

RULE 1160

Internal Combustion Engines

(A) General

(1) Purpose

(a) Purpose: The purpose of this rule is to ~~establish limits the for~~ emissions of Oxides of Nitrogen (NO_x), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC) from associated with emergency, portable, standby, or stationary Internal Combustion Engines that are not subject to District Rule 1160.1 – Internal Combustion Engines in Agricultural Operations.

[Changes made to clarify purpose, making language consistent with that of District Rule 1160.1, and to exclude engines used in Agricultural Operations subject to District Rule 1160.1]

(2) Applicability

(a) This rule ~~is applicable~~ applies to any stationary ~~Internal Combustion Engine~~ Internal Combustion Engine ~~rated at 500 or more brake horsepower (bhp), when located within the Federal Ozone Non-attainment Area, with a Rated Brake Horsepower of fifty (50) or more that does not meet the following:~~

(i) An Emergency Internal Combustion Engine; or,

(ii) A Portable Internal Combustion Engine; or,

(iii) Internal Combustion Engine used in an Agricultural Operation.

[Changes made to clarify applicability, making language consistent with that of District Rule 1160.1, and to exclude engines used as emergency or portable and those used in Agricultural Operations subject to District Rule 1160.1]

B) Definitions

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

(1) “Actual Emissions” – The actual rate of emissions of a Regulated Air Pollutant which accurately represent the emissions from an Emissions Unit. Such emissions shall be calculated using the verified actual operating hours; production rates; and types of materials processed, stored or combusted as applicable.

[Added definition from District Rule 1301, as this definition is cited in the definition of “Aggregate Emissions”]

- (42) “Aggregate Emissions” – A facility-wide sum of actual emissions, on an emissions category specific basis, from engines subject to this rule operated at a single facility. Such "aggregating" of emissions will include all regulated emissions categories subject to this rule.
- (3) “Agricultural Operation” – The growing and harvesting of crops or the raising of fowl or animals for the primary purpose of making a profit, providing a livelihood, or conducting agricultural research or instruction by an educational institution. Agricultural Operations do not include activities involving the processing or distribution of crops or fowl.
[Added definition from District Rule 1160.1 for clarification purposes]
- (4) “Air Pollutant” – Any air pollution agent or combination of such agents, including any physical, chemical, biological, or radioactive (including source material, special nuclear material and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air.
[Added definition from District Rule 1301, as this definition is cited in the definition of “Regulated Air Pollutant”]
- (5) “Air Pollution Control Officer (APCO)” – The person appointed to the position of Air Pollution Control Officer of the District pursuant to the provisions of California Health & Safety Code §40750 and his or her designee.
[Added definition for clarification purposes]
- (26) “Baseline Emission Rate” – Emissions ÷ Emissions under normal operating conditions, prior to Emission Control Equipment being installed, determined by an emissions compliance test conducted in accordance with the requirements specified in Section (F). The Baseline Emissions Rate shall be adjusted to reflect any operational limit or Emission Control Equipment installed prior to January 1, 1991.
- (7) “California Air Resources Board (CARB)” – The California Air Resources Board, the Executive Officer of CARB and his or her authorized representative, the powers and duties of which are described in Part 2 of Division 26 of the California Health & Safety Code (commencing with §39500).
[Added definition for clarification purposes]
- (8) “Carbon Monoxide (CO)” – A colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels.
[Added definition for clarification purposes]
- (9) “Compression-Ignited (IC) Internal Combustion Engine” – An Internal Combustion Engine with operating characteristics significantly similar to the theoretical diesel combustive cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignited engine.

[Added definition from District Rule 1160.1 for clarification purposes]

(10) “Continuous Emissions Monitoring System (CEMS)” – All of the equipment that may be required to meet the data acquisition and availability requirements of this rule, to sample, condition (if applicable), analyze, and provide a record of emissions on a continuous basis.

[Added definition to clarify section definition of Enhanced Emissions Monitoring Device (B)(18)]

~~(3) “Diesel Cycle Engine”: A two or four stroke compression ignition engine that is operated on any liquid or gaseous fuel, and with an exhaust stream oxygen concentration of four percent by volume or greater.~~

[Deleted definition as this definition is no longer needed]

(11) “District” – The Mojave Desert Air Quality Management District. The geographical area of which is described in Mojave Desert Air Quality Management District Rule 103.

[Added definition for clarification purposes]

~~(412) “Emergency Internal Combustion Engines”:- For purposes of this rule, Any Internal Combustion Engines which meets any of the following criteria: used during periods of loss of commercial power at facilities normally serviced with commercial power. These units are normally operated during periods of compliance and operational preparedness testing (1 hr/wk) and during periods of actual power loss:~~

~~(a) An Internal Combustion Engine driving a generator used at facilities normally serviced with commercial power, where the generators are used exclusively as emergency units during loss of commercial power.~~

~~(b) An Internal Combustion Engine driving a generator used at facilities normally serviced with an alternative energy supply including, but not limited to, photovoltaic power, where the generators are used exclusively as emergency units during loss of such alternative energy source but no more than 200 hours total per year.~~

~~(c) An Internal Combustion Engine driving a fire pump or deluge pump that is used exclusively during fire emergency or testing.~~

[Definition updated from District Rule 301 for clarification purposes and to maintain consistency of definition throughout the District Rule Book]

~~(d) An Internal Combustion Engine driving an air compressor that is used exclusively during emergency shutdowns and/or to start-up black start engines.~~

[Subsection of definition added per the request of Southern California Gas as they operate Internal Combustion Engines that drive compressors for the sole

purpose of station black starts and/or maintaining critical station air during emergencies. This addition expands emergency use to include Internal Combustion Engines driving compressors used in these instances.]

