

HEARING REPORT
**Prepared Pursuant to Section 4-168(d) of the
Connecticut General Statutes and
Section 22a-3a-3(d)(5) of the Department of Energy and Environmental Protection
Rules of Practice**

**Regarding
Adoption of a Permit-by-Rule for Combined Heat-and-Power Systems**

**Hearing Officer:
Merrily A. Gere**

Date of Hearing: 13 December 2012

On 13 November 2012, the Commissioner of the Department of Energy and Environmental Protection (the Department) published a notice of intent to adopt section 22a-174-3d of the Regulations of Connecticut State Agencies (RCSA) and to revise RCSA section 22a-174-3a(a)(2). Pursuant to such notice, a public hearing was held on December 13, 2012, with the public comment period closing on the same day.

I. Hearing Report Content

As required by RCSA section 4-168(d) of the Connecticut General Statutes (CGS), this report describes the proposal, identifies principal reasons in support of and in opposition to the proposal, and summarizes and responds to all comments on the proposal.

The proposal is included as Attachment 2 to this report. A final version of the proposal, with revisions recommended in this report, is provided in Attachment 3. A statement in satisfaction of CGS section 22a-6(h) is included as Attachment 1.

II. Summary of Proposal

The centerpiece of the proposal is the adoption of an air quality permit-by-rule for combined heat-and-power (CHP) systems as new RCSA section 22a-174-3d. A minor revision to RCSA section 22a-174-3a(a)(2) is also proposed to take into account the proposed adoption of RCSA section 22a-174-3d.

The proposed permit-by-rule is available to the owners of CHP projects of less than 10 MW capacity that meet the applicability requirements for an individual permit under the Department's new source review (NSR) permit program. An owner of such a CHP project may operate under the permit-by-rule as an alternative to obtaining a NSR permit. Operation under the permit-by-rule reduces the time for the owner of a new CHP system to obtain a permit from about seven months to zero days and provides the owner with certainty as to the requirements under which the CHP system will operate. The proposed rule includes all the restrictions necessary to limit emissions of air pollutants from a regulated CHP system to a level that protects air quality and public health.

III. Opposition to the Proposal

No person commented in opposition to the proposal. The specific concerns raised in submitted comments are addressed in Section IV.

IV. Summary of Comments

A single commenter made the six comments set out in this section. The commenter is:

Anne Arnold, Manager
 Air Quality Planning Unit
 U.S. Environmental Protection Agency (EPA), Region 1
 5 Post Office Square, Suite 100
 Boston MA 02109-3912

1. Comment: We encourage Connecticut to consider submitting 22a-174-3d to EPA as a state implementation plan (SIP) revision, as we believe it could be used to support criteria pollutant emissions reduction credit in future SIP submittals. EPA and state air regulatory authorities have been working over several years to better integrate programs and policies that support clean energy programs with SIP submittals required by the Clean Air Act. In July, EPA released the “Roadmap for Incorporating Energy Efficiency and Renewable Energy Policies and Programs into State and Tribal Implementation Plans,” and this document and the associated tools provide states with improved capabilities of converting electricity savings into criteria pollutant emission reductions. CHP systems provide a prime example of fossil fuels being used efficiently, and according to the US Department of Energy’s Oak Ridge National Laboratory, there are currently approximately 156 such installations in Connecticut providing over 700 MW of electrical capacity. We encourage Connecticut to continue to support CHP systems and believe that the adoption and submittal of 22a-174-3d to the SIP will further that effort.

Response: The Department appreciates EPA’s recent work developing guidance for use by states to take credit for energy efficiency programs. As the Department now includes energy planning as an equal priority with environmental planning, the Department appreciates the many benefits of CHP systems and is preparing this permit-by-rule in recognition that the number of CHP installations in Connecticut is likely to increase. The Department will consider taking the steps necessary to submit RCSCA section 22a-174-3d as a SIP revision. Before the Department makes such a submission, we would like to have several CHP systems operating under the permit-by-rule so that we might identify any difficulties in implementation and make any revisions that might improve the permit-by-rule.

