2021 BARCT Rule Analysis

Rule 4621
Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants

Engineer: **Sajjad Ahmad, Sr. AQE**
Reviewed By: **Nick Peirce, Permit Services Manager**
Date: **December 30, 2021**

Introduction:

In September of 2017, the California State Legislature and Governor passed Assembly Bill 617 (AB 617)[1], Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants. AB 617 requires the California Air Resources Board (ARB) and air districts to develop and implement additional emissions reporting, monitoring, and reduction plans and measures in an effort to reduce air pollution exposure in impacted communities. One requirement of AB 617 is for air districts located in non-attainment areas to perform a Best Available Retrofit Control Technology (BARCT) analysis of their existing rules and regulations for all categories of units located at facilities subject to the state Cap-and-Trade program and to propose an expedited schedule for revising rules that are found to not meet BARCT requirements.

The following sections of the California Health and Safety Code outline the steps each air district located in non-attainment areas must take to propose an expedited schedule for revising rules that are found to not meet BARCT.

40920.6(c)(1):
On or before January 1, 2019, each district that is a nonattainment area for one or more air pollutants shall adopt an expedited schedule for the implementation of best available retrofit control technology (BARCT), by the earliest feasible date, but in any event not later than December 31, 2023.

40920.6(c)(2):
The schedule shall apply to each industrial source that, as of January 1, 2017, was subject to a market-based compliance mechanism adopted by the state board pursuant to subdivision (c) of Section 38562.

[1] AB 617, Garcia, C., Chapter 136, Statutes of 2017.

Discussion:

District Rule 4621 (*Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants*) applies to the following source categories:

> *This rule applies to storage containers located at bulk plants with capacities greater than 250 gallons and less than 19,800 gallons; to other stationary storage containers with capacities greater than 250 gallons; and to those storage containers that are not subject to the control requirements of Rule 4623 (Storage of Organic Liquids) Section 5.0. The rule also applies to gasoline delivery vessels.*

The purpose of this rule is to limit VOC emissions from gasoline stationary storage containers, delivery vessels, and bulk plants and to provide the administrative requirements for determining compliance with this rule.

In 2018, a preliminary AB 617 BARCT analysis of Rule 4621 identified several permits for loading racks at cap-and trade facilities that appeared to be subject to the requirements of Rule 4621, so Rule 4621 was added to the list of rules requiring further review as part of the District's expedited BARCT schedule.

A further detailed review of these permits indicates that they are not subject to Rule 4621; rather, they are subject to Rule 4624[2] (Transfer of Organic Liquid). Therefore, there are no permits at cap-and-trade facilities in the District are subject to Rule 4621.

Conclusion:

Pursuant to CHSC 40920.6(c)(2), since there are no permitted emissions units at cap-and-trade facilities that are subject to District Rule 4621 requirements, Rule 4621 is not not subject to the expedited schedule to implement BARCT requirements specified in 40920.6(c)(1). Rule 4621 will be removed from the expedited BARCT schedule.

[2] In 2020, the District began a rule making process to explore opportunities to enhance the stringency of the Rule 4624 and ensure the continued implementation of BARCT by determining the maximum degree of reduction achievable, taking into account environmental, energy and economic impacts of the source categories subject to Rule 4624. The rule amendments are scheduled for considered adoption in 2022.

2021 AB 617 BARCT Rule Analysis

Rule 4625
Wastewater Separators

Engineer: **John Yoshimura, AQE II**
Reviewed By: **Nick Peirce, Permit Services Manager**
Date: **November 4, 2021**

INTRODUCTION

In September of 2017, the California State Legislature and Governor passed Assembly Bill 617 (AB 617)[1], Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants. AB 617 requires the California Air Resources Board (ARB) and air districts to develop and implement additional emissions reporting, monitoring, and reduction plans and measures in an effort to reduce air pollution exposure in impacted communities. One requirement of AB617 is for air districts located in non-attainment areas to perform a Best Available Retrofit Control Technology (BARCT) analysis of their existing rules and regulations that apply to industrial sources that, as of January 1, 2017, were subject to the state Cap-and-Trade program. In addition, AB 617 requires an expedited schedule for revising rules that are found to not meet BARCT requirements.

Although AB 617 does not specifically define BARCT, California Health and Safety Code (CH&SC) Section 40406 defines BARCT as follows:

> *Best Available Retrofit Control Technology (BARCT) is an air emission limit that applies to existing sources and is the maximum degree of reduction achievable, taking into account environmental, energy and economic impacts by each class or category of source.*

AB 617 further recognizes that "existing law authorizes a district to establish its own best available control technology requirement based upon the consideration of specified factors."

In 2018, a preliminary AB 617 Best Available Retrofit Control Technology (BARCT) analysis of Rule 4625 (*Wastewater Separators*) determined that a refined and more in-depth analysis was necessary to determine if the existing SJVAPCD Rule 4625 continued to satisfy BARCT requirements or if amendments to the rule are needed to ensure BARCT requirements are met.

[1] AB 617, Garcia, C., Chapter 136, Statutes of 2017.

This BARCT analysis evaluated the maximum degree of reduction achievable, taking into account specific factors such as environmental, energy and economic impacts as required by state law.

DISCUSSION

District Rule 4625 applies to post-custody transfer wastewater separators and is intended to limit VOC emissions from these devices.

The scope of this analysis focused on the primary VOC emission control requirements applicable to post-custody transfer wastewater separators located at Cap and Trade facilities. Leak Detection and Repair (LDAR) requirements for post-custody transfer units located at Cap-and-Trade facilities are addressed by District Rule 4455 (*Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants*). Furthermore, pre-custody transfer units located at Cap-and-Trade facilities are subject to District Rule 4623 (*Storage of Organic Liquids*). District Rules 4455 and 4623 are subject to separate BARCT analyses; therefore, LDAR requirements and pre-custody transfer units were not included in this analysis.

Permits to Operate for facilities in the District that are subject to Rule 4625 and subject to the Cap-and-Trade program are listed in Appendix A.

BARCT ANALYSIS

As discussed earlier, each air pollution control district can establish its own BARCT requirements based upon the consideration of specified factors. To help perform the further BARCT analysis, the District employed a 5-Step Top-Down approach to determine appropriate BARCT requirements.

In establishing BARCT for post-custody transfer wastewater separators, the control options analyzed were from the following sources:

- BAAQMD Regulation 8 Rule 8 – Wastewater Collection and Separation Systems (9/15/04)
- SCAQMD Rule 1176 – VOC Emissions From Wastewater Systems (9/13/96)
- VCAPCD Rule 74.8 – Refinery Vacuum Producing Systems, Wastewater Separators And Process Turnarounds (7/5/83)
- 40 CFR Part 60 Subpart QQQ – Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems
- 40 CFR Part 63 Subpart VV – National Emission Standards for Oil-Water Separators and Organic Water Separators
- District Permit Requirements

1. RULE SURVEY

1.1. District Rule(s)

SJVAPCD Rule 4625 Wastewater Separators (Amended December 15, 2011)

	SJVAPCD
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.
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.1 A solid cover with all openings sealed and totally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or 5.1.2 A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed one-eighth inch for an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed one-half inch for an accumulative length of the remaining three percent of the perimeter of the tank. No gap between the compartment wall and the seal shall exceed one-half inch; or 5.1.3 A vapor recovery system with a combined collection and control efficiency of at least 95 percent by weight. 5.2 Any gauging and sampling device in the compartment cover shall be equipped with a cover or lid. The cover shall be in a closed position at all times, except when the device is in actual use. 5.3 All wastewater separator forbays shall be covered. 5.4 Skimmed oil or tar removed from wastewater separating devices shall be either charged to process units with feed or transferred to a container with a control system with at least 90 percent control efficiency by weight. A control device must be under District permit.

