

BOARD MEETING DATE: January 6, 2023

AGENDA NO. 18

PROPOSAL: Determine That Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares is Exempt from CEQA; and Amend Rule 1118

SYNOPSIS: Rule 1118 establishes requirements to monitor and record data on refinery and related flaring operations, and to control and minimize flaring and flare-related emissions. On September 21, 2022, U.S. EPA issued a limited SIP disapproval of the July 2017 amended rule. Proposed Amended Rule 1118 will address the disapproval by modifying an existing provision, so that ASTM standards not currently listed in the rule must be approved by CARB and U.S. EPA, along with approval by the Executive Officer.

COMMITTEE: Stationary Source, November 18, 2022, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

1. Determining that Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares, is exempt from the requirements of the California Environmental Quality Act; and
2. Amending Rule 1118.

Wayne Natri
Executive Officer

SR:MK:HF:SK:ZB

Background

Rule 1118 – Control of Emissions from Refinery Flares (Rule 1118) was adopted on February 13, 1998, with the purpose of monitoring, recording, and reporting data on refinery and related flaring operations. Rule 1118 has been amended twice, most recently on July 7, 2017, which was the first phase of a two-phase amendment intended to minimize flaring and flare-related emissions. The second phase of the rule

development to further reduce refinery flaring began in July 2022 and the Public Hearing is scheduled for later in 2023. This proposed rule amendment is solely to address a limited U.S. EPA SIP disapproval of Rule 1118.

Air districts, such as South Coast AQMD, which fail to attain the National Ambient Air Quality Standards (NAAQS) are required to develop and submit a State Implementation Plan (SIP) for U.S. EPA approval. SIPs consist of rules and documents that a state or local air district implements, maintains, and enforces to fulfill the requirements of the Clean Air Act (CAA) and are used to demonstrate how the region will meet NAAQS. According to CAA Section 110, documents submitted for inclusion into SIP should not include excessive Executive Officer discretion that allows approval of alternatives to the applicable SIP without following the SIP revision process. Rule 1118 paragraph (j)(1) and Attachment A paragraphs (4)(n) and (5)(n) currently provides the Executive Officer sole authority to approve ASTM International (ASTM) standards not included in the rule, which is not consistent with the requirements of CAA Section 110.

On September 21, 2022, U.S. EPA issued a final limited SIP disapproval of Rule 1118 effective on October 24, 2022, and South Coast AQMD faces the possibility of federally imposed sanctions and other consequences under CAA if the identified rule deficiency is not corrected and approved by U.S. EPA by April 24, 2024. Offset sanctions would be triggered 18 months after the effective date of a final disapproval and highway funding sanctions would be triggered six months after the offset sanctions are imposed. CAA would also require U.S. EPA to promulgate a Federal Implementation Plan within 24 months of the disapproval effective date. Sanctions will not be imposed if U.S. EPA determines that a subsequent SIP submission corrects the deficiencies before the applicable deadline.

Proposed Amendment

Proposed Amended Rule 1118 (PAR 1118) will require CARB and U.S. EPA approval for any ASTM standards not currently listed in Rule 1118 to address U.S. EPA's limited SIP disapproval of Rule 1118.

Public Process

PAR 1118 was developed through a public process. Staff presented PAR 1118 during a Working Group Meeting held on October 26, 2022. No comment letters were received regarding the proposed amendments.

Key Issues

Staff did not receive any comments and is not aware of any key issues.

California Environmental Quality Act

Pursuant to the CEQA Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1118) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3).

A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062, will be included as Attachment H to the Board Package. If PAR 1118 is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

Socioeconomic Impact Assessment

The proposed amendments to Rule 1118 are administrative in nature and have no adverse socioeconomic impacts.

AQMP and Legal Mandates

Health and Safety Code Section 40460(a) requires South Coast AQMD to adopt an AQMP to meet state and federal ambient air quality standards in the South Coast Air Basin. In addition, the Health and Safety Code requires South Coast AQMD to adopt rules and regulations that carry out the objectives of the AQMP. The proposed amendments are not the result of an AQMP control measure but are needed to address U.S. EPA's proposed limited disapproval of Rule 1118.

Implementation and Resource Impacts

The amendment is administrative in nature, with no additional resource impacts to implement PAR 1118.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts List
- E. Resolution
- F. Proposed Amended Rule 1118
- G. Final Staff Report
- H. Notice of Exemption from CEQA
- I. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares

PAR 1118 will include a requirement that in addition to the South Coast AQMD's Executive Officer, the California Air Resources Board (CARB) and the United States Environmental Protection Agency (U.S. EPA) must also approve ASTM standards not included in the rule.

ATTACHMENT B
KEY ISSUES AND RESPONSES

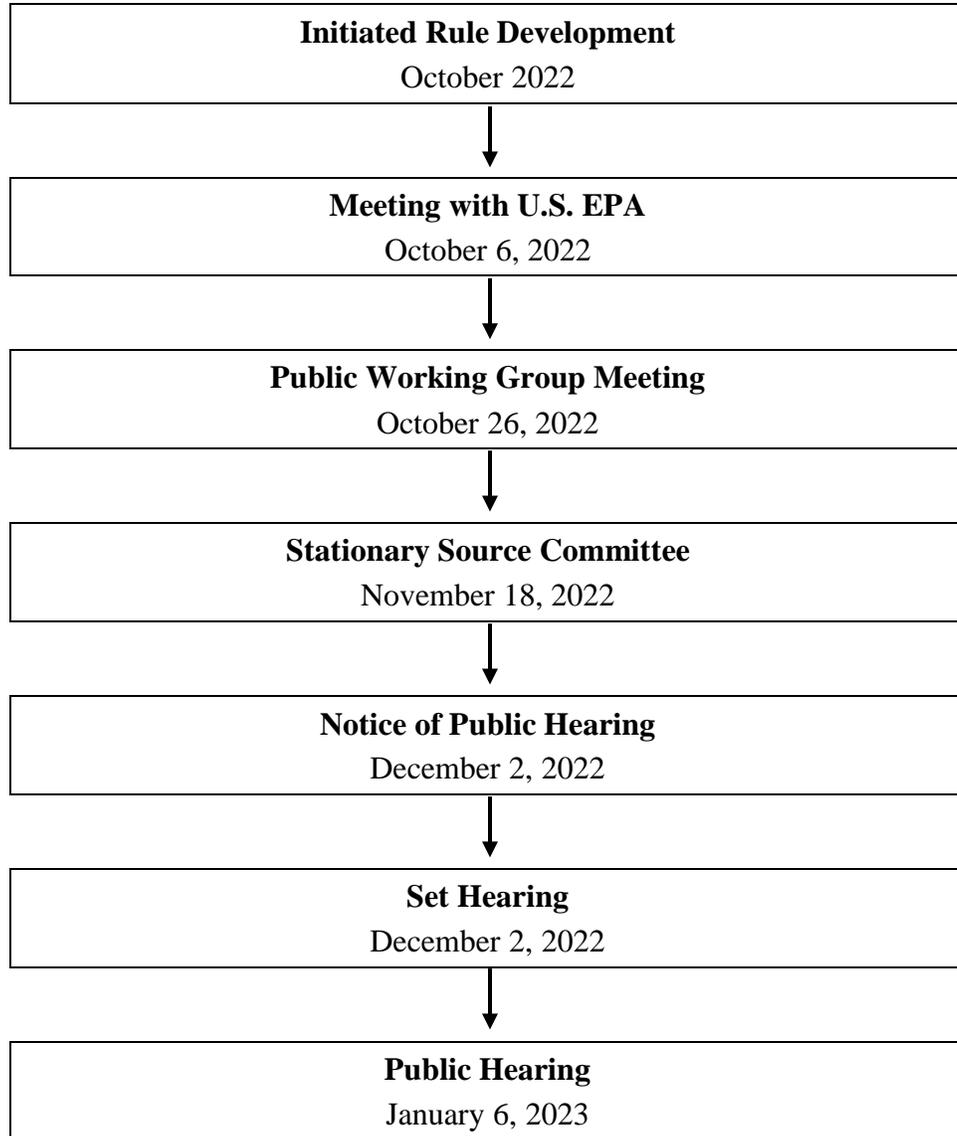
Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares

Staff did not receive any comments and is not aware of any key issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares



Three (3) months spent in rule development

One (1) Public Working Group Meeting

One (1) Stationary Source Committee Meetings

ATTACHMENT D

KEY CONTACTS LIST

Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares

Facilities

- Air Liquide Large Industries U.S., LP
- Air Products and Chemical, Inc.
- AltAir Paramount
- Chevron Products Co.
- Marathon Petroleum Corporation
- Phillips 66 Company
- Torrance Refining Company
- Ultramar Inc.

Associations or Entities

- Ramboll
- Western States Petroleum Association

Government Agencies

- California Air Resources Board
- Southern California Association of Governments
- U.S. Environmental Protection Agency

Other Interested Parties

- California Council for Environmental and Economic Balance
- Coalition for Clean Air
- Communities for a Better Environment
- Earthjustice
- East Yard Communities
- Sierra Club

ATTACHMENT E
RESOLUTION NO. 23-_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares is exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the South Coast AQMD Governing Board amending Rule 1118 – Control of Emissions from Refinery Flares.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1118 is considered a "project" as defined by CEQA; and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of the proposed project pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board finds and determines that after conducting a review of the proposed project in accordance with CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA, and CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA, that the proposed project is exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that because the proposed expansion of the authority to approve other ASTM International (ASTM) standards to include California Air Resources Board (CARB) and United States Environmental Protection Agency (U.S. EPA) is administrative in nature and would not require physical modifications to occur, it can be seen with certainty that implementing Proposed Amended Rule 1118 would not cause a significant adverse effect on the environment, and is therefore, exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption; and

WHEREAS, the South Coast AQMD staff has prepared a Notice of Exemption for the proposed project, that is completed in compliance with CEQA Guidelines Section 15062 – Notice of Exemption; and

WHEREAS, Proposed Amended Rule 1118 and supporting documentation, including but not limited to, the Notice of Exemption and Final Staff Report, were presented to the South Coast AQMD Governing Board and the South Coast AQMD

Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that no modifications have been made to the proposed project since notice of public hearing was published that are so substantial as to significantly affect the meaning of Proposed Amended Rule 1118 within the meaning of Health and Safety Code Section 40726 because removing the phrase “as applicable” from clauses (j)(1)(A)(i) and (j)(1)(B)(i) and Attachment A paragraphs (4)(n) and (5)(n) is to provide clarification and: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because the proposed project is exempt from CEQA; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 1118 to address the U.S. EPA’s partial disapproval of the State Implementation Plan citing the South Coast AQMD’s Executive Officer sole authority to approve ASTM standards not explicitly included in the rule which does not satisfy the requirements of the federal Clean Air Act Section 110; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Sections 39002, 40000, 40001, 40440, 40441, 40702, and 40725 through 40728 of the Health and Safety Code; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 1118, as proposed to be amended, is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 1118, as proposed to be amended, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decision, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 1118, as proposed to be amended, does not impose the same requirements as any existing state or federal regulations, and the proposed amended rule is necessary and proper

to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending Rule 1118, references the following statutes which the South Coast AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 39002, 40001, 40702, 40440(a), 40725 through 40728.5, and federal Clean Air Act Sections 110, 172, and 182(e); and

WHEREAS, the South Coast AQMD Governing Board finds that Proposed Amended Rule 1118 does not significantly affect air quality or emissions limitations, and proposed amendments are administrative in nature, and therefore a socioeconomic analysis pursuant to Health and Safety Code Sections 40440.8, 40728.5, or 40920.6 is not required; and

WHEREAS, the South Coast AQMD staff conducted a Working Group Meeting regarding Proposed Amended Rule 1118 on October 26, 2022; and

WHEREAS, the Public Hearing has been properly noticed in accordance with all provisions of Health and Safety Code Sections 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a Public Hearing in accordance with all provisions of law; and

WHEREAS, the South Coast AQMD Governing Board specifies the Planning, Rule Development and Implementation Manager overseeing the rule development for Proposed Amended Rule 1118 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

WHEREAS, Proposed Amended Rule 1118 will be submitted to CARB and U.S. EPA for inclusion into the State Implementation Plan; and

NOW, THEREFORE, BE IT RESOLVED, that the South Coast AQMD Governing Board does hereby determine, pursuant to the authority granted by law, that the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. This information was presented to the South Coast AQMD Governing Board, whose members exercised their independent judgement and reviewed, considered, and approved the information therein prior to acting on the proposed project; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1118 as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 1118 be submitted for inclusion in the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 1118 to CARB for approval and subsequent submittal to U.S. EPA for inclusion into the State Implementation Plan.