(§13) ~~“Emissions Compliance Test”~~: — An emissions compliance test conducted in accordance with a District approved test protocol pursuant to the District's Compliance Test Procedural Manual.

(14) “Emission Control Equipment” – Equipment technologies which control Internal Combustion Engine emissions, including, but not limited to, Selective Catalytic Reduction (SCR); Non-Selective Catalytic Reduction (NSCR); Oxidation Catalyst; and fuel, air, and exhaust modifications. This definition excludes diesel particulate filters or traps.

[Added definition to clarify section (E)(1)(b)]

(615) ~~“Emission Control Plan”~~: — A document which outlines how an ~~existing facility~~ Facility will comply with the requirements of this rule.

(16) “Emission Control System Operating Parameters” – Any operating parameter(s) that the District deems necessary to analyze for the determination of compliance. Such parameters include, but are not limited to, the reagent flow rate, catalyst temperature, and exhaust gas flow rate.

[Added definition to clarify section (E)(1)(b)(i)(a)]

(17) “Emissions Unit” – Any article, machine, equipment, other contrivance or combination thereof which emits or has the Potential to Emit any Regulated Air Pollutant.

[Added definition from District Rule 1301, as this definition is cited in the definition of “Actual Emissions”]

(18) “Enhanced Emissions Monitoring Device” – Any automated data recording device or system having both data gathering and retrieval capabilities. Such equipment includes, but is not limited to, Continuous Emissions Monitoring Systems (CEMS) and Parametric or Predictive Emissions Monitoring Systems (PEMS).

[Added definition to clarify section (E)(1)(b)(i)(c)]

~~(7) “Engine Rating”: The output of an engine as determined by the engine manufacturer and/or listed on the nameplate of the unit, regardless of any derating.~~

[Definition deleted as it is no longer needed for definition purposes]

(19) “Facility” – Any building, structure, Emissions Unit, combination of Emissions Units, or installation which emits or may emit a Regulated Air Pollutant and which are:

- (a) Located on one or more Contiguous or adjacent properties within the District; and,
 - (b) Under the control of the same person (or by persons under common control); and,
 - (c) Belong to the same industrial grouping, as determined by being within the same two-digit Standard Industrial Classification (SIC) Code.
 - (d) For the purpose of this rule, such above-described grouping, remotely located but connected only by land carrying a pipeline, shall not be considered one Facility.
- (820) “Federal Ozone Non-attainment Area (FONA)”: — That portion of San Bernardino County that lies within the lines which begin at:
- (a) The San Bernardino - Riverside County boundary, running north along the range line common to Range 3 East and Range 2 East;
 - (b) Then west along the township line common to Township 2 North and Township 3 North;
 - (c) Then north along the San Bernardino - Los Angeles County Boundary and the San Bernardino - Kern County Boundary;
 - (d) Then east along latitude 35 degrees, 10 minutes north;
 - (e) Then south along longitude 115 degrees, 45 minutes west, and west along the San Bernardino - Riverside County Boundary (see Map 1).
- (21) “Internal Combustion Engine” – A Spark- or Compression-Ignited reciprocating engine featuring intermittent combustion within one or more internal chambers to produce useful work by applying a varying force against a reciprocating piston.
[Added definition from District Rule 1160.1 for clarification purposes]
- (922) “Lean bBurn” Engine: ~~A spark ignited engine that is operated with any liquid or gaseous fuel and with an exhaust stream oxygen concentration of four percent by volume, or greater. – Any Spark-Ignited Internal Combustion Engine that is operated with an exhaust stream oxygen concentration of four (4) percent by volume, or greater prior to any exhaust stream Emission Control Equipment.~~
[Updated definition with the definition from District Rule 1160.1 for clarification purposes and consistency]
- (23) “Oxides of Nitrogen (NO_x)” – Calculated as equivalent nitrogen dioxide (NO₂).
[Added definition from District Rule 1160.1 for clarification purposes]

(24) “Parametric or Predictive Emissions Monitoring System or (PEMS)” – The equipment necessary to monitor process and Emission Control Equipment operational parameters (for example, control device secondary voltages and electric currents) and other information (for example, gas flow rate, oxygen or carbon dioxide concentrations), and calculate and record the mass emissions rate (for example, lb/hr) on a continuous basis.

[Added definition to clarify section definition of Enhanced Emissions Monitoring Device (B)(18)]

(25) “Precursor” – A substance which, when released to the atmosphere, forms or causes to be formed or contributes to the formation of a Regulated Air Pollutant. These include, but are not limited to the following:

Precursors

Hydrocarbons and substituted hydrocarbons
(Reactive Organic Compounds)

Nitrogen oxides (NO_x)

Sulfur oxides (SO_x)

Hydrogen Sulfide (H₂S)

[Added definition from District Rule 1301, as this definition is cited in the definition of “Regulated Air Pollutant”]

(4026) “Portable Internal Combustion Engines” – Engines which are not operated, nor intended to be operated, at one specific site for more than twelve (12) consecutive months, but is not permanently affixed to only one location, or determined to be portable by the District. Portable equipment includes Indications of Portable Internal Combustion Engines include, but are not limited to, those that are which are transportable and may be mounted on mobile sources, trailers, skids, or other platforms.

