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REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT)

STATE IMPLEMENTATION PLAN (SIP) REVISION

FOR THE SOUTH SUTTER COUNTY PORTION OF THE

SACRAMENTO METROPOLITAN NONATTAINMENT AREA FOR 8-HOUR OZONE

NEGATIVE DECLARATION FOR CONTROL

TECHNIQUES GUIDELINES FOR THE OIL AND NATURAL GAS

INDUSTRY

Staff Report

Released July 6, 2018

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EXECUTIVE SUMMARY

The Clean Air Act requires certain sources in ozone nonattainment areas to implement control methods called Reasonably Available Control Technology (RACT). The United States Environmental Protection Agency defines RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

The RACT requirement is meant to ensure that moderate and above ozone nonattainment areas have in place all RACT for source categories covered by a Control Techniques Guidelines (CTG) document and for major sources of volatile organic compounds or oxides of nitrogen that are not subject to a CTG. A local Air District adopts the control methods if it has a source in its area subject to a CTG. Alternatively, the local District may declare that there are no sources in its area subject to a RACT requirement, and then the requirement to adopt a rule for those sources is no longer applicable. This is known as a "Negative Declaration." The RACT determination and/or Negative Declaration should be submitted by each nonattainment area within two years from the effective date of the designation or as specified in the document promulgating a new CTG.

The Feather River Air Quality Management District (District) has prepared this RACT revision for sources located in the south Sutter County portion of the Sacramento Metro nonattainment area. This area was designated as severe nonattainment for the 8-hour ozone national ambient air quality standard. Previous RACT SIP revisions were adopted by the District in 2006, 2009, and 2014.

This RACT revision considers the CTG for the Oil and Natural Gas Industry adopted by the US EPA in 2016. The District evaluated the CTG for applicability in the nonattainment area and determined there are no sources in the South Sutter County portion of the Sacramento Metro ozone nonattainment area subject to the CTG.

The District has prepared a Negative Declaration for this CTG. The District also commits to adopt and implement RACT in the event that a source to which a CTG applies is identified in the nonattainment area in the future.

The Negative Declaration must be approved by the District Board of Directors, and is subject to public notice and a public hearing pursuant to Section 110(a) of the Federal Clean Air Act. Once approved, the Negative Declaration for RACT SIP will be submitted to the US EPA as a revision to the State Implementation Plan (SIP).

BACKGROUND

NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE

The Clean Air Act (CAA) was adopted in 1970. The legislation authorized the development of comprehensive federal and state regulations to limit emissions from stationary and mobile sources. The CAA was amended in 1977 and again in 1990. The CAA and amendments require the United States Environmental Protection Agency (US EPA) to adopt national ambient air quality standards (NAAQS) for six criteria pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. US EPA formally designates areas as “nonattainment” (not meeting the standard), “unclassifiable/attainment” (meeting the standard or expected to be meeting the standard despite a lack of monitoring data), or “unclassifiable” (insufficient data to classify). The CAA requires US EPA to conduct a periodic review of the science upon which the standards are based and the standards themselves.

Ground level ozone is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight. Ozone-related adverse health effects range from decreased lung function and increased respiratory symptoms to serious indicators of respiratory morbidity including emergency department visits and hospital admissions from respiratory causes, and possibly cardiovascular-related morbidity.

The US EPA first promulgated the NAAQS for ozone in 1971 with revisions in 1979, 1997, 2008, and 2015. The standard began as a 1-hour averaging time and later changed to an 8-hour averaging time, which was determined to be more health protective.[1] The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard.

THE DISTRICT

The Feather River Air Quality Management District (District) encompasses all of Sutter and Yuba counties. The District was formed in 1991 when the two county air districts unified. The District is located in Northern California in the Sacramento Valley Air Basin and has a

[1] History of Ozone Standard https://www.epa.gov/ozone-pollution/table-historical-ozone-national-ambient-air-quality-standards-naaqs.

population of approximately 173,000[2] and a land area of 1233 square miles. The majority of land in Sutter County is agricultural and used for growing crops or livestock. There are two cities: Yuba City and Live Oak. Yuba County lies along the western slope of the Sierra Nevada mountain ranges and includes portions of the Plumas National Forest and Tahoe National Forest. The valley floor is agricultural with two cities: Marysville and Wheatland. The climate of the District is typically cool, mild winters and hot, dry summers, with about 85% of the annual rainfall falling between October and April.