DATE: _____

CLERK OF THE BOARDS

ATTACHMENT F

(Adopted February 13, 1998)(Amended November 4, 2005)(Amended July 7, 2017)
(Amended [*Date of Adoption*])

PROPOSED AMENDED RULE 1118. CONTROL OF EMISSIONS FROM REFINERY FLARES

(a) Purpose and Applicability

The purpose of Rule 1118 is to monitor and record data on refinery and related flaring operations, and to control and minimize flaring and flare related emissions. The provisions of this rule are not intended to preempt any petroleum refinery, sulfur recovery plant and hydrogen production plant operations and practices with regard to safety. This rule applies to all flares used at petroleum refineries, sulfur recovery plants and hydrogen production plants.

(b) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) CLEAN SERVICE STREAM is a gas stream such as natural gas, hydrogen gas and/or liquefied petroleum gas. Other gases with a fixed composition that inherently have a low sulfur content and are vented from specific equipment may be classified as clean service streams if determined to be equivalent and approved in writing by the Executive Officer.
- (2) EMERGENCY is a condition beyond the reasonable control of the owner or operator of a flare requiring immediate corrective action to restore normal and safe operation, which is caused by a sudden, infrequent and not reasonably preventable equipment failure, upset condition, equipment malfunction or breakdown, electrical power failure, steam failure, cooling air or water failure, instrument air failure, reflux failure, heat exchanger tube failure, loss of heat, excess heat, fire and explosion, natural disaster, act of war or terrorism or external power curtailment, excluding power curtailment due to an interruptible power service agreement from a utility. For the purpose of this rule, a flare event caused by poor maintenance, or a condition caused by operator error that results in a flare event shall not be deemed an emergency.

- (3) ESSENTIAL OPERATIONAL NEED is an activity other than resulting from poor maintenance or operator error, determined by the Executive Officer to meet one of the following:
 - (A) Temporary fuel gas system imbalance due to:
 - (i) Inability to accept gas compliant with Rule 431.1 by an electric generation unit at the facility that produces electricity to be used in a state grid system, or
 - (ii) Inability to accept gas compliant with Rule 431.1 by a third party that has a contractual gas purchase agreement with the facility, or
 - (iii) The sudden shutdown of a refinery fuel gas combustion device that is not due to an emergency or breakdown;
 - (B) Venting of streams that cannot be recovered due to incompatibility with recovery system equipment or with refinery fuel gas systems, including supplemental natural gas or other gas compliant with Rule 431.1 that is used for the purpose of maintaining the higher heating value of the vent gas above 300 British Thermal Units per standard cubic foot. Such streams include inert gases, oxygen, gases with low or high molecular weights outside the design operating range of the recovery system equipment and gases with low or high higher heating values that could render refinery fuel gas systems and/or combustion devices unsafe;
 - (C) Venting of clean service streams to a clean service flare or a general service flare.
- (4) FLARE is a combustion device that uses an open flame to burn combustible gases with combustion air provided by uncontrolled ambient air around the flame. When used as a verb means the combustion of vent gases in a flare device. Based on their use, flares are classified as:
 - (A) CLEAN SERVICE FLARE is a flare that is designed and configured by installation to combust only clean service streams.
 - (B) GENERAL SERVICE FLARE is a flare that is not a Clean Service Flare.
- (5) FLARE EVENT is any intentional or unintentional combustion of vent gas in a flare. The start is determined by the vent gas flow velocity exceeding 0.10 feet per second and the end is determined when the vent gas flow velocity drops below 0.12 feet per second, or when the owner or operator

can demonstrate that no more vent gas was combusted based upon the monitoring records of the flare water seal level and/or other parameters as approved by the Executive Officer in the Flare Monitoring and Recording Plan as described in subdivision (f). For flare events that can be attributed to the same process unit(s) or equipment and has more than one start and end within a 24 hour period, it shall be considered a continuation of the same event, and not a separate or unique event. For a flare event that continues for more than 24 hours, each calendar day of venting of gases shall constitute a flare event.

- (6) **FLARE GAS RECOVERY SYSTEM** is a system comprised of compressors, pumps, heat exchangers, knock-out pots and water seals, installed to prevent or minimize the combustion of vent gas in a flare.
- (7) **FLARE MINIMIZATION PLAN** is a document intended to meet the requirements of subdivision (e).
- (8) **FLARE MONITORING SYSTEM** is the monitoring and recording equipment used for the determination of flare operating parameters, including higher heating value, total sulfur concentration, combustion efficiency, standard volumetric flow rate and/or on/off flow indication.
- (9) **FLARE TIP VELOCITY** is the velocity of flare gases exiting a flare tip averaged over 15 minute time periods, starting at 12 midnight to 12:15 am, 12:15 am to 12:30 am, and so on, concluding at 11:45 pm to midnight, and calculated as the volumetric flow divided by the area of the flare tip.
- (10) **HYDROGEN PRODUCTION PLANT** is a facility that produces hydrogen by steam hydrocarbon reforming, partial oxidation of hydrocarbons, or other processes, using refinery fuel gas, process gas or natural gas, and which supplies hydrogen for petroleum refinery operations.
- (11) **NATURAL GAS** is a mixture of gaseous hydrocarbons, with at least 80 percent methane (by volume), and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the California Public Utilities Commission.
- (12) **NOTICE OF SULFUR DIOXIDE EXCEEDANCE** is a notice issued by the Executive Officer to the owner or operator when the petroleum refinery has exceeded a performance target of this rule.
- (13) **PETROLEUM REFINERY** is a facility that processes petroleum, as defined in the North American Industry Classification System (NAICS) as Industry No. 324110, Petroleum Refineries. For the purpose of this rule, all portions

of the petroleum refining operation, including those at non-contiguous locations operating flares, shall be considered as one petroleum refinery.

- (14) PILOT is an auxiliary burner used to ignite the vent gas routed to a flare.
- (15) PLANNED FLARE EVENT is any flaring as a result from process unit(s) or equipment startup, shutdown, turnaround, maintenance, clean-up, and non-emergency flaring. Flaring from the startup of a process unit or equipment that is more than 36 hours after the end of an unplanned flare event of that same process unit shall be considered a Planned Flare Event.
- (16) PURGE GAS is a continuous gas stream introduced into a flare header, flare stack and/or flare tip for the purpose of maintaining a positive flow that prevents the formation of an explosive mixture due to ambient air ingress.
- (17) REPRESENTATIVE SAMPLE is a sample of vent gas collected from the location as approved in the Flare Monitoring and Recording Plan and analyzed utilizing test methods specified in subdivision (j).
- (18) SHUTDOWN is the procedure by which the operation of a process unit or piece of equipment is stopped due to the end of a production run, or for the purpose of performing maintenance, repair and replacement of equipment. Stoppage caused by frequent breakdown due to poor maintenance or operator error shall not be deemed a shutdown.
- (19) SMOKELESS CAPACITY is the maximum vent gas volumetric flow rate or mass flow rate that a flare is designed to operate without visible emissions.
- (20) SPECIFIC CAUSE ANALYSIS is a process used by a facility subject to this rule to investigate the cause of a flare event, identify corrective measures and prevent recurrence of a similar event.
- (21) STARTUP is the procedure by which a process unit or piece of equipment achieves normal operational status, as indicated by such parameters as temperature, pressure, feed rate and product quality.
- (22) SULFUR RECOVERY PLANT is a facility that recovers elemental sulfur or sulfur compounds from sour gases and/or sour water generated by petroleum refineries.
- (23) TURNAROUND is a planned activity involving shutdown and startup of one or several process units for the purpose of performing periodic maintenance, repair and replacement of equipment or installation of new equipment.

- (24) VENT GAS is any gas generated at a facility subject to this rule that is routed to a flare, excluding assisting air or steam, which are injected in the flare combustion zone or flare stack via separate lines.
- (25) VOLATILE ORGANIC COMPOUNDS (VOC) is as defined in Rule 102.
- (26) WEB-BASED FLARE EVENT NOTIFICATION SYSTEM is a web page that allows facilities to notify the District about flaring events and to enter information such as the time that flaring begins and ends, vent gas flow rates, and emissions.

(c) Requirements

The owner or operator of a petroleum refinery, sulfur recovery plant or hydrogen production plant subject to this rule shall:

- (1) Maintain a pilot flame present at all times a flare is operational.
- (2) Operate all flares in a smokeless manner with no visible emissions except for periods not to exceed a total of five minutes during two consecutive hours, as determined by the test method in paragraph (j)(2).
- (3) Except as specified in (c)(10), operate all general service flares at petroleum refineries such that the flare tip velocity is less than:
 - (A) 60 feet per second, or the lesser of 400 feet per second and V_{Max} , where:

$$\text{Log}_{10}(V_{Max}) = \frac{\text{Net Heating Value}_{Vent Gas} + 1,212}{850}$$

and the Net Heating Value_{Vent Gas} in British Thermal Units per standard cubic foot is determined pursuant to monitoring required in subdivision (g).

- (4) Effective January 30, 2019, general service flares at petroleum refineries shall maintain the net heating value of the flare combustion zone gas (NHV_{cz}) at or above 270 British Thermal Units per standard cubic feet, averaged over a 15-minute period. The owner or operator shall calculate NHV_{cz} as specified in Title 40 of the Code of Federal Regulations Part 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries.
- (5) Conduct an annual acoustical or temperature leak survey of all pressure relief devices connected directly to a flare and repair leaking pressure relief

devices no later than the next turnaround. The survey shall be conducted no earlier than 90 days prior to the scheduled process unit turnaround.

