Products and Flat Wood Paneling Products Coating Operations	09/20/2007
4607	Graphic Arts and Paper, Film, Foil, and Fabric Coatings	12/18/2008
4612	Motor Vehicle and Mobile Equipment Coating Operations	09/20/2007
4621	Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants	12/20/2007
4622	Gasoline Transfer into Motor Vehicle Fuel Tanks	12/20/2007
4624	Transfer of Organic Liquid	12/20/2007
4653	Adhesives and Sealants	09/16/2010
4661	Organic Solvents	09/20/2007
4662	Organic Solvent Degreasing Operations	09/20/2007
4663	Organic Solvent Cleaning, Storage, and Disposal	09/20/2007
4682	Polystyrene, Polyethylene, and Polypropylene Products Manufacturing	09/20/2007
4684	Polyester Resin Operations	09/20/2007
4694	Wine Fermentation and Storage Tanks	12/15/2005
4695	Brandy Aging and Wine Aging Operations	09/17/2009

Rule #	Adopted District Rules	Adoption/ Amendment Date
4702	Internal Combustion Engines	08/18/2011
4703	Stationary Gas Turbines	09/20/2007
4901	Wood Burning Fireplaces and Wood Burning Heaters[3]	10/16/2008
4902	Residential Water Heaters	03/19/2009
4905	Natural Gas-Fired, Fan-Type Residential Central Furnaces	10/20/2005
9310	School Bus Fleets	09/21/2006
9410	Employer Based Trip Reduction	12/17/2009
9510	Indirect Source Review (ISR)	12/12/2005
9610	State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs	06/20/2013

Appendix C Organization and Evaluation

The stationary and area source control measure categories evaluated in this appendix are organized into the following groups:

- Combustion Devices
- Industrial Processes
- Coatings and Solvents
- Oil and Gas
- Managed Burning
- Agricultural Processes
- Residential and Commercial
- Waste Management

Each control measure source category group discussion includes a summary of the category, and a list of the District rules that are grouped into that category for the purposes of this attainment plan. Each individual control measure evaluation in this appendix has its own discussion and source category analysis.

Control Measure Evaluations

Each control measure evaluation includes a brief discussion of the rule applicability; an emission inventory table for the source category; a regulatory evaluation, including an assessment of Reasonably Available Control Technology (RACT); a review of any new technologies to reduce emissions; and recommendations for commitments for future regulatory actions to be taken by the District. The sections below elaborate upon the information presented in each of the aforementioned sections.

Applicability

The applicability of each control measure specifies what units or type of operations are affected by the rule and identifies the type(s) of emissions the rule controls.

Emission Inventory

Each table lists the oxides of nitrogen (NOx) and volatile organic compound (VOC) emissions for the respective control measure for multiple years between 2007 and 2022. As discussed in detail in Chapter 2, ozone is a product of atmospheric reactions involving VOCs, NOx, the hydroxyl radical (OH), other radicals, and sunlight. Therefore, although some District rules control multiple emissions including oxides of sulfur (SOx) and particulate matter, this ozone attainment plan appendix only contains the emission inventories for NOx and VOC.

The data provided in the emission inventory section is a compilation of the data sources identified in the emission inventory appendix. See Appendix B (Emission Inventory) for additional information.

Regulatory Evaluation

As a part of the regulatory evaluation, District rules and source categories are compared to federal air quality regulations and standards, state air quality regulations, and local regulations (meaning regulations at the air district level).

Each control measure evaluation includes a regulatory evaluation section that begins with a table summarizing the results of the evaluation; refer to Table C-2 below. The first two columns describe if the rule has been determined by EPA to implement RACT and the year of that RACT determination. The third, fourth, and fifth columns identify if there have been new federal, state, or local regulations adopted *after* the date of the RACT determination. If new regulations and guidance documents have been adopted after the RACT determination, then there is a potential for a new RACT standard. Potential new RACT standards are discussed in the Technology Evaluation (see below).

Table C-2 Regulatory Evaluation Summary[1]

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes/No	XXXX	Yes/No	Yes/No	Yes/No

The sections below discuss the regulatory evaluation results summarized in each of the columns in the regulatory evaluation summary table (Table C-2).

RACT

RACT is "*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"* (44 FR 53762; September 17, 1979). Per Sections 182(b)(2) and 182(f) of the federal Clean Air Act, ozone nonattainment areas are required to implement RACT for sources that are subject to Control Techniques

[1] Some District rules are not subject to RACT requirements because they are not an EPA Control Techniques Guidelines source category and do not regulate major sources in the Valley. As such, the Regulatory Evaluation Summary table has been revised for those rules to state: "EPA Approved" in the first column, "EPA Approval Year" in the second column, and "Regulatory Actions Since EPA Approval" above the last 3 columns.

Guidelines (CTG) issued by EPA and for "major sources" of VOCs and NOx, which are ozone precursors.

RACT is a moving target that changes over time as new technologies become feasible and cost effective, thus making them reasonable to require. Therefore, the District focuses its review on changes in technologies since the last RACT demonstration. For these reviews, the District evaluates District rules against federal rules, regulations, and technology guidelines, state guideline documents, and any comparable rules from California's most technologically progressive air districts. In response to the District's *2009 RACT Demonstration for Ozone State Implementation Plans* (2009 RACT SIP) and related rule-amending projects, EPA has issued federal actions documenting their approval of District rules and concurrence that District rules implement RACT. Many District rules are more stringent than established RACT standards.

Federal Regulations

Investigation of federal regulations includes literature review of the following regulations and guidance documents:

- **CTG**: Control Techniques Guidelines
- **ACT**: Alternative Control Techniques
- **NSPS**: New Source Performance Standards
- **NESHAP**: National Emission Standards for Hazardous Air Pollutants
- **MACT**: Maximum Achievable Control Technology

State Regulations

Generally, state regulations are specific to mobile sources and consumer products. However, sometimes the ARB will adopt a **suggested control measure (SCM)** for stationary sources, such as the SCM for architectural coatings promulgated in September of 2007. While most of the rules evaluated in this *2013 Plan for the Revoked 1-hour Ozone Standard* do not have an ARB regulation or SCM associated with their source category, the District has included mention of any relevant state guidelines within the applicable control measure evaluations.

Local Regulations

As agreed to by EPA staff for the *2009 RACT SIP*, the rules were also compared to analogous regulations adopted by California's most progressive air districts. Investigation of control strategies and measures in other air districts and agencies includes, but is not limited to the following air districts:

- **SCAQMD**: South Coast Air Quality Management District
- **SMAQMD**: Sacramento Metropolitan Air Quality Management District
- **BAAQMD**: Bay Area Air Quality Management District
- **VCAPCD**: Ventura County Air Pollution Control District

Technology Evaluation

The District's control measure evaluations include an analysis of new technologies, if any are identified, to determine if any potential for emissions reductions exists for the source category. Each identified new technology is evaluated using the following key factors:

- **Technological Feasibility** – The technological feasibility analysis determines if a potential opportunity to reduce emissions is viable for existing facilities and operators in the Valley, given their current operating needs and restrictions. District analysis of technological feasibility includes a literature review of Best Available Control Technology (BACT) guidelines, District permits, and environmental and technological studies to identify potential opportunities and determine the technological feasibility of any identified potential opportunities. Since BACT requirements are typically the best available technology for a category of units, BACT is required for facilities that are proposing new installations or modifications to existing ones and may not necessarily be technologically feasible for retrofits in all existing facilities.

- **Cost Effectiveness** – The purpose of conducting a cost effectiveness analysis is to evaluate the economic reasonableness of an air pollution control measure or technology as it applies to operators in the Valley. A cost effectiveness analysis examines the added cost, in dollars per year, of the control technology or technique, divided by the emissions reductions achieved, in tons per year.

Additionally, the technology evaluation draws from a literature review of recent staff reports for District rules, analyses from the *2009 RACT SIP* and *2012 PM2.5 Plan,* and applicable study data from the scientific community. These recent analyses are examined to determine if any potential opportunities identified have already been evaluated thoroughly for technological feasibility and cost effectiveness.

Recommendations

The District examined each control measure for any additional feasible regulatory actions; however, no technologically feasible and cost effective opportunities were identified at this time. The District does have several regulatory commitments carrying over from the *2012 PM2.5 Plan* that will take place within the next few years. Where additional research is required to determine if a potential opportunity to further reduce emissions of VOC or NOx may be feasible for the Valley, the District recommends further study. Further study commitments are an example of the District's commitment to continuously pursue emission reduction opportunities, even after an air quality plan has been adopted.

The existing regulatory commitments from the *2012 PM2.5 Plan* and further study commitments from the *2012 PM2.5 Plan* and this *2013 Plan for the Revoked 1-Hour Ozone Standard* are summarized in Chapter 3 (Control Strategy).

C.1 COMBUSTION DEVICES

Combustion devices are equipment that burn fuel to create power, heat, or other forms of energy. The process of burning fuel via internal or external combustion creates multiple pollutants, including VOC, NOx, and SOx. Establishing effective emission reduction strategies for combustion devices continues to be a key component of the District's strategy to reduce emissions and achieve attainment of federal air quality standards.

Combustion devices are utilized in numerous applications throughout the public and private sectors. The control measure source categories affect several industries in the Valley including but not limited to: electrical utilities, cogeneration, oil and gas production, petroleum refining, manufacturing processes, industrial activities, and food and agricultural processing.

Regulatory Evaluation

The following is a list of District rules that apply to the Combustion Devices category. Units subject to these rules are subject to some of the most stringent regulations and standards in the nation and have been subject to several generations of rule amendments. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emissions reductions; recommendations are made as appropriate.

Table C-3 Current Combustion Devices Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4301	Fuel Burning Equipment	5/21/1992	12/17/1992	NOx, SOx
4307	Boilers, Steam Generators, and Process Heaters – 2.0 MMBtu/hr to 5.0 MMBtu/hr	12/15/2005	5/19/2011	NOx, SOx, CO, PM
4308	Boilers, Steam Generators, and Process Heaters – 0.075 MMBtu/hr to less than 2.0 MMBtu/hr	10/20/2005	12/17/2009	NOx, CO
4309	Dryers, Dehydrators, and Ovens	12/15/2005	n/a	NOx, CO
4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr	10/16/2008	n/a	NOx, SOx, CO, PM
4352	Solid Fuel Fired Boilers, Steam Generators, and Process Heaters	9/14/1994	12/15/2011	NOx, CO
4702	Internal Combustion Engines	8/21/2003	8/18/2011	NOx, VOC, SOx, CO
4703	Stationary Gas Turbines	8/18/1994	9/20/2007	NOx, CO

C.1.1 RULE 4301 FUEL BURNING EQUIPMENT

Applicability

The purpose of this rule is to limit the emission of air contaminants from fuel burning equipment. This rule limits the concentration of combustion contaminants by specifying maximum emission rates for SOx, NOx, and particulate matter (identified in the rule as combustion contaminant emissions).

Summer Average Emission Inventory

Rule 4301 was last amended in 1992 and applies to all types of fuel burning equipment. However, since 1992 the District has adopted rules with more stringent requirements for specific types of fuel burning equipment and the emissions from these sources are presented with those control measures and in Appendix B.

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1992 amendments to Rule 4301 on May 18, 1999 and deemed this rule as being at least as stringent as established RACT requirements: 64 FR 26876, http://www.gpo.gov/fdsys/pkg/FR-1999-05-18/pdf/99-12157.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Facilities subject to Rule 4301 are subject to various federal requirements, such as ACT, CTG, NESHAP, MACT, and NSPS. However, several District rules, including Rules 4306, 4307, 4308, 4309, and 4352, have superseded Rule 4301 with more stringent NOx requirements for fuel burning equipment and these rules are at least as stringent as the applicable federal requirements. Comparisons of those District rules to other applicable air districts' rules are discussed within the individual control measure evaluations in this appendix.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-39 through 4-41 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.1.2 RULE 4307 BOILERS, STEAM GENERATORS, AND PROCESS HEATERS – 2.0 MMBTU/HR TO 5.0 MMBTU/HR

Applicability

This rule applies to any gaseous fuel or liquid fuel fired boiler, steam generator, or process heater with a total rated heat input of 2.0 million British thermal units per hour (MMBtu/hr) up to and including 5.0 MMBtu/hr. The purpose of this rule is to limit emissions of NOx, carbon monoxide (CO), sulfur dioxide (SO2), and particulates from units subject to this rule.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.72	0.37	0.35	0.33	0.32	0.31	0.30	0.29	0.28	0.27	0.26
VOC	0.19	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2008 amendments to Rule 4307 on January 13, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 1715, http://www.gpo.gov/fdsys/pkg/FR-2010-01-13/pdf/2010-352.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4307 is at least as stringent as the applicable federal ACT, NSPS, NESHAP, and MACT guidelines since the requirements have not been strengthened for these regulations since the Rule 4307 RACT approval. There are no EPA CTG requirements for this source category.
- Rule 4307 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1146.1, BAAQMD Regulation 9 Rule 7, BAAQMD Regulation 9 Rule 10, SMAQMD Rule 411, and VCAPCD Rule 74.15.1.
    - VCAPCD Rule 74.15.1 was amended on September 11, 2012; however, the amendment did not implement any requirements more stringent than the requirements in District Rule 4307.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-45 through 4-46 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunity for this source category in the District's *2012 PM2.5 Plan*:
    - EMx Technology: the District researched EMx, the second generation SCONOx technology that reduces NOx, SOx, CO, and VOC emissions; however, the technology has not been achieved in practice in the District, no available data indicates that it has been installed on boilers, and it has proven to not be cost effective for turbines.
    - See pages D-13 through D-18 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.1.3 RULE 4308 BOILERS, STEAM GENERATORS, AND PROCESS HEATERS – 0.075 MMBTU/HR TO LESS THAN 2.0 MMBTU/HR

Applicability

This rule applies to any person who supplies, sells, offers for sale, installs, or solicits the installation of any boiler, steam generator, process heater, or water heater with a rated heat input capacity greater than or equal to 0.075 MMBtu/hr and less than 2.0 MMBtu/hr. The purpose of this rule is to limit NOx emissions from units within this source category.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	1.37	0.70	0.66	0.62	0.60	0.58	0.56	0.55	0.53	0.51	0.50
VOC	0.36	0.32	0.32	0.31	0.31	0.30	0.30	0.30	0.29	0.29	0.28

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2009 amendments to Rule 4308 on January 31, 2011 and deemed this rule as being at least as stringent as established RACT requirements: 76 FR 5276, http://www.gpo.gov/fdsys/pkg/FR-2011-01-31/pdf/2011-1927.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4308 is at least as stringent as the applicable federal ACT since the requirements have not been strengthened for this regulation since the Rule 4308 RACT approval. Federal requirements such as NSPS, NESHAP, MACT, and CTG are not applicable to boilers, steam generators, and process heaters of this size.
- Rule 4308 is at least as stringent as the following rules for similar sources in other California air districts': SMAQMD Rule 411, SMAQMD Rule 414, and VCAPCD Rule 74.15.1.
- SCAQMD Rule 1146.2, BAAQMD Regulation 9 Rule 6, and VCAPCD Rule 74.11.1 have a 20 ppmv NOx limit for natural gas-fired instantaneous water heaters 0.075 – 0.4 MMBtu/hr, whereas Rule 4308 contains a limit of 55 ppmv for these units.
    - VCAPCD recently amended Rule 74.11.1 on September 11, 2012 to implement a 20 ppmv NOx limit for all natural gas units 0.075-0.4 MMBtu/hr.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP.* No feasible opportunities were identified. See pages 4-47 through 4-53 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the *2012 PM2.5 Plan*:
    - Removing the exemption for mobile homes: mobile home water heaters are not available in the 0.075-2.0 MMBtu/hr size range, so this would not result in any additional emission reductions.
    - Removing the exemption for recreational vehicles (RVs): this would likely not result in additional emission reductions because there are very few, if any, RV units that fall under this size category. Also, since RV units are used infrequently, they are small contributors to the total NOx emissions of this source category.
    - Lowering the NOx limit for instantaneous water heaters 0.075 – 0.4 MMBtu/hr: the incremental cost of an instantaneous water heater of this size that meets a NOx limit of 20 ppmv is a small fraction of the total cost of a new unit; therefore, the District committed to amending Rule 4308 to lower the NOx limit to 20 ppmv for these units in 2013.
    - See pages D-19 through D-25 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

Lowering the NOx limit for natural gas-fired instantaneous water heaters 0.075 – 0.4 MMBtu/hr to 20 ppmv is a potential opportunity to reduce emissions, as identified and committed to in the *2012 PM2.5 Plan.* The recommendation is to amend Rule 4308 in 2013 as planned.