District Rule 4625 will be compared to analogous rules or requirements from other air districts and agencies. The following tables compare the rule requirements section by section to demonstrate which is more stringent.

1.2. Bay Area AQMD Rule(s)

BAAQMD Regulation 8, Rule 8 (WASTEWATER COLLECTION AND SEPARATION SYSTEMS***)*** *(9/15/04)*

	SJVAPCD	BAAQMD	Conclusion
Applicability	This rule is to limit VOC emission from wastewater separators by requiring vapor loss control devices. The requirements of this rule only apply to the separation of crude oil and water after custody transfer.	This rule is to limit the emissions of organic compounds from wastewater collection and separation systems that handle liquid organic compounds from industrial processes.	Both rules limit emissions from wastewater (oil-water) separators and collection systems.
Exemptions	None	Wastewater separators that process less than 760 liters (200 gals.) per day of wastewater separators at petroleum refinery complexes after 3/1/80.	District Rule 4625 is more stringent because it does not have any exemptions.

	SJVAPCD	BAAQMD	Conclusion
		Wastewater separators that process influent wastewater with a temperature of less than 20 degrees C (68 F) except at petroleum refineries.	
		Secondary wastewater treatment processes and storm water sewer system that are used as a wastewater polishing step or for collection of storm water that is segregated from the process wastewater collection system.	
		Wastewater which bypasses either the oil-water separator or air flotation unit provided that: 1) the requirements of Section 8-8-501 are met; and 2) on that day the District did not predict an excess of the Federal Ambient Air Quality Standard for ozone.	
		Municipal wastewater collection, separation and treatment facilities.	
		Oil-water separation trenches used as part of maintenance or turnaround activities.	
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.1 A solid cover with all openings sealed and totally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or	A person shall not operate any wastewater separator and/or forebay with a rated or maximum allowable capacity greater than 760 liters per day and smaller than 18.9 liters per second (300 gals per min.) unless such wastewater separator and/or forebay is operated within its design rated or maximum allowable capacity and is equipped with one of the following: 301.1 A solid, gasketed, fixed cover totally enclosing the separator tank, chamber, or basin (compartment) liquid contents, with all cover openings closed, except when the opening is being used for inspection, maintenance, or wastewater sampling. Roof seals, access doors, and other openings shall be checked by visual inspection initially and semiannually thereafter to ensure that no cracks or gaps greater than 0.32 cm (0.125 inch) occur in the roof or between the roof and wall; and that the access doors and other openings are closed and gasketed properly; or	District Rule 4625 is more stringent because it does not have a maximum allowance for cracks or gaps.
Requirements	5.1.2 A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed one-eighth inch for an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed one-half inch for an accumulative length of the remaining three percent of the perimeter of the tank. No gap between the	A person shall not operate any wastewater separator and/or forebay with a rated or maximum allowable capacity greater than 760 liters per day and smaller than 18.9 liters per second (300 gals per min.) unless such wastewater separator and/or forebay is operated within its design rated or maximum allowable capacity and is equipped with one of the following: 301.2 A floating pontoon or double-deck vapor-tight type cover. All floating roofs must rest entirely on the liquid surface. The floating roof shall consist of two seals, one above the other, the one below shall be referred to as the primary seal, while the other seal shall be referred to as the secondary seal.	District Rule 4625 has more stringent crack/gap requirements (i.e. maximum 0.125 inch gap for 97% of the perimeter of the tank vs 90% of the perimeter of the tank)

	SJVAPCD	BAAQMD	Conclusion
	compartment wall and the seal shall exceed one-half inch; or	·2.1Oil-Water Separator Liquid-Mounted Primary Seal Gap Criteria: No gap between the separator wall and the liquid-mounted primary seal shall exceed 3.8 cm (1.5 inch). No continuous gap greater than 0.32 cm (0.125 inch) shall exceed 10 percent of the perimeter of the separator. The cumulative length of all primary seal gaps exceeding 1.3 cm (0.5 inch) shall be not more than 10 percent of the perimeter and the cumulative length of all primary seal gaps exceeding 0.32 cm (0.125 inch) shall be not more than 40 percent of the perimeter.	
		·2.2 Oil-Water Separator Secondary And Wiper Seals Gap Criteria: No gap between the separator wall and the secondary and wiper seals shall exceed 1.5 mm (0.06 inch). The cumulative length of all secondary and wiper seals gaps exceeding 0.5 mm (0.02 inch) shall be not more than 5 percent of the perimeter of the separator. The secondary and wiper seals must exert a positive pressure against the separator such that the seal surface in contact with the separator wall does not pull away from the separator wall more than the gaps allowed.	
Requirements	5.1.3 A vapor recovery system with a combined collection and control efficiency of at least 95 percent by weight.	A person shall not operate any wastewater separator and/or forebay with a rated or maximum allowable capacity greater than 760 liters per day and smaller than 18.9 liters per second (300 gals per min.) unless such wastewater separator and/or forebay is operated within its design rated or maximum allowable capacity and is equipped with one of the following: 301.3 An organic compound vapor recovery system with a combined collection and destruction efficiency of at least 95 percent, by weight.	Same stringency
		302.3. A vapor-tight fixed cover with an organic compound vapor recovery system which has a combined collection and destruction efficiency of at least 95 percent, by weight, inspection and access hatches shall be closed except when the opening is being used for inspection, maintenance, or wastewater sampling, or	Same stringency

