

**PROPOSED RULE 1118.1. CONTROL OF EMISSIONS FROM NON-REFINERY FLARES**

(a) Purpose

The purpose of this rule is to reduce NO<sub>x</sub> and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases or vapors and to encourage alternatives to flaring.

(b) Applicability

This rule applies to owners and operators of flares that require a SCAQMD permit at facilities, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, and organic liquid ~~loading stations, and tank farms~~handling.

(c) Definitions

(1) ANNUAL THROUGHPUT means the volume of gas or vapor in million standard cubic feet (MMscf) that is combusted in a flare or flare station in one calendar year, excluding gas used solely to maintain the pilot light.

~~(2) ASSIST GAS means a higher heating value gas required for complete combustion of the gas or vapor stream being routed to the flare burner.~~

~~(3)~~ BIOGAS includes digester gas or landfill gas produced by the breakdown of organic matter in the absence of oxygen.

~~(4)~~ CAPACITY is the maximum volumetric flow rate of gas or vapor that the flare or flare station is rated to process in units of scf per minute or the maximum heat input rate the flare or flare station is rated to process in units of million British thermal units (MMBtu) per hour.

~~(5)~~ CAPACITY THRESHOLD is the percentage of the capacity used to flare gas and is ~~the metric~~ used to ~~define~~ determine when an owner or operator of a flare or flare station must take action to reduce NO<sub>x</sub> emissions and/or reduce the throughput to the flare.

~~(6)~~ DIGESTER GAS means a gas produced from either mesophilic or thermophilic digestion of biodegradable waste, consisting of methane, carbon dioxide and traces of other contaminant gases.

~~(7)~~ FACILITY is as defined by Rule 1302 – Definitions.

- (87) FLARE means a combustion device that oxidizes combustible gases or vapors, where the combustible gases or vapors being destroyed are routed directly into the burner without energy recovery.
- (98) FLARE STATION means two or more flares situated on a single pad, served by one or more common gas blowers, and equipped with one common fuel meter.
- (109) HEAT INPUT means the higher heating value of the fuel to the flare measured as Btu per hour.
- (110) LANDFILL GAS means any ~~raw~~-gas derived through a natural process from the decomposition of waste deposited in a landfill.
- (11) MAJOR POLLUTING FACILITY is as defined by Rule 1302 – Definitions.
- (12) MINOR FACILITY is as defined by Rule 1302 – Definitions.
- (13) NOTIFICATION OF FLARE SURPASSING CAPACITY THRESHOLD means the written form submitted to the Executive Officer indicating the flare or flare station surpassed the Table 2 Capacity Threshold.
- (14) NOTIFICATION OF FLARE THROUGHPUT REDUCTION means the written form submitted to the Executive Officer indicating the compliance strategy to reduce flare throughput below the Table 2 Capacity Threshold.
- (15) NOTIFICATION OF INCREMENTS OF PROGRESS means the written form submitted to the Executive Officer indicating the actions that have been completed, the actions yet to be completed, and any changes to the original notifications.
- (16) NOTIFICATION OF INTENT means the written form submitted to the Executive Officer indicating the action that will be taken if the flare or flare station surpassed the Table 2 Capacity Threshold for two consecutive calendar years.
- (1217) OPEN FLARE means an unshrouded flare.
- (1318) ORGANIC LIQUID means any liquid containing volatile organic compounds (VOC).
- (19) ORGANIC LIQUID LOADING AND UNLOADING means the bulk loading or unloading of organic liquids, such as organic liquids in marine vessels, tank trucks, trailer, or railroad tank car.
- (20) ORGANIC LIQUID STORAGE means the storage of organic liquids, such as organic liquids stored in tank farms.