C.1.4 RULE 4309 DRYERS, DEHYDRATORS, AND OVENS

Applicability

Rule 4309 is applicable to any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel, or is fired on gaseous and liquid fuel sequentially, and the total rated heat input for the unit is 5.0 MMBtu/hr or greater. The purpose of this rule is to limit NOx and CO emissions from these units.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.22	0.20	0.20	0.21	0.21	0.22	0.23	0.23	0.24	0.24	0.24
VOC	0.22	0.23	0.24	0.25	0.25	0.26	0.27	0.27	0.28	0.28	0.29

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2005 adoption of Rule 4309 on May 30, 2007 and deemed this rule as being at least as stringent as established RACT requirements: 72 FR 29886, http://www.gpo.gov/fdsys/pkg/FR-2007-05-30/pdf/E7-10236.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4309 is at least as stringent as the applicable federal ACT since the requirements have not been strengthened for this regulation since the Rule 4309 RACT approval. There are no federal CTG, NSPS, NESHAP, or MACT requirements for this source category.
- The only rules at other California air districts' for similar sources are BAAQMD Regulation 12 Rule 3, SCAQMD Rule 470, and VCAPCD Rule 69; however, these rules only regulate asphalt plants, and Rule 4309 is more stringent than the requirements in all three rules. SMAQMD does not have an analogous rule to Rule 4309.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See pages 4-54 through 4-55 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:

- Requiring PUC-quality natural gas for all asphalt plants: this is not technologically feasible because some facilities are too far removed from natural gas lines. Also, most of the facilities that do not use natural gas use LPG fuel or propane to comply with the same NOx limit as natural gas, so requiring PUC-quality natural gas for all asphalt plants would not generate significant emission reductions.
- Reducing the NOx limit for gas-fired asphalt plants from 4.3 ppmv to 3.9 ppmv: operators have already installed control technologies claimed to reach 3.9 ppmv in order to meet 4.3 ppmv. Based on District permit records, a good portion of asphalt plants are already meeting 3.9 ppmv, so there would not be significant emissions reductions from reducing the NOx limit.
- Enforcing NOx emission limits and thus requiring the use of low-NOx burners (LNB) for dehydrators: this is infeasible because LNBs can negatively affect product quality; monitoring and source testing of dehydrators is difficult, if not impossible, to perform; and the cost effectiveness of LNBs for dehydrators is $49,273/ ton of NOx reductions.
- Removing the exemption for column dryers and dryers with no stack and one or more sides open to the atmosphere: monitoring and source testing of these types of dryers is difficult because there is not a stack where all emissions are exhausted. Therefore, compliance with NOx emission limits would be difficult or impossible to determine reliably, making this technologically infeasible.
- See pages D-26 through D-31 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.1.5 RULE 4320 ADVANCED EMISSION REDUCTION OPTIONS FOR BOILERS, STEAM GENERATORS, AND PROCESS HEATERS GREATER THAN 5.0 MMBTU/HR

Applicability

This rule applies to any gaseous fuel or liquid fuel-fired boiler, steam generator, or process heater with a total rated heat input greater than 5 MMBtu/hr. The purpose of Rule 4320 is to limit NOx and CO emissions from boilers, steam generators, and process heaters of this size range.

Rule 4306 preceded Rule 4320 in regulating this source category. The implementation of Rule 4320 does not substitute the requirements of Rule 4306, but enforces requirements supplementary to Rule 4306. As such, this evaluation is applicable to both Rule 4320 and Rule 4306, but for simplicity will be referred to as Rule 4320.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	2.87	1.47	1.39	1.30	1.25	1.22	1.18	1.14	1.11	1.08	1.04
VOC	0.76	0.67	0.66	0.65	0.65	0.64	0.62	0.62	0.61	0.60	0.60

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- Since Rule 4320 contains a provision that allows for the payment of an annual fee if further controls are not cost effective, this rule is not sufficient to ensure that RACT is implemented for this source category. Because sources have a separate obligation to comply with Rule 4306, RACT is implemented for the source category and Rule 4320 is consistent with RACT requirements.
- EPA finalized approval of the 2008 amendments to Rule 4306 on January 13, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 1715, http://www.gpo.gov/fdsys/pkg/FR-2010-01-13/pdf/2010-352.pdf
- EPA finalized approval of the 2008 adoption to Rule 4320 on March 25, 2011 and determined that this is a SIP strengthening rule: 76 FR 16696, http://www.gpo.gov/fdsys/pkg/FR-2011-03-25/pdf/2011-7090.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed Rule 4306 as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf

- Rule 4320 is at least as stringent as the applicable federal ACT, NSPS, NESHAP, and MACT guidelines since the requirements have not been strengthened for these regulations since the Rule 4320 approval. There are no EPA CTGs for this source category.
- Rule 4320 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1146, BAAQMD Regulation 9 Rule 7, BAAQMD Regulation 9 Rule 10, SMAQMD Rule 411, and VCAPCD Rule 74.15. Rule 4320 also meets or exceeds the established BACT requirements for these units at BAAQMD and SCAQMD and currently dictates District BACT requirements for Valley sources.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-42 through 4-44 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:
    - Low Temperature Oxidation (LTO) System: the District researched the LTO system, which utilizes ozone to oxidize and control pollutants, including NOx; however, the technology has not been achieved in practice and it is cost prohibitive without significant subsidies.
    - EMx Technology: the District researched EMx, the second generation SCONOx technology that reduces NOx, SOx, CO, and VOC emissions; however, the technology has not been achieved in practice in the District, no available data indicates that it has been installed on boilers, and it has proven to not be cost effective for turbines.
    - See pages D-32 through D-38 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.1.6 RULE 4352 SOLID FUEL FIRED BOILERS, STEAM GENERATORS, AND PROCESS HEATERS

Applicability

This rule applies to any boiler, steam generator, or process heater fired on solid fuel. The purpose of Rule 4352 is to limit NOx and CO emissions from these units.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	3.92	4.41	4.50	4.68	4.87	4.97	5.08	5.16	5.30	5.32	5.38
VOC	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.11	0.12	0.12	0.12

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	Yes	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, but EPA specified that Rule 4352 was one of the few rules not approved as RACT as part of the RACT SIP approval: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 amendments to Rule 4352 on November 6, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 66548, http://www.gpo.gov/fdsys/pkg/FR-2012-11-06/pdf/2012-26779.pdf
- Rule 4352 is at least as stringent as the applicable federal ACT, NSPS, and MACT guidelines since the requirements have not been strengthened for these regulations since the Rule 4352 RACT approval. Additionally, there is no EPA CTG listed for this category.
    - EPA proposed amendments to the applicable NESHAP for Rule 4352 in the Federal Register on November 30, 2012. The amendments did not implement NOx limits more stringent than those in Rule 4352. Therefore, Rule 4352 still meets or exceeds NESHAP requirements.
- Rule 4352 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 9 Rule 7, BAAQMD Regulation 9 Rule 11, VCAPCD Rule 74.15, SCAQMD Rule 1146, Placer County Rule 233 and SMAQMD Rule 411. Units subject to District Rule 4352 would be exempt from the following rules in other air districts: VCAPCD Rule 59, VCAPCD Rule 74.15, and SCAQMD Rule 1135.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-61 through 4-68 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:
    - Selective Catalytic Reduction: when comparing Rule 4352 to EPA and other air districts' BACT requirements, it was noted that SCR systems are considered BACT. A SCR system reduces NOx emissions by converting the emissions to water and elemental nitrogen. However, this technology is not cost effective as either a retrofit or new system for solid fuel fired units.
    - Changes to Start-up Requirements: the possibility of reducing the allowed start-up period of solid fuel fired boilers was considered, since facilities are exempt from emission limits during this period. However, this is not a technologically feasible option for solid fuel fired facilities given the needs of current work practices.
    - See pages D-39 through D-46 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.1.7 RULE 4702 INTERNAL COMBUSTION ENGINES

Applicability

This rule applies to any internal combustion (IC) engine rated at 25 brake horsepower (bhp) or greater. The purpose of this rule is to limit NOx, CO, VOC, and SOx emissions from units subject to this rule.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	26.36	15.97	15.50	11.11	8.45	7.92	7.60	7.35	7.01	6.76	6.35
VOC	2.90	1.87	1.83	1.62	1.36	1.32	1.29	1.26	1.22	1.19	1.14

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4702 on January 10, 2008 and deemed this rule as being at least as stringent as established RACT requirements: 73 FR 1819, http://www.gpo.gov/fdsys/pkg/FR-2008-01-10/pdf/E8-171.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4702 is at least as stringent as the applicable federal ACT, NSPS, NESHAP, and MACT guidelines since the requirements have not been strengthened for these regulations since the Rule 4702 RACT approval. There are no EPA CTGs for this source category.
- Rule 4702 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 9 Rule 8, SMAQMD Rule 412, and VCAPCD Rule 74.9.
- SCAQMD Rule 1110.2 has a NOx limit of 11 ppmv for most engine categories, which is lower than some of the NOx emission limits in Rule 4702. As discussed below, this limit is beyond RACT.
- SCAQMD amended Rule 1110.2 in September 2012 to extend the compliance deadline to January 1, 2016 for waste gas fueled lean-burn engines to meet the 11 ppmv NOx limit. The compliance date was previously set for January 1, 2012.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See pages 4-363 through 4-365 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:
    - Lowering the NOx limit to 11 ppmv for spark-ignited non-agricultural engines: as part of the August 2011 rule amendment, the District analyzed the technological and cost effectiveness of an 11 ppmv NOx limit for all engines in this category, but determined that this was infeasible for certain categories of engines. See pages 9 through 11 of the staff report for more detailed information: http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2011/August/Agenda_Item_10_Aug_18_2011.pdf
    - Lowering the NOx limit to 11 ppmv for spark-ignited agricultural engines: additional time is needed to fully evaluate the effectiveness of current control devices and to determine if it is technologically feasible to reach 11 ppmv with those controls. These systems have faced challenges due to the nature of agricultural engine installations, including remote locations, fluctuations in gas pressures, and unattended operations. There are also significant potential economic impacts associated with implementing lower NOx emission limits because unlike diesel engines, agricultural spark-ignited engines are not eligible for Moyer incentive funding and agriculture is unable to pass increased production costs along to consumers. If costs become too high, operators could replace their spark-ignited engines with higher-polluting diesel engines. Due to these feasibility issues, an 11 ppmv NOx emission limit is beyond RACT for these engines.
    - Changing the exemption requirements for emergency standby engines and low-use engines: existing requirements are consistent with ARB RACT/Best Available Retrofit Control Technology (BARCT) requirements and controlling these emissions is not cost effective.
    - See pages D-47 through D-53 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf
- As mentioned above, SCAQMD amended Rule 1110.2 in September 2012 to extend the compliance deadline for waste gas engines from 2012 to 2016. At this time, it is unclear whether a NOx limit of 11 ppmv is technologically feasible and cost effective for waste gas units because SCAQMD has not yet completed their Final Technology Assessment of control technologies for waste gas engines. The SCAQMD compliance deadline was extended to 2016 to allow for more time to finish the assessment. The District will review the results of this study upon SCAQMD's completion.

- For the August 2011 amendment of Rule 4702, District staff considered whether it was feasible to lower the VOC emission limit for spark-ignited engines in Rule 4702 to 30 ppmv, like SCAQMD Rule 1110.2. This was determined to be infeasible because:
    - When a spark-ignited engine is adjusted to reduce VOCs, NOx emissions increase.
    - SCAQMD has approved several variances allowing temporary relief from the 30 ppmv VOC limit due to feasibility issues.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.1.8 RULE 4703 STATIONARY GAS TURBINES

Applicability

This rule is applicable to all stationary gas turbine systems, which are subject to District permitting requirements, and with electrical generation ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3 MMBtu/hr. The purpose of this rule is to limit NOx emissions from units subject to Rule 4703.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	6.99	3.43	3.16	3.07	3.12	3.18	3.19	3.20	3.12	3.14	3.16
VOC	0.45	0.43	0.40	0.38	0.39	0.40	0.40	0.40	0.39	0.39	0.40

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4703 on October 21, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 53888, http://www.gpo.gov/fdsys/pkg/FR-2009-10-21/pdf/E9-25173.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4703 is at least as stringent as the applicable federal ACT, NSPS, NESHAP, and MACT guidelines since the requirements have not been strengthened for these regulations since the Rule 4703 RACT approval. There are no EPA CTG requirements listed for this source category.
- Rule 4703 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1134, BAAQMD Regulation 9 Rule 9, SMAQMD Rule 413, and VCAPCD Rule 74.23.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP.* No feasible opportunities were identified. See pages 4-366 through 4-371 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

- Some BACT NOx emission limits are more stringent than Rule 4703 emission limits through the use of Selective Catalytic Reduction (SCR) and the EMx technology; however, lower limits have not proven to be technically or economically feasible through these technologies, as discussed in the District's *2012 PM2.5 Plan*.
    - SCR: many of the larger units >3 MW have already employed SCR and for units <3MW, the technology is not cost effective, ranging from approximately $218,000-$360,000/ton of NOx emission reductions.
    - EMx Technology: this technology is technologically infeasible for simple cycle turbines and has not been achieved in practice for combined cycle turbines in the District. Also, based on information from BAAQMD, EMx has not been scaled up for use on larger turbines and has not been proven to achieve an equivalent or lower NOx emissions level than SCR.
    - See pages D-54 through D-64 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2 INDUSTRIAL PROCESSES

The Valley is home to a wide range of industries and industrial processes. The industrial sector is a vital contributor to the health of the Valley's economy, and has made important contributions to air quality improvement. Whether coming under regulation for the first time or having undergone several generations of rules, the emissions reductions achieved represent significant investments of finances and energy.

While the broad category of Industrial Processes includes many source categories, for the purposes of this appendix, this discussion is limited to the categories in the table below. Other industry groups and technologies addressed in this plan, but not addressed in this section, are discussed in other parts of this appendix.

The control measure source categories discussed in this section affect several industries in the Valley including, but not limited to glass and related products, manufacturing, food and agricultural material processing, oil and gas production, asphalt operations, tire manufacturing, foam production, and wine and brandy production.

Regulatory Evaluation

The following is a list of rules specific to the Industrial Processes category. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emissions reductions.

Table C-4 Current Industrial Processes Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4311	Flares	6/20/2002	6/18/2009	NOx, VOC, SOx
4313	Lime Kilns	3/27/2003	n/a	NOx
4354	Glass Melting Furnaces	9/14/1994	5/19/2011	NOx, VOC, SOx, CO, PM
4641	Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations	4/11/1991	12/17/1992	VOC
4681	Rubber Tire Manufacturing	5/16/1991	12/16/1993	VOC
4682	Polystyrene, Polyethylene, and Polypropylene Products Manufacturing	5/21/1992	12/15/2011	VOC
4684	Polyester Resin Operations	5/19/1994	8/18/2011	VOC
4691	Vegetable Oil Processing Operations	4/11/1991	12/17/1992	VOC
4694	Wine Fermentation and Storage Tanks	12/15/2005	n/a	VOC
4695	Brandy Aging and Wine Aging Operations	9/17/2009	n/a	VOC

C.2.1 RULE 4311 FLARES

Applicability

This rule applies to operations involving the use of flares. The purpose of this rule is to limit emissions of VOC, NOx, and SOx from the operation of flares.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.38	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
VOC	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	Yes	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2009 amendments to Rule 4311 on November 3, 2011 and deemed this rule as being at least as stringent as established RACT requirements:76 FR 68106, http://www.gpo.gov/fdsys/pkg/FR-2011-11-03/pdf/2011-28391.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4311 is at least as stringent as one of the applicable federal NSPSs (40 CFR 60.18) and the flares section of the Consolidated Federal Air Rule (40 CFR 65.147). There are no applicable CTG, ACT, NESHAP, or MACT requirements for this source category.
- In 2012, EPA modified an existing NSPS for flares (40 CFR 60 Subpart Ja) and added a new NSPS (40 CFR 60 Subpart OOOO) applicable to this source category.
    - 40 CFR 60 Subpart Ja: EPA modified this NSPS requirement on September 12, 2012 (77 FR 56422, http://www.gpo.gov/fdsys/pkg/FR-2012-09-12/pdf/2012-20866.pdf). Some of the amendments may be more stringent than the requirements in Rule 4311, including: what constitutes a reportable flaring event, a new testing method for flares, and some new requirements for Flare Minimization Plans (FMPs). The District already committed to a further study measure for this source category in the *2012 PM2.5 Plan*. The District recommends evaluating these new NSPS requirements at that time to see if they are in fact more stringent than Rule 4311 requirements and if they are feasible for Valley facilities.
    - 40 CFR 60 Subpart OOOO: on August 16, 2012, EPA finalized approval of a new NSPS requirement (77 FR 49490,

http://www.gpo.gov/fdsys/pkg/FR-2012-08-16/pdf/2012-16806.pdf). This NSPS indirectly affects flares since there is a possibility that a flare is exempt from the majority of Rule 4311 and is used as a control device for a vapor controlled tank that is subject to Subpart OOOO. The District's Permits department already evaluates this NSPS on a case-by-case basis to ensure the relevant flares comply with these requirements. Adding these requirements into Rule 4311 would not achieve additional emissions reductions for this source category.

- Rule 4311 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1118 and BAAQMD Regulation 12 Rules 11 and 12. SMAQMD and VCAPCD do not have flare-specific prohibitory rules.
- The District has also analyzed Santa Barbara APCD Rule 359, and has found while it appears to include a performance standard restricting the use of flaring, it actually allows flaring under broad conditions, and the District's rule is at least as stringent.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-56 through 4-58 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the *2012 PM2.5 Plan*:
    - Additional Recordkeeping and Monitoring Practices: although additional recordkeeping and monitoring requirements are occasionally suggested, Rule 4311 already includes appropriate recordkeeping and monitoring. Additional recordkeeping and monitoring would not further reduce emissions.
    - See pages D-70 through D-73 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time. However, the District committed in the *2012 PM2.5 Plan* to conduct a further study in 2013 of submitted FMPs, annual reportable flaring event data, and annual monitoring report data to determine if there are any opportunities for additional emissions reductions. The District also recommends evaluating the new NSPS requirements for flares in greater detail during this further study. Because flares are a relatively small source of ozone precursor emissions, attempting to expedite this further study would not affect the Valley's projected 1-hour ozone attainment year.

C.2.2 RULE 4313 LIME KILNS

Applicability

This rule applies to the operation of lime kilns. The purpose of this rule is to limit emissions of NOx from this source category.

Summer Average Emission Inventory

Lime kilns are not included in the ARB emission inventory. There are no lime kilns currently operating in the Valley.

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2003 amendments to Rule 4313 on September 4, 2003 and deemed this rule as being at least as stringent as established RACT requirements: 68 FR 52510, http://www.gpo.gov/fdsys/pkg/FR-2003-09-04/pdf/03-22445.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are currently no lime kilns operating in the Valley. Any lime kilns beginning operation in the Valley in the future would be required to meet District BACT requirements, per District Rules 2201 (New and Modified Stationary Source Review Rule) and 4001 (New Source Performance Standards).