OZONE NONATTAINMENT AREAS WITHIN THE DISTRICT

The southern portion of Sutter County was designated nonattainment for the 1997, 2008, and 2015 8-hour ozone NAAQS (effective August 3, 2018[3]). It is part of the Sacramento Metro, CA nonattainment area and was classified as a "severe" nonattainment area[4] under the 1997 and 2008 standards, and a "moderate" nonattainment area under the 2015 standard. The Sutter Buttes were designated marginal nonattainment for the 1997 and 2015 standards. The remaining portions of the District (northern Sutter County and Yuba County) were designated attainment for the 1997, 2008, and 2015 standards.

As described in the Federal Register[5] the south Sutter County part of the Sacramento Metro nonattainment area is the "Portion south of a line connecting the northern border of Yolo County to the SW tip of Yuba County and continuing along the southern Yuba County border to Placer County."

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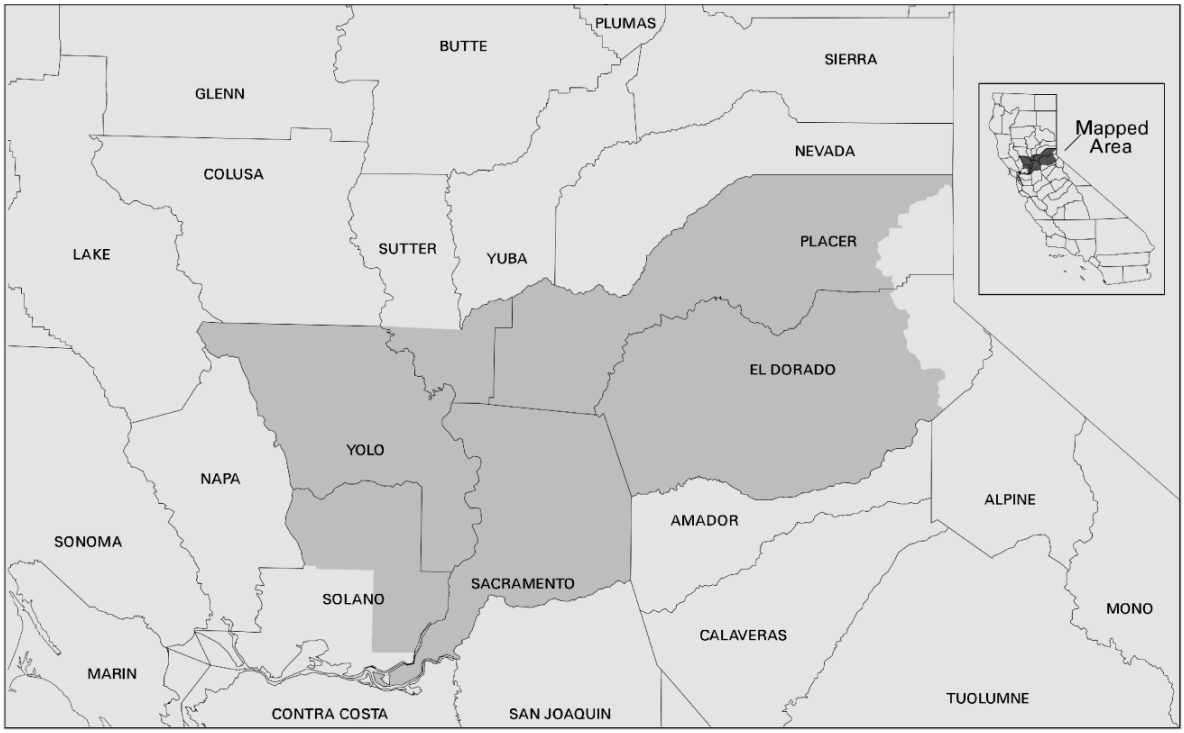
[2] US Census Bureau https://www.census.gov/programs-surveys/popest/data/tables.html June 26 2018.

[3] Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards 83 FR 25776 June 4, 2018, https://www.epa.gov/ozone-designations/additional-designations-2015-ozone-standards.

[4] Air Quality Designations for the 2008 Ozone National Ambient Air Quality Standards, 77 FR 30088-30160, May 21, 2012, https://www.gpo.gov/fdsys/pkg/FR-2012-05-21/pdf/2012-11618.pdf.

[5] 77 FR 30088, 30105, May 21, 2012.