[Updated definition for clarity of Portable exemption]

(27) “Potential to Emit (PTE)” – The maximum capacity of a Facility or Emissions Unit(s) to emit any Regulated Air Pollutant under its physical and operational design.

- (a) Any physical or operational limitation on the capacity of the Facility or Emissions Unit(s) to emit an Air Pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processes, shall be treated as part of its design only if the limitation or the effect it would have on emissions is Federally Enforceable.
- (b) Fugitive Emissions of Hazardous Air Pollutants shall be included in the calculation of a Facility's or Emission Unit(s)' Potential to Emit.
- (c) Fugitive Emissions of other Air Pollutants shall not be included in the calculations of a Facility's or Emissions Unit(s)' Potential to Emit unless the Facility belongs to one of the 27 categories listed in 40 CFR 51.165(a)(1)(iv)(C).
- (d) Secondary Emissions shall not be included in the calculations of a Facility's or Emissions Unit(s)' Potential to Emit.
[Added definition from District Rule 1301, as this definition is cited in the definition of "Potential to Emit"]
- (28) "Rated Brake Horsepower" – The continuous brake horsepower rating specified for the engine by the manufacturer or listed on the nameplate of the unit, unless otherwise physically limited and specified by a condition on the engine's permit or Rule 114 registration.
[Added definition from District Rule 1160.1 for clarification purposes]
- (29) "Reasonably Available Control Technology (RACT)" – The lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.
- (30) "Regulated Air Pollutant" – Any of the following Air Pollutants:
 - (a) Any Air Pollutant, and its Precursors, for which an Ambient Air Quality Standard has been promulgated.
 - (b) Any Air Pollutant that is subject to a standard under 42 U.S.C. §7411, Standards of Performance for New Stationary Sources (Federal Clean Air Act §111) or the regulations promulgated thereunder.
 - (c) Any substance which has been designated a Class I or Class II substance under 42 U.S.C. §7671a (Federal Clean Air Act §602) or the regulations promulgated thereunder.

(d) Any Air Pollutant subject to a standard or other requirement established pursuant to 42 U.S.C. §7412, Hazardous Air Pollutants (Federal Clean Air Act §112) or the regulations promulgated thereunder.

[Added definition from District Rule 1301, as this definition is cited in the definition of “Actual Emissions”]

~~(1131) ““Rich ~~b~~Burn” Engine”: A spark ignited engine that is operated with any liquid or gaseous fuel, and with a exhaust stream oxygen concentration of less than four percent by volume. – Any Spark-Ignited Internal Combustion Engine that is operated with an exhaust stream oxygen concentration of less than four (4) percent by volume prior to any exhaust Emission Control Equipment.~~

[Updated definition with the definition from District Rule 1160.1 for clarification purposes and consistency]

(32) “Spark-Ignited Internal Combustion Engine” – A liquid or Gaseous Fueled engine designed to ignite its air/fuel mixture by a spark across a spark plug.

[Added definition from District Rule 1160.1 for clarification purposes]

~~(1233) ““Standby Engine””: – Any Iinternal Ceombustion engine-Engine used exclusively which operates as a mechanical or electrical power source as a temporary replacement for a primary power source during periods of fuel/energy shortage or while the primary power source is undergoing maintenance or repairs.~~

[Definition updated to match that of District Rule 301 to maintain consistency across the District Rule Book]

~~(13) —“Internal Combustion Engine”: Any spark or compression ignited reciprocating stationary internal combustion engine that is attached to a foundation at a location, or is portable and operated at a location for more than 90 days in any consecutive twelve month period, excluding engines used for self propulsion of a vehicle.~~

[Definition moved to (B)(21)]

(1434) ““Volatile Organic Compound (VOC)” – Any ”: Any compound containing at least one atom of carbon, excluding except for the following compounds: ethane, methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions other than and those compounds listed in 40 CFR 51.100(s)(1).

[Clarified definition making it consistent with that of District Rule 1160.1 for clarification purposes]

(C) Requirements

(1) Emissions Standards

~~(a) VOC Emissions— internal combustion engines subject to this rule shall not exceed 106 ppmv^{*} of Volatile Organic Compounds (VOCs), except for:~~

~~(i) internal combustion engines at Southern California Gas Newberry Springs facility shall not exceed 255 ppmv^{*} of VOCs.~~

~~[Moved this section to (C)(1)(c) to maintain consistency with the pollutant order specified in the Applicability section]~~

~~(ba) NO_x Emissions—~~

~~(i) Internal eCombustion eEngine(s) subject to this rule shall not exceed the following emission—standards limits in Table 1,—unless one of the following is used to demonstrate compliance:~~

- ~~1. The Internal Combustion Engine(s) meet the alternative federal NO_x RACT limit of Subsection (C)(1)(a)(ii); or,~~
- ~~2. opting for the aAn Alternative NO_x emissions eCompliance sStrategy, as indicated in subsection (C)(2).[‡]~~

Table 1
NO_x Emission Limits for Internal Combustion Engines

(ppmv limitations shall be referenced at 15 percent volume stack gas oxygen measured on a dry basis and averaged over 15 consecutive minutes)