- (~~14~~21) OTHER FLARE GAS includes, ~~but is not limited to,~~ gases combusted in flare or flare station from ~~facilities handling organic liquids, such as tank trucks, rail cars, and bulk terminal loading and offloading, or tank farm degassing processes or sources other than landfills, wastewater, oil and gas production, or organic liquid handling.~~
- (~~15~~22) OXIDES OF NITROGEN (NO<sub>x</sub>) means nitric oxide and nitrogen dioxide.
- (~~16~~23) PRODUCED GAS is organic compounds that are both gaseous at standard temperature and pressure and are associated with the production, gathering, separation or processing of crude oil.
- (~~17~~24) PROTOCOL means a ~~SCAQMD approved~~ test protocol for determining compliance with emission limits for applicable equipment.
- (~~18~~25) REGENERATIVE ADSORPTION SYSTEM means a system used to remove impurities from combustible gases or vapors consisting of several media trains that are regenerated by purging with gas, typically used with biogas or produced gas.
- (~~19~~26) REGENERATION GAS means the purge gas from a regenerative adsorption system.
- (~~20~~27) RELOCATE means to remove an existing source from one facility in the SCAQMD and to install that source on another non-contiguous facility. Relocate does not include aflares permitted as a Various Location Flare.
- ~~(21) — STATEMENT OF INTENT means a written document from an owner or operator of a flare subject to this rule indicating the action that will be taken once a flare surpasses the Table 2 Capacity Threshold for two consecutive years.~~
- ~~(22) — VARIOUS LOCATIONS FLARE means any portable flare permitted to operate at different locations in the SCAQMD.~~
- (~~23~~28) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102 – Definition of Terms.
- (d) Requirements
- (1) An owner or operator that submits an application to install a flare after [date of adoption] or replaces or relocates an existing flare shall ~~meet~~ not exceed the applicable NO<sub>x</sub>, VOC, and carbon monoxide (CO) emission limits specified in Table 1 Emission Limits. - Emissions determined to exceed any applicable Table 1 Emission Limits established by this rule shall constitute a violation of this rule.

**Table 1 – Emission Limits**

Flare Gas	NOx	CO	VOC
	pounds/MMBtu		
Digester gas <sup>†</sup>	0.025	0.06	0.038
Major polluting facility	0.025	0.06	0.038
Minor facility	0.06	N/A	N/A
Landfill gas <sup>†</sup>	0.025	0.06	0.038
Produced gas	0.018	0.06	0.008
Other flare gas	0.06	N/A	N/A
Other Organic liquid storage	0.25	0.37	0.15
Other flare gas Organic liquid loading and unloading	Parts per million @ 3% oxygen Destruction Efficiency		
	0.034	0.05	0.02

1. — Compliance with emission limits shall be demonstrated when combusting 100% biogas (e.g. with no regeneration gas)

(2) An owner or operator that submits an application to install a flare or flare station after [date of adoption] to combust Produced Gas or replaces or relocates an existing flare or flare station to combust Produced Gas shall not operate the flare(s) more than 800 hours per year.

(23) An owner or operator of a flare or flare station with a capacity threshold listed in Table 2 Capacity Threshold, and an application deemed complete installed prior to [date of adoption] shall:

(A) Demonstrate compliance with the emission limits in Table 1 Emission Limits, or

(B) Calculate the percent capacity pursuant to subparagraph (g)(1)(DE) for each flare or flare station. The owners or operator of a flare or flare stations with an annual percent capacity that surpasses the Table 2 Capacity Thresholds in Table 2 shall:

(i) Submit a notification Notification of Flare Surpassing Capacity Threshold to the Executive Officer (1118.1Notifications@aqmd.gov), no later than 30 days after the end of the calendar year.

(ii) Submit a Notification Statement of Intent to the Executive Officer (1118.1Notifications@aqmd.gov), no later than 60

days after the end of the calendar year after ~~two consecutive calendar years~~ surpassing the ~~Capacity Threshold in~~ Table 2 Capacity Threshold for two consecutive calendar years, specifying one of the following compliance options:

- (A) Flare or flare station throughput reduction pursuant to paragraph (d)~~(34)~~, or
- (B) Flare or flare station replacement or modification pursuant to paragraph (d)~~(45)~~.