- (6) Conduct a Specific Cause Analysis for any flare event, excluding planned shutdown, planned startup and turnarounds, when any of the thresholds in (c)(6)(A) through (C) is exceeded. Flare events resulting from non-standard operating procedure during a planned shutdown, planned startup or turnaround, must also conduct a Specific Cause Analysis when any of the thresholds in (c)(6)(A) through (C) is exceeded.
 - (A) Emissions exceed 100 pounds of VOC; or
 - (B) Emissions exceed 500 pounds of sulfur dioxide; or
 - (C) More than 500,000 standard cubic feet of vent gas are combusted.
- (7) Effective January 30, 2019, conduct a Specific Cause Analysis for any flare event at a petroleum refinery when the smokeless capacity of the flare is exceeded and either:
 - (A) The visible emission limits in paragraph (c)(2) or Rule 401 are exceeded; or
 - (B) The flare tip velocity limits in subparagraph (c)(3)(A) is exceeded.
- (8) Submit all Specific Cause Analyses as required by paragraphs (c)(6) or (c)(7) to the Executive Officer within 30 days of the start of the flare event, identifying the cause and duration of the flare event, and any mitigation and corrective actions taken or to be taken to prevent recurrence of a similar event. The owner or operator may request that the Executive Officer grant an extension of up to 15 days to submit the Specific Cause Analysis.
- (9) All corrective actions identified in a Specific Cause Analysis required under paragraph (c)(6) or (c)(7) shall be implemented within 45 days of the flare event for which the Specific Cause Analysis was required. A corrective action identified in a Specific Cause Analysis may be implemented more than 45 days after the flare event if justified in a Specific Cause Analysis by showing the required elements in (c)(9)(A):
 - (A) An implementation schedule to complete the corrective action as soon as practicable, an explanation of the reason(s) why more than 45 days is needed to complete the corrective action, and a demonstration that the implementation schedule is the soonest practicable.

- (B) After reviewing the Specific Cause Analysis, the Executive Officer may request additional information justifying why the implementation schedule beyond 45 days is the soonest practical.
 - (C) Within 30 days of receipt of all information necessary to evaluate the Specific Cause Analysis, the Executive Officer may require a modification to the corrective action or schedule, including increments of progress, and shall notify the operator in writing with an explanation describing why the corrective action is inadequate or the schedule can be shortened.
- (10) Effective January 30, 2019, no flare event at a petroleum refinery shall occur above the smokeless capacity of the flare under the following conditions:
- (A) When the limits in clauses (c)(10)(D)(i) or (ii) are exceeded and the flare event is due to operator error or poor maintenance.
 - (B) Two times at a flare in any consecutive three year period, if the flare events exceed the limits in clauses (c)(10)(D)(i) or (ii) and a Specific Cause Analysis shows the same cause for both flare events from the same equipment.
 - (C) Three times at a flare in any consecutive three year period, if the flare events exceed the limits in clauses (c)(10)(D)(i) or (ii), and the flare events are due to any cause.
 - (D) Pursuant to subparagraphs (c)(10)(A) through (C), flare events shall not exceed:
 - (i) The visibility limits in paragraph (c)(2) or Rule 401; or
 - (ii) The velocity limits in subparagraph (c)(3)(A).
 - (E) If more than one flare exceeds the limits in (c)(10)(D)(i) or (ii) during a single event, and a Specific Cause Analysis demonstrates that the flaring events at these flares have the same root cause, then one flaring event at each flare shall be considered to have exceeded these limits.
 - (F) Notwithstanding the provisions in Rule 430 - Breakdown Provisions and Rule 2004 - Requirements, the prohibitions listed in paragraph (c)(10) of this rule shall be applicable during all periods including breakdowns, with the exception of exemptions listed in subdivision (k).

- (11) Conduct an analysis and determine the relative cause of any other flare events where more than 5,000 standard cubic feet of vent gas are combusted. When it is not feasible to determine relative cause, state the reason why it was not feasible to make the determination.
- (12) Maintain the following information and submit to the Executive Officer upon request:
 - (A) Detailed process flow diagrams of all upstream equipment and process units venting to each flare and a complete description and technical specifications for each flare system components such as flares, associated knock-out pots, surge drums, water seals and flare gas recovery systems, and an audit of the vent gas recovery capacity of each flare system, the available storage for excess vent gases and the scrubbing capacity available for vent gases, including any limitations associated with scrubbing vent gases for use as a fuel; and
 - (B) A description of the equipment, processes and procedures installed or implemented within the last five years to reduce flaring; and
 - (C) A descriptions of any equipment, processes or procedures the owner or operator plans to install or implement to eliminate or reduce flaring. The description shall specify the scheduled year of installation or implementation.
- (13) Submit to the Executive Officer 12 months after July 7, 2017 a Scoping Document that evaluates the feasibility of minimizing flaring emissions that includes the following components:
 - (A) The Scoping Document shall describe how a facility operator or owner can reduce emissions from all planned flare events and essential operational needs flare events, to emission limits specified in subparagraph (c)(13)(B). The Scoping Document shall describe two potential alternatives for each applicable level in (c)(13)(B)(i) through (iv), and shall include an analysis of the following:
 - (i) proposed physical controls and/or operating practices,
 - (ii) technical feasibility constraints,
 - (iii) approximate cost (initial capital and ongoing),
 - (iv) timing constraints.

- (B) The Scoping Document shall analyze the feasibility of achieving each of the following annual emission levels for planned flare events and essential operational needs as soon as feasible:
 - (i) 0.10 tons of sulfur oxides per million barrels of a petroleum refinery's 2004 calendar year crude processing capacity,
 - (ii) 0.05 tons of sulfur oxides per million barrels of a petroleum refinery's 2004 calendar year crude processing capacity, and
 - (iii) 0.01 tons or lower of sulfur oxides per million barrels of a petroleum refinery's 2004 calendar year crude processing capacity, and
 - (iv) 0.1 tons per year of volatile organic compounds from flares that only vent clean service streams.
- (C) Using the criteria described in clauses (c)(13)(A)(i) through (iv), the Scoping Document shall analyze the feasibility of installing and maintaining at least three physical or automated process controls as soon as feasible that can be used together or separately to avoid or minimize emergency flare events described in (c)(13)(C)(i) through (iv).
 - (i) A sudden influx of vent gas into a flare gas header. The amount of vent gas is equivalent to the highest vent gas flow rate, averaged over a 15-minute period, vented to the flare gas header from all emergency flare events at that flare since January 1, 2012.
 - (ii) A sudden loss of the process unit with the highest fuel gas consumption rate of recovered flare gas at that facility, averaged over a 15-minute period, since January 1, 2012.
 - (iii) A sudden loss of all external electrical power to the facility.
 - (iv) A sudden loss of all electrical power from any non-backup electrical generation unit that is currently operating at a facility.
- (D) For each flare operated at the facility, the Scoping Document shall contain a description of:
 - (i) The smokeless capacity, and documentation for how the smokeless capacity was determined;
 - (ii) The maximum vent gas flow rate;
 - (iii) The maximum supplemental gas flow rate;

- (iv) Process flow diagram which shows all gas lines that are associated with the flare (e.g., waste, purge, supplemental gases, assist steam);
 - (v) Detailed process flow diagrams of all associated upstream equipment and process units venting to each flare, with a general description of components, identifying the type and location of each flare and all associated control equipment including but not limited to knockout drums, flare headers, assist, and ignition systems.
 - (14) Operate all flares in such a manner that minimizes all flaring and that no vent gas is combusted except during emergencies, shutdowns, startups, turnarounds or essential operational needs.
 - (15) Prevent the combustion in any flare of vent gas with a hydrogen sulfide concentration in excess of 160 ppm, averaged over three hours, excluding any vent gas resulting from an emergency, shutdown, startup, or process upset.
- (d) Performance Targets
- The owner or operator of a petroleum refinery subject to this rule shall minimize flare emissions and meet a performance target for sulfur dioxide emissions from flares of less than 0.5 tons per million barrels of crude processing capacity, calculated as an average over one calendar year.
- (1) Compliance with this performance target shall be determined at the end of each calendar year based on the facility's annual flare sulfur dioxide emissions normalized over the crude oil processing capacity in calendar year 2004.
 - (2) In the event the petroleum refinery specific performance target of subdivision (d) is exceeded for any calendar year, the Executive Officer may issue a Notice of Sulfur Dioxide Exceedance that shall become a part of the refinery compliance record.
 - (3) In the event the petroleum refinery specific performance target of subdivision (d) is exceeded for any calendar year, the owner or operator of the petroleum refinery shall:
 - (A) Submit a Flare Minimization Plan pursuant to subdivision (e), and

- (B) Pay the District mitigation fees, within 90 days following the end of a calendar year for which the performance target was exceeded, according to the following schedule:
 - (i) If excess emissions are no more than ten percent of the petroleum refinery specific performance target, \$25,000 per ton for all sulfur dioxide emission(s) in excess of the applicable performance target, or
 - (ii) If excess emissions are greater than ten percent but no more than twenty percent of the petroleum refinery specific performance target, \$50,000 per ton of all sulfur dioxide emission(s) in excess of the applicable performance target, or
 - (iii) If excess emissions are greater than twenty percent of the petroleum refinery specific performance target, \$100,000 per ton of all sulfur dioxide emission(s) in excess of the applicable performance target.

- (e) Flare Minimization Plan
 - (4) The owner or operator of a petroleum refinery exceeding the performance target in subdivision (d) shall submit, no later than 90 days after the end of a calendar year with emissions exceeding the annual performance target, a complete Flare Minimization Plan for approval by the Executive Officer. This plan shall constitute a plan pursuant to Rule 221 and fees shall be assessed pursuant to Rule 306. The plan application shall list all actions to be taken by the petroleum refinery to meet the performance target in subdivision (d), and shall include the following information:
 - (A) A complete description and technical specifications for each flare and associated knock-out pots, surge drums, water seals and flare gas recovery systems;
 - (B) Refinery policies and procedures to be implemented and any equipment improvements to minimize flaring and flare emissions and comply with the performance target of subdivision (d) for:
 - (i) Planned turnarounds and other scheduled maintenance, based on an evaluation of these activities during the previous five years;

- (ii) Essential operational needs and the technical reason for which the vent gas cannot be prevented from being flared during each specific situation, based on supporting documentation on flare gas recovery systems, excess gas storage and gas treating capacity available for each flare; and
 - (iii) Emergencies, including procedures that will be used to prevent recurring equipment breakdowns and process upsets, based on an evaluation of the adequacy of maintenance schedules for equipment, process and control instrumentation.
- (C) Any flare gas recovery equipment and treatment system(s) to be installed to comply with the performance targets of subdivision (d).
- (5) The Executive Officer will make the Flare Minimization Plans available for public review for a period of 60 days and respond to comments received prior to plan approval. The Executive Officer will approve a plan upon determining that it meets the requirements of subdivision (e), or notify the owner or operator in writing that the plan is deficient and specify the required corrective action. If the owner or operator fails to submit an amendment within 45 days to correct the deficiency, the Executive Officer will deny the Flare Minimization Plan. The facility shall be deemed in violation of this rule upon the Executive Officer's denial of the Flare Minimization Plan.
- (6) The owner or operator of a petroleum refinery having an existing approved Flare Minimization Plan shall, no later than 90 days after the end of a calendar year, submit for the approval of the Executive Officer a revised Flare Minimization Plan, subject to the provisions of paragraphs (e)(1) and (e)(2), in the event the annual performance target for that calendar year is exceeded.
- (7) The owner and operator of a petroleum refinery shall comply with all provisions of an approved Flare Minimization Plan. Violation of any of the terms of the plan is a violation of this rule.
- (f) Flare Monitoring and Recording Plan Requirements
 - (1) The owner or operator of an existing petroleum refinery, sulfur recovery plant or hydrogen production plant, upon modification or replacement of any monitoring equipment included in an approved Flare Monitoring and

Recording Plan shall submit a revised Flare Monitoring and Recording Plan, complete with an application and appropriate fees, for each facility to the Executive Officer for approval. This plan shall constitute a plan pursuant to Rule 221 and fees shall be assessed pursuant to Rule 306. Each Flare Monitoring and Recording Plan shall contain the information described in paragraph (f)(4) of this rule.