	SJVAPCD	BAAQMD	Conclusion
		302.4 A solid, sealed, gasketed, fixed cover which totally encloses the separator tank, chamber, or basin (compartment) liquid contents, with all cover openings closed and sealed, except when the opening is being used for inspection, maintenance, or wastewater sampling. The cover may include a pressure/vacuum valve. The concentration of organic compounds, measured at the interface of the roof seals, fixed cover, access doors, pressure/vacuum valve, and other openings shall not exceed 1,000 ppm (expressed as methane) above background. Roof seals, fixed cover, access doors, and other openings shall be inspected initially and semiannually thereafter to ensure that there are no emission leaks greater than 1,000 ppm. Any emission leak greater than 1,000 ppm must be reported to the APCO and repaired within 15 days.	District Rule 4625 is more stringent because it does not have a maximum VOC concentration for leaks. Bay Area AQMD Rule 8 allows leaks up to 1,000 ppm above background emissions.
Gauging And Sampling Devices	5.2 Any gauging and sampling device in the compartment cover shall be equipped with a cover or lid. The cover shall be in a closed position at all times, except when the device is in actual use.	8-8-303 Any compartment or access hatch shall have a vapor tight cover. Any gauging and sampling device in the compartment cover shall be equipped with a vapor tight cover, seal, or lid. The compartment cover and gauging or sampling device cover shall at all times be in a closed positive, except when the device is in use for inspection, maintenance, or wastewater sampling.	Same stringency
Requirements	5.3 All wastewater separator forbays shall be covered.	A person shall not operate any wastewater separator and/or forebay with a rated or maximum allowable capacity greater than 760 liters per day and smaller than 18.9 liters per second (300 gals per min.) unless such wastewater separator and/or forebay is operated within its design rated or maximum allowable capacity and is equipped according to Section 301.1, 301.2, 301.2.1, 301.2.2, 301.3, 302.3, 302.4.	Same stringency. Both rules require forbays to be covered while operating.
Requirements	5.4 Skimmed oil or tar removed from wastewater separating devices shall be either charged to process units with feed or transferred to a container with a control system with at least 90 percent control efficiency by weight. A control device must be under District permit.	None	District Rule 4625 is more stringent because BAAQMD Reg 8 Rule 8 doesn't have a requirement for skimmed oil or tar.

1.3. South Coast AQMD Rule(s)

SCAQMD Rule 1176 (VOC EMISSIONS FROM WASTEWATER SYSTEMS***)*** *(9/13/96)*

	SJVAPCD	SCAQMD	Conclusion
Applicability	This rule is to limit VOC emission from wastewater separators by requiring vapor loss control devices. The requirements of this rule only apply to the separation of crude oil and water after custody transfer.	This rule is intended to limit VOC emission from waste water systems. The requirements of this rule applies to petroleum refineries, on-shore oil production fields, off-shore oil production platforms, chemical plants, and industrial facilities.	Both rules limit emissions from wastewater (oil-water) separators and collection systems.
Exemptions	None	Any equipment which, if covered, would present unavoidable explosion or fire hazards, as approved in writing by the Executive Officer. Process drains while receiving petroleum liquids and/or VOC containing liquids Components which the facility operator has detected and recorded to be in violation or to emit excess emissions (limited exemption) Natural gas handling facilities which are primarily operated to receive and inject natural gas into the ground for underground storage and subsequent processing and distribution with at least 80% methane (by volume), and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the CA PUC, provided that none of the wastewater separators, DSCs, closed vent systems and APC devices at the facility emit VOC emissions greater than 500 ppmv and the facility operator requests this exemption and provides inspection and monitoring records for the most recent two years (limited exemption) Components which present a safety hazard for inspection as documented and established in a previous safety manual or policy; wastewater separator pressure-vacuum valves when open, due to a vacuum produced within the wastewater system; spill containments for tanks; open pipe channels designed for spill containment; tanks subject to Rule 463; valves, fittings, pumps, compressors, pressure relief devices, diaphragms, hatches, site-glasses, and meters which are subject to or exempt from the requirements of Rule 1173; equipment, including catch basins, that exclusively receive, hold, or discharge rainwater, stormwater runoff, or non-contact water; well cellars used in emergencies at oil production fields, if clean-up procedures are implemented within 24 hours after each emergency occurrence and completed within 10 days; sampling junction boxes of the wastewater system prior to discharge into the municipal sewer lines and which are designated as the legal sample point on the facility's industrial wastewater permit; wastewater systems, if the VOC content of	District Rule 4625 is more stringent because it does not have any exemptions.

	SJVAPCD	SCAQMD	Conclusion
		each liquid stream entering each sump and/or wastewater separator does not exceed at all times 5 mg per liter; biological wastewater treatment units and their downstream equipment in a secondary treatment system that is installed and operated to meet the NPDES discharge requirements if the VOC content of each liquid stream entering the secondary treatment system does not exceed at all times 5 mg per liter; sanitary sewers and sanitary sewer systems not processing wastewater.	
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.1 A solid cover with all openings sealed and totally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or 5.1.2 A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed one-eighth inch for an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed one-half inch for an accumulative length of the remaining three percent of the perimeter of the tank. No gap between the compartment wall and the seal shall exceed one-half inch; or 5.1.3 A vapor recovery system with a combined collection and control efficiency of at least 95 percent by weight. 5.2 Any gauging and sampling device in the compartment cover shall be equipped with a cover or lid. The cover shall be	Sumps and Wastewater Separators (A) Sumps and Wastewater Separators shall be provided with one of the following except as provided in subparagraph (e)(2)(C): (i) A floating cover equipped with seals. (ii) A fixed cover, equipped with a closed vent system vented to an APC device as specified in paragraph (e)(6). (iii) Any other alternate control measure which is demonstrated by the facility operator to be equivalent to, or more effective in reducing VOC emissions than the requirements of clauses (e)(2)(A)(i) or (e)(2)(A)(ii), and approved in writing by the Executive Officer. Sump and Wastewater Separator Covers, both fixed and floating, shall meet all of the following requirements: (i) The cover material shall be impermeable to VOCs, and free from holes, tears, or openings.(ii) Drains on covers shall be provided with a slotted membrane fabric cover, or equivalent, over at least 90 percent of the open area. (iii) Gauging or sampling openings on the separator shall be covered. The covers shall be kept closed, with no visible gaps between the cover and the separator, except when the gauging or sampling device is actively being used. (iv) Hatches on covers shall be kept closed and free of gaps, except when opened for active inspection, maintenance, sampling, or repair. (v) The perimeter of a cover, except for a floating cover, shall form a seal free of gaps with the foundation to which it is attached. (vi) A floating cover shall be designed and maintained so that the gap between the separator or sump wall and the seal does not exceed 1/8 inch for a cumulative length of 97 percent of the perimeter of the separator. No gap between the wall and the seal shall exceed 1/2 inch. APC Devices shall meet one of the following requirements: (A) An APC device receiving vapors from a closed vent system shall achieve a	District Rule 4625 requirements for floating pontoon or double-deck cover vessels or devices, vapor recovery systems, and gauging and sampling requirements are as stringent as South Coast AQMD Rule 1176. Rule 4625 states that any compartment of any vessel used as a wastewater separator shall be equipped with a solid cover with all openings sealed and totally enclosing the liquid contents, except for breathing vents that are structurally necessary, whereas Rule 1176 specifically states that a wastewater separator shall be equipped with a fixed cover equipped with a closed vent system vented to an air pollution control device. However, as shown above, Rule 1176 exempts wastewater separator pressure-vacuum vents when open, due to a vacuum produced with the wastewater system. For the purposes of Rule 4625, the term “breathing vent” has the same meaning as Rule 1176’s “pressure-vacuum vent”. Therefore, Rule 4625 requirements for a solid cover on a wastewater separator vessel or device are as stringent as Rule 1176.