Figure 1: Map of Sacramento Metro nonattainment area for ozone



REASONABLY AVAILABLE CONTROL TECHNOLOGY REQUIREMENT

Section 172(c)(1) of the Clean Air Act (CAA) requires certain sources in ozone nonattainment areas to implement control methods called reasonably available control technology (RACT). The US EPA defines RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology (i.e., devices, systems, process modification, or other apparatus or techniques that reduce air pollution) that is reasonably available considering technological and economic feasibility. The RACT requirement is meant to ensure that all moderate and above ozone nonattainment areas have in place all RACT for source categories covered by a Control Techniques Guidelines (CTG) document and for major sources[6] of VOC or NOx that are not subject to a CTG.

Sections 182(b)(2) and 182(f) of the CAA requires a revision to the State Implementation Plan (SIP) to implement RACT for each category of VOC sources in the ozone nonattainment areas covered by a CTG document and for any major stationary source of

[6] The definition of a *major source* is dependent on the severity of the air quality problem in a region. For the south Sutter portion of the Feather River Air Quality Management District, a severe ozone nonattainment area, the major source threshold is the potential to emit at least 25 tons per year of VOC or NOx.

VOC or NOx not covered by a CTG document. A District adopts the control methods if it has a source in its area subject to a CTG.

Alternatively, the District may declare that there are no sources in its area subject to a RACT requirement because it has no sources above the CTG's recommended applicability threshold, and then the requirement to adopt a rule for those sources is no longer applicable. This is known as a "Negative Declaration."

The Negative Declaration is subject to the public notice and hearing requirements of Section 110(a) of the CAA.

PREVIOUS RACT SUBMITTALS

2006 RACT SUBMITTAL FOR 1997 OZONE NAAQS

As part of the Sacramento Metro ozone nonattainment area for the 1997 ozone NAAQS, the District prepared a RACT Analysis for inclusion in the SIP for the CTGs issued prior to 2006 in accordance with 40 CFR 51.912. The RACT Analysis was adopted by the District's Board of Directors at the December 4, 2006 meeting.

The 2006 RACT Analysis included negative declarations for major sources in the nonattainment area and CTG source category analysis for the south Sutter County portion of the nonattainment area. The District identified one source category during the 2006 RACT Analysis that was applicable to a CTG. The District received comments from US EPA that District Rule 3.8 Storage and Transfer of Gasoline was less stringent than US EPA's CTG. In response, the District amended Rule 3.8 on June 2, 2014. The amended rule was submitted to CARB on June 27, 2014, for their transmission to the US EPA for inclusion in the SIP.

2009 RACT REVISION

Between 2006 and 2008 the US EPA issued 11 new CTG's. The District staff evaluated the new CTGs and determined that there were no applicable sources within the south Sutter County portion of the ozone nonattainment area. The source with the largest potential to emit (PTE) was a facility that repairs and paints off-road mobile equipment and agricultural implements. As discussed in the 2009 update to the RACT Analysis, the facility is subject to and permitted under District Rule 3.19 Vehicle and Mobile Equipment Coating

Operations[7], which is consistent with the national VOC rules.[8] Therefore, the District determined that the Miscellaneous Metal Parts CTG (EPA 453/R-08-003 *2008/09)* does not apply to this source. This facility also used solvents, but at a level below the applicability threshold CTG for industrial cleaning solvents (EPA-453/R-06-001, *2006/09)*.

The 2009 RACT revision identified a second source that used industrial cleaning solvents. This was an automotive repair facility and which was permitted to use 10 gallons per year of solvents, well below the 2006 Industrial Cleaning Solvents CTG applicability threshold of 15 lbs/day.

The District Board of Directors adopted the negative declaration on June 1, 2009, and it was submitted to the US EPA by CARB on October 27, 2009.

2014 RACT REVISION

The 2014 RACT revision was prepared pursuant to the 2008 revision of the 8-hour ozone NAAQS. The District determined that there were no facilities operating in the south Sutter County portion of the District that fall under a source category with RACT guidance except gasoline service stations. The District adopted Negative Declarations for all CTG's listed in Appendix C except for Design Criteria for Stage I Vapor Control Systems – Gasoline Service Stations (EPA-450/R-75-102 1975/11). The District's Rule 3.8 was revised to incorporate the provisions of the Design Criteria for Stage I Vapor Control Systems as submitted to US EPA in 2014.