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP.* No feasible opportunities were identified. See pages 4-59 through 4-60 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan.* No feasible opportunities were identified. See page D-74 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

There are no lime kilns operating in the Valley and thus no emissions or emission reduction opportunities for this source category. Therefore, there are no recommendations for further regulatory action at this time.

C.2.3 RULE 4354 GLASS MELTING FURNACES

Applicability

This rule applies to any glass melting furnace. The purpose of this rule is to limit emissions of NOx, CO, VOC, SOx, and PM from these units.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	7.75	6.30	4.02	4.12	4.21	4.31	4.35	4.39	4.43	4.58	4.74
VOC	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 amendments to Rule 4354 on January 31, 2013 and deemed this rule as being at least as stringent as established RACT requirements: 78 FR 6740, http://www.gpo.gov/fdsys/pkg/FR-2013-01-31/pdf/2013-02015.pdf
- Rule 4354 is at least as stringent as the applicable federal ACT, NESHAP, and MACT guidelines since the requirements have not been strengthened for these regulations since the Rule 4354 RACT approval. There are no EPA CTG or NSPS requirements for this source category.
- Rule 4354 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1117 and BAAQMD Regulation 9 Rule 12. There are no similar rules for SMAQMD or VCAPCD.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP.* No feasible opportunities were identified. See pages 4-69 through 4-72 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*. No feasible opportunities were identified. See pages D-75 through D-78 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.4 RULE 4641 CUTBACK, SLOW CURE, AND EMULSIFIED ASPHALT, PAVING, AND MAINTENANCE OPERATIONS

Applicability

This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations. The purpose of this rule is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.75	0.76	0.76	0.77	0.77	0.77	0.77	0.77	0.78	0.78	0.78

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1992 amendments to Rule 4641 on March 9, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 10690, http://www.gpo.gov/fdsys/pkg/FR-2010-03-09/pdf/2010-4967.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4641 is at least as stringent as the applicable federal CTG, the EPA Bluebook, and East Coast State's rules since the requirements have not been strengthened for these regulations since the Rule 4641 RACT approval. There are no applicable ACT, NSPS, MACT, or NESHAP requirements for this source category.
- Rule 4641 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1108, SCAQMD Rule 1108.1, BAAQMD Regulation 8 Rule 15, SMAQMD Rule 453, and VCAPCD Rule 74.4.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-275 through 4-280 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.5 RULE 4681 RUBBER TIRE MANUFACTURING

Applicability

This rule applies to rubber tire and recapping treadstock manufacturing facilities. The purpose of this rule is to limit emissions of VOC from these facilities.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1993 amendments to Rule 4681 on August 17, 1998 and deemed this rule as being at least as stringent as established the then established RACT requirements: 63 FR 43881, http://www.gpo.gov/fdsys/pkg/FR-1998-08-17/pdf/98-21900.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as satisfying RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- The District adopted a Negative Declaration on December 16, 2010 to satisfy Clean Air Act CTG RACT requirements for this source category. There are currently no rubber tire manufacturers operating in the Valley. Any rubber tire manufacturers beginning operation in the Valley in the future would be required to go beyond CTG RACT requirements and meet District BACT requirements, per District Rules 2201 (New and Modified Stationary Source Review Rule) and 4001 (New Source Performance Standards).

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified due to the fact that there are no sources in the Valley. See pages 4-330 through 4-337 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

There are no facilities in the Valley and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.6 RULE 4682 POLYSTYRENE, POLYETHYLENE, AND POLYPROPYLENE PRODUCTS MANUFACTURING

Applicability

The provisions of this rule apply to any manufacturing, processing, and storage of products composed of polystyrene, polyethylene, or polypropylene. The purpose of this rule is to limit emissions of VOC, trichlorofluoromethane, and dichlorofluoromethane from this source category.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.39	0.31	0.32	0.32	0.33	0.33	0.34	0.34	0.35	0.36	0.37

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, but EPA specified that Rule 4682 was one of the few rules not approved as RACT as part of the RACT SIP approval: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 amendments to Rule 4682 on September 20, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 58312, http://www.gpo.gov/fdsys/pkg/FR-2012-09-20/pdf/2012-21218.pdf
- Rule 4682 is at least as stringent as the applicable federal ACT for this source category, as this requirement has not been amended since Rule 4682's RACT approval. There are two federal CTGs and an NSPS guideline that regulate the manufacturing of raw polystyrene, polyethylene, and polypropylene. The facilities subject to Rule 4682 use these raw materials in their manufacturing processes, but do not manufacture such material on site; as such, these regulations do not apply to this source category. There are also no applicable NESHAP or MACT guidelines for this source category.
- Rule 4682 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1175 and BAAQMD Regulation 8 Rule 52. There are no analogous rules for VCAPCD and SMAQMD.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-338 through 4-344 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.7 RULE 4684 POLYESTER RESIN OPERATIONS

Applicability

The provisions of this rule apply to commercial and industrial polyester resin operations, fiberglass boat manufacturing operations, and to the organic solvent cleaning and the storage and disposal of all solvents and waste solvent materials associated with such operations. The purpose of this rule is to reduce VOC emissions from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.25	0.20	0.21	0.21	0.21	0.22	0.22	0.22	0.23	0.23	0.24

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 amendments to Rule 4684 on February 6, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 5709, http://www.gpo.gov/fdsys/pkg/FR-2012-02-06/pdf/2012-2599.pdf
- Rule 4684 is at least as stringent as the applicable federal CTGs, NESHAP, MACT requirements since the requirements have not been strengthened for these regulations since the Rule 4684 RACT approval. There are no ACT or NSPS requirements for this source category.
- Rule 4684 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1162, BAAQMD Regulation 8 Rule 50, SMAQMD Rule 465, and VCAPCD Rule 74.14.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-345 through 4-352 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

- Rule 4684 was recently amended in 2011 to add new specialty coating categories, lower VOC limits, and raise control system effectiveness limits to match existing limits in other air districts. There were no additional feasible emission reduction opportunities that were identified at that time.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.8 RULE 4691 VEGETABLE OIL PROCESSING OPERATIONS

Applicability

This rule applies to facilities that extract oil from vegetable sources such as cottonseeds and corn. The purpose of this rule is to limit VOC emissions from vegetable oil processing operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.43	0.54	0.55	0.56	0.56	0.57	0.58	0.59	0.60	0.61	0.61

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the original 1991 District Rule 461.2 (Vegetable Oil Processing Operations), which subsequently became District Rule 4691, on January 18, 1994: 59 FR 2535, http://www.gpo.gov/fdsys/pkg/FR-1994-01-18/html/94-1059.htm
- The 1992 amendments to Rule 4691 were not submitted to EPA for SIP approval.
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, which included evaluation of Rule 4691: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4691 is at least as stringent as the applicable federal MACT standard. There are no other federal rules and regulations pertaining to vegetable oil processing operations.
- Rule 4691 is at least as stringent as BAAQMD Regulation 8 Rule 41, which is the only other comparable California air district that regulates this source.

Technology Evaluation

- The District evaluated this source category in the District's *2009 RACT SIP* and did not identify any further emission reduction opportunities. See pages 4-353 through 4-354 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.9 RULE 4694 WINE FERMENTATION AND STORAGE TANKS

Applicability

This rule applies to any winery fermenting and/or storing wine in bulk containers. The purpose of this rule is to limit emissions of VOC from the fermentation and bulk storage of wine, or achieve equivalent emission reductions from alternative emission sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	4.71	5.24	5.34	5.44	5.53	5.63	5.73	5.84	5.93	6.01	6.10

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2005 adoption of Rule 4694 on November 29, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 71109, http://www.gpo.gov/fdsys/pkg/FR-2012-11-29/pdf/2012-28826.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, but EPA specified that Rule 4694 was one of the few rules not approved as RACT as part of the RACT SIP approval: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no applicable federal requirements, including: CTG, ACT, NSPS, NESHAP, and MACT.
- There are no state or local regulations for similar sources.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See page 4-361 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated two technologies for VOC control from active wine fermentation: a water scrubber-based system and a refrigerated condenser system. While demonstrations of the equipment have been conducted, they are not cost effective and cannot be considered RACT.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.2.10 Rule 4695 Brandy Aging and Wine Aging Operations

Applicability

This rule applies to brandy aging and wine aging operations. The purpose of this rule is to limit VOC emissions from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	6.66	7.41	7.55	7.69	7.83	7.98	8.12	8.28	8.42	8.54	8.66

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of Rule 4695 on August 4, 2011 and deemed this rule as being at least as stringent as established RACT requirements: 76 FR 47076, http://www.gpo.gov/fdsys/pkg/FR-2011-08-04/pdf/2011-19384.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no applicable federal requirements, including: CTG, ACT, NSPS, NESHAP, and MACT.
- There are no existing local regulations for similar sources in other air districts, including: SCAQMD, BAAQMD, VCAPCD, and SMAQMD.

Technology Evaluation

- The District evaluated seven potential emission reduction opportunities and technologies for this source category for the 2010 rule adoption. While five of the control technologies evaluated were determined to be either achieved in practice or feasible for meeting Rule 4695 requirements, the following control systems are either not technologically feasible or cost effective:
    - Emissions Capture System: brandy aging and wine aging operations are a continuous 24 hour/day operation throughout the year. As a result, it would be difficult and too expensive to continuously maintain the warehouse in a total enclosure status needed for an Emissions Capture System due to the ongoing requirements to transport the product into and out of the warehouse and for maintenance during which the warehouse must be opened or the control device must be shut down. The District does not consider an Emissions Capture System to be technologically feasible.

- Catalytic Thermal Oxidation: catalytic thermal oxidation is technologically feasible for brandy and wine aging and a control efficiency of 98% is reasonably achievable. However, since catalysts are employed, these systems are subject to catalyst poisoning or deactivation due to operation upset. They may require periodic catalyst replacement, which represents a substantial operating cost. As a result, no systems are in place in the District and other control systems are easier to maintain and more cost effective to operate.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3 COATINGS AND SOLVENTS

The Coatings and Solvents control measure source category is one of the most diverse and far reaching categories in the District. Coating and solvent manufacture, distribution, and use affect almost every industry in the Valley as well as the general public. Coatings and solvents have many uses and are generally applied onto a surface of a substrate for protective, decorative, functional, or cleaning purposes. Coatings and solvents include, but are not limited to paints, thinners, varnishes, sealers, stains, ink, strippers, and cleaners. Coatings and solvents are of interest because as these products are applied, used, and dried, they off-gas VOC emissions. District prohibitory regulations set work practice standards and VOC content and emitting limitations for the sale, use, storage, and disposal of coatings and solvents in the Valley.

The ARB provides Suggested Control Measures (SCMs) for some categories of coatings and solvents. Clean Air Act Section 183(e) directs EPA to list for regulation those categories of products that account for at least 80 percent of the VOC emissions from consumer and commercial products; as such, the EPA also provides guidance documents affecting many coatings and solvents categories. These EPA guidance documents are called Control Techniques Guidelines (CTG). State and federal guidance documents act as model rules to assist air districts in setting standards for these sources. However, the development, adoption and enforcement of rules and regulations that control these emissions are the responsibility of the local air districts.

The control measure source categories under the Coatings and Solvents group affect several industries in the Valley, including but not limited to: architectural operations, motor vehicle maintenance and restoration operations, manufacturing processes, industrial processes, the graphic arts industry, aerospace assembly operations, industrial activities, and cleaning operations.

Regulatory Evaluation

The following is a list of rules specific to the Coatings and Solvents category. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emission reductions.

Table C-5 Current Coatings and Solvents Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4601	Architectural Coatings	4/11/1991	12/17/2009	VOC
4602	Motor Vehicle Assembly Coatings	4/11/1991	9/17/2009	VOC
4603	Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts	4/11/1991	9/17/2009	VOC
4604	Can and Coil Coating Operations	4/11/1991	9/20/2007	VOC
4605	Aerospace Assembly and Component Coating Operations	12/19/1991	6/16/2011	VOC

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4606	Wood Products and Flat Wood Paneling Products Coating Operations	12/19/1991	10/16/2008	VOC
4607	Graphic Arts and Paper, Film, Foil, and Fabric Coatings	4/11/1991	12/18/2008	VOC
4610	Glass Coating Operations	5/16/2002	4/17/2003	VOC
4612	Motor Vehicle and Mobile Equipment Coating Operations	9/21/2006	10/21/2010	VOC
4652	Coatings and Ink Manufacturing	5/21/1992	12/17/1992	VOC
4653	Adhesives and Sealants	3/17/1994	9/16/2010	VOC
4661	Organic Solvents	5/21/1992	9/20/2007	VOC
4662	Organic Solvent Degreasing Operations	4/11/1991	9/20/2007	VOC
4663	Organic Solvent Cleaning, Storage, and Disposal	12/20/2001	9/20/2007	VOC
4672	Petroleum Solvent Dry Cleaning Operations	4/11/1991	12/17/1992	VOC

C.3.1 RULE 4601 ARCHITECTURAL COATINGS

Applicability

This rule applies to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures, blends, or repackages any architectural coating for use within the District. The purpose of this rule is to limit VOC emissions from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	11.31	8.38	8.46	8.53	8.63	8.72	8.82	8.92	9.01	9.13	9.24

Regulatory Evaluation

EPA Approved	EPA Approval Year	Regulatory Actions Since EPA Approval:		
		Federal	State	Local
Yes	2011	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- Rule 4601 was evaluated in the *2009 RACT SIP* demonstration; however EPA's Technical Support Document for the partial approval/partial disapproval of the *2009 RACT SIP* states the rule is not subject to RACT because it is not a CTG category and it does not regulate major sources.
- EPA finalized approval of the 2009 amendments to Rule 4601 on November 8, 2011: 76 FR 69135, http://www.gpo.gov/fdsys/pkg/FR-2011-11-08/pdf/2011-28788.pdf
- There are no specific federal guidelines applying to this source category in terms of CTG, ACT, NSPS, MACT, and NESHAP.
- Rule 4601 is at least as stringent as the applicable ARB SCM for Architectural Coatings, promulgated in September 2007. ARB's adoption of the SCM established consistent VOC content standards for architectural coatings used in California based on multiple years of public processes, which included exhaustive research and collaborative efforts between ARB and coating manufacturers.
- Rule 4601 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 8 Rule 3, VCAPCD Rule 74.2, and SMAQMD Rule 442.
- SCAQMD amended Rule 1113 on June 3, 2011.
    - The amendment, effective January 2014, implements new limits for the dry fog, form release compounds, graphic arts, and metallic pigmented coatings categories; these limits go beyond SCM standards. Some of SCAQMD's coating limits are infeasible for the Valley due to the climate differences between the Valley and the SCAQMD region; these differences create freeze/thaw stability, safety, and performance standard

issues, as demonstrated in the Final Draft Staff Report for the 2010 rule amendments.
  - The aforementioned coating categories are very small subsection of the architectural coatings category and as such represent a small percentage of the emissions from the source category. As noted in Chapter 2, modeling for this and other ozone plans has shown that the Valley is NOx limited, especially in future years; as such, NOx reductions are most effective in reducing Valley ozone concentrations, whereas VOC reductions do not advance attainment.
  - The District will evaluate SCAQMD's new emission limits further during the development of the next ozone plan.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. The District recognized that some of the coatings limits in SCAQMD Rule 1113 were more stringent than some limits in District Rule 4601; however, the District was already planning a rule amendment project in late 2009 to fully evaluate these coating limits in the SCAQMD rule. During that rule project, as previously mentioned, the District determined that there are technological feasibility issues with implementing SCAQMD's more stringent limits in the Valley. Thus, in November 2011 EPA determined that Rule 4601 is as stringent as reasonably possible given the Valley's unique characteristics.
  - See pages 4-170 through 4-171 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

There are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time; however, the District recommends continuing efforts to evaluate potential opportunities for future emission reductions, as adopted in the SCAQMD rule, during the development of the next ozone plan.

C.3.2 RULE 4602 MOTOR VEHICLE ASSEMBLY COATINGS

Applicability

This rule is applicable to any person who applies VOC-containing coatings to new automobiles, light-duty trucks, heavier vehicles, and other parts coated along with these bodies or body parts during the assembly process and associated solvent cleaning activities. The purpose of this rule is to limit VOC emissions from motor vehicle assembly coating operations.

Summer Average Emission Inventory

The emissions from this rule are accounted for in the discussion for Rule 4612 (Motor Vehicle and Mobile Equipment Coating Operations).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2011	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2009 amendments to Rule 4602 on November 1, 2011 and deemed this rule as being at least as stringent as established RACT requirements: 76 FR 67369, http://www.gpo.gov/fdsys/pkg/FR-2011-11-01/pdf/2011-28251.pdf
- There are currently no motor vehicle assembly operations in the Valley. Any such facilities beginning operation in the Valley in the future would be required to meet District BACT requirements, per District Rules 2201 (New and Modified Stationary Source Review Rule) and 4001 (New Source Performance Standards).

Technology Evaluation

- Emission reduction technologies or practices have not been evaluated for this source category because there are no motor vehicle assembly operations in the Valley.

Recommendation

There are no motor vehicle assembly operations in the Valley and thus no emissions or emission reduction opportunities for this source category. Therefore, there are no recommendations for further regulatory action at this time.

