(Adopted February 13, 1998)(Amended November 4, 2005)(Amended July 7, 2017)
(Amended January 6, 2023)(Amended April 5, 2024)
(Amended [*DATE OF RULE ADOPTION*])

[*RULE INDEX TO BE ADDED AFTER RULE ADOPTION*]

PROPOSED AMENDED RULE 1118. CONTROL OF EMISSIONS FROM REFINERY FLARES

(a) Purpose

The purpose of this rule 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 the operations and practices of any Refinery, Sulfur Recovery Plant, or Hydrogen Production Plant with regard to safety.

(b) Applicability

This rule applies to all Flares used at Refineries, Sulfur Recovery Plants, and Hydrogen Production Plants.

(c) Definitions

(1) ALTERNATIVE FEEDSTOCK is any feedstock, intermediate, product, or byproduct material containing organic material that is not derived from crude oil product, coal, natural gas, or any other fossil-fuel based organic material.

(2) 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.

(3) 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. A Flare Event caused by poor maintenance, or a condition caused by operator error,-shall not be deemed an Emergency.

(4) 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 – Sulfur Content of Gaseous Fuels (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 (Btu) 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; or

(C) Venting of Clean Service Streams to a Hydrogen Clean Service Flare, Non-Hydrogen Clean Service Flare, or General Service Flare. Venting of Clean Service Streams to a Non-Hydrogen Clean Service Flare being operated at a level above the annual throughput in subdivision (g) shall not be considered an Essential Operational Need after the effective dates in paragraph (g)(2).

(5) FACILITY is any Refinery, Sulfur Recovery Plant, or Hydrogen Production Plant.

(6) 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, Flare means the combustion of Vent Gas in a Flare. Flares are classified based on their use and include:

(A) GENERAL SERVICE FLARE that is not a Hydrogen Clean Service Flare or Non-Hydrogen Clean Service Flare;

(B) HYDROGEN CLEAN SERVICE FLARE that is designed and configured by installation to combust only Clean Service Streams from a Hydrogen Production Plant; or

(C) NON-HYDROGEN CLEAN SERVICE FLARE that is designed and configured by installation to combust only Clean Service Streams from a Facility other than Hydrogen Production Plant.

(7) FLARE EVENT is any planned or unplanned combustion of Vent Gas in a Flare or Flares.

(8) FLARE EVENT NOTIFICATION SYSTEM (FENS) is a web-based system that allows facilities to notify South Coast AQMD about Flare Events and to enter information such as the time that flaring begins and ends, Vent Gas flow rates, and emissions.

(9) FLARE GAS RECOVERY SYSTEM is a system installed to prevent or minimize the combustion of Vent Gas in a Flare and includes, but is not limited to, compressors, pumps, heat exchangers, knock-out pots, and water seals.

(10) FLARE MINIMIZATION PLAN is a compliance plan prepared by a Facility and approved by the Executive Officer that is intended to meet the requirements of subdivision (f) or (g).

(11) FLARE MONITORING AND RECORDING PLAN (FMRP) is a compliance plan prepared by a Facility and approved by the Executive Officer that is intended to meet the requirements in paragraph (i)(1).

(12) FLARE MONITORING SYSTEM is the equipment used to monitor and record the Flare operating parameters, including higher heating value, total sulfur concentration, combustion efficiency, standard volumetric flow rate, and/or on/off flow indication.

(13) FLARE TIP VELOCITY is the velocity of a Flare gas stream exiting a Flare tip averaged over 15 minute time periods, starting at 12 midnight to 12:15 am, and concluding at 11:45 pm to midnight, and calculated as the volumetric flow of Vent Gas divided by the cross sectional area of the Flare

tip, 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 (40 CFR Part 63 Subpart CC, section 670, paragraph (d)).

(14) HYDROGEN PRODUCTION CAPACITY is the maximum rated capacity of the Hydrogen Production Plant to produce hydrogen in million standard cubic feet (MMSCF) of hydrogen per year calculated based on the maximum daily rated capacity, pursuant to Attachment C: Processing Capacity of Refineries and Production Capacity of Hydrogen Production Plants (Attachment C).

(15) HYDROGEN PRODUCTION PLANT is a Unit within a Refinery, or a separate 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 primarily supplies hydrogen for Refinery operations.

(16) 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.

(17) OXIDES OF NITROGEN (NOx) EMISSIONS is the sum of nitric oxide and nitrogen dioxide emitted, calculated, and expressed as nitrogen dioxide.

(18) PERFORMANCE TARGET is an annual threshold on the amount of sulfur dioxide emissions or NOx Emissions calculated over one calendar year that can be emitted from a Facility before certain actions are triggered pursuant to paragraph (f)(4).

(19) PILOT is an auxiliary burner used to ignite the Vent Gas routed to a Flare.

(20) PLANNED FLARE EVENT is any flaring of Vent Gas as a result of a scheduled Startup, Shutdown, Turnaround, LPG tank cleaning, or nonemergency flaring of any process unit or equipment.

(21) PROCESSING CAPACITY is the amount of crude oil and/or alternative feedstocks, which includes organic material that is not derived from crude oil product, coal, Natural Gas, or any other fossil-fuel based organic material, that a Facility can process annually, pursuant to Attachment C.

(22) 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.

(23) 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 (k).

(24) REFINE is to convert crude oil or Alternative Feedstock to produce more usable products such as gasoline, diesel fuel, aviation fuel, lubricating oils, asphalt or petrochemical feedstocks, or any other similar product.

(25) REFINERY is a Facility that is permitted to Refine crude oil, as defined in the Standard Industrial Classification Manual as Industry No. 2911 and/or a facility that is permitted to Refine Alternative Feedstocks. All portions of the refining operation, including those at non-contiguous locations operating Flares, shall be considered as one Refinery.

(26) RELATIVE CAUSE is the identified category for the cause of any Flare Event where more than 5,000 cubic feet of Vent Gas is combusted at the flare, including Emergency, Shutdown, Startup, Turnaround, Essential Operational Need, or unknown if undeterminable.

(27) 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 or replacement of equipment. Stoppage caused by frequent breakdown due to poor maintenance or operator error shall not be deemed a Shutdown.

(28) SMOKELESS CAPACITY is the maximum volumetric flow rate or mass flow rate of Vent Gas that a Flare is designed to operate without visible emissions.