All three previous RACT revisions and amendments to Rule 3.8 were approved by US EPA as a direct final action published on July 8, 2015, effective September 8, 2015[9].

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[7] Rule 3.19 was amended August 1, 2011, and submitted to US EPA for SIP approval on February 10, 2014, and approved into the SIP in 80 FR 33195 dated June 11, 2015, https://www.gpo.gov/fdsys/pkg/FR-2015-06-11/pdf/2015-14079.pdf.

[8] National Volatile Organic Compound Emission Standards (40 CFR Part 59).

[9] Revisions to the California State Implementation Plan, Feather River Air Quality Management District 80 FR 38959 July 8, 2015, https://www.gpo.gov/fdsys/pkg/FR-2015-07-08/pdf/2015-16627.pdf.

OIL AND NATURAL GAS INDUSTRY CTG

The CTG (Control Techniques Guidelines for the Oil and Natural Gas Industry, EPA-453/B-16-001, October 2016) covers select sources of VOC emissions in the onshore production and processing segments of the oil and natural gas industry (i.e., pneumatic controllers, pneumatic pumps, compressors, equipment leaks, fugitive emissions) and storage vessel VOC emissions in all segments (except distribution) of the oil and natural gas industry. The CTG provides recommendations to inform air agencies as to what constitutes RACT for selection oil and natural gas industry emission sources. A summary of the recommended RACT is included in Appendix A.

There have been several federal and state actions to reduce VOC emissions from certain emission sources in the oil and natural gas industry, including New Source Performance Standards (NSPS) published in 40 CFR 60 and a previous CTG issued in 1983.

The oil and natural gas industry includes oil and natural gas operations involved in the extraction and production of crude oil and natural gas, as well as the processing, transmission, storage, and distribution of natural gas. For the purposes of the CTG, the oil and natural gas operations were separated into four segments: (1) oil and natural gas production, (2) natural gas processing, (3) natural gas transmission and storage, and (4) natural gas distribution.

Production operations include the wells and all related processes used in the extraction, production, recovery, lifting, stabilization, and separation or treating of oil and/or natural gas (including condensate). Natural gas processing operations separate and recover natural gas liquids or other non-methane gases and liquids from a stream of produced natural gas through components performing one or more of the following processes: oil and condensate separation, water removal, separation of natural gas liquids, sulfur and Carbon Dioxide (CO_2) removal, fractionation of natural gas liquid, and other processes such as the capture of CO_2 separated from natural gas streams for delivery outside the facility. Once it's processed to produce "pipeline quality" dry natural gas, it leaves the processing segment and enters the transmission and storage segment. Pipelines in the natural gas transmission and storage segment can be interstate pipelines that carry natural gas across state boundaries or intrastate pipelines which transport the gas within a single state. To ensure that the natural gas flowing through any pipeline remains pressurized, compression of the gas is required periodically along the pipeline by compressor stations. At a compressor station, the natural gas enters the station, where it is compressed by reciprocating or centrifugal compressors. In addition to the pipelines and compressor stations, the natural gas transmission and storage segment includes aboveground and underground storage facilities. The distribution segment is the final step in delivering

natural gas to customers, and consists of thousands of miles of piping, metering stations, and sometimes compressor stations.

Emissions can occur from a variety of processes and points throughout the oil and natural gas industry. Primarily, these emissions are organic compounds such as methane, ethane, VOC, and organic hazardous air pollutants (HAP).

Section 182(b)(2) of the CAA requires that a CTG document issued between November 15, 1990, and the date of attainment include the date by which states subject to CAA section 182(b) must submit SIP revisions. The US EPA has set a 2-year period, from the effective date of publication of the notice of availability of this CTG in the Federal Register[10] for the required SIP submittal.

On March 9, 2018 (83 FR 10478)[11], the US EPA published a Notice of Proposed Withdrawal of the Control Techniques Guidelines for the Oil and Natural Gas Industry. The Federal Register notice requested public comment on a potential withdrawal of the Oil and Gas CTG. It is our understanding that the US EPA is currently reviewing submitted public comments.

RACT DETERMINATION

CTG APPLICABILITY

The District performed the following steps to determine if any sources applicable to the CTG were located in the south Sutter County ozone nonattainment area:

- District internal database of permitted stationary sources.
- Division of Oil, Gas & Geothermal Resources Well Finder website search.
- Written correspondence with current permit holders for natural gas production facilities.