	SJVAPCD	SCAQMD	Conclusion
	in a closed position at all times, except when the device is in actual use.	control efficiency of 95 percent by weight or greater of VOC. An annual performance test shall be conducted to determine the APC device control efficiency according to the test method specified in paragraph (h)(3), (B) The outlet of the APC device shall not emit VOC emissions measured pursuant to paragraphs (h)(1) or (h)(2) to be greater than 500 ppm above background. The frequency of monitoring shall be at least monthly, or (C) Any APC device or other alternate system that collects vapors through a closed vent system and subsequently controls the vapors in a device, which has been issued a permit to construct or a permit to operate by the Executive Officer, and determined by the Executive Officer to provide an equivalent level of VOC emission controls as specified in subparagraphs (e)(6)(A) or (e)(6)(B).	
Requirements	5.3 All wastewater separator forbays shall be covered.	For initial modification of sumps, separator forebays, clarifiers, dissolved air flotation tanks, induced gas flotation tanks, or induced air flotation tanks to comply with subparagraphs (e)(2)(A) and (e)(2)(B) which require a permit to construct, compliance with paragraph (e)(1) and subparagraphs (e)(2)(A) and (e)(2)(B) shall be achieved no later than six months after the District issues the initial permit to construct, provided that a complete application for a permit to construct is submitted to the District on or before November 13, 1996	SCAQMD Rule 1176 specifically lists additional types of equipment which are not included in District Rule 4625. However, these types of equipment are still subject to District Rule 4625 requirements pursuant to Section 5.1. Therefore, it is the same stringency.
		Sewer lines shall be completely enclosed so that no liquid surface is exposed to the atmosphere. The manhole cover shall remain fully closed, except when opened for active inspection, maintenance, sampling, or repair	
		Process drains shall be equipped with water seal controls or any other alternative control measure which is demonstrated by the applicant to be equivalent, or more effective than water seal control in reducing VOC emissions.	
		Junction boxes shall be totally enclosed with a solid, gasketed, fixed cover or a manhole cover. Each fixed cover shall be allowed to have an open vent pipe no more than four inches in diameter and at least three feet in length. Each manhole cover on junction boxes shall be allowed to have openings totaling no more than 12 square inches. The manhole cover shall remain fully closed, except when opened for active inspection, maintenance, sampling, or repair.	
		Drain System Component (DSC) is a process drain, manhole cover, junction vent or other wastewater system vent, excluding closed vent system.	
		A person shall not operate any wastewater separator and/or forebay with a rated or	

	SJVAPCD	SCAQMD	Conclusion
		maximum allowable capacity larger than or equal to 18.9 liters per second (300 gals per min.) unless such wastewater separator and/or forebay is operated within its design rated or maximum allowable capacity and is equipped with one of the following:	
Requirements	5.4 Skimmed oil or tar removed from wastewater separating devices shall be either charged to process units with feed or transferred to a container with a control system with at least 90 percent control efficiency by weight. A control device must be under District permit.		District Rule 4625 is more stringent because Rule 1176 doesn't have requirements for skimmed oil or tar.

1.4. Ventura County APCD Rule(s)

VCAPCD Rule 74.8 **(**Refinery Vacuum Producing Systems, Wastewater Separators And Process Turnarounds***)*** *(7/5/83)*

	SJVAPCD	VCAPCD	Conclusion
Applicability	Any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products.	Compartment of a wastewater separator at a petroleum refinery	Same applicability
Exemptions	None	None	There are no exemptions for either rule.
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.1 A solid cover with all openings sealed and to tally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or	B.1. A person shall not use any inlet distribution header or compartment of a wastewater separator at a petroleum refinery unless said header or compartment is equipped with: a. A solid cover with all openings sealed totally enclosing the compartment liquid contents, except for such breathing vents as are structurally necessary; or	Same stringency
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are	B.1. A person shall not use any inlet distribution header or compartment of a wastewater separator at a petroleum refinery unless said header or compartment is equipped with: b. A floating cover which extends to within 0.125 inches of the wall of said compartment or header at all points on the perimeter of the	Same stringency

	SJVAPCD	VCAPCD	Conclusion
	equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.2 A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed one-eighth inch for an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed one-half inch for an accumulative length of the remaining three percent of the perimeter of the tank. No gap between the compartment wall and the seal shall exceed one-half inch; or	cover except over a cumulative length of no more than three percent of the perimeter, the cover shall extend to within 0.5 inches of the wall; or	
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.3 A vapor recovery system with a combined collection and control efficiency of at least 95 percent by weight.	B.1. A person shall not use any inlet distribution header or compartment of a wastewater separator at a petroleum refinery unless said header or compartment is equipped with: c. Controls which the Air Pollution Control Officer has determined will reduce reactive organic compound gas emissions from said compartment or header to or below the mass emission rate which would occur if controls described in B.1.a or B.1.b were applied.	District Rule 4625 is more stringent. VCAPCD Rule 74.8 does not have a minimum control efficiency.
Gauging And Sampling Devices	5.2 Any gauging and sampling device in the compartment cover shall be equipped with a cover or lid. The cover shall be in a closed position at all times, except when the device is in actual use.	All gauging and sampling devices in the compartment cover shall be equipped with a cover that is in a closed position at all times except when the devices are in actual use or when the compartment does not contain reactive organic compounds.	Same stringency
Requirements	5.3 All wastewater separator forbays shall be covered.	None	Rule 4625 is more stringent.

	SJVAPCD	VCAPCD	Conclusion
Requirements	5.4 Skimmed oil or tar removed from wastewater separating devices shall be either charged to process units with feed or transferred to a container with a control system with at least 90 percent control efficiency by weight. A control device must be under District permit.		District Rule 4625 is more stringent because VCAPCD Rule 74.8 does not have requirements for skimmed oil or tar removed from separating devices.

1.5. State Regulations – ATCMs

No state regulations are applicable.

1.6. Federal Regulations – CFRs

40 CFR Part 60 Subpart QQQ - Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems

	SJVAPCD	40 CFR 60 Subpart QQQ	Conclusion
Applicability	This rule is to limit VOC emission from wastewater separators by requiring vapor loss control devices. The requirements of this rule only apply to the separation of crude oil and water after custody transfer.	The provisions of this subpart apply to the control of air emissions from individual drain systems, oil-water separators, and aggregate facilities constructed, modified, or reconstructed after 5/4/87	Rule 4625 has broader applicability as it applies to all wastewater separators regardless of installation date.
Exemptions	None	None	There are no exemptions for either rule.
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.1 A solid cover with all openings sealed and to tally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or 5.1.2 A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed one-eighth inch for	(a) Each oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment subject to the requirements of this subpart shall be equipped and operated with a fixed roof, which meets the following specifications, except as provided in paragraph (d) of this section or in § 60.693-2 (a)(1) The fixed roof shall be installed to completely cover the separator tank, slop oil tank, storage vessel, or other auxiliary equipment with no separation between the roof and the wall. (a)(2) The vapor space under a fixed roof shall not be purged unless the vapor is directed to a control device. (a)(3) If the roof has access doors or openings, such doors or openings shall be gasketed, latched, and kept closed at all times during operation of the separator system, except during inspection and maintenance. (a)(4) Roof seals, access doors, and other openings shall be checked by visual inspection initially and semiannually thereafter to ensure that no cracks or gaps occur between the roof and wall and that access doors and other openings are closed and gasketed properly. (a)(5) When a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later	Same stringency