**Table 2 - Capacity Thresholds ~~by Gas Flared~~**

Flare Gas	Threshold
Any gas combusted in an open flare	5%
Digester gas	70%
Landfill gas	20%
Produced gas	5%

~~(34)~~ Flare Throughput Reduction

An owner or operator that is required to ~~submit~~ a Notification Statement of Intent to reduce the flare or flare station throughput shall complete the following pursuant to the schedule set forth in Table 3 Flare Throughput Reduction, with potential extension(s) pursuant to subdivision (e):

- (A) Submit a Notification of Flare Throughput Reduction ~~notification~~ to the Executive Officer ([1118.1Notifications@aqmd.gov](mailto:1118.1Notifications@aqmd.gov)) that includes the following:
  - (i) Alternative method(s) to reduce flare or flare station throughput below Capacity Threshold; and
  - (ii) Timetable to implement and operate the alternative method.
- (B) Submit Notification of Increments of Progress to the Executive Officer ([1118.1Notifications@aqmd.gov](mailto:1118.1Notifications@aqmd.gov)) ~~reports~~ which shall include:
  - (i) Actions completed;
  - (ii) Actions yet to be completed; and
  - (iii) Any changes to the original notification.
- (C) Reduce the percent capacity of the flare or flare station below the Table 2 Capacity Thresholds.

- (D) ~~The notification submitted under subparagraph (d)(3)(A) shall be considered a plan within the meaning of Rule 306— Plan Fees.~~

**Table 3 – Flare Throughput Reduction**

Requirement	Schedule
Submit <del>N</del> otification of Flare Throughput Reduction pursuant to paragraph (d)(3)(A) ( <a href="mailto:1118.1Notifications@aqmd.gov">1118.1Notifications@aqmd.gov</a> )	<del>6 months</del> 180 days from the end of the calendar year after <del>from</del> surpassing the <del>Table 2 annual</del> Capacity Threshold for two consecutive <del>calendar</del> years
Submit <del>i</del> ncrements of <del>p</del> rogress reports pursuant to (d)(3)(B) ( <a href="mailto:1118.1Notifications@aqmd.gov">1118.1Notifications@aqmd.gov</a> )	12 months <del>from the end of the calendar year after</del> <del>from</del> surpassing the <del>annual-Table 2</del> Capacity Threshold for two consecutive <del>calendar</del> years, and annually thereafter, until flaring is reduced below Table 2 <del>Capacity</del> <del>†</del> Threshold
Reduce flaring below Table 2 <del>Capacity</del> <del>†</del> Thresholds	36 months from <del>the end of the calendar year after</del> surpassing the <del>annual-Table 2</del> Capacity Threshold for two consecutive <del>calendar</del> years

(45) Flare Replacement

An owner or operator that is required to ~~submitted~~ a ~~Statement~~ Notification of Intent to replace or modify the flare or flare station shall complete the following pursuant to the schedule set forth in Table 4 Flare Replacement, with potential extension(s) pursuant to subdivision (e):

- (A) Submit a new flare or flare station permit application to the SCAQMD;
- (B) Replace or modify the flare or flare stations to meet Table 1 Emission Limits; and
- (C) Demonstrate Complete the compliance with Table 1 Emissions Limits by completing a source tests pursuant to a SCAQMD approved source test protocol ~~determination.~~

**Table 4 – Flare Replacement**

Requirement	Schedule
Submit permit application	<del>6 months</del> 180 days from the end of the calendar year after <del>from</del> surpassing the <del>annual-Table 2</del> Capacity Threshold for two consecutive <del>calendar</del> years
Complete flare installation	18 months after SCAQMD permit issued

<del>Complete</del> <u>Demonstrate</u> compliance <u>by completing a</u> <del>determination</del> <u>source test</u>	180 days after completion of flare <u>or flare station</u> installation
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- (5) An owner or operator of a flare or flare station subject to this rule shall perform maintenance in accordance with the manufacturer's schedule and specifications.
- (7) Display in an accessible location on the flare the model number and the rated heat input capacity of the flare on a permanent rating plate issued by the manufacturer for any flare installed, relocated, or modified after [Date of Adoption].
- (8) The Notifications submitted under clauses (d)(3)(B)(i) and (d)(3)(B)(ii) and subparagraphs (d)(4)(A) and (d)(4)(B) shall be subject to notification fees pursuant to Rule 301(x) – Permitting and Associated Fees.
- (e) Extension provision
- (1) An owner or operator of a flare or flare station subject to this rule may submit a request to the Executive Officer for an extension from the schedule in paragraphs (d)(34) and (d)(45), at least 60 days prior to the schedule deadline for the requirement. The time extension request shall include:
- (A) The permit number or application number of the flare or flare station requiring the extension;
  - (B) The reason(s) a time extension is needed;
  - (C) Increments of progress completed and yet to be completed pursuant to the compliance schedule; and
  - (D) The length of time requested.
- (2) Approval of Time Extensions
- The Executive Officer or designee shall review the request for the time extension and shall provide written approval or reject the request within 60 days of receipt, based on if the following criteria are met:
- (A) The owner or operator provides sufficient details identifying the reason(s) a time extension is needed; ~~and~~
  - (B) The owner or operator demonstrates to the Executive Officer that there are specific circumstances beyond the control of the owner or operator that necessitate additional time to comply. Such a demonstration may include, but is not limited to, providing detailed