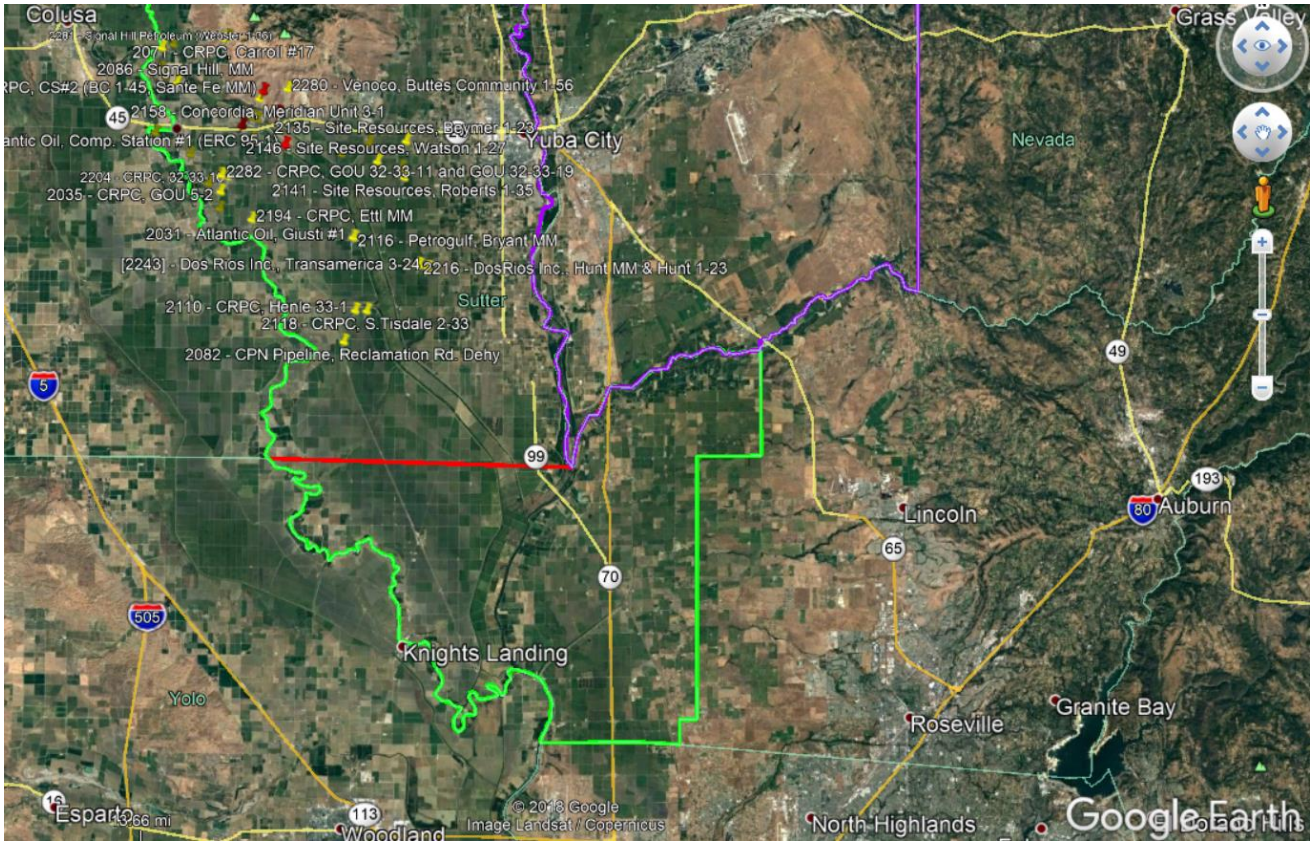
The District has 36 facilities currently under permit for natural gas production and none for oil production. There are no natural gas production operations occurring in the south Sutter County ozone nonattainment area. As shown in Figure 2 below, the operating natural gas

[10] 81 FR 74798, October 27. 2016, https://www.gpo.gov/fdsys/pkg/FR-2016-10-27/pdf/2016-25923.pdf.

[11] 83 FR 10478, March 9, 2018, https://www.gpo.gov/fdsys/pkg/FR-2018-03-09/pdf/2018-04703.pdf.

production facilities (2xxx) are all located north of the ozone nonattainment boundary line (depicted in red).