- (2) The owner or operator of an existing petroleum refinery, sulfur recovery plant or hydrogen production plant shall:
 - (A) Comply with the most current Flare Monitoring and Recording Plan approved by the Executive Officer. The current plan shall remain in effect until any revised Flare Monitoring and Recording Plan, submitted pursuant to paragraph (f)(1) is approved by the Executive Officer.
 - (B) The owner or operator of a petroleum refinery, sulfur plant or hydrogen plant shall comply with all provisions of an approved Flare Monitoring and Recording Plan. Violation of any of the terms of the plan is a violation of this rule.
- (3) The owner or operator of a new or an existing non-operating petroleum refinery, sulfur recovery plant or hydrogen production plant starting or restarting operations that were not shut down from a turnaround or other shut-down as part of normal operations on or after July 7, 2017 shall:
 - (A) Provide the Executive Officer a written notice of the date of start-up no later than seven (7) days prior to starting or commencing operations.
 - (B) No later than 180 days prior to the initial startup or resumption of operations, submit a complete application and appropriate fees for a Flare Monitoring and Recording Plan to the Executive Officer for approval. This plan shall constitute a plan pursuant to Rule 221 and fees shall be assessed pursuant to Rule 306. Each Flare Monitoring and Recording Plan shall contain the information described in paragraph (f)(4) of this rule.
- (4) Each Flare Monitoring and Recording Plan shall include, at a minimum, the following:
 - (A) A facility plot plan showing the location of each flare in relation to the general plant layout.

- (B) Type of flare service, as defined in paragraph (b)(4), and information regarding design capacity, operation and maintenance for each flare.
- (C) The following information regarding pilot and purge gas for each flare:
 - (i) Type(s) of gas used;
 - (ii) Actual set operating flow rate in standard cubic feet per minute;
 - (iii) Maximum total sulfur concentration expected for each type of gas used; and
 - (iv) Average higher (gross) heating value expected for each type of gas used.
- (D) Drawing(s), preferably to scale with dimensions, and an as-built process flow diagram of the flare(s) identifying major components, such as flare header, flare stack, flare tip(s) or burner(s), any bypass line, purge gas system, pilot gas system, ignition system, assist system, water seal, knockout drum and molecular seal.
- (E) Detailed process flow diagrams identifying the type and location of each flare and all associated control equipment including but not limited to knockout drums, flare headers, assist, and ignition systems, and a representative flow diagram showing the interconnections of the flare system(s) with vapor recovery system(s), process units and other equipment as applicable.
- (F) A complete description of the assist system process control, flame detection system and pilot ignition system.
- (G) A complete description of the gas flaring process for an integrated gas flaring system which describes the method of operation of the flares (e.g. sequential, etc.).
- (H) A complete description of the flare gas recovery system and vapor recovery system(s) which have interconnection to a flare, such as compressor description(s), design capacities of each compressor and the vapor recovery system, and the method currently used to determine and record the amount of vapors recovered.
- (I) Drawing(s) with dimensions, preferably to scale, showing the following information for proposed vent gas:
 - (i) Sampling locations; and

- (ii) Flow meter device(s), on/off flow indicators, higher heating value analyzer, and total sulfur analyzer locations and the method used to determine the location.
 - (J) A detailed description of manufacturer's specifications, including but not limited to, make, model, type, range, precision, accuracy, calibration, maintenance, a quality assurance procedure and any other specifications and information referenced in Attachment A for all existing and proposed flow metering devices, on/off flow indicating devices, higher heating value and total sulfur analyzers for vent gas.
 - (K) A complete description and the data used to determine and to set the actuating and de-actuating and the method to be used for verification of each setting for each on/off flow indicator.
 - (L) A complete description of proposed analytical and sampling methods or estimation methods, if applicable, for determining higher (gross) heating value and total sulfur concentration of the flare vent gas.
 - (M) A complete description of the proposed data recording, collection, management, and any other specifications and information referenced in Attachment A for each flare monitoring system.
 - (N) A complete description of proposed method to determine, monitor and record total volume, higher heating value, and total sulfur concentration of gases vented to a flare for each flare event pursuant to the requirements of this rule.
 - (O) For new or existing non-operating petroleum refinery, sulfur recovery plant or hydrogen production plant starting or restarting operations, other than from standard turnarounds or process unit shut-downs, on or after July 7, 2017, a schedule for the installation and operation of each flare monitoring system.
 - (P) A complete description of any proposed alternative criteria to determine a sampling flare event for each specific flare, if any, and detailed information used for the basis of establishing such criteria.
- (g) Operation, Monitoring and Recording Requirements
The owner or operator of a flare subject to this rule shall comply with the following:

- (1) On or before six (6) months after approval of the Flare Monitoring and Recording Plan or Revised Flare Monitoring and Recording Plan, start monitoring and recording in accordance with subdivision (g) and the provisions in the approved Flare Monitoring and Recording Plan or Revised Flare Monitoring and Recording Plan.
- (2) Notwithstanding the provisions in Rule 430 - Breakdown Provisions and Rule 2004 - Requirements, the Operation Monitoring and Recording Requirements of this rule shall be applicable during all periods including breakdowns except as specified in paragraph (g)(5)(A).
- (3) Perform monitoring and recording of the operating parameters, as applicable, according to the monitoring and recording requirements and frequency shown in Table 1 (including footnotes) below, except as specified in paragraph (g)(4) and (g)(5).

TABLE 1

| TYPE OF FLARE | OPERATING PARAMETER | MONITORING AND RECORDING |
|----------------------|---|---|
| Clean Service | Gas Flow ¹ | Measured and Recorded ² Continuously with Flow Meter(s) and/or On/Off Flow Indicator(s) |
| | Gas Higher Heating Value ³ | Calculated or Continuously Measured and Recorded with a Higher Heating Value Analyzer |
| | Total Sulfur Concentration ⁴ | Calculated or Semi-Continuously Measured and Recorded with a Total Sulfur Analyzer |
| General Service | Gas Flow ¹ | Measured and Recorded ² Continuously with Flow Meter(s) with or without on/off flow indicator(s) |
| | Gas Higher Heating Value ³ | Continuously Measured and Recorded with a Higher Heating Value Analyzer |
| | Total Sulfur Concentration ⁴ | Semi-Continuously Measured and Recorded with a Total Sulfur Analyzer |

1. Standard Cubic Feet per Minute.
2. All flow meters, flow indicators and recorders shall meet or exceed the minimum specifications in Attachment A.
3. Higher (Gross) Heating Value in British Thermal Units per Standard Cubic Foot.
4. Total Sulfur as SO₂, ppmv.

- (4) Alternative Flare Vent Gas Sampling
 - (A) In cases where sampling of vent gas is exempted pursuant to paragraph (k)(1), the owner or operator of a gas flare shall identify for each flare event, the cause of event, the process system(s) involved, date and time event started and duration and any other information related to the type of vent gas (e.g. total sulfur concentration) which is necessary to calculate flare emissions using the guidelines in Appendix B for substituted data. The estimated emissions, subject to approval by the Executive Officer as representative of emissions from that flare event, shall be reported and submitted with the quarterly report as specified in paragraph (i)(4).
- (5) Flare Monitoring System
 - (A) Maintain any flare monitoring system, used to ensure compliance with paragraph (g)(3) of this rule, in good operating condition at all times when the flare that it serves is operational, except when out of service due to:
 - (i) Breakdowns and unplanned system maintenance, which shall not exceed 96 hours, cumulatively, per quarter for each reporting period; or,
 - (ii) Planned maintenance, which shall not exceed 14 days per 18 month period commencing the start of flare monitoring and recording, provided that a written notification detailing the reason for maintenance and methods that will be used during the maintenance period to determine emissions associated with flare events is provided to the Executive Officer prior to, or within 24 hours of, removal of the monitoring system from service.
 - (B) A flare monitoring system may be used to measure and record the operating parameters required in paragraph (g)(3) of this rule for more than one flare provided that:
 - (i) All the gases being measured and recorded are delivered to the flare(s) for combustion; and,
 - (ii) If the flare monitoring system is used to measure and record the operating parameters for general service flares, the flare monitoring system shall consist of a continuous vent gas

flow meter, a continuous higher heating value analyzer, a total sulfur analyzer and recorder that meet the requirements specified in Attachment A.

- (6) Monitor the presence of a pilot flame using a thermocouple or any other equivalent device approved by the Executive Officer to detect the presence of a flame.
- (7) Monitor all flares for visible emissions using color video monitors with date and time stamp, capable of recording a digital image of the flare and the flame of flares that are not enclosed, at a rate of no less than one frame per minute. Effective January 30, 2019, monitor all flares for visible emissions using color video monitors with date and time stamp, capable of recording a digital image of the flare, the flame of flares that are not enclosed, and a sufficient area above the flame of all flares that is suitable for visible emissions observations, at a rate of no less than one frame every 15 seconds.
- (8) All general service flares shall:
 - (A) Have a flow meter installed in a manner and at a location that would allow for accurate measurements of the total volume of vent gas to each flare. If the flow meter cannot be placed in the location that would allow for accurate measurement due to physical constraints, the operator shall retrofit or equip the existing flow meters with totalizing capability to indicate the true net volume of gas flow to each flare.
 - (B) Monitor and record the pilot gas and purge gas flow to each flare using a flow meter or equivalent device approved by the Executive Officer.
- (9) No later than January 30, 2019, for all general service flares:
 - (A) Install, operate, calibrate, maintain, and record data from any monitoring systems required by Title 40 of the Code of Federal Regulations Part 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries that are not already required by paragraph (g).
- (h) **Recordkeeping Requirements**

The owner or operator of a flare shall maintain records in a manner approved by the Executive Officer for a period of five (5) years for all the information required to be monitored under paragraphs (g)(3), (g)(4), (g)(5), (g)(6), (g)(7), (g)(9), and

subparagraph (g)(8)(B) as applicable and make such records available to the Executive Officer upon request.

(i) Notification and Reporting Requirements

The owner or operator of a flare shall:

- (1) Provide a 24 hour telephone service for access by the public for inquiries about flare events. The owner or operator shall provide the Executive Officer in writing the name and number of the initial contact and any contact update.
- (2) Notify the Executive Officer via the Web-Based Flare Event Notification System within one hour from the start of any unplanned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or exceeding 500,000 standard cubic feet of flared vent gas.
- (3) Notify the Executive Officer via the Web-Based Flare Event Notification System at least 24 hours prior to the start of a planned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or 500,000 standard cubic feet of combusted vent gas. Within one hour of the start of a planned flare event, submit a notification via the Web-Based Flare Event Notification System, referencing the notification number assigned to the planned flare event at the time of the original notification.
- (4) Notify the Executive Officer via the Web-Based Flare Event Notification System within one hour after the cumulative daily total amount of flare gas vented from a flare exceeds 100,000 standard cubic feet, if a notification has not already been provided for that day pursuant to paragraphs (i)(2) or (i)(3).
- (5) If the Web-Based Flare Event Notification System is not available, or if functions within the Web-Based Flare Event Notification System do not allow facilities to enter the necessary information required in (i)(2) through (i)(4), then notifications shall be made to 800-CUT-SMOG (800-288-7664).
- (6) Submit a quarterly report in an electronic format approved by the Executive Officer within 30 days after the end of each quarter. Each quarterly report shall be certified for accuracy in writing by the responsible facility official and shall include the following:
 - (A) The information required to be monitored under paragraphs (g)(3), (g)(4), (g)(5), (g)(6), and (g)(9), and subparagraph (g)(8)(C) of this rule. Notwithstanding the January 30, 2019 compliance date in

paragraph (g)(9), data collected pursuant to paragraph (g)(9) shall be made available in the first quarterly report after the applicable monitors have been certified.