	SJVAPCD	40 CFR 60 Subpart QQQ	Conclusion
	an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed one-half inch for an accumulative length of the remaining three percent of the perimeter of the tank. No gap between the compartment wall and the seal shall exceed one-half inch; or 5.1.3 A vapor recovery system with a combined collection and control efficiency of at least 95 percent by weight.	than 15 calendar days after it is identified, except as provided in § 60.692-6. (b) Each oil-water separator tank or auxiliary equipment with a design capacity to treat more than 16 liters per second (250 gallons per minute (gpm)) of refinery wastewater shall, in addition to the requirements in paragraph (a) of this section, be equipped and operated with a closed vent system and control device, which meet the requirements of § 60.692-5, except as provided in paragraph (c) of this section or in § 60.693-2. (c) (1) Each modified or reconstructed oil-water separator tank with a maximum design capacity to treat less than 38 liters per second (600 gpm) of refinery wastewater which was equipped and operated with a fixed roof covering the entire separator tank or a portion of the separator tank prior to May 4, 1987 shall be exempt from the requirements of paragraph (b) of this section, but shall meet the requirements of paragraph (a) of this section, or may elect to comply with paragraph (c)(2) of this section. (c)(2) The owner or operator may elect to comply with the requirements of paragraph (a) of this section for the existing fixed roof covering a portion of the separator tank and comply with the requirements for floating roofs in § 60.693-2 for the remainder of the separator tank. Closed vent systems and control devices (a)Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816 °C (1,500 °F). (b)Vapor recovery systems (for example, condensers and adsorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater. (c)Flares used to comply with this subpart shall comply with the requirements of 40 CFR 60.18. (d) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them. (d)(1) Closed vent systems shall be designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined during the initial and semiannual inspections by the methods specified in § 60.696. (2) Closed vent systems shall be purged to direct vapor to the control device.	

	SJVAPCD	40 CFR 60 Subpart QQQ	Conclusion
		(3) A flow indicator shall be installed on a vent stream to a control device to ensure that the vapors are being routed to the device. (4) All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place. (5) When emissions from a closed system are detected, first efforts at repair to eliminate the emissions shall be made as soon as practicable, but not later than 30 calendar days from the date the emissions are detected, except as provided in § 60.692-6.	
Gauging And Sampling Devices	5.2 Any gauging and sampling device in the compartment cover shall be equipped with a cover or lid. The cover shall be in a closed position at all times, except when the device is in actual use.	None	Subpart QQQ does not have a requirement for gauging and sampling devices. Therefore, Rule 4625 is more stringent.
Requirements	5.3 All wastewater separator forbays shall be covered	None	Subpart QQQ does not specifically mention forbays, however, it does require auxiliary equipment to be covered. Therefore, both rules have the same stringency.
Requirements	5.4 Skimmed oil or tar removed from wastewater separating devices shall be either charged to process units with feed or transferred to a container with a control system with at least 90 percent control efficiency by weight. A control device must be under District permit.	(e) Slop oil from an oil-water separator tank and oily wastewater from slop oil handling equipment shall be collected, stored, transported, recycled, reused, or disposed of in an enclosed system. Once slop oil is returned to the process unit or is disposed of, it is no longer within the scope of this subpart. Equipment used in handling slop oil shall be equipped with a fixed roof meeting the requirements of paragraph (a) of this section.	Subpart QQQ does not have a requirement for a vapor control system serving vessels used to store skimmed oil or tar. Therefore, Rule 4625 is more stringent.

40 CFR Part 60 Subpart VV - National Emission Standards for Oil-Water Separators and Organic-Water Separators

	SJVAPCD	40 CFR 63 Subpart VV	Conclusion
Applicability	This rule is to limit VOC emission from wastewater separators by requiring vapor loss control devices. The requirements of this rule only apply to the separation of crude oil and water after custody transfer.	The provisions of this subpart apply to the control of air emissions from oil-water separators and organic-water separators if required by 40 CFR 60, 61, or 63.	Same applicability
Exemptions	None	None	There are no exemptions for either rule.
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles	(b) The separator shall be equipped with a fixed roof designed to meet the following specifications: (1) The fixed roof and its closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the separator.	Same stringency for fixed roofs and breathing vents.

	petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.1 A solid cover with all openings sealed and to tally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or	(2) The fixed roof shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the separator wall. (3) Each opening in the fixed roof shall be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device. (4) The fixed roof and its closure devices shall be made of suitable materials that will minimize exposure of the regulated-material to the atmosphere, to the extent practical, and will maintain the integrity of the equipment throughout its intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include: organic vapor permeability; the effects of any contact with the liquid and its vapors managed in the separator; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the separator on which the fixed roof is installed.	
		(c) Whenever a regulated-material is in the separator, the fixed roof shall be installed with each closure device secured in the closed position except as follows: (1) Opening of closure devices or removal of the fixed roof is allowed at the following times: (i) To provide access to the separator for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the separator, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the separator. (ii) To remove accumulated sludge or other residues from the bottom of separator. (2) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the pressure in vapor headspace underneath the fixed roof in accordance with the separator design specifications. The device shall be designed to operate with no detectable organic emissions, as determined using the procedure specified in § 63.1046(a) of this subpart, when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the pressure in the vapor headspace underneath the fixed roof is within the pressure	

		operating range determined by the owner or operator based on the cover manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. (3) Opening of a safety device, as defined in § 63.1041 of this subpart, is allowed at any time conditions require it to do so to avoid an unsafe condition. (d) The owner or operator shall inspect the fixed roof and any closure devices in accordance with the requirements specified in § 63.1047(a) of this subpart.	
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.2 A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed one-eighth inch for an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed one-half inch for an accumulative length of the remaining three percent of the perimeter of the tank. No gap between the compartment wall and the seal shall exceed one-half inch; or	(b) The separator shall be equipped with a floating roof designed to meet the following specifications: (1) The floating roof shall be designed to float on the liquid surface during normal operations. (2) The floating roof shall be equipped with two continuous seals, one above the other, between the wall of the separator and the roof edge. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal. (i) The primary seal shall be a liquid-mounted seal or a metallic shoe seal, as defined in § 63.1041 of this subpart. The total area of the gaps between the separator wall and the primary seal shall not exceed 67 square centimeters (cm 2) per meter of separator wall perimeter, and the width of any portion of these gaps shall not exceed 3.8 centimeters (cm). (ii) The secondary seal shall be mounted above the primary seal and cover the annular space between the floating roof and the wall of the separator. The total area of the gaps between the separator wall and the secondary seal shall not exceed 6.7 square centimeters (cm 2) per meter of separator wall perimeter, and the width of any portion of these gaps shall not exceed 1.3 centimeters (cm). (3) Except as provided for in paragraph (b)(4) of this section, each opening in the floating roof shall be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. (4) The floating roof may be equipped with one or more emergency roof drains for removal of stormwater. Each emergency roof drain shall be equipped with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening or a flexible fabric sleeve seal.	District Rule 4625 has a more stringent requirement for allowable gaps between the compartment wall and seal (maximum of 0.5” gap vs 3.8 cm (equivalent to 1.5”)).

