

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 7.1.1\***

Last Update: 4/7/2026

**Thermally Enhanced Oil Recovery - Steam Enhanced Crude Oil Production Wells**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Vapor control system with transfer of vapors to gas pipeline or re-injection to formation. Fugitive defect** and leak*** inspection via Audio-Visual-olfactory (AVO) or Optical gas imaging (OGI) inspections once each calendar week. Upon detection of emission or defect using AVO/OGI: First repair – immediately after the emission or defect is detected; Repair completion – pursuant to applicable repair requirements of District Rule 4401. All other leak detection and repair program meeting the requirements of Rule 4401.		
SOx		SOx scrubber with 95% sulfur removal or sulfur compounds reduced to no more than 1 gr S/100 dscf	Vapor control system with either transfer of vapors to gas pipeline or re-injection to formation

\*\* as defined in 40 CFR 60.5416c(a)(2)(iii)

\*\*\* as defined in Table 2 of South Coast AQMD Rule 1173 (11/01/24)

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.1.7\***

Last Update: 6/15/2020

**Petroleum Production - Sludge Dewatering, Various Locations**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	<p>Sludge tanks, vapor piping and processing equipment (except roll-off bins handling dewatered sludge) maintained leak free (as defined in Rule 4623) and vented to a vapor collection and control system that is designed and operated to reduce the VOC in the vapor by 98 weight percent or to an VOC outlet concentration of less than 20 ppmv, dry basis as hexane at 3% O<sub>2</sub>.</p> <p>VOC control device shall be carbon adsorption (at least two carbon canister in series), thermal or catalytic oxidizer, smokeless flare or IC engine with three-way catalyst. Auxiliary fuel used in any control device shall be either natural gas or LPG fuel.</p>		
SOx	<p>Reduction in H<sub>2</sub>S in collected vapors by a minimum of 95% or to no greater than 2.0 lb SOx/day through the use of treated carbon canisters, caustic scrubber or an equivalent control device.</p>		

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.1.8\***

Last Update: 2/4/2021

**Petroleum Production - Mobile Degassing Operation for Storage Tanks and Pipelines**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	<p>Tanks, vapor piping and processing equipment maintained leak free (as defined in Rule 4623) and vented to a vapor collection and control system that is designed and operated to reduce the VOC in the vapor by 98 weight percent or to an VOC outlet concentration of less than 20 ppmv, dry basis as hexane at 3% O<sub>2</sub>.</p> <p>VOC control device shall be carbon adsorption (at least two carbon canister in series), thermal or catalytic oxidizer, smokeless air assist flare or IC engine with three-way catalyst. Auxiliary fuel used in any control device shall be either natural gas or LPG.</p>		
SO <sub>x</sub>	<p>Reduction in collected vapors by a minimum of 95% or to no greater than 2.0 lb-SO<sub>x</sub>/day through the use of treated carbon canisters, caustic scrubber or an equivalent control device.</p>		

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.1.10\***

Last Update: 7/19/2018

**Organic Liquid Loading Rack**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	Bottom fill loading (submerged pipe fill loading) with dry break couplers, or equivalent, and VOC emissions from the vapor collection and control system less than or equal to 0.015 pounds per 1,000 gallons of organic liquid transferred		

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.1.14\***

Last Update: 12/28/2021

**Crude Oil Loading Rack, TVP >= 1.5 psia**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	<p>Use of dry-break couplers or equivalent with an average disconnect loss of no greater than 8 ml liquid per disconnect,</p> <p>Inspection and maintenance program pursuant to District Rule 4624; and</p> <p>Emissions controlled to less than 0.08 pounds per 1,000 gallons (for Rule 4624 Class 1 operations), or 95% by weight of the VOC displaced during organic liquid transfers of organic liquid transferred (for Rule 4624 Class 2 operations), use one of the below control methods, or equivalent:</p> <p>A vapor collection and control system, or</p> <p>Route the transferred liquid to a fixed roof container that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); or</p> <p>Route the transferred liquid to a floating roof container that meets the control requirements specified in Rule 4623; or</p> <p>Route the transferred liquid to a pressure vessel equipped with an APCO-approved vapor recovery system that meets the control requirements specified in Rule 4623 or</p> <p>Closed VOC emission control system</p>		

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.1.15\***

Last Update: 9/15/2021

**Biodiesel/Glycerol Production Operation**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	100% capture (feedstock drying tanks, reactor vessels, acid treatment tanks, neutralization tanks, fatty acid tanks, and surge tanks all fully enclosed and vented to control device) and 99.5% VOC control by weight		

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**Best Available Control Technology (BACT) Guideline 7.2.2\***

Last Update: 7/22/2020

**Petroleum Refining - Valves & Connectors**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC or as a reading of methane, in excess of 100 ppmv above background when measured per EPA Method 21, for all components, and an Inspection and Maintenance Program pursuant to District Rule 4455		

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.2.3\***

Last Update: 7/22/2020

**Petroleum Refining - Pump and Compressor Seals**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC or as a reading of methane, in excess of 500 ppmv above background when measured per EPA Method 21, for all components, and an Inspection and Maintenance Program pursuant to District Rule 4455		

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San Joaquin Valley  
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**Best Available Control Technology (BACT) Guideline 7.2.5\***

Last Update: 12/30/2020

**Petroleum Refineries and Chemical Plants - Diesel Fuel Processing, Sulfur Recovery Plant**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
SOx	Sulfur recovery unit with tail gas treating unit to treat gas to =< 10 ppmv H2S (based on a three-hour, moving average) and a standby incinerator - except during startup and shutdown	Sulfur recovery unit with two tail gas treating units in parallel (one as standby) to treat gas to =< 10 ppmv H2S (based on a three-hour, moving average) and a standby incinerator - except during startup and shutdown	

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**Best Available Control Technology (BACT) Guideline 7.2.7\***

Last Update: 8/24/2020

**Natural Gas Processing Plant - Valves, Connectors, Flanges, Pressure Relief Device, Compressor Seals, and Pump Seals**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	<p>Inspection and maintenance program pursuant to District Rule 4409, with the following leak repair thresholds:</p> <p>Leak defined as a dripping rate of more than three (3) drops per minute of liquid containing VOC,</p> <p>and</p> <p>A reading of methane in excess of 100 ppmv above background when measured per EPA Method 21 for valves, flanges, compressor seals and pressure relief devices,</p> <p>and</p> <p>A reading of methane in excess of 500 ppmv above background when measured per EPA Method 21 for pump seals.</p>		

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**Best Available Control Technology (BACT) Guideline 7.3.3\***

Last Update: 9/1/2021

**Floating Roof Organic Liquid Storage or Processing Tank**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	Internal Floating Roof Tank meeting requirements of District Rule 4623 or External Domed Floating Roof Tank meeting requirements of District Rule 4623		

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**Best Available Control Technology (BACT) Guideline 7.4.1\***

Last Update: 3/1/2024

**Hydrogen Production - Process Vents**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	VOC emissions from process vents not to exceed 0.5 lb/MMscf of hydrogen produced (Equivalent to 96% capture and control)	Use of a Thermal Oxidizer Achieving 99% overall capture and control	

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