2. Comment: The definition for “actual electrical output” could be revised as set out below to acknowledge that not all electrical output from a CHP generator may be used by the facility. In some cases, electricity may be sold back to the grid.

(a)(1) “Actual electrical output” means the gross electrical output ~~to the facility~~ from the generator measured at the terminals of the generator in units of MWh or kWh;

Response: The Department should revise the definition of “actual electrical output” to eliminate the phrase “to the facility” as recommended by EPA. The Department intends the definition to take into account all electricity generated by a CHP system. In conjunction with the recommended deletion, the Department should delete the phrase “from the generator” since it is not necessary. The full deletion should result in the following final text for the definition:

(1) “Actual electrical output” means the gross electrical output ~~to the facility from the generator~~ measured at the terminals of the generator in units of MWh or kWh;

3. Comment: In the applicability subsection, it appears that Connecticut's intention in the following provision is to allow sources with 15 tons or less of any individual pollutant to avoid the permitting requirements of section 22a-174-3a, not 15 tons or more as indicated in the draft:

(b)(1) An owner or operator may construct and operate a CHP system without obtaining a permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

(A) The CHP system has potential emissions of fifteen (15) tons ~~or more or less~~ per year of any individual pollutant:

Response: The Department should not revise the applicability of the permit-by-rule as EPA recommends. Before a source owner may take advantage of the permit-by-rule option, the source must first meet the applicability thresholds for RCSA section 22a-174-3a, the Department's new source review permitting program regulation. RCSA section 22a-174-3a applies to a source that has potential emissions of 15 tons per year or greater of any air pollutant. A source with potential emissions greater than 15 tons will have actual emissions of less than 15 tons of each regulated air pollutant, if the source is operated in compliance with the requirements of RCSA section 22a-174-3d.

4. Comment: It is not clear whether a modification to an existing CHP unit subject to section 22a-174-3d that results in an increase in potential emissions greater than major source thresholds is still required to obtain a major source permit under section 22a-174-3a. Section 22a-174-3d(b)(1)(B) does not allow a modification subject to major new source review to limit its potential emissions by capping actual emissions to less than 15 tons per year pursuant to section 22a-174-3d(c)(11). The Department should require, in subsection (b)(2), that a modification to a minor source, if the modification by itself is considered to be a major source based on potential emissions, obtain a permit under section 22a-174-3a. [EPA]

Response: EPA is correct to note that the applicability of proposed RCSA section 22a-174-3d does not specifically address the situation of a major modification to a source with an existing CHP system operated under RCSA section 22a-174-3d. The Department chose not to address such a situation through the applicability because the requirements of RCSA section 22a-174-3d (e.g., the restriction on capacity to 10MW, the emissions standards) are such that a CHP system that is a major source could not operate in compliance with the section.

However, in considering this comment, we realized that a project that involved the addition of equipment, as well as a modification of the CHP system, could be a modification above major source thresholds at a minor source that would go without review. Such a situation is particularly likely to arise if the modification involves the addition of equipment, such as a boiler, that the owner intends to operate under RCSA section 22a-174-3b, which contains a series of permits-by-rule for certain types of equipment. To avoid such a situation, the Department should revise subsection (b)(2)(B) as follows:

(2) An owner or operator may modify a CHP system without obtaining a permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

(A) Prior to the modification, the CHP system is not authorized to operate pursuant to an individual permit issued pursuant to section 22a-174-3a or former section 22a-174-3 of the Regulations of Connecticut State Agencies;

(B) The modification is not a major modification ~~to an existing major stationary source~~; and

(C) The owner or operator complies with all applicable provisions of this section.