		(c) Whenever a regulated-material is in the separator, the floating roof shall float on the liquid (i.e., off the roof supports) and each closure device shall be secured in the closed position except as follows: (1) Opening of closure devices is allowed at the following times: (i) To provide access to the separator for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the separator, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position. (ii) To remove accumulated sludge or other residues from the bottom of separator. (2) Opening of a safety device, as defined in § 63.1041 of this subpart, is allowed at any time conditions require it to do so to avoid an unsafe condition.	
		(d) The owner or operator shall inspect the floating roof in accordance with the procedures specified in § 63.1047(b) of this subpart.	
Requirements	5.1 A person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments are equipped with one of the following vapor loss control devices, except when gauging or sampling is taking place: 5.1.3 A vapor recovery system with a combined collection and control efficiency of at least 95 percent by weight.	(b) The separator shall be covered by a fixed roof and vented directly through a closed-vent system to a control device in accordance with the following requirements: (1) The fixed roof and its closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the separator. (2) Each opening in the fixed roof not vented to the control device shall be equipped with a closure device. If the pressure in the vapor headspace underneath the fixed roof is less than atmospheric pressure when the control device is operating, the closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the fixed roof is equal to or greater than atmospheric pressure when the control device is operating, the closure device shall be designed to operate with no detectable organic emissions, as determined using the procedure specified in § 63.1046(a) of this subpart. (3) The fixed roof and its closure devices shall be made of suitable materials that will minimize exposure of the regulated-material to the atmosphere, to the extent practical, and will maintain the integrity of the equipment throughout its intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include: organic vapor permeability; the effects of any contact with the	Both Rules require the same control efficiency for a vapor recovery system. Therefore, District Rule 4625 has the same stringency.

		liquid or its vapors managed in the separator; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the separator on which the fixed roof is installed. (4) The closed-vent system and control device shall be designed and operated in accordance with the requirements of § 63.693 in 40 CFR part 63, subpart DD - National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations.	
		(c) Whenever a regulated-material is in the separator, the fixed roof shall be installed with each closure device secured in the closed position and the vapor headspace underneath the fixed roof vented to the control device except as follows: (1) Venting to the control device is not required, and opening of closure devices or removal of the fixed roof is allowed at the following times: (i) To provide access to the separator for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the separator, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the separator. (ii) To remove accumulated sludge or other residues from the bottom of separator. (2) Opening of a safety device, as defined in § 63.1041 of this subpart, is allowed at any time conditions require it to do so to avoid an unsafe condition.	
		(d) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the procedures specified in § 63.1047(c) of this subpart.	
Gauging And Sampling Devices	5.2 Any gauging and sampling device in the compartment cover shall be equipped with a cover or lid. The cover shall be in a closed position at all times, except when the device is in actual use.	All gauging and sampling devices in the compartment cover shall be equipped with a cover that is in a closed position at all times except when the devices are in actual use or when the compartment does not contain reactive organic compounds.	Same stringency
Requirements	5.3 All wastewater separator forbays shall be covered.	(b) The pressurized separator must meet the following requirements. (1) The separator must be designed not to vent to the atmosphere as a result of compression of the vapor headspace in the separator during operation of the separator at its design capacity. (2) All separator openings must be equipped with closure devices designed to operate with no detectable organic emissions as determined using the procedure specified in § 63.1046(a) of this subpart. (3) Whenever a regulated-material is in the separator, the separator must be operated as	Although not specifically listed, District Rule 4625 requirements apply to all types of separators. Therefore, District Rule 4625 has the same stringency.

		a closed system that does not vent to the atmosphere except under either of the following conditions as specified in paragraph (b)(3)(i) or (b)(3)(ii) of this section. (i) At those times when opening of a safety device, as defined in § 63.1041 of this subpart, is required to avoid an unsafe condition. (ii) At those times when purging of inerts from the separator is required, and the purge stream is routed to a closed-vent system and control device designed and operated in accordance with the applicable requirements of § 63.693.	
Requirements	5.4 Skimmed oil or tar removed from wastewater separating devices shall be either charged to process units with feed or transferred to a container with a control system with at least 90 percent control efficiency by weight. A control device must be under District permit.	None	Subpart VV does not have a requirement for a vapor control system for storing skimmed oil or tar. Therefore, Rule 4625 is more stringent.

1.7. Rule Survey Conclusion

As shown above, District Rule 4625's primary VOC emission control requirements are at least as stringent, if not more stringent, than all other comparable rules and regulations.

2. OTHER POTENTIAL RETROFIT CONTROL TECHNOLOGIES/EMISSION LIMITS

2.1. District Permitted Sources

There are no Permits to Operate for equipment subject to Rule 4625 that include more stringent requirements than those discussed above.

2.2. Table Comparing Potential Retrofit Control Technologies/Emission Limits

No other retrofit control technologies were found.

2.3. Other Control Technology Conclusion

No other potential retrofit control technology/emission limit has been identified that is more stringent than the control technology/emission limits options identified in the rules discussed above.

3. DISCUSSION

As mentioned earlier, the scope of this analysis focused on the primary VOC emission control requirements applicable to post-custody transfer wastewater separators located at Cap and Trade facilities. As shown above, this analysis demonstrates that the VOC emission control requirements of Rule 4625 are at least as stringent, if not more stringent, as other air district rules as well as state and federal regulations.

4. CONCLUSION

The existing requirements of Rule 4625 satisfy BARCT.

Attachments:
Appendix A: PTOs at Cap and Trade Facilities in the District subject to Rule 4625

Appendix A

List of Permits to Operate for facilities subject to Rule 4625 and subject to the Cap and Trade requirements

Facility	Permit #	Description
Alon Bakersfield Refining	S-33-20	AREA 1 WASTEWATER TREATMENT UNIT #83 INCLUDING VAPOR CONTROLLED SUMPS, TANKS, HOWE BAKER UNIT, GAS FLOTATION UNITS, PLATE INTERCEPTORS, VOC STRIPPING COLUMN, VAPOR RECOVERY SYSTEM, & MISC FILTRATION DEVICES, PUMPS, HT EXCHANGERS, VESSELS & INJECTION WELLS
Alon Bakersfield Refining	S-33-63	SOUR WATER AND OILY WASTEWATER OPERATION INCLUDING HYDROCRACKER AND PHENOLIC SOUR WATER STRIPPING, PHOSAM UNIT, OIL WASTEWATER CLASSIFIER (83D-13), AND MISCELLANEOUS TANKS AND ASSOCIATED PIPING - AREA 2
Alon Bakersfield Refining	S-34-8	WASTEWATER TREATING UNIT INCL OIL WATER SEWER SYSTEM, WASTEWATER TANKS, CORRUGATED PLATE, OIL/WATER SEPARATORS, VAPOR RECOVERY COMPRESSORS, MISC FILTRATION DEVICES, PUMPS, HEAT EXCHANGERS, VESSELS, & INJECTION WELLS
San Joaquin Refining	S-36-6	2,000 BBL TANK #2001 OIL/WATER SEPARATOR INCLUDING ABA PLANTS SCRUBBER EFFLUENT RECEIVER, PROCESS EQUIPMENT EFFLUENT RECEIVER, TANKAGE EFFLUENT RECEIVER, AND THREE OIL/WATER SUMPS
Kern Oil and Refining	S-37-9	OIL/WATER SEPARATION OPERATION INCLUDING API SEPARATOR, CORRUGATED PLATE SEPARATOR, INDUCED AIR FLOATATION UNIT, DRAIN PIT, FOUR FILTERS, AND THREE 5,000 BBL STORAGE TANKS (#5061, 5062, AND 5063)
Tricor Refining	S-44-7	VORTOIL, MODEL H50-GO-ICR, HORIZONTAL HYDRO-CYCLONE OIL/WATER SEPARATOR.