<u>Engine Type</u>	<u>NO_x Limit</u>
<u>Spark-Ignited Internal Combustion Engine, Rich Burn</u>	<u>50 ppmv</u>
<u>Spark-Ignited Internal Combustion Engine, Lean Burn</u>	<u>140 ppmv</u>
<u>Compression-Ignited Internal Combustion Engine</u>	<u>700 ppmv</u>

[Section is a reformatted version of the original section (C)(1)(b). This section is now representative of the original limit but separated out into Tables 1, 2, and 3 by pollutant]

~~(i) Rich-burn Engines:~~

~~Oxides of Nitrogen (NO_x) ————— 50 ppmv^{*}
Carbon Monoxide (CO) ————— 4500 ppmv^{*}~~

~~(ii) Lean-burn Engines:~~

~~Oxides of Nitrogen (NO_x) ————— 140 ppmv^{*}
Carbon Monoxide (CO) ————— 4500 ppmv^{*}~~

~~(iii) Diesel cycle Engines:~~

~~Oxides of Nitrogen (NO_x) ————— 700 ppmv^{*}
Carbon Monoxide (CO) ————— 4500 ppmv^{*}~~

~~^{*}All ppmv limitations shall be referenced at 15 percent volume stack gas oxygen measured on a dry basis and averaged over 15 consecutive minutes.~~

[Section was not deleted, just reformatted into tables separated by pollutant]

(ii) Alternative federal RACT for NO_x

1. Southern California Gas, Blythe Compressor Station: The following alternative federal RACT for NO_x shall apply for the eight (8), natural-gas fired, two-stroke, Lean Burn, Internal Combustion Engines located at the Southern California Gas, Blythe Compressor Station, manufactured by Dresser-Clark, model HBA, each with a 1760 brake-horsepower, and the corresponding serial numbers (30129, 30151, 30194, 30250, 30251, 30263, 30264, and 30265):

a. The engines described in (C)(1)(a)(ii)1. shall employ scavenging air pistons and fuel injection to obtain the ideal air to fuel ratio for optimal combustion.

[Section added as retrofitting these engines to meet the proposed limit in Table 1 is not cost-effective; see the Technical Analysis in the Staff Report for more details]

2. Pacific Gas & Electric, Topock Compressor Station: The following alternative federal RACT NO_x limit shall apply for the ten (10), natural-gas fired, two-stroke, Lean Burn, Internal Combustion Engines located at the Pacific Gas & Electric, Topock Compressor Station, manufactured by Cooper-Bessemer, model GMWTC, each with a 3500 brake-horsepower, and the corresponding serial numbers (42582, 42583, 42584, 42585, 42586, 42587, 43130, 43131, 43536, and 44043):

a. 400 ppm. *[Section added as retrofitting these engines to meet the proposed limit in Table 1 is not cost-effective; see the Technical Analysis in the Staff Report for more details. This limit is based off of a source test conducted by PG&E in March of 2013]*

(b) VOC Emissions

(i) Internal Combustion Engine(s) subject to this rule shall not exceed the following emission limits for VOC, as listed in Table 2, unless one of the following is used to demonstrate compliance:

1. The Internal Combustion Engine(s) are those specified in subsection (C)(1)(b)(ii); or, *[See note under (C)(1)(c)(ii)]*

2. An Alternative Compliance Strategy, as indicated in subsection (C)(2).

Table 2
VOC Emission Limits for Internal Combustion Engines

(ppmv limitations shall be referenced at 15 percent, volume stack gas, oxygen measured on a dry basis and averaged over 15 consecutive minutes)

<u>Engine Type</u>	<u>VOC Limit</u>
<u>Spark-Ignited Internal Combustion Engine, Rich Burn</u>	<u>106 ppmv</u>
<u>Spark-Ignited Internal Combustion Engine, Lean Burn</u>	<u>106 ppmv</u>
<u>Compression-Ignited Internal Combustion Engine</u>	<u>106 ppmv</u>

[Section is a reformatted version of the original section (C)(1)(b). This section is now representative of the original limit but separated out into Tables 1, 2, and 3 by pollutant]

(ii) Internal Combustion Engines located at the Facility of Southern California Gas, Newberry Springs shall not exceed the VOC limit of 255 ppmv, referenced per subsection (E)(3).

[Moved section from (C)(1)(a) to maintain order of pollutants specified in the Applicability section. Updated language slightly for clarification purposes]

(c) CO Emissions

(i) Internal Combustion Engines subject to this rule shall not exceed the following emission limits in Table 3, unless the following is used to demonstrate compliance:

1. An Alternative Compliance Strategy, as indicated in subsection (C)(2).

Table 3
CO Emission Limits for Internal Combustion Engines

(ppmv limitations shall be referenced at 15 percent volume stack gas oxygen measured on a dry basis and averaged over 15 consecutive minutes)

<u>Engine Type</u>	<u>CO Limit</u>
<u>Spark-Ignited Internal Combustion Engine, Rich Burn</u>	<u>4500 ppmv</u>
<u>Spark-Ignited Internal Combustion Engine, Lean Burn</u>	<u>4500 ppmv</u>
<u>Compression-Ignited Internal Combustion Engine</u>	<u>4500 ppmv</u>

[Section is a reformatted version of the original section (C)(1)(b). This section is now representative of the original limit but separated out into Tables 1, 2, and 3 by pollutant]

(2) Alternative Compliance Strategies ~~— NOx Emissions Only~~

(a) Demonstrated Engine Efficiency Alternative

(i) In lieu of complying with the emission limits specified in Table 1, 2, and 3 of subsection (C)(1), a Facility may opt for an alternative compliance strategy by demonstrating an engine efficiency greater than 30 percent.