Figure 2: Current Natural Gas Production Facilities in FRAQMD



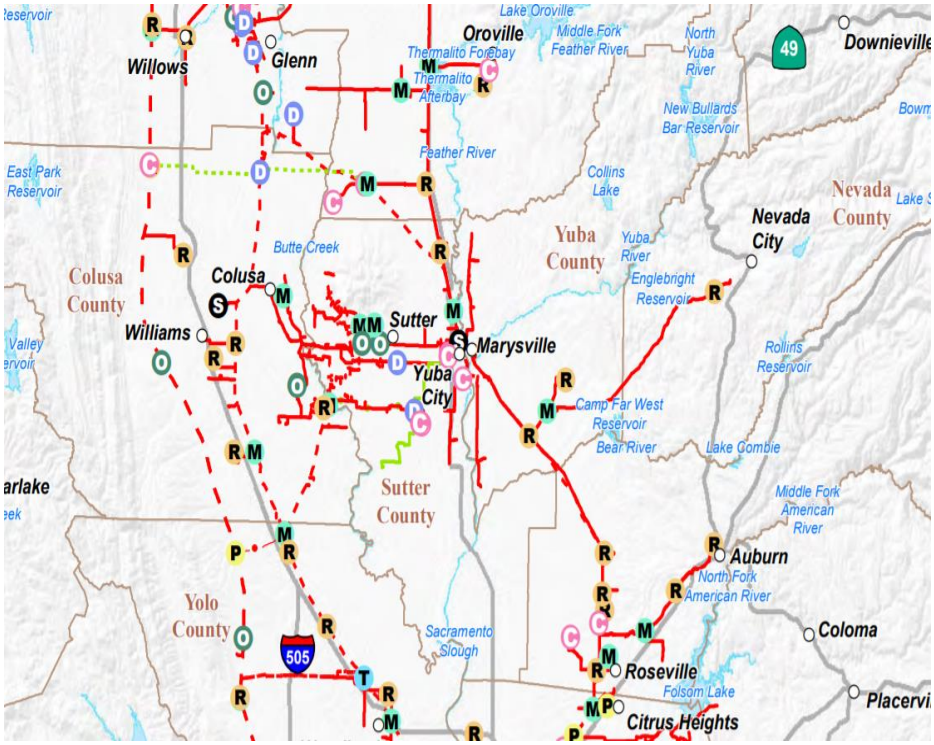
The District staff also reviewed historical permit records. There were previously two natural gas production sites in the ozone nonattainment area: Facility 2111 Wallace and Facility 2113 Fulan 1-17, both permits issued to Ivanhoe. Both facilities closed their Permits to Operate in March 2008. The facilities would be required to apply to the District for a new Authority to Construct/Permit to Operate prior to installing and operating equipment at the former sites.

The District staff also utilized the Division of Oil, Gas, & Geothermal Resources (DOGGR) website to determine if there were any currently operating production sites that were not under District permit. DOGGR has an interactive map called Well Finder that shows the wells. The District staff reviewed each site listed on the DOGGR map in the nonattainment area and confirmed there are no currently operating natural gas production wells in south Sutter County.

The District also sent out an information request to natural gas site permit holders. The request asked the permit holders to identify any emission sources within the nonattainment area and whether they had RACT installed. Two companies responded to the original information request and neither had sources in the nonattainment area. The District staff called the remaining companies and was told that they did not respond because they had no emission sources within the nonattainment area and all of the sources in the attainment area already met RACT.

There also are no pre-distribution processes involving storage tanks or vessels in the area. All oil and natural gas industry activity in the nonattainment area is part of the distribution process. All of the nonattainment area's piped natural gas is supplied by the Pacific Gas and Electric Company (PG&E). This information was confirmed in June 2018 by telephone correspondence with PG&E Representative Gary Ma. Figure 3 below is a close up of the map provided by the Energy Commission on Natural Gas Pipelines available at http://www.energy.ca.gov/maps/infrastructure/natural_gas.html. Also, there are no places where rail tank cars are loaded or unloaded, and no ports.

Figure 3: Natural Gas Pipelines and Stations In South Sutter County



NEGATIVE DECLARATION

The District staff have reviewed the CTG for the Oil and Natural Gas Industry, all permitted sources, all DOGGR well sites, and contacted permit holders outside the nonattainment area, and have concluded that there are no applicable sources subject to the CTG.