C.3.3 RULE 4603 SURFACE COATING OF METAL PARTS AND PRODUCTS, PLASTIC PARTS AND PRODUCTS, AND PLEASURE CRAFTS

Applicability

The provisions of this rule apply to the surface coating of metal parts or products, large appliances' parts or products, metal furniture, plastic parts and products, and pleasure crafts, and to the organic solvent cleaning and storage and disposal of all solvents and waste solvent materials associated with such coatings. The purpose of this rule is to limit VOC emissions from these coatings.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.80	0.99	1.02	1.05	1.07	1.10	1.12	1.15	1.17	1.19	1.22

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2009 amendments to Rule 4603 on November 1, 2011 and deemed this rule as being at least as stringent as established RACT requirements: 76 FR 67369, http://www.gpo.gov/fdsys/pkg/FR-2011-11-01/pdf/2011-28251.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4603 is at least as stringent as the applicable federal CTG, ACT, NSPS, MACT, and NESHAP since the requirements have not been strengthened for these regulations since the Rule 4603 RACT approval.
- Rule 4603 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1136, SCAQMD Rule 1107, BAAQMD Regulation 8 Rule 14, BAAQMD Regulation 8 Rule 19, SMAQMD Rule 451, and VCAPCD Rule 74.12.
    - SMAQMD Rule 451 was amended in 2010, but the rule requirements are not more stringent than the requirements in Rule 4603.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. The District committed to incorporating new CTG requirements into the rule during a rule-amending project in September 2009. See pages 4-172 through 4-188 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.4 RULE 4604 CAN AND COIL COATING OPERATIONS

Applicability

This rule applies to can and coil coating operations and to organic solvent cleaning, storage, and disposal associated with can and coil coating operations. The purpose of this rule is to limit VOC emissions from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.30	0.34	0.35	0.36	0.36	0.37	0.38	0.38	0.39	0.39	0.40

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4604 on January 19, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 2796, http://www.gpo.gov/fdsys/pkg/FR-2010-01-19/pdf/2010-747.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4604 is at least as stringent as the applicable federal CTG, NSPS, and NESHAP, since the requirements have not been strengthened for these regulations since the Rule 4604 RACT approval. There are not any applicable MACT or ACT guidelines for this source category.
- Rule 4604 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1125, BAAQMD Regulation 8 Rule 11, and SMAQMD Rule 452. There is not a similar rule in VCAPCD.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-189 through 4-195 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

- There are BACT guidelines that are more stringent than what is required in Rule 4604. However, these requirements are beyond RACT and not technologically feasible or cost effective for all sources applicable to Rule 4604. Also, given the relatively small emissions inventory for this source category, emissions reductions would be extremely minimal. These BACT guidelines do not represent feasible opportunities for this source category at this time.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.5 RULE 4605 AEROSPACE ASSEMBLY AND COMPONENT COATING OPERATIONS

Applicability

This rule applies to the manufacturing, assembling, coating, masking, bonding, paint stripping, surface cleaning, service, and maintenance of aerospace components; the cleanup of equipment; and the storage and disposal of solvents and waste solvent materials associated with these operations. The purpose of this rule is to limit the emissions of VOCs from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2011 amendments to Rule 4605 on November 16, 2011 and deemed this rule as being at least as stringent as established RACT requirements: 76 FR 70886, http://www.gpo.gov/fdsys/pkg/FR-2011-11-16/pdf/2011-29466.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4605 is at least as stringent as the applicable federal CTG, MACT, and NESHAP since the requirements have not been strengthened for these regulations since the Rule 4605 RACT approval. There are no applicable ACT or NSPS requirements.
- Rule 4605 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1124, BAAQMD Regulation 8 Rule 29, SMAQMD Rule 456, and VCAPCD Rule 74.13.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-196 through 4-205 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.6 RULE 4606 WOOD PRODUCTS AND FLAT WOOD PANELING PRODUCTS COATING OPERATIONS

Applicability

This rule applies to the application of coatings to wood products, including furniture, cabinets, flat wood paneling, and custom replica furniture. The rule also applies to the organic solvent cleaning, and the storage and disposal of all solvents and waste solvent materials associated with such coating operations. The purpose of this rule is to limit the emissions of VOCs from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	1.18	1.47	1.51	1.54	1.56	1.59	1.67	1.69	1.71	1.73	1.75

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2008 amendments to Rule 4606 on October 15, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 52894, http://www.gpo.gov/fdsys/pkg/FR-2009-10-15/pdf/E9-24687.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4606 is at least as stringent as the applicable federal CTG and NESHAP, since the requirements have not been strengthened for these regulations since the Rule 4606 RACT approval. There are no applicable ACT, MACT, or NSPS requirements.
- Rule 4606 was compared to other California air districts' rules for similar sources, including: SCAQMD Rule 1136, SCAQMD Rule 1104, BAAQMD Regulation 8 Rule 32, SMAQMD Rule 463, and VCAPCD Rule 74.30.
    - Rule 4606 is at least as stringent as the SCAQMD, SMAQMD and VCAPCD rules.
    - BAAQMD Regulation 8 Rule 32 was amended in 2009 after the *2009 RACT SIP* was compiled. BAAQMD Regulation 8 Rule 32 was amended to include VOC limits that go beyond RACT for "Custom and Contract Furniture". EPA's partial approval of the *2009 RACT SIP,* which includes Rule 4606, further demonstrates that the BAAQMD limits are beyond RACT.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-206 through 4-214 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.7 RULE 4607 GRAPHIC ARTS AND PAPER FILM, FOIL, AND FABRIC COATINGS

Applicability

This rule is applicable to graphic arts printing operations; digital printing operations; paper, film, foil, or fabric coating operations; and the organic solvent cleaning materials and processes associated with such operations. The purpose of this rule is to limit VOC emissions from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	4.69	5.30	5.40	5.50	5.59	5.69	5.79	5.89	5.98	6.08	6.18

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2008 amendments to Rule 4607 on October 15, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 52894, http://www.gpo.gov/fdsys/pkg/FR-2009-10-15/pdf/E9-24687.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4607 is at least as stringent as the applicable federal CTGs, NSPS, and NESHAP since the requirements have not been strengthened for these regulations since the Rule 4607 RACT approval. There are no applicable ACT or MACT requirements.
- Rule 4607 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1128, SCAQMD Rule 1130, SCAQMD Rule 1130.1, SCAQMD Rule 1171, BAAQMD Regulation 8 Rule 4, BAAQMD Regulation 8 Rule 12, BAAQMD Regulation 8 Rule 20, SMAQMD Rule 450, VCAPCD Rule 74.19, VCAPCD Rule 74.19.1, and VCAPCD Rule 74.3.
    - VCAPCD Rule 74.19 was amended in 2011, but is not more stringent than District Rule 4607.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-215 through 4-233 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.8 RULE 4610 GLASS COATING OPERATIONS

Applicability

The requirements of this rule apply to any major source that coats glass products with VOC-containing materials. The purpose of this rule is to limit the emissions of VOCs from the coating of glass products.

Summer Average Emission Inventory

The emissions from this rule are accounted for in the discussion for Rule 4354 (Glass Melting Furnaces).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2003 amendments to Rule 4610 on October 14, 2004 and deemed this rule as being at least as stringent as established RACT requirements: 69 FR 60962, http://www.gpo.gov/fdsys/pkg/FR-2004-10-14/pdf/04-22956.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no applicable federal requirements for this source category, including CTG, ACT, NSPS, NESHAP, or MACT requirements.
- Rule 4610 was compared to other California air districts' rules for similar sources, including: SCAQMD Rule 1145 and BAAQMD Regulation 8 Rule 4.
    - Rule 4610 is at least as stringent as BAAQMD Regulation 8 Rule 4. SMAQMD and VCAPCD do not have comparable rules.
    - SCAQMD Rule 1145 was amended after the *2009 RACT SIP* was compiled. SCAQMD adopted VOC limits in Rule 1145 that go beyond RACT for one-component, two-component, optical, and mirror backed roll coatings. EPA's partial approval of the *2009 RACT SIP*, which includes Rule 4610, further demonstrates that the SCAQMD limits are beyond RACT.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-234 through 4-237 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- There are only two glass coating operations in the District, and neither emits enough VOCs to be considered a major source.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.9 RULE 4612 MOTOR VEHICLE AND MOBILE EQUIPMENT COATING OPERATIONS

Applicability

This rule applies to any person who supplies, sells, offers for sale, manufactures, or distributes any automotive coating for use within the District, as well as any person who uses, applies, or solicits the use or application of any automotive coating within the District. The purpose of this rule is to limit VOC emissions from coatings of motor vehicles, mobile equipment, and associated parts and components, and associated organic solvent cleaning, storage, and disposal.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	2.10	1.65	1.66	1.67	1.68	1.69	1.70	1.71	1.65	1.66	1.67

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2010 amendments to Rule 4612 on February 13, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 7536, http://www.gpo.gov/fdsys/pkg/FR-2012-02-13/pdf/2012-3172.pdf
- Rule 4612 is at least as stringent as the applicable federal CTG, ACT, MACT, NESHAP, and NSPS since the requirements have not been strengthened for these regulations since the Rule 4612 RACT approval.
- Rule 4612 is at least as stringent as ARB's SCM for Automotive Coatings since the requirements have not been strengthened or amended since the Rule 4612 RACT approval.
- Rule 4612 was compared to other California air districts' rules for similar sources, including: SCAQMD Rule 1151, BAAQMD Regulation 8 Rule 45, SMAQMD Rule 459, and VCAPCD Rule 74.18.
    - Rule 4612 is as stringent as or more stringent than SMAQMD Rule 459 and VCAPCD Rule 74.18.
    - SCAQMD Rule 1151 and BAAQMD Regulation 8 Rule 45 were last amended before the *2009 RACT SIP* was compiled. These rules contain VOC limits that go beyond RACT for two categories (Pre-Coat and Topcoat–Metallic/Iridescent). EPA's partial approval of the *2009 RACT*

SIP, which includes Rule 4612, further demonstrates that the SCAQMD and BAAQMD limits are beyond RACT.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-238 through 4-244 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated potential emission reduction opportunities for this source category during the 2010 amendment of Rule 4612. These opportunities focused on potential incentive funding for operators, since the VOC content limits and solvent cleaning provisions were already at least as stringent as federal and state requirements. The District assessment concluded that incentive funding was not available, and most users had already switched to water-base coatings. Thus, the 2010 amendment fulfilled a commitment in the *2007 Ozone Plan* to remove redundant language and clarify the intent of the rule.
- Review of the BAAQMD and SCAQMD BACT requirements revealed technologies that may be more stringent than some components of Rule 4612; however, these technologies may not be cost effective or technologically feasible for facilities subject to Rule 4612. Overall, Rule 4612 meets RACT and is generally as stringent as other air districts' rules and guidelines.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.10 RULE 4652 COATINGS AND INK MANUFACTURING

Applicability

The provisions of this rule apply to all coatings and ink manufacturing operations. The purpose of this rule is to limit VOC emissions from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Regulatory Evaluation

EPA Approved*	EPA Approval Year	Regulatory Actions Since EPA Approval:		
		Federal	State	Local
N/A	N/A	No	No	No

*EPA never acted on this rule. It has not been approved or disapproved.

The District's regulatory evaluation summary table above is based on the following assessment:

- Rule 4652 was evaluated in the *2009 RACT SIP* demonstration; however EPA's Technical Support Document for the partial approval/partial disapproval of the *2009 RACT SIP* states the rule is not subject to RACT because it is not a CTG category and it does not regulate major sources.
- There are no applicable federal CTG, ACT, NESHAP, MACT, or NSPS requirements.
- Rule 4652 is at least as stringent as SCAQMD Rule 1141.1. VCAPCD does not have a rule applicable to this source category. There are some VOC limits in which BAAQMD Regulation 8 Rule 35 and SMAQMD Rule 46 differ in stringency in comparison to District Rule 4652. However, the difference in overall emission reductions on a mass basis is insignificant; the emissions from this source category are VOCs, the emission inventory is small, and there are few facilities in the District subject to this rule. The Valley is not sensitive to additional VOC emission reductions; reducing emissions from this small emission source would not expedite attainment of the revoked ozone standard.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-304 through 4-307 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

This source category is not subject to RACT, and as described above, there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.11 RULE 4653 ADHESIVES AND SEALANTS

Applicability

This rule is applicable to any person who supplies, sells, offers for sale, or applies any adhesive product, sealant product, or associated solvent, used within the District. The purpose of this rule is to reduce emissions of VOCs from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.65	0.60	0.59	0.58	0.58	0.57	0.56	0.56	0.55	0.55	0.54

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2010 amendments to Rule 4653 on February 13, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 7536, http://www.gpo.gov/fdsys/pkg/FR-2012-02-13/pdf/2012-3172.pdf
- Rule 4653 is at least as stringent as the applicable federal CTG, as the requirements have not been strengthened for this regulation since the Rule 4653 RACT approval. There are no applicable ACT, NSPS, NESHAP or MACT guidelines for this source category.
- Rule 4653 is at least as stringent as the applicable state guidelines, including ARB's RACT/Best Available Retrofit Control Technology (BARCT) guidance titled, "Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Adhesives and Sealants."
- Rule 4653 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1168, BAAQMD Regulation 8 Rule 51, SMAQMD Rule 460, and VCAPCD Rule 74.20.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP* and recognized that Rule 4653 was less stringent in some categories when compared to other air districts' rules and the applicable federal CTG. The rule was already scheduled for revision in 2009 under the *2008 Ozone Plan* so the District evaluated the potential emission

reduction opportunities further at that time. See pages 4-308 through 4-313 of the analysis for more information:
http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

- The District BACT VOC content limit for corrugated box gluers is more stringent than the respective limit in Rule 4653. Lowering the limit is not a feasible opportunity at this time because:
    - Rule 4653 already aligns with other air districts' rules and federal regulations to implement RACT.
    - The BACT guideline applies to a small subset of sources within the "contact adhesives" category in Rule 4653 and thus a small portion of the emissions inventory for this source category.
    - Lowering the VOC content limit for the entire "contact adhesives" category is unreasonable since each facility, even amongst the corrugated box gluers, has unique operating parameters and performance specifications for the respective product being produced. Different corrugated box applications could vary the VOC content needed from the adhesive to produce a satisfactory product.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.12 RULE 4661 ORGANIC SOLVENTS

Applicability

This rule applies to any source operation that uses organic solvents, unless the source operation is exempted under Section 4.0 of the rule (generally, the manufacture or transport of organic solvents or any source operation that is subject to or exempted by another District rule). The purpose of this rule is to limit VOC emissions from the use of organic solvents.

Summer Average Emission Inventory

Rule 4661 establishes limits for the use of organic solvents, however their emissions are represented in the rules that regulate their use; Rule 4662 (Organic Solvent Degreasing Operations) and Rule 4663 Organic Solvent Cleaning, Storage, and Disposal).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4661 on May 5, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 24406, http://www.gpo.gov/fdsys/pkg/FR-2010-05-05/pdf/2010-10402.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4661 is at least as stringent as the applicable federal CTGs, ACTs and NESHAP, since the requirements have not been strengthened for these regulations since the Rule 4661 RACT approval. There are no applicable NSPS requirements for this source category.
- Rule 4661 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1171, BAAQMD Regulation 8 Rule 11, and SMAQMD Rule 441. VCAPCD does not have a comparable rule.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-314 through 4-316 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.13 RULE 4662 ORGANIC SOLVENTS DEGREASING OPERATIONS

Applicability

This rule applies to all organic solvent degreasing operations. The purpose of this rule is to limit VOC emissions and hazardous air pollutant emissions from these operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	1.06	1.06	1.06	1.06	1.07	1.07	1.07	1.07	1.07	1.07	1.08

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4662 on July 30, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 37948, http://www.gpo.gov/fdsys/pkg/FR-2009-07-30/pdf/E9-18001.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4662 is at least as stringent as the applicable federal CTG (1977) since the requirements have not been strengthened for this regulation since the Rule 4662 RACT approval. There are no applicable ACT, NSPS, NESHAP, or MACT requirements for this source category.
- Rule 4662 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1122, SMAQMD Rule 454, and VCAPCD Rule 74.6. BAAQMD does not have a rule that specifically covers organic solvent degreasing operations, but conveyorized solvent cleaner requirements are included in Regulation 8, Rule 16 (Solvent Cleaning Operations); Rule 4662 is at least as stringent as these requirements.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-317 through 4-319 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

- Review of the District's and EPA's BACT databases revealed technologies that may be more stringent than some components of Rule 4662; however, these requirements are not cost effective and technologically feasible for all facilities subject to Rule 4662. Overall, Rule 4662 meets RACT and is generally as stringent as other air districts' and EPA's rules and guidelines.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.14 Rule 4663 Organic Solvent Cleaning, Storage, and Disposal

Applicability

This rule applies to organic solvent cleaning performed outside a degreaser during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources. This rule also applies to the storage and disposal of all solvents and waste solvent materials at stationary sources. The purpose of this rule is to limit VOC emissions from these processes.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.58	0.68	0.69	0.71	0.72	0.73	0.75	0.76	0.78	0.79	0.80

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4663 on July 30, 2009 and deemed this rule as being at least as stringent as established RACT requirements: FR 74 37948, http://www.gpo.gov/fdsys/pkg/FR-2009-07-30/pdf/E9-18001.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4663 is more stringent than the most recent applicable federal CTGs and ACTs. There are no applicable NSPS, NESHAP, or MACT requirements for this source category.
- Rule 4663 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1171, BAAQMD Regulation 8 Rule 16, and SMAQMD Rule 441. VCAPCD does not have a comparable rule.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-320 through 4-322 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.3.15 Rule 4672 Petroleum Solvent Dry Cleaning Operations

Applicability

This rule applies to petroleum solvent washers, dryers, solvent filters, settling tanks, vacuum stills, and other containers and conveyors of petroleum solvents used in petroleum solvent dry cleaning facilities. The purpose of this rule is to limit VOC emissions from petroleum solvent dry cleaning operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1992 amendments to Rule 4672 on March 9, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 10690, http://www.gpo.gov/fdsys/pkg/FR-2010-03-09/pdf/2010-4967.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4672 is at least as stringent as the applicable federal NSPS since the requirements have not been strengthened for these regulations since the Rule 4672 RACT approval. There are no applicable CTG, ACT, NESHAP, or MACT requirements for this source category.
- Rule 4672 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1102, BAAQMD Regulation 8 Rule 17, SMAQMD Rule 444, and VCAPCD Rule 74.5.1.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-323 through 4-329 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4 Oil and Gas

The Oil and Gas industry has been operating in the Valley since before the commencement of the District. This category includes the processes of extraction, processing, refining, transferring, and storing of petroleum products. Petroleum products are vital to many industries in the Valley, as the products are largely used as fuel and energy sources. Additionally, the production, distribution, refining, and retailing of petroleum contribute to the economy of the Valley, particularly in the South Valley.