(29) SPECIFIC CAUSE ANALYSIS is a process used by a Facility to investigate the cause of a Flare Event, identify corrective measures, and to prevent recurrence of a similar event.

(30) STARTUP is the procedure by which a process unit or piece of equipment achieves normal operational status, as indicated by parameters such as temperature, pressure, feed rate, and product quality.

(31) SULFUR RECOVERY PLANT is Units within a Refinery, or a separate Facility that recovers elemental sulfur or sulfur compounds from sour gases and/or sour water generated by Refineries.

(32) TURNAROUND is a planned activity involving Shutdown and Startup of one or more process units for the purpose of performing periodic

maintenance, repair or replacement of equipment, or installation of new equipment.

(33) UNPLANNED FLARE EVENT is any flaring of Vent Gas during operations such as an unplanned Shutdown and the subsequent Startup, breakdown, unforeseen maintenance, customer order kick back, or as a result of any situation beyond the operator's control including external power and/or external water curtailment beyond the operator's control (excluding interruptible service agreements), natural disasters, acts of war or terrorism.

(34) VENT GAS is any gas generated at a Facility that is routed to a Flare, excluding assisting air or steam, which is injected into the Flare combustion zone or Flare stack via separate lines.

(35) VOLATILE ORGANIC COMPOUNDS (VOC) is as defined in Rule 102 – Definition of Terms.

(d) Requirements

(1) The owner or operator of a Facility shall:

(A) Maintain a Pilot flame present at all times a Flare is operational;

(B) 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 (k)(2);

(C) Except as specified in paragraph (d)(7), operate all General Service Flares at Facilities such that the Flare Tip Velocity is less than 60 feet per second, or the lesser of 400 feet per second and V_{Max}, where:

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

and the Net Heating $\text{Value}_{\text{Vent Gas}}$ in Btu per standard cubic foot is determined and calculated as specified in paragraph (j)(5);

(D) Operate General Service Flares in a manner to maintain the net heating value of the Flare combustion zone gas (NHV_{cz}) at or above 270 Btu per standard cubic feet, averaged over a 15-minute period. The owner or operator shall calculate NHV_{cz} as specified in 40 CFR Part 63 Subpart CC, section 670;

(E) Operate all Flares in such a manner that minimizes all flaring;

(F) Route no Vent Gas to the Flare except during Emergencies, Shutdowns, Startups, Turnarounds, or Essential Operational Needs; and

(G) Prevent Vent Gas with a hydrogen sulfide concentration in excess of 160 parts per million by volume (ppmv), averaged over three hours, from being routed to the Flare except during Emergencies, Shutdowns, or Startups.

(2) The owner or operator of a Facility shall deem the start of a Flare Event as when the Vent Gas flow velocity exceeds 0.10 feet per second and deem the end of the Flare Event as 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 defined by the Executive Officer in an approved FMRP pursuant to subdivision (i).

(3) The owner or operator of a new Facility, or an existing non-operating Facility, that commences or resumes operations, other than from standard Turnarounds or process unit Shutdown shall:

(A) No later than 180 days prior to the initial commencement or resumption of operations, submit a new or revised FMRP pursuant to paragraph (i)(1) to the Executive Officer for approval; and

(B) No earlier than 14 days prior and no later than seven days prior to the date the owner or operator commences or resumes operations, provide the Executive Officer a written notice of the date of initial commencement or resumption of operations.

(4) The owner or operator of a Facility shall conduct an annual acoustical or temperature leak survey of all pressure relief devices connected directly to a Flare and shall 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.

(5) The owner or operator of a Facility shall conduct a Specific Cause Analysis for any Flare Event, excluding planned Shutdown, planned Startup, and Turnarounds, unless the Flare Event resulted from a non-standard operating procedure that occurred during a planned Shutdown, planned Startup, or Turnaround, when any of the following thresholds is exceeded:

(A) 100 pounds of VOC emissions;

(B) 500 pounds of sulfur dioxide emissions; or

(C) 500,000 standard cubic feet of Vent Gas is combusted.

(6) The owner or operator of a Facility shall conduct a Specific Cause Analysis for any Flare Event at a Facility when the Smokeless Capacity of the Flare is exceeded and:

(A) The visible emission limit in subparagraph (d)(1)(B) or Rule 401 – Visible Emissions is exceeded; or

(B) The Flare Tip Velocity limit in subparagraph (d)(1)(C) is exceeded.

(7) The owner or operator of a Facility shall not operate a Flare above its Smokeless Capacity during a Flare Event that exceeds the visible emission limit in subparagraph (d)(6)(A) or the Flare Tip Velocity limit in subparagraph (d)(6)(B), under the following conditions:

(A) A single Flare Event that is due to operator error or poor maintenance;

(B) Two Flare Events at a Flare in any consecutive three-year period, and a Specific Cause Analysis pursuant to subdivision (e) shows the same cause for both Flare Events from the same equipment; or

(C) Three Flare Events at a Flare in any consecutive three-year period, and the Flare Events are due to any cause.

(8) If more than one Flare is operated above the Smokeless Capacity and exceeds the visible emission limit in subparagraph (d)(6)(A) or the Flare Tip Velocity limit in subparagraph (d)(6)(B) during a single Flare Event, and a Specific Cause Analysis prepared pursuant to subdivision (e) demonstrates that the Flare Events at these Flares have the same root cause, then one Flare Event at each Flare shall be considered to have exceeded the visible emission limit in subparagraph (d)(6)(A) or the Flare Tip Velocity limit in subparagraph (d)(6)(B).

(9) Notwithstanding the provisions in Rule 430 – Breakdown Provisions (Rule 430) and Rule 2004 – Requirements (Rule 2004), the prohibitions listed in paragraph (d)(7) shall be applicable during all periods including breakdowns, except for exemptions listed in subdivision (m).

(10) The owner or operator of a Facility shall conduct an analysis and determine the Relative Cause of any Flare Event where more than 5,000 standard cubic feet of Vent Gas is combusted at the Flare and report the Relative Cause in the quarterly reports pursuant to subparagraph (j)(15)(D), and when it is not feasible to determine the Relative Cause, state the reason why

it was not feasible to make the determination and retain the records of the Relative Cause analysis pursuant to paragraph (j)(12).