schedules, engineering designs, construction plans, permit applications, purchase orders, economic burden, and technical infeasibility; and

(C) Failure to satisfy the above criteria shall result in a denial of the request.

(f) Source Tests

(1) Within 12 months from *[Date of Adoption]* an owner or operator of a flare or flare station subject to paragraph (d)(1) or complying with subparagraph (d)(~~23~~)(A) or paragraph (h)(2) shall determine the applicable NO<sub>x</sub>, VOC, and CO emissions by conducting an initial source test, and source testing every five years thereafter, pursuant to paragraph (f)(4).

(A) At least 90 days prior to a scheduled source test, submit a source test protocol to the Executive Officer for approval; ~~and~~

(B) At least one week prior to the scheduled source test, notify the Executive Officer, in writing, of the intent to conduct source testing; and

~~(B)~~ (C) Conduct a source test according to the approved protocol. If prior to rule adoption, a source test was conducted pursuant to an approved protocol and demonstrated compliance with Table 1 Emission Limits, the owner or operator may ~~instead~~ opt to conduct the next source test within five years from anniversary date of that prior source test.

(2) Unless requested by the SCAQMD, after the approval of the initial source test protocol, the owner or operator of a flare or flare station subject to this rule is not required to resubmit a source test protocol for approval pursuant to subparagraph (f)(1)(A) if:

(A) The flare or flare station and its method of operation have not been altered in a manner that requires a permit ~~alteration~~ application submittal; and

(B) Rule or permit emission limits have not become more stringent since the previous source test.

(3) All ~~compliance determinations~~ source tests pursuant to paragraph (d)(1) and ~~paragraph (h)(2)~~ shall be ~~calculated~~ conducted:

- (A) Using a SCAQMD approved source test protocol averaged over a ~~period of at least 15 minutes~~ maximum 60 minutes of flare operation;
- (B) ~~After flare start up~~ Not during start up or shut down; and
- (C) In as-found operating condition.
- (4) NO<sub>x</sub>, CO, and VOC emissions in pounds per MMBtu of heat input shall be determined using the pollutant concentrations measured according to paragraph (f)(5) and the gas composition of the total gas or vapor combusted in the burner measured according to paragraph (f)(6) and calculated using the procedures in 40 CFR Part 60, Appendix A, Method 19, Sections 2 and 3, or another SCAQMD approved test method.
- (5) NO<sub>x</sub>, VOC, and CO concentrations shall be determined according to the following methods:
- (A) NO<sub>x</sub> and CO concentration shall be determined pursuant to SCAQMD Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling; and
- (B) VOC concentration shall be determined pursuant to SCAQMD Method 25.1 or 25.3 – Determination of VOC Emissions from Stationary Sources.
- (6) Gas composition shall be calculated according to the following methods:
- (A) ASTM Method D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels; and
- (B) ASTM Method D-1945 – Standard Test Method for Analysis of Natural Gas by Gas Chromatography; or
- (C) ASTM Method D-7833 – Standard Test Method for Determination of Hydrocarbons and Non-Hydrocarbon Gases in Gaseous Mixtures by Gas Chromatography.
- (7) All ~~compliance determinations~~ source tests ~~by the owner or operator of the flare~~ shall be ~~made using~~ conducted by an independent contractor pursuant to SCAQMD Rule 304, subdivisions (k), ~~or~~ and SCAQMD Rule 304, subdivision (l) as applicable, to conduct source testing, which is approved by the Executive Officer under the Laboratory Approval Program for the applicable test methods.
- ~~(8) Emissions determined to exceed any applicable limits established by this rule shall constitute a violation of this rule.~~

(98) Records of source tests shall be maintained for five years or until the next source test is performed, whichever occurs later, and shall be made available to SCAQMD personnel upon request. The source test report(s) shall identify whether the source test was conducted pursuant to a SCAQMD approved protocol and clearly identify the model, ~~and~~ serial numbers, application number, permit number, and origins of all gas or vapor combusted of the specific flare(s) tested. In the absence of a flare model and serial number, a detailed description of the flare or flare station and its location shall be included.