The District enforces some of the toughest regulations in the nation on this industry, and they have responded by implementing successful control strategies and significantly reducing emissions from their processes over the last two decades. Establishing effective emission reduction strategies for oil and gas operations continues to be a key component of the District's strategy to reduce emissions and achieve federal air quality standards whilst maintaining the vitality of the industry in the Valley.

The Oil and Gas control measure source categories affect several industries in the Valley including but not limited to: oil and gas production, petroleum refining, petroleum production and marketing, and gasoline transfer and dispensing.

Regulatory Evaluation

The following is a list of rules specific to the Oil and Gas category. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emission reductions.

Table C-6 Current Oil and Gas Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4401	Steam-Enhanced Crude Oil Production Wells	4/11/1991	6/16/2011	VOC
4402	Crude Oil Production Sumps	4/11/1991	12/15/2011	VOC
4404	Heavy Oil Test Station— Kern County	5/21/1992	12/17/1992	VOC
4407	In-Situ Combustion Well Vents	5/19/1994	n/a	VOC
4408	Glycol Dehydration Systems	12/19/2002	n/a	VOC
4409	Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities	4/20/2005	n/a	VOC
4453	Refinery Vacuum Producing Devices or Systems	5/21/1992	12/17/1992	VOC
4454	Refinery Process Unit Turnaround	5/21/1992	12/17/1992	VOC
4455	Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants	4/20/2005	n/a	VOC

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4621	Gasoline Transfer Into Stationary Storage Containers, Delivery Vessels, and Bulk Plants	4/11/1991	12/20/2007	VOC
4622	Gasoline Transfer Into Motor Vehicle Fuel Tanks	5/21/1992	12/20/2007	VOC
4623	Storage of Organic Liquids	4/11/1991	5/19/2005	VOC
4624	Transfer of Organic Liquid	4/11/1991	12/20/2007	VOC

C.4.1 RULE 4401 STEAM-ENHANCED CRUDE OIL PRODUCTION WELLS

Applicability

This rule applies to all steam-enhanced crude oil production wells and any associated VOC collection and control systems. The purpose of this rule is to limit VOC emissions from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	12.84	11.10	10.86	10.62	10.39	10.16	9.93	9.71	9.50	9.29	9.09

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2011	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2011 amendments to Rule 4401 on November 16, 2011 and deemed this rule as being at least as stringent as established RACT requirements: 76 FR 70886, http://www.gpo.gov/fdsys/pkg/FR-2011-11-16/pdf/2011-29466.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no CTG, ACT, NSPS, NESHAP, or MACT guidelines applicable to steam-enhanced crude oil production wells.
- Rule 4401 is at least as stringent as other California air districts' rules for similar sources, including SCAQMD Rule 1148. BAAQMD, SMAQMD, and VCAPCD do not have a prohibitory rule that covers the same emission source category.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-73 through 4-75 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.2 RULE 4402 CRUDE OIL PRODUCTION SUMPS

Applicability

This rule applies to all first, second, and third stage sumps at facilities producing, gathering, separating, processing, and/or storing crude oil in an oil field. The purpose of this rule is to limit VOC emissions from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	2.53	2.19	2.14	2.09	2.05	2.00	1.96	1.91	1.87	1.83	1.79

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, but EPA specified that Rule 4402 was one of the few rules not approved as RACT as part of the RACT SIP approval: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 amendments to Rule 4402 on October 22, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 64427, http://www.gpo.gov/fdsys/pkg/FR-2012-10-22/pdf/2012-25810.pdf
- There are no applicable federal CTG, ACT, NSPS, NESHAP, or MACT requirements for sumps.
- Rule 4402 is at least as stringent as other California air districts' rules for similar sources, including: VCAPCD Rule 71.4 and Santa Barbara County Air Pollution Control District (SBCAPCD) Rule 344. SCAQMD, BAAQMD, and SMAQMD do not have a comparable rule.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-76 through 4-79 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.3 RULE 4404 HEAVY OIL TEST STATION—KERN COUNTY

Applicability

This rule applies to the operation of heavy oil test stations with tanks that vent directly to the atmosphere. The purpose of this rule is to limit VOC emissions from the operation of heavy oil test stations (HOTS).

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.25	0.21	0.21	0.20	0.20	0.19	0.19	0.19	0.18	0.18	0.17

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1992 amendments to Rule 4404 on March 9, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 10690, http://www.gpo.gov/fdsys/pkg/FR-2010-03-09/pdf/2010-4967.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no federal rules and regulations pertaining to HOTS, including CTG, ACT, NSPS, NESHAP, and MACT requirements.
- There are no other California air districts' rules pertaining to HOTS.
- There are no atmospheric HOTS in the Valley. All HOTS operations now employ pressure vessels that do not vent to the atmosphere, and such vessels are exempt from District permitting per section 6.13 of District Rule 2020.

Technology Evaluation

- The District evaluated this source category in the District's *2009 RACT SIP*. No feasible opportunities for emission reductions were identified since no HOTS operate in the Valley. See pages 4-80 through 4-81 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

There are no atmospheric HOTS operating in the Valley and thus no emissions or emission reduction opportunities for this category exist. Therefore, there are no recommendations for further regulatory action at this time.

C.4.4 RULE 4407 IN-SITU COMBUSTION WELL VENTS

Applicability

This rule applies to all crude oil production wells where production has been enhanced by in-situ combustion. The purpose of this rule is to implement federally enforceable VOC emission limitations for in-situ combustion well vents.

Summer Average Emission Inventory

The emissions from this rule are accounted for in the discussion for Rule 4401 (Steam-Enhanced Crude Oil Production Wells).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1994 amendments to Rule 4407 on March 6, 1995 and deemed this rule as being at least as stringent as established RACT requirements: 60 FR 12121, http://www.gpo.gov/fdsys/pkg/FR-1995-03-06/pdf/95-5342.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no in-situ combustion well vents operating in the Valley. Any facility beginning use of such activity would be required to meet District BACT requirements, per District Rules 2201 (New and Modified Stationary Source Review Rule) and 4001 (New Source Performance Standards).

Technology Evaluation

- The District evaluated this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified since no units operate in the Valley. See pages 4-82 through 4-83 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

There are no in-situ combustion well vents operating in the Valley and thus no emissions or emission reduction opportunities for this category exist. Therefore, there are no recommendations for further regulatory action at this time.

C.4.5 RULE 4408 GLYCOL DEHYDRATION SYSTEMS

Applicability

This rule applies to any glycol dehydration system with a glycol dehydration vent that is subject to permitting requirements pursuant to Regulation II (Permits). The purpose of this rule is to limit VOC emissions from these sources.

Summer Average Emission Inventory

The emissions from this rule are accounted for in the discussion for Rule 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2002 amendments to Rule 4408 on August 26, 2003 and deemed this rule as being at least as stringent as established RACT requirements: 68 FR 51187, http://www.gpo.gov/fdsys/pkg/FR-2003-08-26/pdf/03-21584.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4408 is more stringent than the applicable federal NESHAP since Rule 4408 requires controls on systems producing much smaller flow rates than the NESHAP threshold. The requirements have not been strengthened for this regulation since the Rule 4408 RACT approval. There are no applicable CTG, ACT, or NSPS guidelines.
- Rule 4408 is at least as stringent as VCAPCD 71.5. No other California air district has a comparable rule for similar sources.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-84 through 4-85 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.6 RULE 4409 COMPONENTS AT LIGHT CRUDE OIL PRODUCTION FACILITIES, NATURAL GAS PRODUCTION FACILITIES, AND NATURAL GAS PROCESSING FACILITIES

Applicability

This rule applies to components containing or contacting VOC streams at light crude oil production facilities, natural gas production facilities, and natural gas processing facilities. The purpose of this rule is to limit VOC emissions from leaking components at these facilities.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
VOC	9.27	8.01	7.83	7.66	7.49	7.33	7.17	7.01	6.85	6.70	6.56

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	Yes	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2005 adoption of Rule 4409 on March 23, 2006 and deemed this rule as being at least as stringent as established RACT requirements: 71 FR 14652, http://www.gpo.gov/fdsys/pkg/FR-2006-03-23/pdf/06-2814.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4409 is at least as stringent as the applicable federal CTG document (EPA-450/3-83-007 "Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants," dated December 1983) since the requirements have not been strengthened for this regulation since the Rule 4409 RACT approval. Federal NSPS (40 CFR 60 Subpart OOOO—Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution) and MACT (40 CFR 63 Subpart HH—National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities) guidelines were updated in 2012, after Rule 4409's RACT approval, but no new provisions are more stringent than this rule. There are no federal ACT requirements for this source category.

- Rule 4409 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 8 Rule 18 (Equipment Leaks), BAAQMD Regulation 8 Rule 22 (Valves and Flanges at Chemical Plants), BAAQMD Regulation 8 Rule 28 (Episodic Releases From Pressure Relief Devices at Petroleum Refineries and Chemical Plants), SCAQMD Rule 1173 (Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants), VCAPCD Rule 74.7 (Fugitive Emissions of Reactive Organic Compounds at Petroleum Refineries and Chemical Plants), and VCAPCD Rule 74.10 (Components at Crude Oil and Natural Gas Production and Processing Facilities). SMAQMD has no rule for this source category.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See pages 4-86 through 4-87 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- Santa Barbara County Air Pollution Control District issued an Authority to Construct permit for proposed leak detection and repair thresholds lower than the thresholds required by Rule 4409. These proposed threshold levels exceed RACT requirements and have not proven to be technologically feasible for facilities in the Valley. Thus, lowering the thresholds is not a feasible opportunity at this time and the District does not recommend pursuing these limits for Rule 4409.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.7 RULE 4453 REFINERY VACUUM PRODUCING DEVICES OR SYSTEMS

Applicability

This rule applies to any vacuum producing device or system, including hot wells and accumulators installed in a refinery operation. The purpose of this rule is to limit VOC emissions from refinery vacuum producing devices or systems.

Summer Average Emission Inventory

The emissions from this rule are accounted for in the discussion for Rule 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1992 amendments to Rule 4453 on September 23, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 57862, http://www.gpo.gov/fdsys/pkg/FR-2010-09-23/pdf/2010-23808.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4453 is at least as stringent as the applicable federal CTG since the requirements have not been strengthened for this regulation since the Rule 4453 RACT approval. There are no applicable ACT, NSPS, NESHAP, or MACT guidelines for this source category.
- Rule 4453 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD 465, BAAQMD Regulation 8 Rule 9, and VCAPCD Rule 74.8. SMAQMD does not have a comparable rule for this source category.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-88 through 4-90 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.8 RULE 4454 REFINERY PROCESS UNIT TURNAROUND

Applicability

This rule applies to any refinery vessel containing VOCs, unless exempted. The purpose of this rule is to limit VOC emissions resulting from the purging, repair, cleaning, or otherwise opening or releasing pressure from a refinery vessel during a process unit turnaround.

Summer Average Emission Inventory

The emissions from this rule are accounted for in the discussion for Rule 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities).

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1992 amendments to Rule 4454 on September 23, 2010 and deemed this rule as being at least as stringent as established RACT requirements: 75 FR 57862, http://www.gpo.gov/fdsys/pkg/FR-2010-09-23/pdf/2010-23808.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4454 is at least as stringent as the applicable federal CTG since the requirements have not been strengthened for this regulation since the Rule 4454 RACT approval. The applicable MACT guideline was amended in 2010; however, the amendments did not implement any requirements more stringent than what is required in Rule 4454. There are no federal ACT or NSPS requirements for this source category.
- Rule 4454 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1123, BAAQMD Regulation 8 Rule 10, and VCAPCD Rule 74.8. SMAQMD has no rule for this source category.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-91 through 4-93 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.9 RULE 4455 COMPONENTS AT PETROLEUM REFINERIES, GAS LIQUIDS PROCESSING FACILITIES, AND CHEMICAL PLANTS

Applicability

This rule applies to components containing or contacting VOC at petroleum refineries, gas liquid processing facilities, and chemical plants. The purpose of this rule is to limit VOC emissions from leaking components at these facilities.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	Yes	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2005 adoption of Rule 4455 on March 23, 2006 and deemed this rule as being at least as stringent as established RACT requirements: 71 FR 14652, http://www.gpo.gov/fdsys/pkg/FR-2006-03-23/pdf/06-2814.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4455 is at least as stringent as the applicable federal CTG document (EPA-450/3-83-007 "Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants," dated December 1983), since the requirements have not been strengthened for this regulation since the Rule 4455 RACT approval. Federal NSPS (40 CFR 60 Subpart OOOO—Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution) and MACT guidelines (40 CFR 63 Subpart HH—National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities) were updated in 2012, after Rule 4455's RACT approval, but no new provisions are more stringent than this rule. There are no federal ACT requirements for this source category.

- Rule 4455 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 8 Rule 18 (Equipment Leaks), BAAQMD Regulation 8 Rule 22 (Valves and Flanges at Chemical Plants), BAAQMD Regulation 8 Rule 28 (Episodic Releases From Pressure Relief Devices at Petroleum Refineries and Chemical Plants), SCAQMD Rule 1173 (Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants), VCAPCD Rule 74.7 (Fugitive Emissions of Reactive Organic Compounds at Petroleum Refineries and Chemical Plants), and VCAPCD Rule 74.10 (Components at Crude Oil and Natural Gas Production and Processing Facilities). SMAQMD has no rule for this source category.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See pages 4-94 through 4-95 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.10 RULE 4621 GASOLINE TRANSFER INTO STATIONARY STORAGE CONTAINERS, DELIVERY VESSELS, AND BULK PLANTS

Applicability

Rule 4621 applies to all operations that transfer gasoline between delivery vessels and storage containers and loading racks that are used to load organic liquids with a True Vapor Pressure of 1.5 psia or greater. The purpose of this rule is to limit VOC emissions from stationary storage containers, delivery vessels, and bulk plants.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	2.45	2.75	2.80	2.86	2.92	2.98	3.04	3.10	3.16	3.22	3.28

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4621 on October 30, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 56120, http://www.gpo.gov/fdsys/pkg/FR-2009-10-30/pdf/E9-26178.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4621 is at least as stringent as the applicable federal CTGs and ACT since the requirements have not been strengthened for these regulations since the Rule 4621 RACT approval. There are no applicable NSPS, NESHAP, or MACT requirements.
- Rule 4621 aligns with ARB's certified Phase I Vapor Recovery System requirements.
- Rule 4621 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 8 Rule 7, BAAQMD Regulation 8 Rule 39, and Ventura County APCD Rule 70.
    - SMAQMD Rule 448 was amended in February 2009. The amendment required the vapor recovery system to prevent emission of at least 98%, by weight, of the gasoline vapors displaced from the storage container during the transfer of gasoline into the container. This is consistent with the District's rule.
    - SCAQMD Rule 461 was recently amended in April 2012. The amendment provides non-retail facilities that meet certain conditions and have fleets with 100% On-board Refueling Vapor Recovery with an alternate way to

comply in lieu of installing Phase II Enhanced Vapor Recovery systems certified by the ARB. The amendments also removed temporary exemptions for dispensing of E-85 fuel (85% ethanol and 15% gasoline) by deleting the definitions and aligning requirements with ARB's Executive Orders for gasoline.

  - The District is currently in amending Rule 4621 through a public workshop process, with proposed amendments expected to be taken to the Governing Board for public hearing and adoption in December 2013. Proposed amendments will make it at least as stringent as SCAQMD Rule 461.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-245 through 4-251 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

There are no additional feasible emission reduction opportunities at this time.

C.4.11 RULE 4622 GASOLINE TRANSFER INTO MOTOR VEHICLE FUEL TANKS

Applicability

This rule applies to any gasoline storage and dispensing operation or mobile fueler from which gasoline is transferred into motor vehicle fuel tanks. The purpose of this rule is to limit emissions of gasoline vapors from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	1.84	2.07	2.11	2.16	2.20	2.24	2.29	2.33	2.38	2.42	2.47

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4622 on October 30, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 56120, http://www.gpo.gov/fdsys/pkg/FR-2009-10-30/pdf/E9-26178.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4622 is at least as stringent as the applicable federal NESHAP requirements (40 CFR Subpart 63 CCCCCC (National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities)) amended in 2011 and CTG (EPA-450/2-78-051, Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems) since the requirements have not been strengthened for these regulations since the Rule 4622 RACT approval. There are no applicable ACT, NSPS, or MACT requirements for this source category.
- Rule 4622 is at least as stringent as other California air districts' rules for similar sources, including: BAAQMD Regulation 8 Rule 7 (Gasoline Dispensing Facilities) and VCAPCD Rule 70 (Storage and Transfer of Gasoline).

- SCAQMD Rule 461 (Gasoline Transfer and Dispensing) was amended in April 2012 to provide non-retail facilities that meet certain conditions and have fleets with 100% On-board Refueling Vapor Recovery with an alternate way to comply in lieu of installing Phase II Enhanced Vapor Recovery systems certified by ARB. The amendments also removed temporary exemptions for dispensing of E-85 fuel (85% ethanol and 15% gasoline) and clarified reporting requirements.
- SMAQMD Rule 449 (Transfer of Gasoline into Vehicle Fuel Tanks) was amended in February 2009 to make the rule consistent with ARB's Enhanced Vapor Recovery regulations. The amendments also provided an exemption from Phase II vapor recovery requirements for the dispensing of E-85 fuel into flexible fuel vehicles and for non-retail gasoline dispensing facilities in which 100% of the vehicles refueled are equipped with On-board Refueling Vapor Recovery.
- The District is currently in amending Rule 4622 through a public workshop process, with proposed amendments expected to be taken to the Governing Board for public hearing and adoption in December 2013. Proposed amendments to Rule 4622 will make it consistent with the requirements in SCAQMD Rule 461 and SMAQMD Rule 449.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See page 4-252 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

There are no additional feasible emission reduction opportunities at this time.