(e) Specific Cause Analysis Requirements

(1) The owner or operator of a Facility that is required to conduct multiple Specific Cause Analyses pursuant to paragraph (d)(6) satisfies the applicable requirements with a single Specific Cause Analysis for any single continuous Flare Event under the following scenarios:

(A) The Flare Event exceeds the Smokeless Capacity of the Flare, the visible emission limit in subparagraph (d)(6)(A), and the Flare Tip Velocity limit in subparagraph (d)(6)(B);

(B) Regardless of the count of 15-minute block periods in which the Flare Tip Velocity was exceeded or the count of 2-hour block periods that contains more than five minutes of visible emissions;

(C) The Flare Event causes two or more Flares that are operated in series (i.e., cascaded Flare systems) to have a Flare Event that exceeds the Smokeless Capacity of the Flare and exceeds either the visible emission limit in subparagraph (d)(6)(A) or the Flare Tip Velocity limit in subparagraph (d)(6)(B); or

(D) The Flare Event causes two or more Flares to have a Flare Event that exceeds the Smokeless Capacity of the Flare and exceeds either the visible emission limit in subparagraph (d)(6)(A) or the Flare Tip Velocity limit in subparagraph (d)(6)(B), regardless of the configuration of the Flares, if the cause is reasonably expected to be an external power curtailment beyond the operator's control (excluding interruptible service agreements), natural disasters or acts of war or terrorism.

(2) Except as provided in subparagraphs (e)(1)(C) and (e)(1)(D), if more than one Flare has a Flare Event that exceeds the Smokeless Capacity of the Flare and exceeds either the visible emission limit in subparagraph (d)(6)(A) or the Flare Tip Velocity limit in subparagraph (d)(6)(B) during the same time period, an initial Specific Cause Analysis shall be conducted separately for each Flare. If the initial Specific Cause Analysis indicates that the Flare Events have the same root cause(s), the initially separate Specific Cause Analyses may be recorded as a single Specific Cause Analysis and a single corrective action analysis may be conducted.

(3) The owner or operator of a Facility shall submit the Specific Cause Analysis report for any Flare Event as required by paragraph (d)(5) or (d)(6) to the Executive Officer within 30 days of the start of the Flare Event pursuant to paragraph (j)(17) or (j)(18) and include all the following:

(A) The cause and duration of the Flare Event; and

(B) Any mitigation and corrective actions taken or to be taken to prevent recurrence of a similar event.

(4) Within 14 days of the Flare Event, the owner or operator may submit a written request to be granted an extension of up to 15 days to submit the Specific Cause Analysis report required pursuant to paragraphs (d)(5) and (d)(6), which may be approved by the Executive Officer if the request is submitted within the 14-day deadline.

(5) Except as provided for in paragraph (e)(6), within 45 days of the Flare Event for which the Specific Cause Analysis was required, the owner or operator of a Facility shall implement all corrective actions identified in a Specific Cause Analysis report pursuant to paragraph (e)(3).

(6) Within 14 days of the Flare Event, the owner or operator of a Facility may submit a written request to be granted additional time beyond the 45 days required in subparagraph (e)(5) to implement corrective action(s). The owner or operator of a Facility must submit the following additional information in the Specific Cause Analysis report submitted pursuant to paragraph (e)(3):

(A) An implementation schedule to complete the corrective action(s) as soon as practicable;

(B) An explanation of the reason(s) why more than 45 days is needed to complete the corrective action(s); and

(C) A demonstration that the implementation schedule is the soonest practicable.

(7) After reviewing the corrective action(s) time extension request submitted pursuant to subparagraph (e)(6), the Executive Officer may request additional information justifying the implementation schedule beyond 45 days. Failure to provide the requested information may result in the denial of an extension beyond 45 days and corrective action(s) must be implemented as soon as practicable, but no later than 45 days from the Flare Event.

(8) After reviewing the Specific Cause Analysis report, the Executive Officer may require the owner or operator to modify the corrective action(s) or schedule and submit increments of progress. The Executive Officer shall notify the owner or operator in writing if the corrective action(s) is inadequate, or the implementation schedule must be shortened.

(9) Within 45 days of the Flare Event or no later than the extended schedule pursuant to paragraph (e)(6), the owner or operator of a Facility shall report the record of corrective action(s) completed to date pursuant to paragraph (j)(17) or (j)(18).

(f) Performance Targets Requirements

(1) The owner or operator of a Refinery or Sulfur Recovery Plant shall:

(A) Minimize Flare emissions and meet the applicable Performance Target for sulfur dioxide emissions from flares, pursuant to the schedule in Table 1; and

TABLE 1 – Performance Target Schedule for Sulfur Dioxide

SO_2 Performance Target (Ton per Million Barrels)	**Effective Date**
0.5	Calendar Years 2024 to 2025
0.35	Calendar Years 2026 to 2028
0.25	Calendar Year 2029 and thereafter

(B) Demonstrate compliance with the Performance Target in subparagraph (f)(1)(A) at the end of each calendar year based on the Facility's annual Flare sulfur dioxide emissions normalized over the Facility's Processing Capacity as listed in Attachment C Table C1.

(2) For calendar year 2025 and after, the owner or operator of a Hydrogen Clean Service Flare shall:

(A) Minimize Flare emissions and meet an annual Performance Target of 0.3 pound of NOx Emissions per Hydrogen Production Capacity of the Hydrogen Production Plant; and

(B) Demonstrate compliance with the Performance Target in subparagraph (f)(2)(A) at the end of each calendar year based on the Hydrogen Production Plant's annual Flare NOx Emissions

normalized over the Hydrogen Production Capacity of the Hydrogen Production Plant as listed in Attachment C Table C2.

(3) In the event the Facility exceeds the applicable Performance Target in subparagraph (f)(1)(A) or (f)(2)(A) for any calendar year, the Executive Officer may issue a written notice of emissions exceedance to the Facility.