- (B) The total daily and quarterly emissions of criteria pollutants from each flare and each flare event along with all information used to calculate the emissions, which includes standard volumes, higher heating values and total sulfur concentration of the vent gases, event duration and emission factors. Identify each reported value of flow rate, higher heating values or sulfur concentration reported using Data Substitution Procedures in Attachment B, and identify the data substitution method used and the date the method was approved by the Executive Officer, if applicable.
 - (i) Emissions from flares shall be calculated using the Emissions Calculation Procedures outlined in Attachment B: Guidelines for Emissions Calculations.
 - (ii) During all down time periods of the monitoring system, emissions shall be calculated using the Missing Data Substitution Procedures outlined in Attachment B: Guidelines for Emissions Calculations.
- (C) The description of the cause of each flare event as analyzed pursuant to paragraphs (c)(6), (c)(7), and (c)(11) and the category of flare event such as emergency, shutdown, startup or essential operational need or other specific cause(s), and the associated emissions.
- (D) Records of annual acoustical or temperature leak survey conducted pursuant to paragraph (c)(5). The record shall include identification of all valves inspected, date of inspections, and the name of the person(s) conducting the inspections.
- (E) Flare monitoring system downtime periods, including dates and times and explanation for each period.
- (F) A copy of written notices for all reportable air releases related to any flare event, as required by 40 CFR, Part 302 - Designation, Reportable Quantities, and Notification and 40 CFR, Part 355 - Emergency Planning and Notification, if applicable.

- (j) Testing and Monitoring Methods
- (1) For the purpose of this rule, the test methods listed below shall be used:
- (A) The higher (gross) heating value of vent gases shall be determined by:
- (i) ASTM Method D4809-13, ASTM Method D 3588-98(2011), ASTM Method D4891-13, or other ASTM standard as approved by the Executive Officer, California Air Resources Board and U.S. Environmental Protection Agency, as applicable; and
- (ii) With a higher heating value analyzer that meets or exceeds the specifications in Attachment A.
- (B) The total sulfur concentration, expressed as sulfur dioxide, shall be determined by:
- (i) District Method 307-91 or ASTM Method D 5504-12, or other ASTM standard as approved by the Executive Officer, California Air Resources Board and U.S. Environmental Protection Agency, as applicable; and
- (ii) With a total sulfur analyzer that meets or exceeds the specifications in Attachment A.
- (C) The vent gas flow shall be determined by a flow measuring device that meets or exceeds the specifications described in Attachment A, as applicable. The accuracy of all flow meters shall be verified every twelve months according to the manufacturers' procedures and the results shall be submitted to the Executive Officer within 30 days after the reports are issued.
- (2) Visible emissions pursuant to paragraph (c)(2) shall be determined by US EPA Method 22, 40 CFR Part 60 Appendix A.
- (3) Notwithstanding paragraph (j)(1), continuous monitoring systems certified under Rule 2011 - Requirements for Monitoring, Reporting and Recordkeeping of Oxides of Sulfur (SO_x) Emissions and Rule 2012 - Requirements for Monitoring, Reporting and Recordkeeping of Oxides of Nitrogen (NO_x) Emissions, may be used for the monitoring of vent gases.

(k) Exemption

(1) Notwithstanding a flare monitoring system, consisting of a flow meter, higher heating value analyzer, net heating value analyzer and total sulfur analyzer that is in operation, sampling and analyses of representative samples for higher heating values, net heating values, and total sulfur concentration pursuant to paragraph (g)(3) may not be required for any flare event that:

(A) Is a result of a catastrophic event including a major fire or an explosion at the facility such that collecting a sample is infeasible or constitutes a safety hazard, or

(B) Constitutes a safety hazard to the sampling personnel at the sampling location approved in the Flare Monitoring and Recording Plan during the entire flare event, provided that a sample is collected at an alternative location where it is safe as determined by the facility owner or operator. The owner or operator shall demonstrate to the Executive Officer that the sample collected at an alternative location is representative of the flare event.

(2) Any sulfur dioxide emissions, visible emissions prohibited in paragraph (c)(10), and flare tip velocities that exceed limits in subparagraph (c)(3)(A) from flare events caused by external power curtailment beyond the operator's control (excluding interruptible service agreements), natural disasters or acts of war or terrorism shall not count towards either:

(A) The performance targets specified in subdivision (d) upon submittal of documentation proving the existence of such events and certified in writing by the petroleum refinery official responsible for emission reporting; or

(B) The prohibitions listed in paragraph (c)(10).

ATTACHMENT A

FLARE MONITORING SYSTEM REQUIREMENTS

The components of each flare monitoring system must meet or exceed the minimum specifications listed below. Components with other specifications may be used provided the owner or operator of a gas flare can demonstrate that the specifications are equivalent and has been approved by the Executive Officer.

1. Continuous Flow Measuring Device

The monitor must be sensitive to rapid flow changes, and have the capability of reporting both instantaneous velocity and totalized flow. Materials exposed to the flare gas shall be corrosion resistant. If required by the petroleum refinery or the hydrogen production plant, the manufacturer must provide an enclosure with an area classification rating of Class 1, Division 2, Groups A, B, C, D, and is FM and CSA approved. The monitor shall (i) feature automated daily calibrations at low and high ranges, and (ii) shall signal alarms if the calibration error or drift is exceeded, provided that the monitor is equipped with such capability. The volumetric flow measuring device may consist of one or more flow meters, and, as combined, shall meet the following specifications.

| | |
|--------------------------|---|
| Velocity Range: | 0.1-250 ft/sec |
| Repeatability: | ± 1% of reading over the velocity range |
| Accuracy: | ± 20% of reading over the velocity range of 0.1-1 ft/s and ± 5% of reading over the velocity range of 1-250 ft/s |
| Installation: | Applicable AGA, ANSI, API, or equivalent standard; hot tap capability. If applicable, the manufacturer must specify the straight-run pipe requirements in terms of the minimum upstream and downstream distances from the nearest flow disturbances to the device |
| Flow Rate Determination: | Must be corrected to one atmosphere pressure and 68 ⁰ F and recorded as one-minute averages |
| Data Records | Measured continuously and recorded over one-minute averages. The instrument shall be capable of storing or transferring all data for later retrieval |
| QA/QC | Shall comply with the flow QA/QC requirements of District Rule 218.1. An annual verification of accuracy |

is required, and shall be specified by the manufacturer.

Note: A flow RATA is generally infeasible due to safety concerns

2. On/Off Flow Indicator

The on/off flow indicator is a device which is used to demonstrate the flow of vent gas during a flare event, and shall meet or exceed specifications as approved by the Executive Officer. The on/off flow indicator setting shall be verifiable.

3. Data Recording System

All data as generated by the above flow meters and the on/off flow indicators must be continuously recorded by strip chart recorders or computers. The strip chart must have a minimum chart width of 10 inches, a readability of 0.5% of the span, and a minimum of 100 chart divisions. The computer must have the capability to generate one-minute average data from that which is continuously generated by the flow meters and the on/off limit switch.

4. Continuous and Semi-continuous Gaseous Stream Higher Heating Value (HHV) Flare Monitoring Systems

The following is intended to ensure that verifiable, meaningful, and representative data are collected from continuous and semi-continuous gaseous stream HHV flare measurement monitoring devices systems. All procedures are subject to Executive Officer review and approval.

General Requirements:

- a. The monitoring system must be capable of measuring HHV within the requirements of the rule.
- b. The monitoring system must be capable of adjusting to rapid changes in HHV within a reasonable time meeting the definition of a continuous or semi-continuous monitoring system as defined in the applicable rule and as approved by the Executive Officer.
- c. Monitoring system sampling interfaces and analyzers in contact with sample gas must be compatible with sample gases and able to resist flow temperatures and pressures.
- d. The sampling inlet system interface must be heated as necessary so as to prevent condensation.

- e. Sample gas must be conditioned such that the sample is free of particulate or liquid matter.
- f. The sample must flow without impediment through the instrument sampling system sampling interface and analyzer.
- g. Use an enclosure with an area classification rating of Class 1, Division 2, Groups A, B, C, D, and is FM or CSA approved. The enclosure must be able to maintain a stable analyzer temperature as required for analyzer performance.
- h. The monitoring system must feature automated daily calibrations calibration checks, minimally at mid-range, and preferably at both applicable Federal minimum BTU requirements (low end) and 95% of full scale (high end) ranges at low and high ranges
- i. The monitoring system analyzer must include an output compatible with a Data Acquisition System (DAS) or similar system that can process data generated by the analyzer and record the results. A data recorder compatible with analyzer output and capable of recording analyzer output must be supplied with the instrument.
- j. Each monitoring system must have a written quality assurance/quality control (QA/QC) plan approved by the Executive Officer and available for District inspection.
- k. Maintain a maintenance log for each monitoring system.
- l. Perform routine maintenance and repair as recommended by the manufacturer or according to a standard operating procedure submitted and approved by the Executive Officer.
- m. The placement and installation of monitoring systems is critical for collecting representative information on HHV gas content. Factors that should be considered in placement of a sampling interface include but are not limited to safety, ensuring the sample is representative of the source, ease of placement and access. Sampling interfaces, conditioning systems and enclosures may be shared with other instrumentation, if appropriate.
- n. Perform at monitoring system start-up and on an annual basis a relative accuracy test audit (RATA) which is the ratio of the sum of the absolute mean difference between the monitoring system generated data and the value determined using ASTM D1945-03 and ASTM D3588-91, ASTM D

4891-89, or other ASTM standard as approved by the Executive Officer, California Air Resources Board and U.S. Environmental Protection Agency, as applicable. See rule 218.1 (a)(23) for calculations.

- o. Periodically perform a calibration curve or linearity verification error test according to permitting conditions and or on a schedule approved by the Executive Officer. Typically, this calibration curve will be prepared from standards representing a:
 - i. 10-30 percent of the measurement range
 - ii. 40-60 percent of the measurement range
 - iii. 80-100 percent of the measurement range
- p. Analyzers with auto calibration check capability should be checked daily unless a different calibration frequency is approved by the Executive Officer. For analyzers without auto calibration check capability, submit a calibration check frequency request including supporting documentation to the Executive Officer for comment and approval.
- q. Periodically perform a zero drift test. Allowed zero drift should be consistent with a properly operating system. See rule 218.1 (a)(32) for calculations.
- r. Retain records on the valid data return percentage.
- s. Retain records on the availability or up-time of the monitoring system.
- t. Retain records on the breakdown frequency and duration of the breakdown.
- u. Retain records on excursions beyond quality control limits stated in the QA plan.

5. Continuous and Semi-continuous Gaseous Stream Total Sulfur Monitoring Systems

The following is intended to ensure that verifiable, meaningful, and representative data are collected from continuous and semi-continuous gaseous stream sulfur monitoring systems. All procedures are subject to Executive Officer review and approval.

General Requirements

- a. The monitoring system must be capable of measuring total sulfur concentration within the requirements of the rule.
- b. The monitoring system must be capable of adjusting to rapid changes in sulfur concentration within a reasonable time as defined in the applicable rule and as approved by the Executive Officer.
- c. Monitoring system in contact with sample gas must be inert to sulfur gases and resistant to corrosion.
- d. The sampling inlet system interface system must be heated as necessary so as to prevent condensation.
- e. Sample gas must be conditioned such that the sample is free of particulate or liquid matter.
- f. The sample must flow without impediment through the instrument sampling system sampling interface and analyzer.
- g. Use an enclosure with an area classification rating of Class 1, Division 2, Groups A, B, C, D, and is FM or CSA approved. The enclosure must be able to maintain a stable analyzer temperature as required for analyzer performance.
- h. The monitoring system must feature automated daily calibrations at low and high ranges, and shall signal alarms if the calibration error or drift is exceeded.
- i. The monitoring system must include a Data Acquisition System (DAS) or similar system that can process data generated by the analyzer and record the results.
- j. Each monitoring system must have a written quality assurance/quality control (QA/QC) plan approved by the Executive Officer and available for District inspection.