5. Comment: There are a number of sections in the proposal that address startup, shutdown or malfunction (SSM). As you may be aware, on June 30, 2011, EPA received a petition from the Sierra Club that requested that EPA revise its existing SSM policy. EPA is currently reviewing and preparing a response to the Sierra Club's petition. Therefore, if Connecticut does submit 22a-174-3d as a SIP revision, EPA's SSM policy, including the response to Sierra Club's petition, should be considered.

Response: The Department appreciates the reminder concerning the Sierra Club petition concerning SSM. We recognize that EPA released a proposed rule on February 12, 2013 concerning the SSM policy. If the Department chooses to submit RCSA section 22a-174-3d to the SIP, the Department will consider how any resulting EPA final rule may apply to the SSM provisions of this section.

6. Comment: Subparagraphs (A) and (B) of subsection (e)(3) allow for a source owner to use "an equivalent method approved by the commissioner." If Connecticut submits this rule as a SIP revision, the phrase "and EPA" should be added after "commissioner" in each subparagraph.

Response: The Department should add "and the Administrator" to subparagraphs (A) and (B) of subsection (e)(3) to support the possible submission of RCSA section 22a-174-3d into the SIP. Subsection (e)(3)(A) and (B) should be revised as follows:

- (A) Ammonia testing shall be conducted in accordance with EPA Conditional Test Method (CTM) 027 or an equivalent method approved by the Commissioner **and the Administrator**;
- (B) PM10/2.5 testing shall be conducted in accordance with 40 CFR 60, Appendix A, Reference Method 201A or an equivalent method approved by the Commissioner **and the Administrator**; and

V. Comments of the Hearing Officer

On her own initiative, the Hearing Officer recommends the following six minor revisions to the proposed text:

- Subsection (c)(5) concerning stack height should be revised by the addition of the word "projected" to subparagraph (A), as follows:

- (A) The maximum nearby building **projected** width; or

The Department should also revise the definition of "nearby" in subsection (a)(12) as follows, to make the term closer in meaning to 40 CFR 51.100(jj):

- (12) "Nearby" means, for a building, situated at a distance from the source less than or equal to five times the lesser of the building height or **maximum projected** building width;

With the recommended revisions, a reader is more likely to understand what is intended by the maximum building width.

- The word "system" should be added to subsection (b)(3) as follows:

- (3) An owner or operator may only operate a CHP system pursuant to this section if construction of the CHP **system** commences on or after the effective date of this section.

- The comma at the end of subsection (c)(4)(A) should be changed to a semicolon, as follows:
 - (A) Natural gas shall be the primary fuel combusted by a combustion turbine and the only fuel combusted by an internal combustion engine; ; and
- The word “manufacture” in subsection (f)(3)(D)(ii) should be replaced with “manufacturer.”
- Subsection (f)(3)(E) should be revised as follows in recognition that subsection (f)(1)(C) requires the range for parameters to be determined during the initial performance test:
 - (E) A specification of the ranges or designated conditions of the parameters, and a description of the process by which such ranges or designated conditions ~~will be~~ **have been established during the initial performance test;**

The Hearing Officer recommends the following nine revisions to the final recommended text of the proposal, based on suggestions from the Office of the Attorney General:

- In the definition of “ISO conditions,” at subsection (a)(9), “psia” should be replaced with “pounds per square inch absolute.”
- In subsection (b)(1) and (2), the clause “without obtaining a permit pursuant to section 22a-174-3a” should be made more precise, as follows:
 - . . . without obtaining **a an individual** permit pursuant to section 22a-174-3a . . .
- In subsection (b)(2)(B), the phrase “or a reconstruction” should be added, as follows:
 - (B) The modification is not a major modification ~~to an existing major stationary source~~ **or a reconstruction;** and