(4) In the event the Facility exceeds the applicable Performance Target in subparagraph (f)(1)(A) or (f)(2)(A) for any calendar year, the owner or operator of the Facility shall:

(A) Within 90 days following the end of a calendar year:

(i) Submit a Flare Minimization Plan pursuant to paragraph (h)(1); and

(ii) Pay the South Coast AQMD mitigation fees, for the calendar year for which the Performance Target was exceeded, consistent with Attachment D: Guidelines for Calculating Mitigation Fees for Performance Targets Exceedance (Attachment D); or

(B) If the owner or operator of a Facility elects to submit alternative data substitution for any periods of invalid or missing monitoring data within the calendar year, the owner or operator of the Facility shall:

(i) Within 60 days following the end of the calendar year for which the Performance Target was exceeded, submit supporting data for alternative data substitution pursuant to Attachment B: Guidelines for Emissions Calculations (Attachment B), for approval by the Executive Officer;

(ii) If the Executive Officer provides written notification that the alternative data substitution submitted pursuant to clause (f)(4)(B)(i) is insufficient, the owner or operator of the Facility may submit additional supporting data within 30 days of receiving written notification;

(iii) If the Executive Officer provides a written notification that the alternative data substitution re-submitted pursuant to clause (f)(4)(B)(ii) is insufficient, the alternative data substitution will be deemed disapproved, and the owner or operator of the Facility shall apply the standard data substitution procedures in Attachment B;

(iv) No later than 90 days from issuance of the final written notification from the Executive Officer regarding approval or disapproval of the alternative data substitution, if the applicable data confirms the Facility's exceedance from the applicable Performance Target, the owner or operator of a Facility shall:

(A) Submit a Flare Minimization Plan pursuant to paragraph (h)(1); and

(B) Pay the South Coast AQMD mitigation fees, for the calendar year for which the Performance Target was exceeded, pursuant to Attachment D.

(g) Non-Hydrogen Clean Service Flares Requirements

(1) An owner or operator of a Refinery with a Non-Hydrogen Clean Service Flare that exceeded a throughput level with total heat content of 15,000 MMBtu per year (based on higher heating value of total Vent Gas and Purge Gas) for any two consecutive years prior to April 5, 2024, since 2017 shall:

(A) Within 18 months from April 5, 2024, submit to the Executive Officer a complete permit application to install equipment or implement changes to reduce the throughput to a level with total heat content not to exceed 15,000 MMBtu per year (based on higher heating value of total Vent Gas and Purge Gas); and

(B) No later than 12 months from the date that the permit is issued, or the date included in the permit extension if a request for a permit extension pursuant to Rule 205 – Expiration of Permits to Construct (Rule 205) is approved in writing, install equipment or implement changes to reduce the throughput to a level with total heat content (based on higher heating value of total Vent Gas and Purge Gas) not to exceed 15,000 MMBtu per year.

(2) Effective January 1, 2026 or 24 months after permit is issued pursuant to subparagraph (g)(1)(A), whichever occurs later, the owner or operator of a Refinery that exceeds a throughput level with total heat content of 15,000 MMBtu per year (based on higher heating value of total Vent Gas and Purge Gas) at each Non-Hydrogen Clean Service Flare for two consecutive calendar years shall submit a Flare Minimization Plan pursuant to paragraph (h)(2).

(h) Flare Minimization Plan Requirements and Schedule

(1) The owner or operator of a Facility exceeding the Performance Target in subparagraph (f)(1)(A) or (f)(2)(A) shall submit a complete Flare Minimization Plan, or may elect to submit a complete revised Flare Minimization Plan for the owner or operator of a Facility with an existing approved Flare Minimization Plan, for review by the Executive Officer, pursuant to the schedule in paragraph (f)(4). The Flare Minimization Plan shall include the following information:

(A) Any specific change to Facility policies and procedures to be implemented and any equipment improvements to minimize flaring and Flare emissions to comply with the Performance Target of subparagraph (f)(1)(A) or (f)(2)(A) for:

(i) 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;

(B) Any Flare Gas Recovery System to be installed to comply with the Performance Target in subparagraph (f)(1)(A) or (f)(2)(A).

(2) The owner or operator of a Refinery that exceeds the annual throughput threshold pursuant to paragraph (g)(2) shall:

(A) No later than 90 days from the end of the second consecutive calendar year, submit a Flare Minimization Plan, or a complete revised Flare Minimization Plan for the owner or operator of a Facility with an existing approved Flare Minimization Plan, for review by the Executive Officer. The Flare Minimization Plan shall list all specific procedure changes to be implemented by the Facility

to meet the annual throughput threshold in paragraph (g)(2), and shall include the following information:

(i) List of corrective action(s), including but not limited to applicable technology(s) or technique(s), that will be used to reduce the amount of combusted Vent Gas in the Non-Hydrogen Clean Service Flare to below the threshold; and

(ii) Schedule to implement the action(s);

(B) Implement the corrective action(s) in compliance with the schedule provided pursuant to subparagraph (h)(2)(A).

(3) The owner or operator of a Facility required to submit a Flare Minimization Plan or a revised Flare Minimization Plan pursuant to this subdivision shall include a complete application pursuant to Rule 221 – Plans (Rule 221) and appropriate fees pursuant to Rule 306 – Plan Fees (Rule 306).

(4) The Executive Officer will make the Flare Minimization Plans available for public review for a period of 60 days and respond to any received comments prior to plan approval.

(5) Flare Minimization Plan Review

The Executive Officer will review the Flare Minimization Plan to determine if it meets the requirements of paragraph (h)(1) or (h)(2), and notify the owner or operator of the Facility in writing if the plan is deficient and specify the required corrective action(s). If the owner or operator fails to submit an amendment to correct the deficiency within 45 days of receiving the written notification from Executive Officer:

(A) The Executive Officer will deny the Flare Minimization Plan; and

(B) The Facility shall be deemed in violation of this rule.

(6) The owner and operator of a Facility shall comply with all provisions of an approved Flare Minimization Plan.

(7) Violation of any of the terms of the Flare Minimization Plan shall constitute a violation of this rule.

(i) Flare Monitoring and Recording Plan Requirements

(1) The owner or operator of an existing Facility, upon modification or replacement of any monitoring equipment included in an approved FMRP, shall submit a revised FMRP to the Executive Officer for approval that includes, 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 (c)(6), 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 systems, 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 Vent 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 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: Flare Monitoring System Requirements (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 Vent Gas to a Flare for each Flare Event pursuant to the requirements of this rule;

(O) For a new or an existing non-operating Facility starting or restarting operations, other than from standard Turnarounds or process unit Shutdowns, a schedule for the installation and operation of each Flare Monitoring System; and

(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.