(g) Monitoring, Recordkeeping, and Reporting Requirements

(1) The owner or operator of a flare or flare station complying with paragraph (d)(23)(B) of this rule shall:

(A) Within 90 days of [*Date of Adoption*], install and operate a fuel meter for each gas or vapor, excluding pilot gas, routed to every flare or flare station, unless metering system is currently installed.

(B) Within 90 days of [*Date of Adoption*], equip each fuel meter, required under subparagraph (g)(1)(A), that requires dependable electric power to operate with a permanent supply of electric power that cannot be unplugged, switched off, or reset except by the main power supply circuit for the building and associated equipment or the flare's safety shut-off switch.

(C) The continuous electric power to a fuel meter required under subparagraph (g)(1)(A) and (g)(1)(B) ~~shall not~~ may only be shut off ~~unless the flare is not operating or is shut down~~ for maintenance or safety.

(D) Each fuel meter shall be calibrated based on the manufacturer recommended procedures within 90 days of installation or [*Date of Adoption*], whichever is ~~sooner~~ later, and annually thereafter.

(E) Beginning January 1, 2019, or when fuel meter is installed pursuant to subparagraph (g)(1)(A), determine the percent capacity of the flare or flare station and maintain records documenting the percent capacity determinations as follows:

(i) Total annual throughput in units of MMscf/year and/or total annual heat input in units of MMBtu/year shall be calculated

by summing throughput and/or heat input of the gas at the end of each calendar year as follows:

- (A) ~~Monthly~~ ~~T~~hroughput shall be measured and recorded at least once per month by the ~~flare-specific non-resettable~~-fuel meter(s); ~~and~~
  - (B) Heat input of the flare gas shall be measured and recorded at least once per month pursuant to (f)(6) or calculated and recorded weekly by measuring the methane concentration ~~weekly~~ using a portable nondispersive infrared detector, calibrated per manufacturer's specifications.
- (ii) Capacity shall be based on:
- (A) Manufacturer designation and if not known or available, the permit limits will be deemed the capacity;
  - (B) The combined capacity of all flares in a flare station.
- (iii) Annual percent capacity shall be calculated at the end of each calendar year by one of the following metrics:
- (A) By volume:

$$\text{Percent Capacity}_{\text{MMscf}} = \frac{\text{Total Annual Throughput} \left( \frac{\text{MMscf}}{\text{year}} \right) / 525,600 \frac{\text{minutes}}{\text{year}}}{\text{Capacity (MMscf/minute)}} \times 100\%$$

- (B) By heat input:

$$\text{Percent Capacity}_{\text{MMBtu}} = \frac{\text{Total Annual Heat Input} \left( \frac{\text{MMBtu}}{\text{year}} \right) / 8760 \frac{\text{hour}}{\text{year}}}{\text{Capacity (MMBtu/hour)}} \times 100\%$$

- (~~F~~iv) An owner or operator of the flare or flare station that fails to measure or record the monthly throughput or heat input value in compliance with the provisions above, the percent capacity shall be presumed to be one-hundred percent (100%).

- (2) The owner or operator of a flare or flare station subject to this rule shall:
- (A) Monitor and maintain NOx emission records ~~Demonstrate the NOx emissions of the~~ flare(s) or flare station ~~are less than 30 pounds per month if validating compliance~~ complying pursuant to ~~subparagraph (h)(2), and shall maintain monthly records documenting maximum NOx emissions of less than 30 pounds per month~~ as follows:
- (i) NOx emission shall be determined based on by the most recently ~~an~~ approved source test conducted pursuant to ~~paragraph (f)(4)~~ a SCAQMD approved source test protocol;
  - (ii) Monthly ~~T~~hroughput shall be measured and recorded at least once per month by the ~~flare-specific non-resettable~~ fuel meter(s);
  - (iii) Heat input of the flare gas shall be measured and recorded at least monthly pursuant to paragraph (f)(6) or calculated and recorded weekly by measuring the methane concentration using a portable nondispersive infrared detector, calibrated per manufacturer's specifications; and
  - (iv) Calculated as follows:

$$\text{Monthly pounds of NOx Emitted} = \frac{\text{pounds NOx}}{\text{MMBtu}} \times \frac{\text{MMscf}}{\text{month}} \times \frac{\text{Btu}}{\text{scf}}$$