(ii) For Internal Combustion Engines with a demonstrated efficiency greater than 30 percent, the following procedure may be used to determine the alternative emissions limits:

$$l_a = \frac{(l_x)(e_a)}{e_r}$$

Where:

l_a \equiv Alternative Emission Limit

l_x \equiv Applicable Emission Limit (from subsection (C)(1))

e_a \equiv Actual Engine Efficiency

e_r \equiv Referenced Engine Efficiency (30%)

[Section replaced by the above equation]

1. Engine efficiency (e_a) shall be determined by using one of the following two methods, whichever is lower:

$$\text{Method 1: } e_a = \frac{(3413\text{BTU/kW-hr})(100)}{(H_a) (\text{BTU/kW-hr})}$$

Where:

e_a \equiv Actual Engine Efficiency

H_a \equiv Actual Heat Rate of Fuel at HHV, in BTU/kW-hr

When the demonstrated percent efficiency applies to the engine only (without consideration of any downstream energy recovery), the data and calculation shall be averaged over 15 consecutive minutes and measured within 30 days of the first emissions compliance test. The actual heat rate in Btu/kW-hr (which can be converted to Btu/hp-hr by dividing by 1.34 according to the following formula), shall be measured at peak load for each applicable engine.

$$\frac{\text{(BTU/kW-hr)}}{1.34} = \text{(BTU/bhp-hr)}$$

$$\text{Method 2: } e_a = \frac{(e_m)(\text{LHV})}{(\text{HHV})}$$

Where:

e_a \equiv Actual Engine Efficiency

e_m \equiv Manufacture Rated Efficiency
LHV \equiv Lower Heating Value of Fuel
HHV \equiv Higher Heating Value of Fuel

(iii) Engine efficiency shall not be less than 30 percent. An engine with less than 30 percent efficiency shall be assigned an efficiency of 30 percent for the purpose of this rule.

(b) NO_x Emission Reduction Alternative

(i) In lieu of complying with the NO_x emission limits specified in Table 1 of subsection (C)(1)(a), a Facility may opt for an alternative compliance strategy of NO_x emission reductions.

(ii) For NO_x emissions only, the NO_x emission reduction alternative compliance strategy is a specified minimum percent reduction in NO_x emissions from the Baseline Emissions Rate.

(iii) The ~~VOC and CO~~ and VOC limits indicated in Tables 2 and 3, respectively, standards continue to apply when the ~~alternative NO_x emission reduction alternative compliance strategy~~ emissions is demonstrated for compliance with this rule. ~~strategy is selected by the permittee in consultation with the District.~~

(iv) ~~For NO_x emissions only, the alternative strategy is a specified minimum percent reduction in emissions of NO_x from the baseline emissions rate. Internal Combustion Engines subject to this rule, opting for the NO_x emission reduction alternative compliance strategy, shall achieve at least the following minimum reductions in NO_x emissions, as listed in Table 4, below:~~

~~(a) Rich-burn Engines~~

~~not less than an 90 percent reduction of NO_x emissions from the baseline emission rate~~

~~(b) Lean-burn Engines~~

~~not less than an 80 percent reduction of NO_x emissions from the baseline emission rate~~

~~(c) Diesel cycle Engines~~

~~not less than a 30 percent reduction of NO_x emissions from the baseline emission rate~~

~~[Section is a reformatted version of the original section (C)(2). This section is now representative of the original reductions but displayed in a Table format for formatting consistency]~~

Table 4
NO_x Emission Reduction Alternative

(percent reductions of NO_x from the Baseline Emission Rate)

<u>Engine Type</u>	<u>NO_x Reduction</u>
<u>Spark-Ignited Internal Combustion Engine, Rich Burn</u>	<u>90 percent</u>
<u>Spark-Ignited Internal Combustion Engine, Lean Burn</u>	<u>80 percent</u>
<u>Compression-Ignited Internal Combustion Engine</u>	<u>30 percent</u>

[Section is a reformatted version of the original section (C)(2)(b)]

~~Following the baseline emission rate determination for each engine subject to this rule, the choice of which emission compliance standard shall apply, shall be made on a case-by-case basis by the District in consultation with the permittee. When such a determination is made, the Authority To Construct/Permit To Operate (ATC/PTO) shall thereafter contain specific enforceable operating conditions which will ensure compliance with the selected standard/limit.~~

~~*[Section moved to (C)(2)]*~~

~~(v) The percent reduction as measured across the Emission control Control deviceEquipment or relative to the ~~b~~Baseline Emission Rate of each Emissionspermit uUnit shall be determined on an emission rate basis. ~~A permittee may petition the District to be allowed to "aggregate" the engine emissions facility wide by submitting an Emission Control Plan. The District may approve the facility's Emission Control Plan, pursuant to subsection (C)(4), on a case-by-case basis.~~~~

~~a. A Facility may use Aggregate Emissions to comply with the NO_x Emission Reduction Alternative, upon District approval.~~

~~(c) All alternative compliance strategies shall be made on a case-by-case basis by the District in consultation with the Facility.~~

~~(d) A Baseline Emission Rate shall be determined for each Internal Combustion Engine opting for an alternative compliance strategy.~~

~~(e) Internal Combustion Engines that are utilizing an alternative compliance strategy shall contain specific enforceable operating conditions which will ensure compliance with the selected alternative compliance strategy and subsequent emission limit(s) on the corresponding Internal Combustion Engine's Authority to Construct/Permit to Operate (ATC/PTO) permit.~~

(f) An Emission Control Plan, pursuant to subsection (C)(3), is required for Facilities utilizing an alternative control strategy.