(2) The owner or operator of an existing Facility shall comply with all provisions of the most current FMRP approved by the Executive Officer. The current plan shall remain in effect until superseded by a revised FMRP submitted pursuant to paragraph (i)(1) and approved by the Executive Officer.

(3) A violation of any term or provision of the approved FMRP shall constitute a violation of this rule.

(4) The owner or operator of a Facility required to submit a FMRP or a revised FMRP pursuant to this subdivision shall include a complete application pursuant to Rule 221 and appropriate fees pursuant to Rule 306.

(j) Monitoring, Recordkeeping, and Reporting Requirements

(1) The owner or operator of a Facility shall 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 Gas Recovery System, the available storage for excess Vent Gas, and the scrubbing capacity available for Vent Gas, including any limitations associated with scrubbing Vent Gas for use as a fuel;

(B) A description of the equipment, processes and procedures installed or implemented to reduce flaring within the last five years; and

(C) A description of any equipment, processes, or procedures the owner or operator plans to install or implement to eliminate or reduce flaring, specifying the scheduled year of installation or implementation.

(2) On or before six months after approval of a FMRP or revised FMRP, the owner or operator of a Facility shall start monitoring and recording in accordance with this subdivision and the provisions in the approved FMRP or revised FMRP.

(3) The owner or operator of a Facility shall perform monitoring and recording of the operating parameters, as applicable, according to the monitoring and

recording requirements, and frequency listed in Table 2 (including footnotes), except as specified in paragraph (j)(6).

TABLE 2 – Operating Parameters Monitoring and Recording

TYPE OF FLARE	OPERATING PARAMETER	MONITORING AND RECORDING
Hydrogen Clean Service and Non-Hydrogen Clean Service	Gas Flow[1]	Measured and Recorded[2] Continuously with Flow Meter(s) and/or On/Off Flow Indicator(s)[3]
	Gas Higher Heating Value[4]	Calculated or Continuously Measured and Recorded with a Higher Heating Value Analyzer
	Total Sulfur Concentration[5]	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)[3]
	Gas Higher Heating Value[4]	Continuously Measured and Recorded with a Higher Heating Value Analyzer
	Total Sulfur Concentration[5]	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. On/Off flow indicators must be replaced with continuous flow meters pursuant to the compliance schedule in paragraph (j)(10) for Hydrogen Clean Service Flares
4. Higher (Gross) Heating Value in British Thermal Units per Standard Cubic Feet
5. Total Sulfur as SO_2, ppmv

(4) Alternative Flare Vent Gas Sampling

In cases where sampling of Vent Gas is exempted pursuant to paragraph (m)(1), the owner or operator of a Flare shall identify for each Flare Event, the cause of event, the process system(s) involved, date and time event started, 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 is subject to approval by the Executive Officer as representative of emissions from that Flare Event and shall be reported and submitted with the quarterly report as specified in paragraph (j)(15).

(5) Flare Monitoring System Requirements

The owner or operator of a Facility shall determine the concentration of individual components in the Flare Vent Gas as specified in 40 CFR Part 63 Subpart CC, section 670, paragraph (j), if applicable.

(6) Flare Monitoring System Downtime

The owner or operator of a Facility shall maintain and operate any Flare Monitoring System used to ensure compliance with paragraph (j)(3) in good operating condition at all times when the Flare that it serves is operational, except when out of service due to:

(A) Breakdowns and unplanned system repair, which shall not exceed 96 hours, cumulatively, per quarter for each reporting period; or

(B) Planned maintenance, which shall not exceed 14 days per an 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.

(7) The owner or operator of a Facility may use a Flare Monitoring System to measure and record the operating parameters required in paragraph (j)(3) for more than one Flare, provided:

(A) All the gases being measured and recorded are delivered to the Flare(s) for combustion; and

(B) Flare Monitoring System consists of a continuous Vent Gas flow meter, a continuous higher heating value analyzer, and a total sulfur analyzer and recorder that meet the requirements specified in Attachment A.

(8) The owner or operator of a Facility shall monitor Pilot(s) using a thermocouple to detect the presence of a flame.

(9) The owner or operator of a Facility shall 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 frequency of no less than one frame every 15 seconds.

(10) Effective on April 5, 2024, for General Service Flares, and effective on ~~[*18 Months After Date of Rule Adoption*]~~ October 5, 2025, for Hydrogen Clean Service Flares, the owner or operator of a Facility shall:

(A) Have a continuous flow measuring device installed in a manner and at a location that allows for accurate measurements of the total volume of Vent Gas to each Flare. If the flow meter cannot be placed in the location that allows for accurate measurement due to physical constraints, the owner or operator shall retrofit or equip the existing flow meter(s) with totalizing capability to indicate the true net volume of gas flow to each Flare; and

(B) Monitor and record the Pilot gas and Purge Gas flow to each Flare using a separate flow meter or equivalent device approved by the Executive Officer.

(11) The owner or operator of a General Service Flare shall install, operate, calibrate, maintain, and record data from any monitoring systems required by 40 CFR Part 63 Subpart CC, section 670 that are not already required by paragraph (j)(10).

(12) The owner or operator of a Flare shall maintain all records in a manner approved by the Executive Officer for a period of five years for all the information required to be monitored and recorded under paragraphs (d)(10), (j)(3), (j)(4), (j)(8), (j)(9), and (j)(11), and subparagraph (j)(10)(B) as applicable, and make such records available to the Executive Officer upon request.

(13) Notwithstanding the provisions in Rule 430 and Rule 2004, the monitoring and recording requirements of paragraphs (j)(1) through (j)(12) shall be applicable during all periods including breakdowns, except as specified in paragraph (j)(6).

(14) Annual Emissions and Throughput Reporting

The owner or operator of a Facility that exceeds the applicable Performance Target in subparagraph (f)(1)(A) or (f)(2)(A), or the annual throughput threshold in subdivision (g) for any calendar year shall submit records of annual sulfur dioxide emissions, annual NOx emissions, or annual throughput, as applicable, in an electronic format approved by the Executive Officer using FENS within 30 days after the end of each calendar year.