The District further commits to adopt and implement, consistent with legal requirements, the recommendations of the CTG should any source begin operations in the nonattainment area.

STATE IMPLEMENTATION PLAN SUBMITTAL

The District shall make this Negative Declaration RACT revision available for public comment beginning July 6, 2018. The District shall hold a public hearing on August 6, 2018, at which time the District Board of Directors may adopt the RACT Analysis and direct staff to forward it to the CARB and to the US EPA as a SIP revision.

Appendices

Appendix A: Summary of the Oil and Natural Gas Industry Emission Sources and Recommended RACT Included in the CTG

APPENDIX A

Summary of the Oil and Natural Gas Industry Emission Sources and Recommended RACT Included in the CTG		
Emission Source	**Applicability**	**RACT Recommendation**
Storage Vessels	Individual storage vessel with a potential to emit (PTE) greater than or equal to 6 tpy VOC.	95 percent reduction of VOC emissions from storage vessels, OR Maintain less than 4 tpy uncontrolled actual VOC emissions after having demonstrated that the uncontrolled actual VOC emissions have remained less than 4 tpy, as determined monthly, for 12 consecutive months.
Pneumatic Controllers	Individual continuous bleed, natural gas-driven pneumatic controller located at a natural gas processing plant.	Natural gas bleed rate of 0 scfh (unless there are functional needs including, but not limited to, response time, safety and positive actuation, requiring a bleed rate greater than 0 scfh).
	Individual continuous bleed natural gas-driven pneumatic controller located from the wellhead to the natural gas processing plant or point of custody transfer to an oil pipeline.	Natural gas bleed rate less than or equal to 6 scfh (unless there are functional needs including, but not limited to, response time, safety and positive actuation, requiring a bleed rate greater than 6 scfh).
Pneumatic Pumps	Individual natural gas-driven diaphragm pump located at a natural gas processing plant.	Zero VOC emissions.
	Individual natural gas-driven diaphragm pump located at a well site.	Require routing of VOC emissions from the pneumatic pump to an existing onsite control device or process.
		Require 95 percent control unless the onsite existing control device or process cannot achieve 95 percent.
		If onsite existing device or process cannot achieve 95 percent, maintain documentation demonstrating the percent reduction the control device is designed to achieve.
		If there is no existing control device at the location of the pneumatic pump, maintain records that there is no existing control device onsite.
	Individual natural gas-driven diaphragm pump located at a well site that is in operation for any period of time each calendar day for less than a total of 90 days per calendar year.	RACT would not apply.

Compressors (Centrifugal and Reciprocating)	Individual reciprocating compressor located between the wellhead and point of custody transfer to the natural gas transmission and storage segment.	Reduce VOC emissions by replacing reciprocating compressor rod packing on or before 26,000 hours of operation or 36 months since the most recent rod packing replacement. Alternatively, route rod packing emissions to a process through a closed vent system under negative pressure.
	Individual reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site.	RACT would not apply.
	Individual centrifugal compressor using wet seals that is located between the wellhead and point of custody transfer to the natural gas transmission and storage segment.	Reduce VOC emissions from each centrifugal compressor wet seal fluid gassing system by 95 percent.
	Individual centrifugal compressor using wet seals located at a well site, or an adjacent well site and servicing more than one well site	RACT would not apply.
	Individual centrifugal compressor using dry seals.	RACT would not apply.
Equipment Leaks	Equipment components in VOC service located at a natural gas processing plant.	Implement the 40 CFR part 60, subpart VVa leak detection and repair (LDAR) program for natural gas processing plants.
Fugitive Emissions	Individual well site with wells with a gas to oil ratio (GOR) greater than or equal to 300, that produce, on average, greater than 15 barrel equivalents per well per day.	Develop and implement a semiannual optical gas imaging (OGI) monitoring and repair plan that covers the collection of fugitive emissions components at well sites within a company defined area. Method 21 can be used as an alternative to OGI at a 500 ppm repair threshold level.
	Individual gathering and boosting station located from the wellhead to the point of custody transfer to the natural gas transmission and storage segment or point of custody transfer to an oil pipeline.	Develop and implement a quarterly OGI monitoring and repair plan that covers the collection of fugitive emissions components at gathering and boosting stations within a company defined area. Method 21 can be used as an alternative to OGI at a 500 ppm repair threshold.
	Individual well site with a GOR less than 300.	RACT would not apply.