(3) Demonstrated Engine Efficiency Alternative

~~For engines subject to this rule with a demonstrated efficiency greater than 30 percent, the following procedure may be used to determine the alternate allowable emissions limit~~

~~Each emission limit expressed in subsection (C)(1) may be multiplied by the engine efficiency, "E", divided by the reference efficiency of 30 percent. Engine efficiency shall be determined by using one of the following two methods, whichever is lower:~~

~~(a) $E = \frac{(3413 \text{ BTU/kW-Hr})(100)}{\text{Actual Heat Rate at HHV of fuel (BTU/kW-Hr)}}$~~

~~When the demonstrated percent efficiency applies to the engine only (without consideration of any downstream energy recovery), the data and calculation shall be averaged over 15 consecutive minutes and measured within 30 days of the first emissions compliance test. The actual heat rate in Btu/kW-hr (which can be converted to Btu/hp-hr by dividing by 1.34 according to the following formula), shall be measured at peak load for each applicable engine.~~

~~$$\frac{\text{(BTU/kwhr)}}{1.34} = \text{(BTU/bhp-hr)}$$~~

~~(b) $E = \frac{\text{(Mfg Rated Efficiency [Continuous] at LHV)(LHV)}}{\text{(HHV)}}$~~

~~Engine efficiency shall not be less than 30 percent. An engine with less than a 30 percent efficiency, shall be assigned an efficiency of 30 percent for the purpose of this rule.~~

(43) Emission Control Plan

(a) An Emission Control Plan shall be required for those ~~f~~Facilities that:

(i) Have Internal Combustion Engines utilizing an alternative compliance strategy, as listed under subsection (C)(2), to demonstrate compliance with this rule; Elect to petition the District for the purpose of aggregating internal combustion engine emissions in order to comply with emissions reduction limitations under the percent reduction option in subsection (C)(2); and/or,

- (ii) Cannot meet the requirements in subsection (G)(1), ~~and~~ Compliance Schedule, and intend to justify a claim of impracticability per subsection (G)(2).
- (b) All affected Internal Combustion eEngines within the Facility shall be addressed within the Emission Control Plan. Each Internal Combustion eEngine shall be identified as to which option for emissions compliance applies, i.e. the per Internal Combustion eEngine ppmv limit, the per Internal Combustion eEngine adjusted ppmv limit, or the per Internal Combustion engine percent NO_x reduction limit. The specific emission designation shall be recorded onto the corresponding Authority to Construct/Permit to Operate (-ATC/PTO) permit along with any specific operating limits or emissions limits pertaining to the specific Internal Combustion eEngine, as enforceable permit conditions.
 - (c) The Emission Control Plan shall be approved by the Air Pollution Control Officer (APCO) in writing.
 - (d) For new Internal Combustion eEngines and modifications to existing Internal Combustion eEngines, the Emission Control Plan shall be submitted to, and approved by the District, prior to issuance of ~~the the~~ Authority to Construct/Permit to Operate (ATC/PTO) permit.
 - (e) The owner/operator may petition in writing for a change to the Emission Control Plan at any time.
 - (d) The Emission Control Plan shall include the following: ~~(if applicable):~~
 - (i) An explanation of why installation of ~~NO_x and VOC control technology~~ Emission Control Equipment cannot be achieved by ~~May 31, 1995~~ the compliance date; and a schedule that demonstrates compliance with subsections (C)(1) or (C)(2) by the earliest practicable date.
 - (ii) The manufacturer, model number, unit identification (e.g. serial number, rated horsepower, fuel-type, and combustion method (i.e., ~~rich~~ Rich Burn or ~~lean~~ Lean Burn or ~~diesel~~ Compression-Ignited) of each Internal Combustion eEngine; ~~and the fuel type;~~
 - (iii) A description of the ~~emissions control system~~ Emission Control Equipment installed on the Internal Combustion eEngine (if any), including unit identification (e.g. serial) number, type (e.g., nonselective catalyst, "clean-burn" combustion, etc.) and manufacturer, as well as, a description of any ancillary equipment related to the control of emissions (e.g., automatic air/fuel ratio controller, fuel valves, etc.).
 - a. The operator shall notify the District of any replacement of such Emission Control device(s)

Equipment and the new serial or identification numbers.

- (iv) The ~~f~~Facility, company, Authority to Construct/Permit to Operate (ATC/PTO) numbers, and the location of the engine by a schematic of the affected ~~F~~facilities.
- (v) A specific emission inspection procedure for each Internal Combustion eEngine to ensure that the engine is operated in strict accordance with the manufacturer's specifications and in continual compliance with the provisions of this rule.
 - ~~(via.)~~ The inspection procedure shall include an operator's inspection schedule.