2022 BARCT Rule Analysis

Rule 4402
Crude Oil Production Sumps

Engineer: **Thomas Aguirre, AQE**
Reviewed By: **Nick Peirce, Permit Services Manager**
Date: **October 4, 2022**

INTRODUCTION

In September of 2017, the California State Legislature and Governor passed Assembly Bill 617 (AB 617)[1], Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants. AB 617 requires the California Air Resources Board (ARB) and air districts to develop and implement additional emissions reporting, monitoring, and reduction plans and measures in an effort to reduce air pollution exposure in impacted communities. One requirement of AB617 is for air districts located in non-attainment areas to perform a Best Available Retrofit Control Technology (BARCT) analysis of their existing rules and regulations for all categories of units located at facilities subject to the state Cap-and-Trade program and to propose an expedited schedule for revising rules that are found to not meet BARCT requirements.

Although AB 617 does not specifically define BARCT, California Health and Safety Code (CH&SC) Section 40406 defines BARCT as follows:

> *Best Available Retrofit Control Technology (BARCT) is an air emission limit that applies to existing sources and is the maximum degree of reduction achievable, taking into account environmental, energy and economic impacts by each class or category of source.*

AB 617 further recognizes that "existing law authorizes a district to establish its own best available control technology requirement based upon the consideration of specified factors."

In the 2018 preliminary AB 617 Best Available Retrofit Control Technology (BARCT) analysis of Rule 4402 – Crude Oil Production Sumps, the District determined that there were no Crude Oil Production Sumps or produced water ponds located at facilities subject to the California cap-and trade program. As such, the District initially determined, and presented in workshops and related documents, that the AB 617 BARCT review process did not apply to Rule 4402.

[1] AB 617, Garcia, C., Chapter 136, Statutes of 2017.

However, as discussed in the District's December 20, 2018 final staff report for Expedited Best Available Control Technology Implementation Schedule under AB 617, while it was determined that that while there are no crude oil production sumps located at Cap-and-Trade facilities in the San Joaquin Valley based on the definitions and exemption criteria in Rule 4402, the District recognized that an analysis of the relevant exemption criteria in this rule for ponds storing clean produced water (i.e. VOC content < 35 mg/L) could have an impact on the determination of whether BARCT requirements are satisfied for produced water ponds. Therefore, Rule 4402 was included in the schedule of rules for determination of BARCT.

To determine if Cap-and Trade oil production facilities in the District operated produced water ponds, a list of produced water ponds in the Central Valley was obtained from the California Water Board, see https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_ponds/20210211_pondlist.pdf. A review of this list indicated that several Cap-and-Trade oil production facilities in the District also operate produced water ponds. As such, Rule 4402 is subject to a further BARCT analysis as required by AB617.

This document performs a refined and more in-depth analysis to determine if the existing SJVAPCD Rule 4402 satisfies BARCT requirements or if amendments to the rule may be necessary to ensure BARCT requirements are met.

DISCUSSION

District Rule 4402 applies to the following source categories:

> *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 sumps. The rule also contains an exemption for sumps and ponds used to store clean produced water, defined as having a VOC content less than 35 mg/L.

There are no sumps as defined in Rule 4402 or ponds storing produced water under permit at any oil producer participating in the state's Cap-and-Trade program in the San Joaquin Valley in the District. All separation of oil and water is conducted in tanks, which are subject to District Rule 4623.

Furthermore, oil producers in the District that operate ponds as defined in Rule 4402 comply with the "clean produced water" VOC content limit of 35 mg/L, and as such, these ponds are exempt from the requirements of Rule 4402.

FURTHER BARCT ANALYSIS

Since there are no permitted crude oil production sumps or produced water ponds subject to Rule 4402, the following analysis will be limited to the exemption criteria in other district, state, and federal rules and regulations for crude oil production sumps and produced water ponds.

1. RULE SURVEY

1.1. San Joaquin Valley APCD Rule 4402 (Crude Oil Production Sumps) (12/15/11)

	SJVAPCD
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.
Exemptions	• Second or third stage small producers that have a liquid surface area of 1,000 square feet and are used exclusively in production of heavy oil. • Second and third stage sumps containing clean produced water (<35 mg-VOC/L). • Any very small producer (<50 BBL crude oil production per day, per lease) sump. • Any sump that has estimated emissions of 0.007 lb/sq.ft. per day or less. • Any sump used as a second stage, or third stage sump for not more than seven days in a month and not more that 21 days in a year. • Any sumps located at a petroleum refinery. • Ponds, any very large excavation used for storage/disposal of clean produced water (<35 mg-VOC/L) with no more that 5% visible oil-covered surface area. • Pits, used for emergency collection of crude oil and water, not used for separation of oil and water.

1.2. South Coast AQMD Rule 1176 (VOC Emissions from Wastewater Systems) (9/13/96)

	SJVAPCD Rule 4402	SCAQMD Rule 1176	Conclusion
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.	This rule applies to wastewater systems and associated control equipment located at petroleum refineries, on-shore oil production fields, off-shore oil production platforms, chemical plants and industrial facilities.	Applicability is similar, with exception of SCAQMD including off-shore production platforms, industrial plants and industrial facilities.

Exemptions	• Second or third stage small producers that have a liquid surface area of 1,000 square feet and are used exclusively in production of heavy oil. • Second and third stage sumps containing clean produced water (<35 mg-VOC/L). • Any very small producer (<50 BBL crude oil production per day, per lease) sump. • Any sump that has estimated emissions of 0.007 lb/sq.ft. per day or less. • Any sump used as a second stage, or third stage sump for not more than seven days in a month and not more that 21 days in a year. • Any sumps located at a petroleum refinery. • Ponds, any very large excavation used for storage/disposal of clean produced water (<35 mg-VOC/L) with no more that 5% visible oil-covered surface area. • Pits, used for emergency collection of crude oil and water, not used for separation of oil and water.	• The provisions of subdivision (e) - Operation and Control Requirements), shall not apply to equipment, if which covered, would present unavoidable explosion or fire hazards, as approved by Executive Officer. • The provisions in paragraph for the previous exemption shall not apply to process drains while receiving petroleum liquids and/or VOC containing liquids. • Wastewater system(s), if the VOC content of each liquid stream entering each sump and/or wastewater separator does not exceed at all times 5 mg-VOC/L.	Exemptions are similar with one major difference, SJVAPCD Rule 4402 exempts second and third stage sumps, and ponds containing clean produced water (<35 mg-VOC/L) whereas SCAQMD Rule 1176 exempts sumps and ponds that contain wastewater not exceeding 5 mg-VOC/L at all times.