(15) Quarterly Reports

The owner or operator of a Facility shall submit a quarterly report in an electronic format approved by the Executive Officer using FENS within 30 days after the end of each quarter. Each quarterly report shall be certified for accuracy in writing by a responsible Facility official and shall include all the following:

(A) The information required to be monitored under paragraphs (j)(3), (j)(4), (j)(8), (j)(9), and subparagraph (j)(10)(B);

(B) Data collected pursuant to paragraph (j)(11) in the first quarterly report after the applicable monitors have been certified;

(C) 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 Gas, Flare Event duration and emission factors used to calculate flare emissions, as follows:

(i) Emissions from Flares shall be calculated using the Emissions Calculation Procedures outlined in Attachment B;

(ii) During all down time periods of the monitoring system, emissions shall be calculated using the Missing Data Substitution Procedures outlined in Attachment B; and

(iii) Each reported value of flow rate, higher heating values or sulfur concentration reported using Data Substitution Procedures in Attachment B, the data substitution method used, and the date the method was approved by the Executive Officer shall be identified, if applicable;

(D) The description of the cause of each Flare Event as analyzed pursuant to paragraphs (d)(5), (d)(6), and/or (d)(10), the category of Flare Event such as Emergency, Shutdown, Startup, Turnaround, Essential Operational Need, or other specific cause(s), and the associated emissions;

(E) Records of annual acoustical or temperature leak survey conducted pursuant to paragraph (d)(4) including identification of all valves inspected, date of inspections, and the name of the person(s) conducting the inspections;

(F) Flare Monitoring System downtime periods, including dates and times and explanation for each period; and

(G) 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.

(16) Monthly Emissions Reports

Effective January 1, 2025, the owner or operator of a Facility shall submit a monthly report in an electronic format approved by the Executive Officer using FENS within 30 days after the end of each month, flagged as preliminary data in writing by a responsible Facility official and include all the following information that is available to the best of the owner or operator's knowledge:

(A) Information required to be monitored under paragraph (j)(3);

(B) Description of the cause of each Flare Event as analyzed pursuant to paragraphs (d)(5), (d)(6), and/or (d)(10);

(C) Category of each Flare Event such as Emergency, Shutdown, Startup, Turnaround, Essential Operational Need, or other specific cause(s); and

(D) Associated emissions.

(17) Specific Cause Analysis Reports

The owner or operator of a Facility shall submit Specific Cause Analysis reports as required by paragraph (d)(5) or (d)(6) pursuant to the schedule in paragraph (e)(3), (e)(4), or (e)(5) and a record of completed corrective actions as required by paragraph (e)(9) in an electronic format approved by the Executive Officer using FENS.

(18) If FENS is not available, or if functions within FENS do not allow facilities to enter the necessary information required in paragraphs (j)(14) through (j)(17), the owner or operator of a Facility shall provide the information required in paragraphs (j)(14) through (j)(17) by emailing to Rule1118@aqmd.gov or through an alternative method as approved by the Executive Officer.

(19) For a Facility with no Processing Capacity determined pursuant to Attachment C Table C1, the owner or operator of a Facility shall report to the Executive Officer the Processing Capacity in million barrels for the prior calendar year within 30 days of the end of every calendar year.

(k) 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 Gas 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, the California Air Resources Board, and the U.S. Environmental Protection Agency; or

(ii) 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) South Coast AQMD Method 307-91 or ASTM Method D 5504-12, or other ASTM standard as approved by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency; or

(ii) 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 calendar year but not sooner than six months from the last verification 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 subparagraph (d)(1)(B) shall be determined by US EPA Method 22, 40 CFR Part 60 Appendix A.

(3) Continuous monitoring systems certified under Rule 2011 – Requirements for Monitoring, Reporting and Recordkeeping of Oxides of Sulfur (SOx) Emissions (Rule 2011), Rule 2012 – Requirements for Monitoring, Reporting and Recordkeeping of Oxides of Nitrogen (NOx) Emissions (Rule 2012), Rule 218.2 – Continuous Emission Monitoring System: General Provisions (Rule 218.2), and Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications (Rule 218.3), may be used for the monitoring of Vent Gases.

(l) Flare Event Notification Requirements

(1) The owner or operator of a Facility shall maintain a 24-hour telephone service for access by the public for inquiries about Flare Events and provide the name and number of the initial contact and any contact update in writing to the Executive Officer.

(2) The owner or operator of a Facility shall provide notifications for any Planned or Unplanned Flare Event via FENS:

(A) Within one hour of exceeding at least one of the following thresholds:

(i) 100 pounds of VOC emissions;

(ii) 500 pounds of sulfur dioxide emissions; or

(iii) 500,000 standard cubic feet of flared Vent Gas.

(B) Within 24 hours of the end of the Flare Event indicating the Flare Event has ended; and

(C) Within 72 hours of the end of the Flare Event indicating if the Flare Event exceeded the Smokeless Capacity.

(3) Planned Flare Event Notifications

The owner or operator of a Flare shall provide notifications via FENS at least 24 hours prior to the start of a Planned Flare Event with emissions exceeding any of the following thresholds:

(A) 100 pounds of VOC emissions;

(B) 500 pounds of sulfur dioxide emissions; or

(C) 500,000 standard cubic feet of flared Vent Gas.

(4) Unplanned Flare Event Notifications

If the Unplanned Flare Event lasts longer than 24 hours, the owner or operator of the Facility shall:

(A) End the current Unplanned Flare Event in FENS within 24 hours or at the end of the starting calendar day; and

(B) Generate a new Unplanned Flare Event notification in FENS for every calendar day of flaring afterward.

(5) The owner or operator of a Flare shall notify the Executive Officer via FENS no later than one hour after the cumulative daily total amount of Vent Gas from a Flare exceeds 100,000 standard cubic feet, if a Flare Event notification has not already been provided for that day pursuant to paragraph (l)(2).

(6) Characterizing and Reporting Flare Events

The owner or operator of a Facility shall characterize and report any Flare Event that exceeds any of the thresholds listed in subparagraph (l)(2)(A) as follows:

(A) A Flare Event due to the Startup of a process unit or equipment that occurs more than 36 hours after the end of an Unplanned Flare Event of the same process unit Shutdown shall be considered a Planned Flare Event;

(B) Flare Events that can be attributed to same process unit(s) or equipment and has more than one start time and stop time within a 24-hour period, shall be considered a continuation of the same event, and not a separate or unique event; and

(C) For an Unplanned Flare Event that continues for more than 24 hours, each calendar day of flaring Vent Gas shall constitute a separate Unplanned Flare Event.