- k. Maintain a maintenance log for each monitoring system.
- l. Perform routine maintenance as recommended by the manufacturer or according to a standard operating procedure submitted and approved by the Executive Officer.
- m. The placement and installation of monitoring systems is critical for collecting representative information on total sulfur gas concentration. Factors that should be considered in placement of a sampling interface include but are not limited to safety, ensuring the sample is representative of the source, ease of placement and access. Sampling interfaces, conditioning systems and enclosures may be shared with other instrumentation, if appropriate.
- n. Perform at monitoring system start-up and on an annual basis a relative accuracy test audit (RATA) which is the ratio of the sum of the absolute mean difference between the monitoring system generated data and the value determined using SCAQMD Laboratory Method 307-91, ASTM D5504-01 or other ASTM standard as approved by the Executive Officer, California Air Resources Board and U.S. Environmental Protection Agency, as applicable. See rule 218.1(a)(23) for calculations.

Note: Facilities are reminded that there are many critical issues for the collection of representative and monitoring system comparable gas samples destined for Method 307-91 or ASTM D5504-01 analysis.

- o. Facilities are strongly encouraged to use calibration gases prepared using a NIST hydrogen sulfide SRM, Nederlands Meetinstituut NMI or a NTRM standard as the primary reference.
- p. Periodically perform a calibration curve or linearity verification performed according to permitting conditions and/or on a schedule approved by the Executive Officer. Typically, this calibration curve will be prepared from standards representing:
 - i. 10 to 30 percent of the measurement range
 - ii. 40 to 60 percent of the measurement range
 - iii. 80 to 100 percent of the measurement range
- q. Analyzers with auto calibration capability shall be calibrated daily unless a different calibration frequency is approved by the Executive Officer. For analyzers without auto calibration capability, submit a calibration frequency

request, including supporting documentation to the Executive Officer for comment and approval.

- r. Seven Day Calibration Error Test shall be performed by evaluating the analyzer performance over seven consecutive days as necessary. The calibration drift should not exceed five percent of the full-scale range.
- s. Analyze daily a control or drift test sample or standard. Adequate system analyzer performance is demonstrated by recoveries of 90 to 110 percent of the theoretical amounts for total reduced sulfur species in the test gas.
- t. Periodically perform an analyzer blank test to evaluate the presence of analyzer leaks or wear on sample valves and related components. Replace components as necessary to restore the analyzer to nominal function. A blank should yield results below the monitoring plan approved lower measurement range.
- u. Periodically perform a zero drift test. Allowed zero drift should be consistent with a properly operating system analyzer. See rule 218.1(a)(32) for calculations.
- v. Retain records on the valid data return percentage.
- w. Retain records on the availability or up-time of the monitoring system.
- x. Retain records on the breakdown frequency and duration of the breakdown.
- y. Retain records on excursions beyond quality control limits stated in the QA plan.

Gas Chromatograph (GC) Based System Analyzer Specific Requirements

- a. The following performance tests specific to GC based sulfur analyzers are part of an overall QA program. This list is not all inclusive. The specific performance tests that are required under rule compliance will be based upon analyzer configuration, data requirements, practical concerns such as safety and are subject to approval by the Executive Officer.
 - i. Whenever a calibration is performed and whenever a calibration drift test is performed, examine retention times for each calibration component. Compare the retention times against historically observed retention times. Retention time drift should be better than within five percent. Compare the retention times to analyzer and DAS parameters such as time gates to ensure compatibility. These

parameters including the analysis time may need to be updated on occasion.

- ii. Verify daily that the analyzer response drift for individual sulfur species does not exceed ten percent of the control information.

Total Sulfur Analyzer System Requirements

- a. The following performance tests specific to total sulfur based analyzers are part of an overall QA program. This list is not all inclusive. The specific performance tests that are required under rule compliance will be based upon instrument analyzer configuration, data requirements, practical concerns such as safety and are subject to approval by the Executive Officer.
 - i. Verify daily that the analyzer response drift for the concentration of total sulfur, expressed as sulfur dioxide does not exceed ten percent of the control information.

ATTACHMENT B

GUIDELINES FOR CALCULATING FLARE EMISSIONS

The following methods shall be used to calculate flare emissions. An alternative method may be used, utilizing facility-specific data such as monitoring and/or gas composition data, provided it has been approved as equivalent in writing by the Executive Officer.

1. Emission Calculation Procedures

Petroleum refinery, sulfur recovery plant or hydrogen production facility operators shall use the following equations and emission factors to calculate emissions from vent gas, natural gas, propane and butane:

Effective No Later Than January 30, 2019, or As Soon As Monitors Are Installed and Certified That Can Measure Net Heating Value

Vent Gas

| Air Pollutant | Equation | Emission Factor |
|------------------------------|----------------------------------|------------------------|
| ROG | $E = V \times NHV \times EF$ | 0.66 lb/mmBTU |
| NO _x ¹ | $E = V \times HHV \times EF$ | 0.068 lb/mmBTU |
| CO | $E = V \times NHV \times EF$ | 0.31 lb/mmBTU |
| PM10 | $E = V \times EF$ | 21 lb/mmSCF |
| SO _x | $E = V \times C_s \times 0.1662$ | Note (2) |

Effective Until January 30, 2019, or Until Monitors Are Installed and Certified That Can Measure Net Heating Value

| Air Pollutant | Equation | Emission Factor |
|------------------------------|----------------------------------|------------------------|
| ROG | $E = V \times HHV \times EF$ | 0.063 lb/mmBTU |
| NO _x ¹ | $E = V \times HHV \times EF$ | 0.068 lb/mmBTU |
| CO | $E = V \times HHV \times EF$ | 0.37 lb/mmBTU |
| PM10 | $E = V \times EF$ | 21 lb/mmSCF |
| SO _x | $E = V \times C_s \times 0.1662$ | Note (2) |

Where:

E = Calculated vent gas emissions (lbs)

V= Volume flow of vent gas, as measured in million standard cubic feet at 14.7 psia and 68° Fahrenheit

HHV = Higher Heating Value, as measured in British Thermal Unit per standard cubic foot

NHV = Net Heating Value, as measured in British Thermal Units per standard cubic foot

EF = Emission Factor

Cs = The concentration of total sulfur in the vent gas, expressed as sulfur dioxide, as measured in part per million by volume using the methods specified in this rule.

Note (1) For vent gas streams of pure hydrogen, only the emission factor for NOx should be used.

Note (2) If an approved total sulfur analyzer is used in accordance with this rule, Cs is the concentration of total sulfur in the vent gas, averaged over 15 minutes or less, if the event duration is shorter than 15 minutes.

Natural Gas

| Air Pollutant | Equation | Emission Factor (lb/mmSCF) |
|----------------------|-------------------|-----------------------------------|
| ROG | $E = V \times EF$ | 7 |
| NOx | $E = V \times EF$ | 130 |
| CO | $E = V \times EF$ | 35 |
| PM10 | $E = V \times EF$ | 7.5 |
| SOx | $E = V \times EF$ | 0.83 |

Propane and Butane

| Air Pollutant | Equation | Emission Factor (lb/mmBTU) |
|----------------------|-------------------------------|-----------------------------------|
| ROG | $E = V \times 3500 \times EF$ | 0.009 |
| NOx | $E = V \times 3500 \times EF$ | 0.145 |
| CO | $E = V \times 3500 \times EF$ | 0.082 |
| PM10 | $E = V \times 3500 \times EF$ | 0.002 |
| SOx ⁽¹⁾ | $E = V \times 3500 \times EF$ | 0.047 |

Note (1) If the concentration of total sulfur in the vent gas or in the process streams vented to the flare is measured, the operator shall use $E = V \times Cs \times 0.1662$ to estimate the SOx emissions.

Single On/Off Flow Indicator Switch

The flow rate setting of the on/off flow indicator switch if the switch is not actuated or the maximum design capacity of the flare for the flow rate for each flare event.

Multiple On/Off Flow Indicator Switch

- a) The flow rate setting of the first stage on/off flow indicator switch if the switch is not actuated.
- b) When an on/off switch is actuated assume the flow rate is the flow rate that would actuate the on/off switch set at the next highest flow rate.
- c) Use the maximum design capacity of the flare for the flow rate when the on/off switch set for the highest flow rate is actuated.

Flow Meters Only

- a) Use the recorded flow meter data until the maximum range is exceeded.
- b) When the maximum range of the flow meter is exceeded, assume the flow rate is the maximum design capacity of the flare(s), unless the owner or operator demonstrates and the Executive Officer approves a calculated flow based upon operational parameters and process data that represent the flow during the period of time that the flow exceeded the maximum range of the flow meter.
- c) When the flow rate is below the valid lower range of the flow meter, assume the flow rate is at the lower range.

Combination of Flow Meters and On/Off Flow Indicator Switches

- a) Use the recorded flow meter data until the maximum range is exceeded.
- b) When the maximum range of the flow meter is exceeded, assume the flow rate is the flow rate that would actuate the on/off switch set at the next highest flow rate.
- c) Use the maximum design capacity of the flare for the flow rate when the on/off switch set for the highest flow rate is actuated.
- d) When the flow rate is below the valid lower range of the flow meter, assume the flow rate is at the lower range.
- e) When the flow rate is below the valid lower range of the flow meter and the set flow rate of an on/off switch, assume the flow rate is the flow rate that would actuate the on/off switch.

2. Data Substitution Procedures

For any time period for which the vent gas flow, the higher heating value or the total sulfur concentration, expressed as sulfur dioxide, are not measured, analyzed and recorded pursuant to the requirements of this rule, unless the owner or operator of a petroleum refinery, sulfur recovery plant or hydrogen production plant demonstrates using verifiable records of flare water seal level and/or other parameters as approved by the Executive Officer in the Flare Monitoring and Recording Plan or the Revised

Flare Monitoring and Recording Plan that no flare event occurred during the period these parameters were not measured, analyzed or recorded, the operator shall substitute and report the following values:

a) If the flow rate is not measured or recorded for any flare event, the totalized flow shall be calculated from the methodology in section 2(a)(i) below, unless the Executive Officer approves the method specified in Section 2(a)(ii).

i) The totalized flow shall be calculated from the product of the flare event duration and the estimated flow rate. The flow rate shall be calculated using the following equation for the period of time the flow meter was out of service:

$$FR = \text{Max. FR} - 0.5(\text{Max. FR} - \text{Avg. FR})$$

Where:

FR = Estimated Flow Rate (standard cubic feet per minute)

Max FR = Maximum flow rate that was measured and recorded for that flare during the previous 20 quarters preceding the flare event. This maximum value is based on the average flow rate during an individual flare event, not an instantaneous maximum value.

Avg FR = Average flow rate for all measured and recorded flow rates for all sampled flare events for that flare, during the previous 20 quarters preceding the subject flare event.

The duration of a flare event during periods when the flow meter is out of service shall be determined using an alternate method approved by the Executive Officer in the Flare Monitoring and Recording Plan or Revised Flare Monitoring and Recording Plan.