C.4.12 RULE 4623 STORAGE OF ORGANIC LIQUIDS

Applicability

This rule applies to any tank with a capacity of 1,100 gallons or greater in which any organic liquid is placed, held, or stored. The purpose of this rule is to limit VOC emissions from the storage of organic liquids.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
VOC	3.02	2.68	2.63	2.58	2.54	2.49	2.45	2.40	2.36	2.32	2.28

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2005 amendments to Rule 4623 on September 13, 2005 and deemed this rule as being at least as stringent as established RACT requirements: 70 FR 53936, http://www.gpo.gov/fdsys/pkg/FR-2005-09-13/pdf/05-18019.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4623 is at least as stringent as the applicable federal ACT (EPA 453/R-94-001 "Alternative Control Techniques Document for Volatile Organic Liquid Storage in Floating and Fixed Roof Tanks," dated January 1994) and CTGs (EPA-450/2-77-036 "Control Techniques Guideline Document for Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed Roof Tanks," dated December 1977 & EPA-450/2-78-047 "Control Techniques Guideline Document for Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks," dated December 1978) since the requirements have not been strengthened for these regulations since the Rule 4623 RACT approval.
- NSPS Requirements:
    - NSPS subpart Kb (a)(3)(i) requires a 500 ppmv leak detection limit for vapor control systems, which is lower than the current limit in Rule 4623. However, the District's oil field tanks, which make up the majority of this source category, are exempt from this NSPS requirement because Valley oil field tanks are located upstream of the custody transfer (locations where physical substances are transported from one operator to another). While there are a couple of tanks at Valley petroleum refineries that would

be subject to subpart Kb, these facilities would already be required to comply with the NSPS requirements if they performed a major modification to their facility. As such, lowering the limit would not generate additional emission reductions.
    - In March 2013 EPA proposed amendments to the NSPS for storage tanks used in crude oil and natural gas production. These amendments are intended to facilitate compliance with the standards and clarify requirements. The District will evaluate any changes to the NSPS following EPA's final approval later this year further during the development of the next ozone plan.
- There are no applicable NESHAP or MACT guidelines.
- Rule 4623 is at least as stringent as other California air districts' rules for similar sources, including: VCAPCD Rule 71.2 (Storage of Reactive Organic Compound Liquids) and BAAQMD Regulation 8 Rule 5 (Storage of Organic Liquids). SMAQMD does not have a regulation applicable to this source category.
    - South Coast Rule 463 (Organic Liquid Storage) was amended in November 2011 to allow alternative test methods to demonstrate compliance with vapor pressure standards. The rule amendment also updated the vapor tightness definition to align with SCAQMD Rule 1178 (Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities), which in turn lowered the leak detection limit to match the NSPS limit of 500 ppmv. The SCAQMD region has more sources that would be applicable to NSPS subpart Kb, as there are much more and much larger petroleum refineries than the Valley. As discussed above, lowering the leak detection limit to match NSPS subpart Kb requirements would not generate additional emission reductions for the Valley. Also, as evidenced by EPA's January 2012 approval of Rule 4623, this leak detection limit of 500 ppmv is beyond RACT.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See pages 4-253 through 4-254 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- There are a couple District BACT standards more stringent than what is currently required in Rule 4623; however, additional add-on controls are beyond RACT and not technologically feasible and cost effective for all facilities subject to Rule 4623. In addition, Rule 4623 is already so stringent that the additional emission reductions from additional controls would be minimal. These BACT requirements do not represent feasible opportunities at this time.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.4.13 RULE 4624 TRANSFER OF ORGANIC LIQUID

Applicability

This rule applies to organic liquid transfer facilities. The purpose of this rule is to limit VOC emissions from the transfer of organic liquids.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
VOC	1.14	1.18	1.19	1.21	1.23	1.25	1.27	1.29	1.31	1.33	1.35

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4624 on October 15, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 52894, http://www.gpo.gov/fdsys/pkg/FR-2009-10-15/pdf/E9-24687.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4624 is at least as stringent as the applicable federal CTG, NSPS, NESHAP, and MACT since the requirements have not been strengthened for these regulations since the Rule 4624 RACT approval. There are no ACT requirements for this source category.
- Rule 4624 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 462, SCAQMD Rule 1142, BAAQMD Regulation 8 Rule 6, BAAQMD Regulation 8 Rule 39, VCAPCD Rule 70, VCAPCD Rule 71.3, and SMAQMD Rule 447.
    - BAAQMD Regulation 8 Rule 33 was amended in April 2009 to require an emissions limit of 0.04lb VOC/1,000 gallons, which is lower than the RACT limit in current District Rule 4624.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified at that time. See pages 4-255 through 4-269 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District reviewed BACT guidelines for the District, BAAQMD, and SCAQMD and found lower limits than required by the current Rule 4624.

  - The District's BACT requirements are more stringent than BAAQMD and SCAQMD BACT requirements by requiring vapor collection vented to a thermal incinerator or flare with destruction with 99% control efficiency.
  - BAAQMD BACT requirements list an achieved in practice limit of 0.02 lb-VOC/1000 gallons for Tank Truck & Rail Car Bulk Loading, which is more stringent than Rule 4624. SCAQMD BACT requirements have fugitive leak limits for Organic Liquid Bulk Loading facilities which also may be lower than Rule 4624 limits.
- Research of the District's permit database indicates that most Valley facilities are not currently permitted for the more stringent BACT limits and BAAQMD Regulation 8 Rule 33 limits. Therefore, there may be a potential opportunity for emission reductions if it is ultimately determined that these limits are technologically feasible and cost effective as retrofits to existing facilities. The District will evaluate these limits further during the development of the next ozone plan.

Recommendation

RACT is already in place for this source category. However, as the BAAQMD Regulation 8 Rule 33 limit is beyond RACT and the Valley ozone is not as responsive to VOC reductions as it is to NOx reductions the District recommends evaluating the potential of the aforementioned BACT requirements and BAAQMD Regulation 8 Rule 33 during the development of the next ozone plan. As such, there are no recommendations for further regulatory action at this time.

C.5 MANAGED BURNING

Managed burning is the controlled burning of materials. There are three types of managed burning that occur in the Valley including open burning of agricultural materials, hazard reduction burning, and prescribed burning. This managed burning control measure source category affects burning and disposal activities conducted by the agricultural industry, residents in the wildland/urban interface, and land management agencies operating on the Valley floor and within the National Parks and Forests.

For many years, the District managed the smoke impacts from the open burning of agricultural materials through a system of county-wide burn/no-burn days. In 2004, the District established the Smoke Management System (SMS), a more refined method of authorizing or prohibiting individual burns based on modeled smoke impacts. The SMS user considers projected meteorological conditions and air quality forecasts to determine the allowable amount and location of agricultural burning. Properly managed burning allocations under the existing District SMS ensure that air quality and health impacts of open burning of agricultural materials are minimized to the fullest extent, reducing public exposure to smoke and contributing to improvements to general air quality in the Valley. Under the SMS, agricultural burning is prohibited on days when an exceedance of a federal standard is forecast to occur. The implementation of the District's SMS, District Rule 4103 (Open Burning), and the use of sustainable agricultural practices have reduced the amount of materials being burned, thus resulting in reduced ozone emissions.

Until recently, Land Management Agencies (LMAs) operated under a policy where naturally ignited wildfires (i.e. lightning strikes) were viewed as unhealthy and destructive for the ecosystem, and therefore were actively suppressed upon discovery. As this policy continued through the decades, the amount of fuel (dead plant materials, etc.) in the Sierra Nevada Mountains grew, which increased the likelihood of uncontrollable wildfires. It was later determined that fire is a natural part of the ecosystem, and that fire is necessary to reduce fuels on the forest floors to give space and a chance for new trees to grow, thus ensuring the health and continuity of the ecosystem. To achieve this, LMAs within the Valley currently conduct prescribed burning to reduce fuels in areas that are determined to be overgrown. Through these efforts, LMAs are able to burn on days when it is favorable from both meteorological and air quality considerations. Through District Rule 4106, a LMA must request authorization from the District before beginning a prescribed burn operation. This gives the District the discretion to not allow prescribed burning on days when dispersion and/or air quality is poor. This reduces emissions and protects public health by only allowing prescribed burning on days when smoke dispersion is favorable, thus reducing the chance for high concentrations of smoke to occur in nearby communities.

Similarly, hazard reduction burning occurs in communities that are within the wildland/urban interface, where homes and businesses in the foothills are often surrounded by dry brush. This fuel must be disposed of each year to ensure a barrier of

fire protection of 100 feet in all directions, per Section 4291 of the California Public Resources Code. This disposal is usually in the form of burning, and as with prescribed burning, this is only allowed if the District forecasts favorable meteorological and air quality conditions.

Regulatory Evaluation

The following is a list of rules specific to the Managed Burning category. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emission reductions.

Table C-7 Current Managed Burning Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4103	Open Burning	6/18/1992	4/15/2010	NOx, VOC, SOx, PM
4106	Prescribed Burning and Hazard Reduction Burning	6/21/2001	n/a	NOx, VOC, SOx, PM

C.5.1 RULE 4103 OPEN BURNING

Applicability

The provisions of Rule 4103 apply to open burning of agricultural materials conducted in the Valley, with the exception of prescribed burning and hazard reduction burning, as defined in Rule 4106 (Prescribed Burning and Hazard Reduction Burning). The purpose of this rule is to permit, regulate, and coordinate the use of open burning while minimizing smoke impacts on the public.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	1.76	1.84	1.84	1.83	1.83	1.82	1.82	1.81	1.80	1.80	1.79
VOC	2.06	2.20	2.19	2.18	2.18	2.17	2.16	2.16	2.15	2.14	2.14

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2010 amendments to Rule 4103 on January 4, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 214, http://www.gpo.gov/fdsys/pkg/FR-2012-01-04/pdf/2011-33660.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- There are no specific federal guidelines for open burning in terms of NSPS, CTG, ACT, MACT, and NESHAP.
- Rule 4103 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 444, BAAQMD Regulation 5, SMAQMD Rule 407, Placer County Rule 302, and VCAPCD Rule 56.
    - Placer County Rule 302 was amended on February 9, 2012; however, the amendment did not implement any requirements more stringent than the requirements in Rule 4103.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-8 through 4-20 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:

- Chipping and Biomass for Citrus Orchard Removal Material: the District is unsure if biomass plants will accept citrus, especially once the economy improves and construction material is more abundant, because there is additional processing and costs required to make the citrus chips acceptable as fuel. As described in the District's *2012 Update: Recommendations on Agricultural Burning*, there has not been a significant increase in biomass fuel consumption or storage capacity from the addition of new/converted facilities. While there are concerns regarding the cost effectiveness and feasibility of chipping and biomass efforts for the removal of citrus material, the District will continue to evaluate this opportunity in the future.
- Air Curtain Burner Technology to Reduce Emissions from Raisin Tray Burning: the District funded a project through its Technology Advancement Program to test a prototype air curtain burner to reduce emissions from the open burning of raisin trays. The technology successfully demonstrated zero visible emissions and proved to be an improvement over open burning practices. It is still unclear if the technology is cost effective when compared to current practices so the District will evaluate it in the future as it becomes more commercially available.
- See pages D-85 through D-89 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time. The recommendation is to reevaluate this source category in 2015, as committed to in the Rule 4103 amendment project completed in 2010 and in the *2012 PM2.5 Plan*.

C.5.2 RULE 4106 PRESCRIBED BURNING AND HAZARD REDUCTION BURNING

Applicability

This rule applies to all prescribed burning and hazard reduction burning in the wildland/urban interface. The purpose of this rule is to permit, regulate, and coordinate the use of prescribed burning and hazard reduction burning while minimizing smoke impacts on the public.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31	6.31
VOC	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64

Regulatory Evaluation

EPA Approved	EPA Approval Year	Regulatory Actions Since EPA Approval:		
		Federal	State	Local
Yes	2002	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval for the 2001 adoption of Rule 4106 on February 27, 2002. 67 FR 8894, http://www.gpo.gov/fdsys/pkg/FR-2002-02-27/pdf/02-4526.pdf
- Rule 4106 was evaluated in the *2009 RACT SIP* demonstration; however EPA's Technical Support Document for the partial approval/partial disapproval of the *2009 RACT SIP* states the rule is not subject to RACT because it is not a CTG category and it does not regulate major sources.
- There are no specific federal guidelines for prescribed burning and hazard reduction burning in terms of ACT, NSPS, CTG, MACT and NESHAP.
- Rule 4106 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 444, BAAQMD Regulation 5, SMAQMD Rule 501, VCAPCD Rule 56, and Placer County APCD Rule 301 and Rule 303.
    - Placer County Rules 301 and 303 were amended on February 9, 2012; however, the amendments did not implement any requirements more stringent than the requirements in Rule 4106.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-24 through 4-38 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:

- **For Prescribed Burning:**
  - Firebox Air Curtain Burners: as opposed to open burning, a Land Management Agency may be able to mechanically remove material from the project site and use a firebox air curtain burner. Firebox air curtain burners greatly reduce PM and carbon dioxide emissions, but can result in more NOx emissions than open burning. This alternative was found to not be cost effective.
- **For Hazard Reduction Burning:**
  - Reorganization of Hazard Reduction Zones: under Rule 4106, hazard reduction burning is only allowed when the District forecasts favorable air quality and dispersion conditions based on a county-by-county basis, with appropriate elevation breaks. As an improvement to this zone system, and similar to agricultural burning, the Valley could be separated into smaller hazard reduction zones to provide more effective smoke management. Establishing this type of management system would not cause an increase in costs for landowners, making this a cost effective opportunity. However, emissions reduced would be minimal, since the burning would still occur, just on different days when conditions are favorable.
  - Chipping: section 4291 of the California Public Resources Code states that structures must maintain a defensible perimeter of 100 feet in all directions; this defensible perimeter is commonly created through the clearing and burning of vegetation. Chippers are not a viable alternative because the requirement of the defensible perimeter of 100 feet is enforced annually; therefore, the types of materials to be cleared and disposed of are leaves, pine needles, weeds, and some small brush, all of which are not acceptable materials for wood chippers. The amount of useable material produced from this type of chipping would be negligible.
  - Firebox Air Curtain Burners: as described above, this option is not cost effective.
  - Biomass Removal Program: the District evaluated implementing a program similar to Placer County's successful "Biomass Box" program, which collects the biomass from a hazard reduction area and sends it for combustion at a biomass plant. Due to the Valley's unique geography, the number of boxes needed and the mileage required to distribute, collect, and transport the materials to a biomass power plant would be significant, likely resulting in increased truck emissions. A program similar to Placer County's may not result in the same cost effectiveness and overall benefit to the Valley. The District recommended a further study to determine the feasibility of this type of program in the *2012 PM2.5 Plan.*

- See pages D-90 through D-95 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

This source category is exempt from RACT, and as described above, there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time. The recommendation is to conduct a further study to determine the feasibility of utilizing a biomass removal program similar to that in Placer County, as committed to in the *2012 PM2.5 Plan*.

C.6 AGRICULTURAL PROCESSES

For many years, the Valley's agricultural community has employed sound practices to mitigate emissions from agricultural processes including land management activities and confined animal facilities. However, prior to 2004, agricultural operations were exempt from air permitting requirements in California. Agricultural processors were regulated as permitted sources and regulation of agricultural emissions was limited to Title 13 restrictions on open burning.

In September 2003, Governor Gray Davis signed Senate Bill 700 (2003) which amended air pollution control requirements in the California Health and Safety Code to include requirements for agricultural sources of air pollution. Since then, the District has implemented a series of stringent prohibitory regulations that added more oversight to agricultural operations and set new emission control requirements. The agricultural sector has responded with significant investments in new emission control programs, and considerable changes to their longstanding practices. Collectively, the mitigation measures implemented have met or exceeded desired PM10 and VOC emissions reductions. The agricultural community has also replaced thousands of old, high-emitting diesel irrigation engines with cleaner, more efficient engines and electric motors with the assistance of District grant programs.

For the purposes of this ozone plan, this control measure source category is limited to those practices which have the potential to emit VOCs and excludes practices that emit only particulate matter, as those practices are relevant to and evaluated in the District's *2012 PM2.5 Plan*. This control measure source category includes confined animal facilities, where animals are corralled, penned, or otherwise caused to remain in restricted areas for commercial purposes. For the discussions about engines or other combustion devices used at these sources, refer to the Combustion Devices control measure source category discussion of this appendix.

Regulatory Evaluation

The following is a rule specific to the Agricultural Processes category. The following rule is evaluated in this appendix to examine potential opportunities for additional emission reductions. Refer to other sections of this appendix for discussions on other rules that may be applicable to the agricultural community, but that are not agriculture-specific.