(7) If FENS is not available, or if functions within FENS do not allow facilities to enter the necessary information required in paragraphs (l)(2) through ~~(l)(4)~~(l)(5), the owner or operator of a Facility shall provide the required information by calling 800-CUT-SMOG (800-288-7664).

(m) Exemptions

(1) Notwithstanding the presence of 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, the owner or operator of a Facility is not required to conduct sampling and analyses of representative samples, as defined in the Facility's FMRP, for higher heating values, net heating values, and total sulfur concentration pursuant to paragraph (j)(4) 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 FMRP 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, and the owner or operator demonstrates to the Executive Officer that the

sample collected at an alternative location is representative of the Flare Event.

(2) The owner or operator of a Facility may exclude any sulfur dioxide emissions, any NOx emissions, any visible emissions that exceed limits in subparagraph (d)(1)(B), or any Flare Tip Velocity that exceeds the applicable limit in subparagraph (d)(1)(C) originating from Flare Events caused by external power and/or external water curtailment beyond the operator's control (excluding interruptible service agreements), natural disasters, or acts of war or terrorism from:

(A) The applicable Performance Target specified in subdivision (f), provided the owner or operator of a Facility submits documentation proving the existence of such events and certified in writing by the Facility official responsible for emission reporting; and

(B) The prohibitions listed in paragraph (d)(7).

(3) The owner or operator of a Facility may exclude any Vent Gas and Purge Gas throughput (based on higher heating value) from Flare Events caused by external power and/or external water curtailment beyond the operator's control (excluding interruptible service agreements), natural disasters, or acts of war or terrorism, from the annual throughput in subdivision (g), provided the owner or operator of a Facility submits documentation proving the existence of such events and certified in writing by the Facility official responsible for emission reporting.

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 Facility 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 Vent Gas shall be corrosion resistant. If required by the Facility, 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 applicable provisions of Rule 218.2 and Rule 218.3. 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 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 South Coast AQMD 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, the California Air Resources Board, and the U.S. Environmental Protection Agency. See Rule 218.2 and Rule 218.3, as applicable, 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.

  i. Daily calibration may be deferred until the end of any Flare Event but not to exceed 72 hours.

  ii. In the event of a failed deferred calibration, daily discrete samples shall begin to be collected within 30 minutes if the Flare Event is still occurring and will be used for calculations.

  iii. If deferred calibration passes, the normal calibration schedule shall be resumed.

q. Periodically perform a zero-drift test. Allowed zero drift should be consistent with a properly operating system. See Rule 218.2 and Rule 218.3, as applicable, 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 South Coast AQMD 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, the California Air Resources Board, and the U.S. Environmental Protection Agency. See Rule 218.2 and Rule 218.3, as applicable, 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.

i. Daily calibration may be deferred until the end of any Flare Event but not to exceed 72 hours.

ii. In the event of a failed deferred calibration, daily discrete samples shall begin to be collected within 30 minutes if the Flare Event is still occurring and will be used for calculations.

iii. If deferred calibration passes, the normal calibration schedule shall be resumed.

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 218.2 and Rule 218.3, as applicable, 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

Facility operators shall use the following equations and emission factors to calculate emissions from Vent Gas, Natural Gas, propane, and butane:

Table B1 – Vent Gas

Air Pollutant	Equation(1)	Emission Factor
ROG	E = V x NHV x EF	0.66 lb/mmBTU
NOx(2)	E = V x HHV x EF	0.068 lb/mmBTU
CO	E = V x NHV x EF	0.31 lb/mmBTU
PM10	E = V x EF	21 lb/mmSCF
SOx	E = V x Cs x 0.1662	Note (3)

Note (1) 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 68^0 Fahrenheit, pursuant to Attachment B, Section (2)

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

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

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 (2) For Vent Gas streams of pure hydrogen, only the emission factor for NOx should be used.

Note (3) 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.

Table B2 – Natural Gas

Air Pollutant	Equation(1)	Emission Factor (lb/mmSCF)
ROG	E = V x EF	7
NOx	E = V x EF	130
CO	E = V x EF	35
PM10	E = V x EF	7.5
SOx	E = V x EF	0.83

Table B3 – Propane and Butane

Air Pollutant	Equation(1)	Emission Factor (lb/mmBTU)
ROG	E = V x 3500 x EF	0.009
NOx	E = V x 3500 x EF	0.145
CO	E = V x 3500 x EF	0.082
PM10	E = V x 3500 x EF	0.002
SOx(2)	E = V x 3500 x EF	0.047

Note (1) Where:

E = Calculated Vent Gas emissions (lbs)

EF = Emission Factor

Note (2) 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 x Cs x 0.1662 to estimate the SOx emissions, where Cs is as defined in Table B1 Note (1).

2. Flow Rate Determination

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.

3. 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 Facility demonstrates using verifiable records of Flare water seal level and/or other parameters as approved by the Executive Officer in FMRP or revised FMRP 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 Sections (2)(a)(i) or

(2)(a)(ii) below, unless the Executive Officer approves the method specified in Section (2)(a)(iii).

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:

$$FR = FR_{Max} - 0.5 \times (FR_{Max} - FR_{Avg})$$

Where:

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

FR_{Max} = Maximum flow rate that was measured and recorded for that Flare during the previous 20 quarters preceding the subject Flare Event. This maximum value is based on the average flow rate during an individual Flare Event, not an instantaneous maximum value.

FR_{Avg} = 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 FMRP or revised FMRP.

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) If the flow rate data was not measured or recorded for a period of time less than or equal to15 consecutive minutes during any Flare Event, the flow rate shall be calculated using the equation in Section (2)(a)(i), and maximum flow rate (FR_{Max}) and average flow rate (FR_{Avg}) that were measured and recorded for that Flare Event during the one hour preceding and the one hour following the period of time the flow rate data is not measured or recorded.

iii) 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) or (2)(b)(ii) below, unless the Executive Officer approves the method specified in Section (2)(b)(iii).

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

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

Where:

HHV = Estimated higher heating value (Btu/scf)

HHV_{Max} = Maximum higher heating value measured and recorded for that Flare during the previous 20 quarters preceding the Flare Event.