In the absence of an approved alternate method to determine the duration of the flare event during periods when the flow meter is out of service, the operator shall report the flare to be venting for the entire time the flow meter is out of service.

ii) Alternate methods using recorded and verifiable operational parameters and/or process data, including reference to similar events that have previously occurred, approved by the Executive Officer to be representative of the volume of vent gas, may be used to determine the flow rate in lieu of the method specified above.

b) If the higher heating value is not measured or recorded for any flare event pursuant to the requirements of this rule, the higher heating value shall be calculated from the methodology in section 2(b)(i) below, unless the Executive Officer approves the method specified in Section 2(b)(ii).

i) The higher heating value shall be calculated using the following equation for the period of time this parameter was not measured or recorded:

$$\text{HHV} = \text{Max HHV} - 0.5(\text{Max HHV} - \text{Avg HHV})$$

Where:

HHV = Estimated higher heating value (Btu/scf)

Max HHV = Maximum HHV measured and recorded for that flare during the previous 20 quarters preceding the flare event.

Avg HHV = Average value of all HHV measured and recorded for that flare for all sampled flare events during the previous 20 quarters preceding the flare event.

ii) Alternate methods using recorded and verifiable operational parameters, sampled data, and/ or process data, including reference to similar events that have previously occurred, approved by the Executive Officer to be representative of the HHV of the vent gas, may be used to determine the HHV in lieu of the method specified above.

c) If the total sulfur concentration, expressed as sulfur dioxide, is not measured or recorded for any flare event pursuant to the requirements of this rule, it shall be calculated from the methodology in section 2(c)(i) below, unless the Executive Officer approves the method specified in Section 2(c)(ii).

i) The total sulfur concentration expressed as sulfur dioxide shall be calculated using the following equation for the period of time this parameter was not measured or recorded:

$$\text{SFE} = \text{Max SFE} - 0.5(\text{Max SFE} - \text{Avg SFE})$$

Where:

SFE = Estimated total sulfur concentration, expressed as sulfur dioxide (ppmv)

Max SFE = Maximum total sulfur concentration expressed as sulfur dioxide measured and recorded for that flare during the previous 20 quarters preceding the flare event.

Avg SFE = Average value of all total sulfur concentrations measured and recorded for that flare for all sampled flare events during the previous 20 quarters preceding the flare event.

- ii) Alternate methods using recorded and verifiable operational parameters, sampled data, and/ or process data, including reference to similar events that have previously occurred, approved by the Executive Officer to be representative of the total sulfur concentration of the vent gas expressed as sulfur dioxide, may be used to determine the total sulfur concentration in lieu of the method specified above.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report

Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares

January 2023

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Heather Farr

| | | | |
|---------------|------------------------|---|-----------------------------------|
| Author: | Sarady Ka | – | Program Supervisor |
| | Zoya Banan, Ph.D. | – | Air Quality Specialist |
| Contributors: | Barbara Radlein | – | Program Supervisor |
| | Farzaneh Khalaj, Ph.D. | – | Assistant Air Quality Specialist |
| | Brian Vlasich | – | Air Quality Specialist |
| Reviewed By: | Daphne Hsu | – | Principal Deputy District Counsel |

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

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Cities of Riverside County Representative

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Governor's Appointee

LARRY MCCALLON
Mayor, Highland
Cities of San Bernardino County

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County of Los Angeles

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County of Riverside

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Council Member, Fourth District
City of Los Angeles Representative

REX RICHARDSON
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Cities of Los Angeles County/Western Region

CARLOS RODRIGUEZ
Council Member, Yorba Linda
Cities of Orange County

JANICE RUTHERFORD
Supervisor, Second District
County of San Bernardino

EXECUTIVE OFFICER:

WAYNE NASTRI

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EXECUTIVE SUMMARY

Air districts, such as the South Coast Air Quality Management District (South Coast AQMD), which exceed the National Ambient Air Quality Standards (NAAQS) established by the United States Environmental Protection Agency (U.S. EPA) are required to develop and submit a State Implementation Plan (SIP) for U.S. EPA approval. SIPs consist of rules and documents that a state or local air district implements, maintains, and enforces to fulfill the requirements of the Clean Air Act (CAA) and are used to demonstrate how the region will meet the NAAQS. If U.S. EPA issues a SIP disapproval or partial disapproval of a rule, South Coast AQMD will face the possibility of sanctions by the federal government and other consequences under CAA unless the identified rule deficiencies are ~~not~~ corrected and approved by U.S. EPA. Offset sanctions would be triggered 18 months after the effective date of a final disapproval and highway funding sanctions would be triggered six months after the offset sanctions are imposed. CAA would also require U.S. EPA to promulgate a Federal Implementation Plan within 24 months of the disapproval effective date. Sanctions will not be imposed if U.S. EPA determines that a subsequent SIP submission corrects the deficiencies before the applicable deadline.

On September 21, 2022, U.S. EPA issued a final limited SIP disapproval of Rule 1118 – Control of Emissions from Refinery Flares (Rule 1118) effective on October 24, 2022. According to CAA Section 110, documents submitted for inclusion into the SIP should not include unbounded director’s discretion that allows the State to approve alternatives to the applicable SIP without following the SIP revision process as described in this section. Rule 1118 paragraph (j)(1) and Attachment A paragraphs (4)(n) and (5)(n) give the South Coast AQMD’s Executive Officer sole authority to approve ASTM [International \(ASTM\) standards](#) ~~test methods~~ not included in the rule; therefore, the requirements of the CAA Section 110 are not satisfied. Proposed Amended Rule 1118 (PAR 1118) will address the U.S. EPA’s limited disapproval of Rule 1118 by requiring California Air Resources Board (CARB) and U.S. EPA approval, [along with Executive Officer approval](#), for ASTM ~~test methods~~ [standards](#) not included in the rule.

BACKGROUND

Rule 1118 was adopted on February 13, 1998, with the purpose of monitoring, recording, and reporting data on refinery and related flaring operations. The rule has been amended twice, most recently on July 7, 2017, which was the first phase of a 2-phase amendment to minimize flaring and flare-related emissions. The amendments harmonized Rule 1118 with the key updates from the U.S. EPA Refinery Sector Rule, required each of the facilities subject to Rule 1118 to prepare a Scoping Document to evaluate the feasibility of minimizing or avoiding planned and unplanned flaring events, removed the \$4 million annual cap on mitigation fees that facilities may pay for flaring, updated emission factors based on the U.S. EPA’s updated AP-42 guidance, and updated and clarified reporting requirements for facilities.

The second phase of the rule development to further reduce refinery flaring began in July 2022 and is expected to rely in part on the findings reported in the Scoping Documents submitted to the South Coast AQMD by the facilities as well as staff’s research. In the second phase amendments, staff will consider the applicability of optical remote sensing technologies that could assist in flare

emission reductions or better characterization of flare emissions. The proposed rule amendment to seek further emission reductions is ongoing, and staff is proposing this minor rule amendment to address the U.S. EPA's limited SIP disapproval.

PUBLIC PROCESS

PAR 1118 was developed through a public process. Staff had a discussion with U.S. EPA and presented PAR 1118 during a Working Group Meeting held on October 26, 2022. Proposed rule language, which was released on October 21, 2022, was included in the presentation for the Working Group Meeting, and the Initial Draft PAR 1118 was released on November 8, 2022.

AFFECTED FACILITIES

The types of refinery operations subject to this rule are petroleum refineries, sulfur recovery plants that recover sulfur compounds from sour water generated by petroleum refineries and hydrogen production plants that produce hydrogen from refinery gas and supply hydrogen for petroleum refinery operations. The gas flares are used for the combustion and disposal of combustible gases due to emergency relief, overpressure, process upsets, startups, shutdowns, and other operational and safety reasons. Presently, there are eight operating petroleum refineries, one sulfur recovery plant and three hydrogen production plants with a total of 31 existing flares affected by this proposed amended rule.

Table 1: Facilities Subject to Rule 1118

| Facility Name | Facility Location | Number of Flares |
|---|-------------------|------------------------|
| Air Liquide | El Segundo, CA | 1 |
| Air Products Carson | Carson, CA | 1 |
| Air Products Wilmington | Wilmington, CA | 1 |
| AltAir Paramount Petroleum | Paramount, CA | 1 |
| Chevron Products Company | El Segundo, CA | 6 |
| Phillips 66 Carson | Carson, CA | 2 |
| Phillips 66 Wilmington | Wilmington, CA | 4 |
| Marathon Petroleum (Tesoro) Carson | Carson, CA | 5 |
| Marathon Petroleum (Tesoro) Sulfur Recovery Plant | Carson, CA | 1 |
| Marathon Petroleum (Tesoro) Wilmington | Wilmington, CA | 2 |
| Torrance Refining Company | Torrance, CA | 3 |
| Ultramar/Valero | Wilmington, CA | 4 |
| Total 12 Facilities | | Total 31 Flares |

CONTROL TECHNOLOGY

The proposed amendments do not include any requirements for control technologies.

EXPECTED EMISSIONS REDUCTIONS

The proposed amendments are not expected to reduce emissions.

SUMMARY OF PROPOSAL

PAR 1118 will include a requirement that CARB and U.S. EPA must approve ASTM ~~test methods standards~~ not included in the rule. This proposed amendment is meant to address the U.S. EPA's limited disapproval of the SIP due to a current provision that grants the South Coast AQMD's Executive Officer sole authority to approve ASTM ~~test methods standards~~ not explicitly included in the rule.

PROPOSED AMENDMENT TO RULE 1118

Subdivision (j) – Testing and Monitoring Methods

Staff is proposing to amend paragraph (j)(1) to include CARB and U.S. EPA approval, in addition to the South Coast AQMD Executive Officer's approval, for any ASTM ~~test method standard~~ other than the ones listed in the rule to determine the higher (gross) heating value of vent gases per clause (j)(1)(A)(i) and the total sulfur concentration per clause (j)(1)(B)(i). Staff removed the phrase "as applicable" which was included in the draft amended rule to clarify that CARB and U.S. EPA must always approve an ASTM standard not explicitly listed in clauses (j)(1)(A)(i) and (j)(1)(B)(i).

Figure 1: PAR 1118 – Paragraph (j)(1)

- (j) Testing and Monitoring Methods
- (1) For the purpose of this rule, the test methods listed below shall be used:
- (A) The higher (gross) heating value of vent gases shall be determined by:
- (i) ASTM Method D4809-13, ASTM Method D 3588-98(2011), ASTM Method D4891-13, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency, as applicable](#); and
- (ii) With a higher heating value analyzer that meets or exceeds the specifications in Attachment A.
- (B) The total sulfur concentration, expressed as sulfur dioxide, shall be determined by:
- (i) District Method 307-91 or ASTM Method D 5504-12, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency, as applicable](#); and
- (ii) With a total sulfur analyzer that meets or exceeds the specifications in Attachment A.
- (C) The vent gas flow shall be determined by a flow measuring device that meets or exceeds the specifications described in Attachment A, as applicable. The accuracy of all flow meters shall be verified every twelve months according to the manufacturers' procedures and the results shall be submitted to the Executive Officer within 30 days after the reports are issued.

- (j) Testing and Monitoring Methods
- (1) For the purpose of this rule, the test methods listed below shall be used:
- (A) The higher (gross) heating value of vent gases shall be determined by:
- (i) ASTM Method D4809-13, ASTM Method D 3588-98(2011), ASTM Method D4891-13, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency](#); and
- (ii) With a higher heating value analyzer that meets or exceeds the specifications in Attachment A.
- (B) The total sulfur concentration, expressed as sulfur dioxide, shall be determined by:
- (i) District Method 307-91 or ASTM Method D 5504-12, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency](#); and
- (ii) With a total sulfur analyzer that meets or exceeds the specifications in Attachment A.
- (C) The vent gas flow shall be determined by a flow measuring device that meets or exceeds the specifications described in Attachment A, as applicable. The accuracy of all flow meters shall be verified every twelve months according to the manufacturers' procedures and the results shall be submitted to the Executive Officer within 30 days after the reports are issued.