(D) Exemptions

(1) The provisions of this rule shall not apply to:

- (a) All ~~i~~Internal eCombustion eEngines rated at less than 500 brake horsepower.
- (b) All ~~i~~Internal eCombustion eEngines operated less than 100 hours within any continuous four consecutive calendar quarter period.
- (c) Internal Combustion Engines subject to the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines rated at 50 Horsepower and Greater, Title 17 CCR 93116, or otherwise classified as a Portable Internal Combustion Engine.
[Added to exclude portable IC engines]
- (3d) Emergency ~~i~~Internal eCombustion eEngines.
- (e) Internal Combustion Engines operated on an engine test stand.
[Added to exclude engines used on test stands]
- ~~(4)~~ ~~All internal combustion engines located outside the Federal Ozone Non-attainment Area.~~[Removed as this rule applicability is no longer limited to the engines of the FONA]
- (f) Any Internal Combustion Engine subject to District Rule 1160.1 – Internal Combustion Engines in Agricultural Operations.
[Added requirement to exclude engines subject to District Rule 1160.1]

(2) Any facility claiming any of the above exemptions shall maintain records in the manner prescribed by the APCO to provide documentation for compliance determination.

~~(E) -Monitoring, and Records~~Recordkeeping, and Reporting Requirements

(1) Monitoring

- (a) ~~The owner or Operator's~~operator of ~~any i~~Internal e~~Combustion e~~Engines subject to this rule shall:
- (i) ~~e~~C~~onduct their~~ inspections, ~~which ever~~whichever is the more frequent of, at least every calendar quarter or after every 2,000 hours of engine operation. ~~In no event shall the frequency of inspection be less than once per year.~~
- ~~(b) — Compliance shall be verified at least once in every 12 months, unless otherwise specified by the District, by an emissions compliance test. At a minimum, emissions compliance testing shall be conducted for NO_x, VOC, CO and O₂ levels in compliance with the provisions of the District's Compliance Test Procedural Manual. [Moved to section (E)(1)(b)(ii)]~~
- (b) The owner or operator of any Internal Combustion Engine equipped with existing Emission Control Equipment or required to install Emissions Control Equipment to achieve compliance with this rule shall:
- (i) Install, operate, and maintain in calibration, the following monitoring equipment, as approved by the APCO:
- a. Continuous measurement and recording of Emissions Control System Operating Parameters;
- b. Continuous measurement and recording of elapsed time of operation; and,
- c. An Enhanced Emissions Monitoring Device.
- (ii) Compliance shall be verified at least once in every 12 months, unless otherwise specified by the District, by an emissions compliance test. At a minimum, emissions compliance testing shall be conducted for NO_x, VOC, CO and oxygen (O₂) levels in compliance with the provisions of the District's Compliance Test Procedural Manual.
[Moved from section (E)(1)(a)(b)]
- (c) The owner or operator of any Internal Combustion Engine that is in compliance with this rule, without Emission Control Equipment shall:
- (i) Demonstrate compliance through an emission compliance test. At a minimum, emissions compliance testing shall be conducted for NO_x, VOC, CO and oxygen (O₂) levels in compliance with the provisions of the District's Compliance Test Procedural Manual; or,

(ii) Demonstrate compliance through certified manufacture emission rates, or other emission rates, approved by the APCO on a case-by-case basis.

[Section added for compliance demonstration purposes.]

(d) Compliance verification, as specified in subsections (E)(1)(b) and/or (E)(1)(c) shall be satisfied:

(i) Within 180 days of the date of rule adoption, or

(ii) Within 180 days of the installation of an Emission Control Equipment; or,

(iii) Within 180 days of an Internal Combustion Engine becoming subject to this rule, whichever is later.

[Section added for compliance demonstration purposes.]

(2) Recordkeeping Requirements

(a) The owner/operator of any engine subject to the provisions of Section (C) of this rule shall maintain a log for each Internal Combustion eEngine containing, at a minimum, the following data:

(ai) District Authority to Construct/Permit to Operate (ATC/PTO) number, unit identification number and eEmissions eEmission Control deviceEquipment identification number, when applicable.

(bii) Quarterly fuel use and quarterly hours of operation, on a calendar quarter basis.

(eiii) The date and a summary of any emissions corrective maintenance taken.

(ivd) Any additional information required in tThe Ffacility's District-approved Emission Control Plan, when-if applicable.

(eb) The owner/operator shall maintain the logsrecords, on site, for a period of five (52), and shall be readily available, to the District upon request. years after the date of each entry. The log shall be provided to the District upon request.

[Changed requirement for record retention from 2 to 5 years to be consistent with other District, state, and federal regulations]

(3) Reporting Requirements

(a) Reporting of emission concentrations for the purposes of this rule shall be referenced at 15 percent volume stack gas, oxygen (O₂) measured on a dry basis, and averaged over 15 consecutive minutes.

[Added to clarify testing parameters for emission concentration limits]

(F) Test Methods

Compliance with the requirements of subsection (C)(1) shall be determined, as required, in accordance with the following test procedures or any other method approved by USEPA and the APCO:

(1) Oxides of nitrogen - EPA Method 7E, or ARB Method 100.

(2) Carbon monoxide - EPA Method 10, or ARB Method 100.

(3) Stack gas oxygen - EPA Method 3 or 3A, or ARB Method 100.