- (B) ~~Demonstrate~~ Monitor and maintain hours of operation records operating hours of a flare or flare station complying pursuant of the flare are less than 200 hours per year if validating compliance pursuant to subparagraphs (h)(3) and (d)(2), maintain monthly recordkeeping of flare use using ~~an installed~~ calibrated non-resettable totalizing time meter.
- (C) Maintain a copy of the manufacturer's, distributor's, installer's or maintenance company's written maintenance schedule and instructions ~~and retain a record of the maintenance activity for a period of not less than three years, which shall be made available upon request.~~
- ~~(D) Display in an accessible location on the flare the model number and the rated heat input capacity of the flare on a permanent rating plate for any flare installed, relocated, or modified after [Date of Adoption].~~

- (ED) Provide the manufacturer's maintenance instructions, maintenance records, and the source test report(s) to the Executive Officer upon request.
- (FE) ~~Maintain~~ Retain all written or electronic records required by this rule for at least five years, which shall be made available ~~upon request~~ no later than two business days from date requested.
- (h) Exemptions
- (1) The provisions of this rule shall not apply to owners or operators of a flare or flare station:
- (A) At asphalt plants; biodiesel plants; hydrogen production plants fueled in part with refinery gas; petroleum refineries; and sulfur recovery plants, ~~and hydrogen production plants subject to SCAQMD Rule 1118 - Control of Emissions from Refinery Flares;~~
- (B) Routing only 100% natural gas directly into the flare burner ~~to oxidize combustible gases or vapors and that~~ are subject to SCAQMD Rule 1147 - NOx Reductions from Miscellaneous Sources NOx emission limits;
- (C) ~~At facilities subject to Rule 1109.1 - Refinery Equipment.~~ Routing only 100% propane or 100% butane directly into the flare burner;
- (D) At a landfill that collects less than 2,000 MMscf of landfill gas per calendar year and has either ceased accepting waste or is classified by CalRecycle as an Inert Waste Disposal Site or an Asbestos Contaminated Waste Disposal Site ~~and generates less than 2,000 MMscf of landfill gas per calendar year; or~~
- (E) Permitted as a Various Location Flares ~~that are operated in compliance with SCAQMD Rules and Regulations; or;~~
- (F) Combusting regeneration gas.
- (2) An owner or operator of a flare or flare station subject to this rule that emits less than 30 pounds of NOx per month ~~calendar year~~ shall not be required to meet the ~~emission limits in~~ Table 1 Emission Limits provided:
- (A) The flare or flare station has a permit that specifies conditions that ~~limits~~ the applicable NOx emissions; and
- (B) The flare or flare station operates in compliance with the permit condition;
- (C) This exemption shall no longer apply in the event the flare or flare station surpasses the 30 pound per month NOx emission limit.

- (3) An owner or operator of a flare or flare station subject to this rule that operates less than 200 hours per calendar year shall not be required to meet the ~~emission limits in~~ Table 1 Emission Limits provided:
  - (A) The flare has a permit that specifies conditions that limits the operating hours; and
  - (B) The flare operates in compliance with the permit condition;
  - (C) This exemption shall no longer apply in the event the flare surpasses the 200 hours per calendar year.
- (4) An owner or operator of an open flare shall not be required to conduct source testing pursuant to subdivision (f).
- (5) Throughput, heat input, NOx emissions and time accrued during source testing pursuant to subdivision (f) maybe omitted from the calculation of percent capacity pursuant to subparagraph (g)(1)(~~E~~), emissions pursuant to paragraph (h)(2), or hours pursuant to paragraph (h)(3).

Revised Preliminary Draft Rule