Attachment A – Flare Monitoring System Requirements

Staff is proposing to amend Attachment A paragraph (4)(n) to include CARB and U.S. EPA approval, in addition to the South Coast AQMD Executive Officer's approval, for any ASTM ~~test method~~ [standard](#) other than the ones listed in the rule to be used in data collection from continuous and semi-continuous gaseous stream higher heating value flare monitoring systems. [Staff removed the phrase "as applicable" which was included in the draft amended rule to clarify that CARB and U.S. EPA must always approve an ASTM standard not explicitly listed in Attachment A paragraph \(4\)\(n\).](#)

Figure 2: PAR 1118 – Attachment A Paragraph (4)(n)

- n. Perform at monitoring system start-up and on an annual basis a relative accuracy test audit (RATA) which is the ratio of the sum of the absolute mean difference between the monitoring system generated data and the value determined using ASTM D1945-03 and ASTM D3588-91, ASTM D 4891-89, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency, as applicable](#). See rule 218.1 (a)(23) for calculations.

n. Perform at monitoring system start-up and on an annual basis a relative accuracy test audit (RATA) which is the ratio of the sum of the absolute mean difference between the monitoring system generated data and the value determined using ASTM D1945-03 and ASTM D3588-91, ASTM D 4891-89, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency](#). See rule 218.1 (a)(23) for calculations.

Staff is also proposing to amend Attachment A paragraph (5)(n) to include CARB and U.S. EPA approval, in addition to the South Coast AQMD Executive Officer’s approval, for any ASTM ~~test method~~ [standard](#) other than the ones listed in the rule to be used in data collection from continuous and semi-continuous gaseous stream total sulfur monitoring systems. [Staff removed the phrase “as applicable” which was included in the draft amended rule to clarify that CARB and U.S. EPA must always approve an ASTM standard not explicitly listed in Attachment A paragraph \(5\)\(n\).](#)

Figure 3: PAR 1118 – Attachment A Paragraph (5)(n)

n. Perform at monitoring system start-up and on an annual basis a relative accuracy test audit (RATA) which is the ratio of the sum of the absolute mean difference between the monitoring system generated data and the value determined using SCAQMD Laboratory Method 307-91, ASTM D5504-01 or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency, as applicable](#). See rule 218.1(a)(23) for calculations.

Note: Facilities are reminded that there are many critical issues for the collection of representative and monitoring system comparable gas samples destined for Method 307-91 or ASTM D5504-01 analysis.

n. Perform at monitoring system start-up and on an annual basis a relative accuracy test audit (RATA) which is the ratio of the sum of the absolute mean difference between the monitoring system generated data and the value determined using SCAQMD Laboratory Method 307-91, ASTM D5504-01 or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency](#). See rule 218.1(a)(23) for calculations.

Note: Facilities are reminded that there are many critical issues for the collection of representative and monitoring system comparable gas samples destined for Method 307-91 or ASTM D5504-01 analysis.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1118) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption will be prepared pursuant to CEQA Guidelines Section 15062 and if PAR 1118 is approved, the Notice of Exemption will be filed with the county

clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

SOCIOECONOMIC IMPACT ASSESSMENT

The proposed amendments to Rule 1118 are administrative in nature and have no adverse socioeconomic impacts.

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

Before adopting, amending, or repealing a rule, the Health and Safety Code requires South Coast AQMD to adopt written findings of necessity, authority, clarity, consistency, non-duplication, and reference, as defined in Health and Safety Code Section 40727. The draft findings are as follows:

Necessity – PAR 1118 is necessary to: 1) satisfy the requirements of CAA, and 2) address the U.S. EPA SIP disapproval in a timely manner to avoid possible sanctions by the federal government and other consequences under CAA.

Authority – The South Coast AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40702, [and 40725 through 40728](#), ~~41508, and 41700~~.

Clarity – The South Coast AQMD Governing Board has determined that PAR 1118 is written and displayed so that the meaning can be easily understood by persons directly affected by them.

Consistency – The South Coast AQMD Governing Board has determined that PAR 1118- is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, federal or state regulations.

Non-Duplication – The South Coast AQMD Governing Board has determined that PAR 1118 does not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference – In adopting this regulation, the South Coast AQMD Governing Board references the following statutes, which the South Coast AQMD hereby implements, interprets, enforces, or makes specific: Health and Safety Code Sections ~~40440 and 40441, and CAA Section 110~~ [39002, 40001, 40702, 40440\(a\), 40725 through 40728.5, and federal Clean Air Act Sections 110, 172, and 182\(e\)](#).

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2(g) is not applicable because the proposed amended rule does not impose a new emission limit or standard, make an existing emission limit or standard more stringent, or impose new or more stringent monitoring, reporting, or recordkeeping requirements and therefore, a comparative analysis is not required.

COST-EFFECTIVENESS ANALYSIS

Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements. PAR 1118 is not establishing or imposing any BARCT requirements; therefore, a cost effectiveness analysis was not conducted. The amendment to Rule 1118 is administrative in nature and it is not expected to have any associated costs.

INCREMENTAL COST-EFFECTIVENESS ANALYSIS

Health and Safety Code Section 40920.6(a)(3) states that an incremental cost-effectiveness assessment should be performed on identified potential control options that meet air quality objectives. PAR 1118 is not establishing or imposing any BARCT requirements that require control options; therefore, an incremental cost effectiveness analysis was not conducted.

APPENDIX A – PUBLIC COMMENTS

South Coast AQMD discussed the amendments to Rule 1118 during the Working Group Meeting held on October 26, 2022. During the Working Group Meeting, a stakeholder asked staff to confirm that the rule development to reduce flaring will continue and not be impacted by the minor amendment to address the SIP disapproval, which staff confirmed. No further comments or comment letters have been submitted.

ATTACHMENT H



**South Coast
Air Quality Management District**

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SUBJECT: NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

PROJECT TITLE: PROPOSED AMENDED RULE 1118 – CONTROL OF EMISSIONS FROM REFINERY FLARES

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The Notice of Exemption will also be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research for posting on their CEQAnet Web Portal which may be accessed via the following weblink: <https://ceqanet.opr.ca.gov/search/recent>. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: <http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2023>.

**NOTICE OF EXEMPTION FROM THE
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**

| | |
|--|---|
| To: County Clerks for the Counties of Los Angeles, Orange, Riverside and San Bernardino; and Governor’s Office of Planning and Research – State Clearinghouse | From: South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765 |
|--|---|

Project Title: Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares

Project Location: The proposed project is located within the South Coast Air Quality Management District’s (South Coast AQMD) jurisdiction, which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project: Proposed Amended Rule 1118 (PAR 1118) addresses a United States Environmental Protection Agency (U.S. EPA) State Implementation Plan (SIP) limited disapproval of the July 2017 version of Rule 1118 because it grants the South Coast AQMD’s Executive Officer sole authority to approve ASTM International (ASTM) standards not explicitly included in the rule. To remedy this issue, PAR 1118 expands the existing provisions, which currently allow South Coast AQMD to approve ASTM standards that are not otherwise specified elsewhere in Rule 1118, to also require the California Air Resources Board (CARB) and the U.S. EPA approve these ASTM standards. The beneficiaries of implementing PAR 1118 will be CARB and U.S. EPA through improving their oversight of reviewing and approving ASTM standards. Implementation of PAR 1118 will not result in emission reductions.

| | |
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| Public Agency Approving Project: South Coast Air Quality Management District | Agency Carrying Out Project: South Coast Air Quality Management District |
|--|--|

Exempt Status:
CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption

Reasons why project is exempt: South Coast AQMD, as Lead Agency, has reviewed the proposed project (PAR 1118) pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a proposed project is exempt from CEQA. Because the proposed expansion of the authority to approve other ASTM standards to include CARB and U.S. EPA is administrative in nature and would not require physical modifications to occur, it can be seen with certainty that implementing PAR 1118 would not cause a significant adverse effect on the environment. Therefore, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption.

Date When Project Will Be Considered for Approval (subject to change):
South Coast AQMD Governing Board Public Hearing: January 6, 2023

| | | | |
|---|--|---|-------------------------------|
| CEQA Contact Person: Farzaneh Khalaj, Ph.D. | Phone Number: (909) 396-3022 | Email: fkhalaj@aqmd.gov | Fax: (909) 396-3982 |
|---|--|---|-------------------------------|

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| PAR 1118 Contact Person: Zoya Banan, Ph.D. | Phone Number: (909) 396-2332 | Email: zbanan@aqmd.gov | Fax: (909) 396-3982 |
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Date Received for Filing:

Signature: *(Signed and Dated Upon Board Approval)*

Barbara Radlein
Program Supervisor, CEQA
Planning, Rule Development, and Implementation



Proposed Amended Rule 1118: Control of Emissions from Refinery Flares

Board Meeting
January 6, 2023

Attachment I

Background



Rule 1118 was adopted February 1998

- Establishes requirements for flares located at petroleum refining facilities, hydrogen plants, and sulfur recovery plants
- Last amended in 2017



Proposed Amended Rule 1118 is designed to address comments received from U.S. EPA regarding their limited disapproval of Rule 1118



Public Process

- Working Group Meeting on October 26, 2022

U.S. Environmental Protection Agency Final Action on Rule 1118

- On September 21, 2022, U.S. EPA published a limited rule disapproval effective on October 24, 2022
- Sanctions will be imposed if deficiency is not corrected by April 24, 2024
- Proposed Amended Rule 1118 is needed to address deficiency and avoid sanctions

* * * * *

[FR Doc. 2022-20421 Filed 9-21-22; 8:45 am]
BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R09-OAR-2021-0943; FRL-9372-02-R9]

Air Plan Limited Approval and Limited Disapproval; California; South Coast Air Quality Management District; Refinery Flares

AGENCY: Environmental Protection Agency (EPA).
ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is finalizing a limited approval and limited disapproval of revisions to the South Coast Air Quality Management District (SCAQMD) portion of the California State Implementation Plan (SIP). These revisions concern emissions of volatile organic compounds (VOCs) and oxides of

| |
|--------------|
| Local agency |
| SCAQMD |

Proposed Amended Rule 1118

U.S. EPA's Concern

- Rule 1118 Paragraph (j) provides “unbounded director’s discretion”

Proposed Amended Rule 1118

- Proposing to amend the provision to include CARB and U.S. EPA approval for ASTM standards not included in the rule

- (j) Testing and Monitoring Methods
- (1) For the purpose of this rule, the test methods listed below shall be used:
- (A) The higher (gross) heating value of vent gases shall be determined by:
- (i) ASTM Method D4809-13, ASTM Method D 3588-98(2011), ASTM Method D4891-13, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency](#); and
 - (ii) With a higher heating value analyzer that meets or exceeds the specifications in Attachment A.
- (B) The total sulfur concentration, expressed as sulfur dioxide, shall be determined by:
- (i) District Method 307-91 or ASTM Method D 5504-12, or other ASTM standard as approved by the Executive Officer, [California Air Resources Board and U.S. Environmental Protection Agency](#); and
 - (ii) With a total sulfur analyzer that meets or exceeds the specifications in Attachment A.

Staff Recommendations

Adopt Resolution:

- Determining that PAR 1118 is exempt from the requirements of the California Environmental Quality Act
- Amending Rule 1118