HHV_{Avg} = Average higher heating value measured and recorded for that Flare for all sampled Flare Events during the previous 20 quarters preceding the Flare Event.

ii) If the higher heating value data was not measured or recorded for a period of time less than or equal to15 consecutive minutes during any Flare Event, the higher heating value shall be calculated using the equation in Section (2)(b)(i), and maximum higher heating value (HHV_{Max}) and average higher heating value (HHV_{Avg}) that were measured and recorded for that Flare Event during the one hour preceding and the one hour following the period of time the higher heating value data is not measured or recorded.

iii) 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 Sections (2)(c)(i) or (2)(c)(ii) below, unless the Executive Officer approves the method specified in Section (2)(c)(iii).

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:

$$C_{Sulfur} = C_{Sulfur,Max} - 0.5 \times (C_{Sulfur,Max} - C_{Sulfur,Avg})$$

Where:

C_{Sulfur} = Estimated total sulfur concentration, expressed as sulfur dioxide (ppmv)

$C_{Sulfur,Max}$ = Maximum total sulfur concentration, expressed as sulfur dioxide, measured and recorded for that Flare during the previous 20 quarters preceding the Flare Event.

$C_{Sulfur,Avg}$ = Average total sulfur concentrations measured and recorded for that Flare for all sampled Flare Events during the previous 20 quarters preceding the Flare Event.

ii) If total sulfur concentration data is not measured or recorded for a period of time less than or equal to 15 consecutive minutes during any Flare Event, the total sulfur concentration shall be calculated using the equation in Section (2)(c)(i), and maximum total sulfur concentration ($C_{Sulfur,Max}$) and average total sulfur concentration ($C_{Sulfur,Avg}$) that were measured and recorded for that Flare Event during the one hour preceding and the one hour following the period of time the sulfur concentration data is not measured or recorded.

iii) 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 C

PROCESSING CAPACITY OF REFINERIES AND PRODUCTION CAPACITY OF HYDROGEN PRODUCTION PLANTS

This attachment provides Processing Capacity numbers for Refineries and Hydrogen Production Capacity numbers for Hydrogen Production Plants as of April 5, 2024.

Effective from April 5, 2024, the owner or operator of Facilities shall determine the applicable capacity pursuant to either of the following clauses, whichever the latest:

(i) As listed in Table C1 or Table C2; or

(ii) As listed in the Facility's Title V permit, the Facility's FMRP, or the California Energy Commission's list of California Oil Refinery Locations and Capacities, if applicable, on April 5, 2024, or as reported pursuant to paragraph (j)(19).

Table C1 – Processing Capacity of Refineries

Facility	Processing Capacity (Barrels per Day)
AltAir Paramount	Pursuant to Paragraph (j)(19)
Chevron USA Inc.	269,000
Marathon (Carson, Wilmington, SRP)	363,000
Phillips 66 (Carson, Wilmington)	139,000
Torrance Refining Co.	160,000
Valero	85,000

Table C2 – Production Capacity of Hydrogen Production Plants

Hydrogen Production Plant	Hydrogen Production Capacity (Million Standard Cubic Feet per Day)
Air Liquide	90
Air Product – Carson	96
Air Product - Wilmington	88
Chevron USA Inc.	72

ATTACHMENT D

GUIDELINES FOR CALCULATING MITIGATION FEES FOR PERFORMANCE TARGETS EXCEEDANCE

This attachment provides the methodology to calculate the mitigation fees that the owner or operator of a Facility shall pay to South Coast AQMD when any Performance Target is exceeded in any single year.

1. Calculations for Facility-Specific Sulfur Dioxide Performance Target

The owner or operator of a Refinery or Sulfur Recovery Plant shall calculate the Facility-specific sulfur dioxide Performance Target based on the Processing Capacity as listed in the California Energy Commission's list of California Oil Refinery Locations and Capacities for that calendar year, or as reported pursuant to paragraph (j)(19), using the following equation:

$$\text{Facility Specific Sulfur Dioxide Performance Target [Tons]} = \text{Applicable Performance Target} \left[\frac{\text{Ton}}{\text{Million Barrels}}\right] \times \text{Processing Capacity [Million Barrels]}$$

Where:

Applicable Performance Target = As specified in Table 1 – Performance Target Schedule for Sulfur Dioxide

2. Calculations for Facility-Specific NOx Performance Target

The owner or operator of a Hydrogen Production Plant shall calculate the Facility-specific NOx Performance Target based on the Hydrogen Production Capacity, using the following equation:

$$\text{Facility Specific NOx Performance Target [Pounds]} = 0.3 \left[\frac{\text{Pound}}{\text{Million Standard Cubid Feet}}\right] \times \text{Hydrogen Production Capacity [Million Standard Cubic Feet]}$$

3. Calculations for Baseline Mitigation Fees

The baseline mitigation fees shall be calculated according to the following schedule:

a) If excess sulfur dioxide emissions or NOx Emissions are no more than ten percent of the Facility-specific Performance Target, $39,000 per ton of the

sulfur dioxide emissions or NOx Emissions in excess of the Facility-specific Performance Target;

b) If excess sulfur dioxide emissions or NOx Emissions are greater than ten percent but no more than twenty percent of the Facility-specific Performance Target, $79,000 per ton of the sulfur dioxide emissions or NOx Emissions in excess of the Facility-specific Performance Target; or

c) If excess sulfur dioxide emissions or NOx Emissions are greater than twenty percent of the Facility-specific Performance Target, $158,000 per ton of the sulfur dioxide emissions or NOx Emissions in excess of the Facility-specific Performance Target.

4. Calculations for Adjusted Mitigation Fees

The baseline mitigation fees shall be adjusted for the calendar year that the Performance Target was exceeded to account for any change in the consumer price index (CPI), according to the following equation:

$$\text{Adjusted Mitigation Fees} = \text{Baseline Mitigation Fees} \times \frac{\text{Reporting Year CPI}}{\text{2022 CPI}}$$

Where:

Adjusted Mitigation Fees	=	Mitigation fees due to pay to South Coast AQMD for exceeding the Performance Target, in USD
Baseline Mitigation Fees	=	Mitigation fees, as calculated pursuant to Attachment D, Part (3), in USD
Reporting Year CPI	=	CPI for the calendar year that the Performance Target was exceeded, if available, or the most recently available CPI, as determined by State of California Department of Industrial Relations
2022 CPI	=	319.224