1.3. Ventura County APCD Rule 71.4 (Petroleum Sumps, Pits, Ponds and Well Cellars) (6/8/93)

	SJVAPCD Rule 4402	VCAPCD Rule 71.4	Conclusion
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.	• This rule is applicable to sumps, pits, ponds, and well cellars at facilities where crude oil or petroleum material is produced, gathered, separated, processed or stored.	Applicability is similar for both rules.
Exemptions	• Second or third stage small producers that have	• Drilling operating pits, if clean-up procedures are	

	a liquid surface area of 1,000 square feet and are used exclusively in production of heavy oil. • Second and third stage sumps containing clean produced water (<35 mg-VOC/L). • Any very small producer (<50 BBL crude oil production per day, per lease) sump. • Any sump that has estimated emissions of 0.007 lb/sq.ft. per day or less. • Any sump used as a second stage, or third stage sump for not more than seven days in a month and not more that 21 days in a year. • Any sumps located at a petroleum refinery. • Ponds, any very large excavation used for storage/disposal of clean produced water (<35 mg-VOC/L) with no more that 5% visible oil-covered surface area. • Pits, used for emergency collection of crude oil and water, not used for separation of oil and water.	implemented within 48 after rig has been removed, if clean-up procedures are completed within 15 days, and if production is routed to a closed top tank. • Emergency pits and wells cellars used in an emergency, if clean-up procedures are implemented within 24 hours after each emergency occurrence and if clean-up procedures are implemented within 15 days. • Sumps, pits or ponds, if the Reactive Organic Compound (ROC) content of liquid entering the sump, pit or pond is less than 5 mg/L. • Any sump, pit or pond, when it has been demonstrated to the satisfaction of APCO that maximum achievable emission reduction has already taken place. Each demonstration shall include cost effectiveness evaluation in accordance with BACT adopted by APCD 12/20/88. • Provisions of B2 of Rule shall not apply during maintenance operations on sumps or pits if APCD is notified at least 24 hours prior to maintenance operations and if the operation will take no more than 24 hours.	Exemptions are similar with one major difference, SJVAPCD Rule 4402 exempts second and third stage sumps and ponds containing clean produced water (<35 mg-VOC/L), whereas VCAPCD Rule 71.4 exempts sumps and ponds that contain wastewater less than 5 mg-VOC/L.

1.4. San Luis Obispo County APCD Rule 419 (Petroleum Pits, Ponds, Sumps, Well Cellars, and Wastewater Separators) (7/12/94)

	SJVAPCD Rule 4402	SLOCAPCD Rule 419	Conclusion
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.	• This rule is applicable to pits, ponds, sumps, well cellars, and wastewater separators where crude oil or petroleum material is produced, gathered, separated, processed or stored.	Applicability is similar for both rules.
Exemptions	• Second or third stage small producers that have a liquid surface area of 1,000 square feet and are used exclusively in production of heavy oil. • Second and third stage sumps containing clean produced water (<35 mg-VOC/L). • Any very small producer (<50 BBL crude oil production per day, per lease) sump. • Any sump that has estimated emissions of 0.007 lb/sq.ft. per day or less. • Any sump used as a second stage, or third stage sump for not more than seven days in a month and not more that 21 days in a year. • Any sumps located at a petroleum refinery. • Ponds, any very large excavation used for storage/disposal of clean produced water (<35 mg-VOC/L) with no more that 5% visible oil-covered surface area. • Pits, used for emergency collection of	• Equipment that exclusively receives, holds, or discharges rainwater, stormwater runoff, or non-contact cooling water. • Emergency pits and wells cellars used in an emergency, if clean-up procedures are implemented within 24 hours after each emergency occurrence and if clean-up procedures are implemented within fifteen (15) calendar days. • Pits, ponds, or sumps, if the liquid surface area is less than one hundred (100) square feet. • Pits, ponds, sumps, or wastewater separators, if the VOC content of the liquid entering is less than five (5) milligrams per liter, as determined by EPA Test Method 8015 with stock standards prepared from gasoline. Sampling shall occur at the inlet to the pit, pond, sump or wastewater separator. • Drilling operation pits, if clean-up procedures are implemented within 48 hours after the drilling rig has been removed from the location, if clean-up	Exemptions are similar with one major difference, SJVAPCD Rule 4402 exempts second and third stage sumps and ponds containing clean produced water (<35 mg-VOC/L), whereas SLOCAPCD Rule 419 exempts sumps and ponds that contain wastewater less than 5 mg-VOC/L.

	crude oil and water, not used for separation of oil and water.	procedures are completed within fifteen (15) calendar days, and if test production is routed to a closed top tank. • Any pit, pond, sump, or wastewater separator, when it has been demonstrated to the satisfaction of APCO that maximum achievable emission reduction has already taken place. Each demonstration shall include cost effectiveness calculation. • The provisions of Subsections D.2 and D.4 of this Rule shall not apply during maintenance operations on pits, sumps, or wastewater separators if the APCO is notified at least 24 hours prior to the maintenance operation, and if the maintenance operation will take no more than 24 hours to complete.	

1.5. Rule Survey Conclusion

As presented above, the South Coast Air Quality Management District (SCAQMD), Ventura County Air Pollution Control District (VCAPCD), and San Luis Obispo County Air Pollution Control District (SLCAPCD) rules have lower exemption thresholds for sumps and ponds storing produced water than Rule 4402.

2. OTHER POTENTIAL RETROFIT CONTROL TECHNOLOGIES/EMISSION LIMITS

2.1. District Permitted Sources

There are no permitted crude oil production sumps or ponds storing produced water at Cap-and-Trade facilities in the San Joaquin Valley that are subject to Rule 4402.

However, there are numerous permit-exempt ponds storing clean produced water (VOC < 35 mg/L) in the District, which are exempt from Rule 4402.

2.2. State Regulations – ATCMs and other rules

There were no applicable state regulations found

2.3. Federal Regulations – CFR and Control Technique Guidance document

There were no applicable federal regulations found.

2.4. Other Control Technology Conclusion

As presented above, the South Coast Air Quality Management District (SCAQMD), Ventura County Air Pollution Control District (VCAPCD), and San Luis Obispo County Air Pollution Control District (SLCAPCD) rules have more stringent exemption thresholds for sumps and ponds than Rule 4402.

3. OVERALL ANALYSIS CONCLUSION

In conclusion, this BARCT analysis demonstrates that other regulations have more stringent exemption thresholds for sumps and ponds storing produced water than Rule 4402. Therefore, a rule making process will start in 2022 to establish BARCT for the storage and handling of produced water in sumps and ponds.

The rule development process will evaluate opportunities for a potentially more stringent definition of clean produced water to determine the maximum degree of VOC emission reductions achievable, taking into account environmental, energy and economic impacts by each class or category of source.

Consequently, other District Rules, including Rule 1020 Definitions and Rule 2020 Exemptions, may require evaluation as well as these rules contain definitions and provisions for the storage and handling of clean produced water.