Table C-8 Current Agricultural Processes Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4570	Confined Animal Facilities	6/15/2006	10/21/2010	VOC

C.6.1 RULE 4570 CONFINED ANIMAL FACILITIES

Applicability

This rule applies to any Confined Animal Facility (CAF). The purpose of this rule is to limit emissions of VOCs from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	148.64	119.75	121.15	122.55	123.94	125.35	126.74	128.14	129.54	130.93	132.33

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2010 amendments to Rule 4570 on January 17, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 2228, http://www.gpo.gov/fdsys/pkg/FR-2012-01-17/pdf/2012-582.pdf
- There are no specific federal guidelines applying to CAFs in terms of CTG, ACT, NSPS, MACT, and NESHAP.
- Rule 4570 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 223, SCAQMD Rule 1127, BAAQMD Regulation 2 Rule 10, VCAPCD Rule 23, SMAQMD Rule 496, Imperial County Air Quality Management District Rule 217, and Butte County Air Pollution Control District Rule 450.
    - VCAPCD amended Rule 23 (Exemptions) on April 12, 2011. This rule does not contain specific requirements to reduce emissions from CAFs and the rule amendment did not implement anything more stringent than the requirements in Rule 4570.
- The Yakima Regional Clean Air Agency adopted recommended practices for dairy operations on March 8, 2012 in their document *Air Quality Management Policy and Best Management Practices for Dairy Operations*. The policy requires preparation of an annual Air Quality Management Plan and implementation of Best Management Practices to reduce emissions from dairy operations; however, the requirements of District Rule 4570 are more stringent and specific.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified at that time, as the rule was determined to already meet RACT requirements and more time was needed to thoroughly evaluate other opportunities that exceeded RACT requirements. See pages 4-99 through 4-169 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- In accordance with a commitment from the *2007 Ozone Plan*, the District went on to fully evaluate any potential opportunities identified in the *2009 RACT SIP* and amend Rule 4570 as appropriate in 2010.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.7 RESIDENTIAL AND COMMERCIAL

Emissions have been significantly reduced in the Valley through several generations of regulations focused on industrial stationary sources. With emissions from stationary sources having been greatly reduced, the Valley is receiving diminishing returns from new controls on these stationary sources. The work of identifying more regulatory control measure source categories for stationary sources continues, but it is critical that Valley residents reduce emissions in their daily routines as well.

Population-wise, the Valley is California's fastest growing region, with its population expected to grow to over four and a half million by 2019. Increased population results in increased vehicle activity and consumer product use, which leads to increased pollutant emissions – potentially undermining progress made by regulations.

The District's regulatory jurisdiction is somewhat limited when it comes to pollutant sources linked to the general population. For example, ARB regulates consumer products. Also, since direct regulatory authority on motor vehicle tailpipe emissions rests with ARB and EPA, the District can only decrease pollutant emissions from vehicles through incentives, public outreach, and innovative regulations focused on fleets or indirect means.

Through the District's Healthy Air Living program, Valley residents (as well as businesses) are provided the tools to make air quality a priority in their day-to-day decisions. In addition, the District has achieved significant emission reductions from the residential sector through District regulations for residential water heaters and furnaces. There has also been success in reducing pollutant levels from the commercial sector through District regulations for bakery ovens.

There is potential for both regulatory and innovative approaches for reducing emissions from residential sources, as is shown in the following control measure discussions.

Regulatory Evaluation

The following is a list of rules specific to the Residential and Commercial category. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emission reductions.

Table C-9 Current Residential and Commercial Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4693	Bakery Ovens	5/16/2002	n/a	VOC
4902	Residential Water Heaters	6/17/1993	3/19/2009	NOx
4905	Natural Gas-Fired, Fan-Type Residential Central Furnaces	10/20/2005	n/a	NOx

C.7.1 RULE 4693 BAKERY OVENS

Applicability

The requirements of this rule apply to bakery ovens operated at major source facilities, which emit VOCs during the baking of yeast-leavened products. The purpose of this rule is to limit VOC emissions from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.39	0.44	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.50	0.51

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2002 adoption of Rule 4693 on April 26, 2004 and deemed this rule as being at least as stringent as established RACT requirements: 69 FR 22441, http://www.gpo.gov/fdsys/pkg/FR-2004-04-26/pdf/04-9279.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4693 is at least as stringent as the applicable federal ACT since the requirements have not been strengthened for this regulation since the Rule 4693 RACT approval. There are no NESHAP, MACT, NSPS, or CTG requirements for this source category.
- Rule 4693 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1153, BAAQMD Regulation 8 Rule 42, and SMAQMD Rule 458. VCAPCD does not have a specific prohibitory rule for this source category.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified at that time. See pages 4-358 through 4-360 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District identified two potential opportunities to reduce emissions from bakery operations:
    - Require a NOx standard of 30 ppmv @ 3% O2: the District's BACT database identifies 30 ppmv @ 3% O2 as achieved in practice BACT,

which can be achieved by using low NOx burners in certain bakery ovens. BACT is generally triggered for new installations or major modifications to existing units, and applying the lower NOx limit to all bakery ovens is beyond RACT. Additionally, detailed cost effectiveness and technological analyses are necessary to determine if this more stringent NOx limit will be feasible for Valley sources.

- Reduce VOC emissions from cooking by using biotrickling filters: the use of biotrickling filters can reduce ethanol emissions from the baking process. A study was conducted by PRD Tech in collaboration with EPA, USDA, and the American Baker Association that demonstrated an 80% reduction in ethanol emissions for 99.6% of the total operating time. However, this technology has not been put to commercial use. The majority of bakeries in the Valley are already equipped with catalytic or regenerative thermal oxidizers and achieve 95% control of VOC emissions. Since VOC emissions are already highly controlled for these sources, no additional VOC emission reductions are expected from this technology.

Recommendation

RACT is already in place for this source category; however, one potential opportunity to reduce emissions was identified. Therefore, the District recommends further evaluating the cost effectiveness and potential emission reductions from implementing a lower NOx emission limit for this source category during the development of the next ozone plan.

C.7.2 RULE 4902 RESIDENTIAL WATER HEATERS

Applicability

This rule applies to manufacturers, distributors, retailers, and installers of Public Utilities Commission (PUC) quality natural gas-fired residential water heaters with heat input ratings less than or equal to 75,000 British thermal units per hour (Btu/hr). The purpose of this rule is to limit NOx emissions from residential water heaters.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	1.59	1.40	1.39	1.38	1.37	1.36	1.35	1.33	1.33	1.32	1.31
VOC	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11

Regulatory Evaluation

EPA Approved	EPA Approval Year	Regulatory Actions Since EPA Approval:		
		Federal	State	Local
Yes	2010	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- Rule 4902 was evaluated in the *2009 RACT SIP* demonstration; however, EPA's Technical Support Document for the partial approval/partial disapproval of the *2009 RACT SIP* states the rule is not subject to RACT because it is not a CTG category and it does not regulate major sources.
- EPA finalized approval of the 2009 amendments to Rule 4902 on May 5, 2010: 75 FR 24408, http://www.gpo.gov/fdsys/pkg/FR-2010-05-05/pdf/2010-10404.pdf
- There is currently no federal guidance given for Rule 4902 under the federal CTG, ACT, NSPS, NESHAP, and MACT requirements.
- Rule 4902 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1121, SMAQMD Rule 414, BAAQMD Regulation 9 Rule 6, and VCAPCD Rule 74.11.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-372 through 4-374 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf
- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:
    - The use of lower emitting water heating technology: the analysis did not identify any technologically feasible and cost effective potential emission controls.

- See pages D-128 through D-131 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

This source category is exempt from RACT, and as described above, there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.7.3 RULE 4905 NATURAL GAS-FIRED, FAN-TYPE, RESIDENTIAL CENTRAL FURNACES

Applicability

This rule applies to any person who supplies, sells, offers for sale, installs, or solicits the installation of natural gas-fired, fan-type residential central furnaces, for use within the District, with a rated heat input capacity of less than 175,000 British thermal units per hour (Btu/hr), and for combination heating and cooling units with a rated cooling capacity of less than 65,000 Btu/hr. The purpose of this rule is to limit NOx emissions from these sources.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.51	0.50	0.51	0.51	0.52	0.53	0.53	0.54	0.55	0.56	0.56
VOC	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Regulatory Evaluation

EPA Approved	EPA Approval Year	Regulatory Actions Since EPA Approval:		
		Federal	State	Local
Yes	2007	No	No	Yes

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2005 amendments to Rule 4905 on May 30, 2007: 72 FR 29886, http://www.gpo.gov/fdsys/pkg/FR-2007-05-30/pdf/E7-10236.pdf
- Rule 4905 was evaluated in the *2009 RACT SIP* demonstration; however EPA's Technical Support Document for the partial approval/partial disapproval of the *2009 RACT SIP* states the rule is not subject to RACT because it is not a CTG category and it does not regulate major sources.
- There is currently no federal guidance given for Rule 4905 under the federal CTG, ACT, NSPS, NESHAP, and MACT requirements.
- Rule 4905 is at least as stringent as other California air districts' rules for similar sources, including: SMAQMD Rule 414, BAAQMD Regulation 9 Rule 4, and VCAPCD Rule 74.22.
- SCAQMD Rule 1111 was amended in November 2009 to implement more stringent NOx emission limits than the limits in Rule 4905; however, SCAQMD has funded technology development and has been evaluating whether manufacturers will be able to meet the limits in Rule 1111. The District has already committed to amend Rule 4905 in 2014 and to review SCAQMD's technology evaluation and NOx emission limits at that time.

Technology Evaluation

- The District's *2009 RACT SIP* did not identify any feasible emission reduction opportunities for this source category. See page 4-375 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

- The District evaluated the following potential emission reduction opportunities for this source category in the District's *2012 PM2.5 Plan*:
    - Lowering the NOx emission limits for new natural gas-fired, fan-type residential central furnaces: the District committed to amending Rule 4905 in the *2008 PM2.5 Plan*. This amendment is scheduled for 2014, and will lower NOx emission limits for these units, as appropriate for the Valley, based on feedback from SCAQMD about available emission reduction technologies and after evaluating the NOx emission limits within SCAQMD Rule 1111.
    - Extending the rule applicability to commercial furnaces: SCAQMD Rule 1111 currently regulates small residential and commercial furnaces less than 175,000 Btu/hr, whereas District Rule 4905 regulates residential furnaces of the same size, but not commercial furnaces. The District has committed to amending Rule 4905 in 2014 to lower the NOx emission limits; during that rule-amending project the possibility of extending the applicability of this rule to include commercial units based on technological feasibility and cost effectiveness will also be evaluated. The District will work closely with SCAQMD to discuss the findings from their technical assessments of low-NOx technologies for commercial furnaces.
    - See pages D-132 through D-134 of the plan for more information: http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/14AppendixDStationaryandArea.pdf

Recommendation

This source category is exempt from RACT, and the District has already committed to amending Rule 4905 in 2014. Therefore, there are no recommendations for further regulatory action at this time.

C.8 WASTE MANAGEMENT

Waste management is the collection, transport, processing or disposal, managing, and monitoring of waste materials. Waste materials are generated through either agricultural processes or produced by human activity and generate NOx and VOC emissions in the Valley. The effective management of these materials is essential to reduce their effect on health, the environment, and aesthetics in the Valley.

The District has put a high precedence on developing innovative waste management projects. "Waste Solutions" is one of the three technology focus areas identified in the District's Technology Advancement Program. The District defines "Waste Solutions" projects as waste systems or technologies that minimize or eliminate emissions from existing waste management systems and processes, including waste-to-fuel systems, such as dairy digesters and other bio-fuel applications. Over the last couple years, the District has been successful in funding multiple projects that fall into this category.

The Waste Management category affects multiple industries in the Valley, including but not limited to: food and agricultural processing, composting operations, landfill operations, and wastewater processes. Establishing effective emission reduction strategies for waste management practices is a key component of the District's strategy to reduce emissions and achieve federal air quality standards.

Regulatory Evaluation

The following is a list of rules specific to the Waste Management category. Each of the following rules is evaluated in this appendix to examine potential opportunities for additional emission reductions.

Table C-10 Current Waste Management Rules

Rule #	Rule Name	Adopted	Last Amended	Pollutant(s)
4302	Incinerator Burning	5/21/1992	12/16/1993	NOx, VOC
4565	Biosolids, Animal Manure, and Poultry Litter Operations	3/15/2007	n/a	VOC
4566	Organic Material Composting Operations	8/18/2011	n/a	VOC
4625	Wastewater Separators	4/11/1991	12/15/2011	VOC
4642	Solid Waste Disposal Sites	7/20/1995	4/16/1998	VOC
4651	Soil Decontamination Operations	4/16/1992	9/20/2007	VOC

C.8.1 RULE 4302 INCINERATOR BURNING

Applicability

This rule applies to any incinerator activity or equipment. The purpose of this rule is to limit air pollution by prohibiting the use of any incinerator except for multiple-chamber incinerators or one equally effective in controlling air pollution.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
VOC	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	1999	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1993 amendments to Rule 4302 on August 19, 1999 and deemed this rule as being at least as stringent as established RACT requirements: 64 FR 45170, http://www.gpo.gov/fdsys/pkg/FR-1999-08-19/pdf/99-21164.pdf
- Rule 4302 is more stringent than the applicable federal NSPS (40 CFR 60 Subpart—Standards of Performance for Incinerators) because the NSPS exempts all facilities with less than 50 tons per day charging rate. All facilities in the Valley produce less than 50 tons per day, but are still subject to Rule 4302. There are no applicable CTG, ACT, NESHAP, or MACT requirements for this source category.
- Rule 4302 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 473 (Disposal of Solid and Liquid Wastes), SMAQMD Rule 408 (Incinerator Burning), and VCAPCD Rule 57 (Incinerators). BAAQMD has no comparable rule.

Technology Evaluation

- The District did not evaluate potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. However, no new control technologies have been identified for incinerator activities or equipment.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.8.2 RULE 4565 BIOSOLIDS, ANIMAL MANURE, AND POULTRY LITTER OPERATIONS

Applicability

The provisions of this rule apply to all facilities whose throughput consist entirely or in part of biosolids, animal manure, or poultry litter and the operator who landfills, land applies, composts, or co-composts these materials. The purpose of this rule is to limit emissions of VOCs from operations involving the management of biosolids, animal manure, or poultry litter.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	22.86	19.47	19.87	20.27	20.67	20.29	20.68	21.07	21.46	21.90	22.33

This table includes emissions for both Rule 4565 and Rule 4566.

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2007 adoption of Rule 4565 on January 17, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 2228, http://www.gpo.gov/fdsys/pkg/FR-2012-01-17/pdf/2012-582.pdf
- There is no federal policy or guidance in terms of CTG, ACT, NSPS, NESHAP, or MACT describing reasonably available controls for biosolids, animal manure, or poultry litter operations.
- SCAQMD is the only other agency in the country that has a regulation for this source category, specifically Rule1133.2 (Emission Reductions from Co-Composting Operations). Based on the District's *2009 RACT SIP* analysis, SCAQMD Rule 1133.2 has less stringent requirements for smaller co-composting facilities and more stringent requirements that are not cost effective for larger co-composting facilities when compared to District Rule 4565. The District also provided additional analyses for co-composting facilities showing that all mitigation measures specified in Rule 4565 that are reasonably available are being required. EPA has determined that Rule 4565 satisfies RACT requirements for this source category based on the District's thorough analysis of both federal and California regulations and the technological and economic feasibility of the rule requirements.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-96 through 4-98 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.8.3 RULE 4566 ORGANIC MATERIAL COMPOSTING OPERATIONS

Applicability

The provisions of this rule apply to composting facilities that compost and/or stockpile organic material. The purpose of this rule is to limit emissions of VOCs from composting operations.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	21.68	18.15	18.52	18.88	19.26	18.85	19.21	19.57	19.93	20.32	20.72

This table includes emissions for both Rule 4565 and Rule 4566.

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, but EPA specified that Rule 4566 was one of the few rules not approved as RACT as part of the RACT SIP approval: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 adoption of Rule 4566 on November 29, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 71129, http://www.gpo.gov/fdsys/pkg/FR-2012-11-29/pdf/2012-28827.pdf
- There is no federal policy or guidance in terms of CTG, ACT, NSPS, NESHAP, or MACT describing reasonably available controls for organic material composting.
- SCAQMD is the only other nonattainment area that has a composting regulation for this source category, specifically Rule 1133.3 (Greenwaste Composting) that was adopted about a month prior to the Rule 4566 adoption. Based on the District's cost effectiveness analysis, it would not be economically feasible for operators to implement more stringent controls than what is currently in the rule. EPA has determined that there is not sufficient precedent to clearly define additional RACT compost controls at this time given the lack of regulatory history for organic material composting operations. Additionally, Rule 4566 satisfies, if not goes beyond, RACT and Best Available Retrofit Control Technology (BARCT) requirements for this source category based on careful evaluation of both federal and California regulations and the technological and economic feasibility of rule requirements.

Technology Evaluation

- The District conducted research and worked with the composting community to determine any additional cost effective and technologically feasible controls, beyond what is currently required in Rule 4566. Additionally, the District directed a field study from 2009-2010 (http://www.valleyair.org/busind/pto/emission_factors/Criteria/Criteria/Composting/FINAL-COMPOST-STUDY-REPORT.pdf) to measure the effectiveness of four best management practices (finished compost cover, watering system, interactive management, and smaller piles). At this time, the District has not identified any additional feasible and cost effective controls for this source category.

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.8.4 RULE 4625 WASTEWATER SEPARATORS

Applicability

This rule applies to wastewater separators including air flotation units, as defined in this rule. The requirements of this rule only apply to the separation of crude oil and water after custody transfer. The purpose of this rule is to limit VOC emissions from wastewater separators by requiring vapor loss control devices, recordkeeping, inspection, and test methods.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012, but EPA specified that Rule 4625 was one of the few rules not approved as RACT as part of the RACT SIP approval: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- EPA finalized approval of the 2011 amendments to Rule 4625 on October 22, 2012 and deemed this rule as being at least as stringent as established RACT requirements: 77 FR 64427, http://www.gpo.gov/fdsys/pkg/FR-2012-10-22/pdf/2012-25810.pdf
- Rule 4625 is at least as stringent as the applicable federal standards, including: CTG, NSPS, MACT, and NESHAP since the requirements have not been strengthened for these regulations since the Rule 4625 RACT approval. There is no applicable ACT for this source category.
- Rule 4625 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1176, BAAQMD Regulation 8 Rule 8, and VCAPCD Rule 74.8. SMAQMD does not have a comparable rule.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-270 through 4-273 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.8.5 RULE 4642 SOLID WASTE DISPOSAL SITES

Applicability

The provisions of this rule apply to any solid waste disposal sites, which have a gas collection system and/or control device in operation, or undergoing maintenance or repair. The purpose of this rule is to reduce VOC emissions from solid waste disposal sites.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	1.26	1.39	1.41	1.43	1.44	1.46	1.48	1.50	1.52	1.54	1.56

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 1998 amendments to Rule 4642 on July 26, 2001 and deemed this rule as being at least as stringent as established RACT requirements: 66 FR 38939, http://www.gpo.gov/fdsys/pkg/FR-2001-07-26/pdf/01-18535.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4642 is at least as stringent as the applicable federal NSPS and MACT since the requirements have not been strengthened for these regulations since the Rule 4642 RACT approval. There are no CTG, ACT, or NESHAP requirements for this source category.
- Rule 4642 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1150, SCAQMD Rule 1150.1, BAAQMD Regulation 8 Rule 34, VCAPCD Rule 74.17.1, and SMAQMD Rule 485.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified at that time. See pages 4-281 through 4-295 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.8.6 RULE 4651 SOIL DECONTAMINATION OPERATIONS

Applicability

This rule applies to operations involved in the excavation, transportation, handling, decontamination, and disposal of contaminated soil. The purpose of this rule is to limit VOC emissions from soil that has been contaminated with a VOC-containing liquid.