(4) Volatile organic compounds - EPA Method 18, 25A or 25B, or ARB Method 100.

~~(1) NO_x emissions for compliance tests shall be determined by EPA Method 7E~~

~~(2) CO emissions for compliance tests shall be determined by using EPA Method 10~~

~~(3) The measurement of VOC emissions subject to Section (E) of this rule shall be conducted in accordance with EPA Methods 18, 25 and/or 25A (40 CFR 60, Appendix A) as they exist on (date of adoption) and test procedures should be performed in accordance with a protocol approved by the APCO.~~

~~(4) Oxygen content for compliance tests shall be determined by using EPA Method 3A~~

[Changes made to maintain consistency with testing requirements of District Rule 1160.11]

(5) Determination of the exempt compounds, shall be performed in accordance with ASTM Test Method D 4457-85 (Solvents and Coatings) and be consistent with the provisions set forth in the Federal Register (FR, Vol. 56, No. 52, March 18, 1991). Perfluorocarbon compounds shall be assumed to be absent from a product or process unless a manufacturer or facility operator identifies a specific compound or compounds from the broad classes of perfluorocarbons listed in 40 CFR 51.100(~~Ss~~)(1) as being present in the product or process. When such compounds are identified, the facility shall provide the test method to determine the amount(s) of the specific compound(s).

(G) Compliance Schedule

(1) Internal Combustion Engines with a Rated Brake Horsepower of 500 or more located within the Federal Ozone Non-attainment Area (FONA).

(a) The owner or operator of Internal Combustion Engines with a Rated Brake Horsepower of 500 or more located within the Federal Ozone Non-attainment Area (FONA) permit units subject to this rule shall meet the requirements of subsection (C) by the adoption date of this rule amendment. fulfill the following increments of progress for permit units located in the Federal Ozone Non-attainment Area:

(1) If a facility files an Emission Control Plan:

(a) for ICEs of 1000 bhp and larger, the plan shall be submitted to the District not later than January 1, 1995.

(b) for ICEs of 500 bhp and larger, but less than 1000 bhp, the plan shall be submitted to the District not later than March 15, 1995.

(2) Install control technology that meets the NOx, VOC, and CO emission standards in (C)(1) or (C)(2) no later than May 31, 1995, unless such installation was justified to be impracticable in the Emission Control Plan.

(3) For those permit units for which installation by May 31, 1995 is not practicable, the Emission Control Plan shall demonstrate that actual control technology shall be installed by the following dates:

(a) Southern California Gas (Newberry Springs Facility)

Southern California Gas shall complete installation of VOC and NOx control technology on the following internal combustion engines according to the following schedule:

<u>Engine 1</u>	<u>November 3, 1995</u>
<u>Engine 2</u>	<u>July 12, 1996</u>
<u>Engine 3</u>	<u>March 8, 1996</u>
<u>Engine 4</u>	<u>May 3, 1996</u>
<u>Engine 5</u>	<u>November 22, 1996</u>
<u>Engine 6</u>	<u>January 17, 1997</u>

(b) Pacific Gas and Electric (Hinkley Facility)

~~PG&E shall complete installation on at least the following percentages of installed engine horsepower at the site, for both VOC and NOx control technology, according to the following schedule:~~

30 percent of installed horsepower	November 30, 1996
50 percent of installed horsepower	June 30, 1997
30 percent of installed horsepower	November 30, 1996
Complete installation on all engines	June 30, 1998

~~(4) Demonstrate final compliance with all applicable standards and requirements of the rule within six months of installation of the emission control technology.~~

~~[Deleted as these dates have since passed]~~

(2) Specific Internal Combustion Engines

(a) Specific Internal Combustion Engines, not subject to subsection (G)(1) shall meet the requirements of Section (C) according to the dates specified below:

<u>Table 5</u> <u>Compliance Schedule for Specific Internal Combustion Engines not subject to section (G)(1)</u>		
<u>Facility</u>	<u>Percent of Installed Brake Horsepower in Compliance</u>	<u>Compliance Date</u>
<u>Pacific Gas & Electric, Topock</u>	<u>92%</u>	<u>December 31, 2015</u>
	<u>100%</u>	<u>December 31, 2024</u>
<u>Southern California Gas, Blythe</u>	<u>59%</u>	<u>December 31, 2015</u>
	<u>80%</u>	<u>December 31, 2020</u>
	<u>100%</u>	<u>December 31, 2024</u>
<u>Southern California Gas, North Needles</u>	<u>16%</u>	<u>December 31, 2015</u>
	<u>58%</u>	<u>December 31, 2020</u>
	<u>100%</u>	<u>December 31, 2024</u>
<u>Southern California Gas, South Needles</u>	<u>13%</u>	<u>December 31, 2015</u>
	<u>57%</u>	<u>December 31, 2020</u>

	<u>100%</u>	<u>December 31, 2024</u>
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[Added section for noncompliant facilities located outside the FONA that will not be in compliance with section (C) if this rule is adopted]

(3) All other Internal Combustion Engines

(a) Internal Combustion Engines not subject to subsection (G)(1) or (G)(2) shall meet the requirements of Section (C) not later than December 31, 2016.

[Added section for ICEs not affected by section (G)(1) or (G)(2)]

[SIP: Approved: 11/1/96. 61 FR 56470, 40 CFR 52.220(c)(207)(I)(D)(3)]