Summer Average Emission Inventory (tons per day)

Pollutant	2007	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NOx	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
VOC	0.21	0.23	0.25	0.25	0.25	0.25	0.26	0.26	0.26	0.26	0.27

Regulatory Evaluation

Approved as RACT	RACT Approval Year	Regulatory Actions Since RACT Approval:		
		Federal	State	Local
Yes	2012	No	No	No

The District's regulatory evaluation summary table above is based on the following assessment:

- EPA finalized approval of the 2007 amendments to Rule 4651 on October 30, 2009 and deemed this rule as being at least as stringent as established RACT requirements: 74 FR 56120, http://www.gpo.gov/fdsys/pkg/FR-2009-10-30/pdf/E9-26178.pdf
- EPA finalized a partial approval/partial disapproval of the *2009 RACT SIP* on January 10, 2012 and deemed this rule as still being at least as stringent as established RACT requirements: 77 FR 1417, http://www.gpo.gov/fdsys/pkg/FR-2012-01-10/pdf/2012-139.pdf
- Rule 4651 implements RACT, as determined by EPA, and there is no further national guidance (CTG or ACT) or federal regulation (NSPS, NESHAP, or MACT) to further define RACT for this category.
- Rule 4651 is at least as stringent as other California air districts' rules for similar sources, including: SCAQMD Rule 1166, BAAQMD Regulation 8 Rule 40, and VCAPCD Rule 74.29. SMAQMD does not have a comparable rule for this source category.

Technology Evaluation

- The District evaluated potential emission reduction opportunities for this source category in the District's *2009 RACT SIP*. No feasible opportunities were identified. See pages 4-296 through 4-303 of the analysis for more information: http://www.valleyair.org/Air_Quality_Plans/docs/RACTSIP-2009.pdf

Recommendation

RACT is already in place for this source category, and there are no additional feasible emission reduction opportunities. Therefore, there are no recommendations for further regulatory action at this time.

C.9 EMISSION INVENTORY CODES

Control Measure	Emission Inventory Codes
Rule 4103 (Open Burning)	670-660-0262-9842; 670-660-0262-9856; 670-660-0262-9862; 670-660-0262-9874; 670-660-0262-9884; 670-660-0262-9888; 670-660-0262-9892; 670-662-0262-9866; 670-662-0262-9878; 670-662-0262-9882; 670-668-0200-9858; 670-668-0200-9872; 670-668-0200-9886; 670-995-0240-9848; 670-668-0200-9894
Rule 4106 (Prescribed Burning and Hazard Reduction Burning)	670-666-0200-0000; 670-667-0200-0000; 670-664-0200-0000; 670-670-0200-0000
Rule 4301 (Fuel Burning Equipment)	None
Rule 4302 (Incinerator Burning)	130-130-0110-0000; 130-130-0130-0000; 130-130-0240-0000; 130-130-0324-0000; 130-130-0266-0000
Rule 4307 (Boilers, Steam Generators, and Process Heaters— 2.0 to 5.0 MMBtu/hr)	010-005-0110-0000; 010-005-0124-0000; 010-005-0130-0000; 010-005-0300-0000; 010-005-1220-0000; 020-005-0110-0000; 030-005-0110-0000; 030-005-0124-0000; 030-005-0130-0000; 030-005-1220-0000; 030-005-1530-0000; 030-010-0110-0000; 030-010-0130-0000; 030-010-1220-0000; 030-010-1600-0000; 030-015-0110-0000; 030-015-0130-0000; 040-005-0110-0000; 040-005-1530-0000; 040-010-0100-0000; 040-010-0110-0000; 040-010-0120-0000; 040-010-0130-0000; 040-010-1000-0000; 050-005-0110-0000; 050-005-0122-0000; 050-005-0124-0000; 050-005-0130-0000; 050-005-0320-0000; 050-005-1100-0000; 050-005-1220-0000; 050-005-1510-0000; 050-005-1520-0000; 050-005-3220-0000; 050-010-0110-0000; 050-010-0120-0000; 050-010-0320-0000; 050-010-1220-0000; 050-010-1500-0000; 052-005-0110-0000; 052-005-0124-0000; 052-005-1220-0000; 052-010-0110-0000; 052-010-0120-0000; 052-010-1224-0000; 060-005-0110-0000; 060-005-0122-0000; 060-005-0124-0000; 060-005-0130-0000; 060-005-0142-0000; 060-005-0144-0000; 060-005-0320-0000; 060-005-1220-0000; 060-005-1510-0000; 060-005-1520-0000; 060-010-0100-0000; 060-010-0110-0000; 060-010-0120-0000; 060-010-0142-0000 The EICs are the same for Rules 4306/4320, 4307, and 4308; the three rules share a combined emission inventory. Baseline emissions from the 2008 and 2009 rule amendments of these rules were used to determine the percentage of emissions for each rule. Those respective percentages are applied to the combined inventory to get the individual emission inventories.

Control Measure	Emission Inventory Codes
Rule 4308 (Boilers, Steam Generators and Process Heaters— 0.075 MMBtu/hr to less than 2.0 MMBtu/hr)	The EICs are the same for Rules 4306/4320, 4307, and 4308; the three rules share a combined emission inventory. Baseline emissions from the 2008 and 2009 rule amendments of these rules were used to determine the percentage of emissions for each rule. Those respective percentages are applied to the combined inventory to get the individual emission inventories. See Rule 4307 for the EICs.
Rule 4309 (Dryers, Dehydrators, and Ovens)	430-422-7078-0000; 430-424-7006-0000; 430-995-7000-0000; 499-995-0000-0000; 499-995-5630-0000
Rule 4311 (Flares)	110-132-0130-0000; 110-132-0146-0000; 120-132-0136-0000; 130-132-0110-0000; 130-132-0136-0000; 310-320-0010-0000; 310-320-0110-0000; 310-320-0120-0000; 310-320-0130-0000; 320-320-0010-0000; 320-320-0110-0000; 320-320-0120-0000; 320-320-0130-0000
Rule 4313 (Lime Kilns)	Lime kilns are not included in the ARB emissions inventory. There are no lime kilns currently operating in the Valley.
Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr)	The EICs are the same for Rules 4306/4320, 4307, and 4308; the three rules share a combined emission inventory. Baseline emissions from the 2008 and 2009 rule amendments of these rules were used to determine the percentage of emissions for each rule. Those respective percentages are applied to the combined inventory to get the individual emission inventories. See Rule 4307 for the EICs.
Rule 4352 (Solid Fuel Fired Boilers, Steam Generators, and Process Heaters)	010-005-0214-0000; 010-005-0218-0000; 010-005-0220-0000; 010-005-0240-0000; 010-005-0243-0000; 010-005-0254-0000; 020-005-0218-0000; 020-005-0230-0000; 030-005-0214-0000; 050-005-0214-0000; 050-005-0240-0000; 050-005-0254-0000; 052-005-0240-0000; 060-005-0240-0000
Rule 4354 (Glass Melting Furnaces)	460-460-7037-0000; 460-460-7038-0000; 460-460-7039-0000
Rule 4401 (Steam-Enhanced Crude Oil Production Wells)	310-342-1600-0000; 310-344-1600-0000; 310-346-1600-0000; 310-348-1600-0000
Rule 4402 (Crude Oil Production Sumps)	310-300-1600-0000
Rule 4404 (Heavy Oil Test Station - Kern County)	310-350-1600-0000
Rule 4407 (In-Situ Combustion Well Vents)	The emissions from this source category are accounted for in Rule 4401.
Rule 4408 (Glycol Dehydration Systems)	The emissions from this source category are accounted for in Rule 4409.

Control Measure	Emission Inventory Codes
Rule 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities)	310-302-0110-0000; 310-302-1600-0000; 310-304-1600-0000; 310-306-1600-0000; 310-308-1600-0000; 310-308-0110-0000; 310-310-0110-0000; 310-310-1600-0000; 310-316-1600-0000; 310-352-0100-0000; 310-356-0110-0000
Rule 4453 (Refinery Vacuum Producing Devices or Systems)	The emissions from this source category are accounted for in Rule 4409.
Rule 4454 (Refinery Process Unit Turnaround)	The emissions from this source category are accounted for in Rule 4409.
Rule 4455 (Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants)	320-302-0010-0000; 320-304-0010-0000; 320-306-0010-0000; 320-316-0010-0000
Rule 4565 (Biosolids, Animal Manure, and Poultry Litter Operations)	199-170-0240-0000; 199-170-0260-0000; 199-190-0010-0000; 199-190-0110-0000; 199-190-0300-0000; 199-995-0000-0000; 199-995-0130-0000; 199-995-0240-0000; 199-995-0260-0000; 199-995-0300-0000; 199-995-0324-0000 The EICs are the same for Rules 4565 and 4566; the two rules share a combined emission inventory.
Rule 4566 (Organic Material Composting Operations)	The EICs are the same for Rules 4565 and 4566; the two rules share a combined emission inventory.
Rule 4570 (Confined Animal Facilities)	620-618-0262-0101; 620-618-0262-0102; 620-618-0262-0103; 620-618-0262-0104; 620-618-0262-0105; 620-618-0262-0106; 620-618-0262-0107; 620-618-0262-0108; 620-618-0262-0109; 620-618-0262-0110; 620-618-0263-0000
Rule 4601 (Architectural Coatings)	520-520-91XX-0000; 520-520-92XX-0000
Rule 4602 (Motor Vehicle Assembly Coatings)	The emissions from this source category are accounted for in Rule 4612.
Rule 4603 (Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts)	230-226-9000-0000; 230-226-9100-0000; 230-226-9200-0000; 230-230-9020-0000; 230-230-9050-0000; 230-230-9052-0000; 230-230-9054-0000; 230-230-9100-0000; 230-230-9200-0000
Rule 4604 (Can and Coil Coating Operations)	230-228-9000-0000; 230-228-9020-0000; 230-228-9052-0000; 230-228-9057-0000; 230-228-9100-0000; 230-228-9200-0000
Rule 4605 (Aerospace Assembly and Component Coating Operations)	230-238-9000-0000, 230-238-9020-0000; 230-238-9100-0000, 230-238-9200-0000
Rule 4606 (Wood Products and Flat Wood Paneling Products Coating Operations)	230-232-9000-0000; 230-232-9020-0000; 230-232-9040-0000; 230-232-9052-0000; 230-232-9054-0000; 230-232-9100-0000; 230-232-9200-0000

Control Measure	Emission Inventory Codes
Rule 4607 (Graphic Arts and Paper, Film, Foil, and Fabric Coatings)	230-222-9000-0000, 230-222-9100-0000, 230-224-9200-0000; 240-240-3202-0000; 240-240-3314-0000; 240-240-8302-0000; 240-260-8400-0000; 240-262-8400-0000; 240-264-8400-0000; 240-266-8350-0000; 240-266-8400-0000; 240-268-8400-0000; 240-995-8000-0000; 240-995-8400-0000
Rule 4610 (Glass Coating Operations)	The emissions from this source category are accounted for in Rule 4354.
Rule 4612 (Motor Vehicle and Mobile Equipment Coating Operations)	230-218-9000-0000; 230-218-9010-0000; 230-218-9020-0000; 230-218-9050-0000; 230-218-9054-0000; 230-218-9100-0000; 230-218-9200-0000
Rule 4621 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants)	330-395-1100-0000; 330-374-1100-0000; 330-330-1110-0000; 330-397-1100-0000; 330-390-1100-0000; 330-390-1400-0000; 330-396-1100-0000; 330-330-1000-0000; 330-376-1100-0000; 330-382-1100-0000; 330-384-1100-0000; 330-384-1110-0000; 330-382-1110-0000; 330-382-1120-0000; 330-384-1120-0000; 330-390-0010-0000
Rule 4622 (Gasoline Transfer into Motor Vehicle Fuel Tanks)	330-378-1100-0000; 330-380-1100-0000
Rule 4623 (Storage of Organic Liquids)	310-326-1600-0000; 310-328-1600-0000; 310-995-1600-0000; 320-326-1000-0000; 320-326-1214-0000; 320-326-1410-0000; 320-326-1610-0000; 320-328-1000-0000; 320-328-1110-0000; 320-328-1214-0000; 320-328-1410-0000; 320-328-1610-0000; 330-326-1110-0000; 330-326-1420-0000; 330-328-1000-0000; 330-328-1110-0000; 330-328-1600-0000; 330-328-1610-0000; 430-328-7006-0000
Rule 4624 (Transfer of Organic Liquid)	330-302-0010-0000; 330-995-0110-0000; 330-304-0010-0000; 330-995-0010-0000; 330-316-0010-0000; 330-318-0110-0000
Rule 4625 (Wastewater Separators)	320-340-0010-0000
Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations)	540-560-0400-0000; 540-562-0400-0000; 540-564-0400-0000; 540-566-0400-0000
Rule 4642 (Solid Waste Disposal Sites)	120-120-0240-0000; 120-122-0242-0000
Rule 4651 (Soil Decontamination Operations)	140-995-0010-0000; 140-995-0110-0000; 140-995-0120-0000; 140-995-0240-0000; 330-995-0010-0000
Rule 4652 (Coatings and Ink Manufacturing)	410-995-8400-0000; 410-407-9000-0000
Rule 4653 (Adhesives and Sealants)	250-292-8200-0000; 250-292-8202-0000; 250-292-8250-0000
Rule 4661 (Organic Solvents)	The emissions from this source category are accounted for in Rules 4662 and 4663.

Control Measure	Emission Inventory Codes
Rule 4662 (Organic Solvent Degreasing Operations)	220-204-0500-0000; 220-204-3008-0000; 220-204-3022-0000; 220-204-3083-0000; 220-204-3176-0000; 220-204-3204-0000; 220-204-3246-0000; 220-204-3333-0000; 220-204-3339-0000; 220-204-3344-0000; 220-204-8104-0000; 220-204-8106-0000; 220-206-3083-0000; 220-206-3107-0000; 220-206-3246-0000; 220-206-3300-0000; 220-206-3301-0000; 220-206-3328-0000; 220-206-3344-0000; 220-206-3346-0000; 220-206-8106-0000
Rule 4663 (Organic Solvent Cleaning, Storage, and Disposal)	220-208-0500-0000; 220-208-3022-0000; 220-208-3083-0000; 220-208-3176-0000; 220-208-3204-0000; 220-208-3246-0000; 220-208-3333-0000; 220-208-3339-0000; 220-208-3344-0000; 220-208-3346-0000; 220-208-8104-0000; 220-208-8106-0000; 230-216-8350-0000; 230-240-0500-0000; 230-240-3008-0000; 230-240-3060-0000; 230-240-3202-0000; 230-240-3232-0000; 230-240-3252-0000; 230-240-3372-0000; 230-240-8300-0000; 230-240-8302-0000; 230-240-8350
Rule 4672 (Petroleum Solvent Dry Cleaning Operations)	210-200-3300-00000; 210-200-8102-0000; 210-200-8150-0000
Rule 4681 (Rubber Tire Manufacturing)	410-402-0248-0000
Rule 4682 (Polystyrene, Polyethylene, and Polypropylene Products Manufacturing)	410-404-5034-0000; 410-404-5036-0000; 410-404-5038-0000; 410-404-5044-0000; 410-404-5046-0000
Rule 4684 (Polyester Resin Operations)	410-403-5018-0000; 410-404-5016-0000; 410-404-5028-0000; 410-404-5030-0000
Rule 4691 (Vegetable Oil Processing Operations)	420-420-6030-0000
Rule 4693 (Bakery Ovens)	420-412-6012-0000; 420-412-6037-0000
Rule 4694 (Wine Fermentation and Storage Tanks)	420-408-6090-0000
Rule 4695 (Brandy Aging and Wine Aging Operations)	420-410-6090-0000
Rule 4702 (Internal Combustion Engines)	010-040-0110-0000; 010-040-1200-0000; 020-040-0110-0000; 020-040-1200-0000; 030-040-0110-0000; 030-040-0124-0000; 030-040-1200-0000; 030-040-1210-0000; 040-040-0110-0000; 050-040-0012-0000; 050-040-0110-0000; 050-040-0124-0000; 050-040-1200-0000; 052-040-0110-0000; 052-040-1200-0000; 052-042-0110-0000; 052-042-1200-0000; 052-042-1200-0010; 052-042-1200-0011; 060-040-0110-0000; 060-040-0124-0000; 060-040-0142-0000; 060-040-0146-0000; 060-040-1100-0000; 060-040-1200-0000; 060-040-1210-0000; 060-995-1220-0000; 099-040-1200-0000
Rule 4703 (Stationary Gas Turbines)	010-045-0110-0000; 010-045-1200-0000; 020-045-0110-0000; 030-045-0110-0000; 040-045-0134-0000; 050-045-1200-0000;

Control Measure	Emission Inventory Codes
	060-045-0110-0000; 060-045-1200-0000
Rule 4902 (Residential Water Heaters)	610-608-0110-0000
Rule 4905 (Natural Gas-Fired, Fan-Type Residential Central Furnaces)	610-606-0110-0000