The text is shown with the deletion recommended in the response to Comment 4.
- In subsection (c), subdivisions (6), (7), (8), (9) and (10), the word “of” preceding a reference to a table should be replaced with the phrase “set forth in.”
- In subsection (f)(3)(A), the words “set forth” should be added, as follows:
 - A description of how all pollutants and parameters will be monitored to demonstrate compliance with the emissions limits **set forth** in Tables 3d-1 and 3d-2, as applicable, of this section;
- Commas should set off the phrase “but not be limited to” in subclauses (ii) and (iii) of subsection (f)(3)(D).
- Where the word “commissioner” appears in subsections (h) and (i), the word should begin with an uppercase “C.”
- The phrase “of a CHP system” should be added to subsection (i)(1) and (2), as follows:
 - (1) Nothing in this section shall preclude the Commissioner from requiring an owner or operator **of a CHP system** to obtain an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies.

(2) Nothing in this section shall preclude an owner or operator **of a CHP system** from applying for an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies, if applicable.

- So that the second sentence of subsection (e)(1) is easier to understand, subsection (e)(1) should be revised, as follows:

(1) The owner or operator of a CHP system shall conduct an initial performance test to determine compliance with the applicable emissions limits of this section. ~~The initial performance test shall be conducted no later than the earlier of 60 days after achieving the maximum production rate or 180 days after initial startup.~~ A performance test conducted in accordance with the applicable provisions of 40 CFR 60, 61 or 63 for the pollutants listed in Tables 3d-1 and 3d-2 shall satisfy the initial performance test requirements on a per pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection. **The initial performance test shall be conducted no later than the earlier of the dates determined by subparagraph (A) or (B), as follows:**

(A) **60 days after achieving the maximum production rate; or**

(B) **180 days after initial startup.**

VI. Conclusion

Based upon the comments addressed in this report, I recommend the proposal be revised as recommended herein and that the recommended final proposal, included as Attachment 3 to this report, shall be submitted by the Commissioner for approval by the Attorney General and the Legislative Regulations Review Committee.

/s/Merrily A. Gere
Hearing Officer

22 March 2013
Date

ATTACHMENT 1

STATEMENT PURSUANT TO SECTION 22a-6(h) OF THE GENERAL STATUTES

Pursuant to section 22a-6(h) of the Connecticut General Statutes (CGS), the Commissioner of the Department of Energy and Environmental Protection (the Department) is authorized to adopt regulations pertaining to activities for which the federal government has adopted standards or procedures. At the time of public notice, the Commissioner must distinguish clearly all provisions of a regulatory proposal that differ from federal standards or procedures. In addition, the Commissioner must provide an explanation for all such provisions in the regulation-making record required under CGS Title 4, Chapter 54 and make such explanation publicly available at the time of the publication of the notice of intent required under CGS section 4-168.

This document addresses the requirements of CGS section 22a-6(h) with regard to the proposed adoption of section 22a-174-3d of the Regulations of Connecticut State Agencies (RCSA). RCSA section 22a-174-3d is a permit-by-rule for owners of certain new combined heat-and-power (CHP) systems. Since 2002, the Department has used a permit-by-rule, in lieu of the requirement to obtain an individual permit, to authorize the operation of categories of sources for which the Department may develop standardized permit conditions that limit actual pollutant emissions to levels protective of public health and air quality. The use of permits-by-rule has reduced workload, reduced permitting timeframes and provided a fair and consistent basis for source operations.

The Department has performed a comparison of proposed RCSA section 22a-174-3d with federal laws and regulations, namely the Clean Air Act (CAA) and standards and procedures in 40 Code of Federal Regulations (CFR), and has determined that there are no analogous permitting requirements, although the federal government has promulgated emissions standards that apply to some of the equipment that may be operated under the permit-by-rule. In matters pertaining to the permitting of stationary sources of air pollution, the federal government establishes standards and procedures that are applicable to the state, which then establishes administrative regulations to implement the federal program. The state, not the federal government, has the primary responsibility to issue permits to the owners or operators of stationary sources of air pollution under federally approved programs. This is true of Connecticut's new source review permitting program, to which the proposed permit-by-rule is an alternative. Federal permitting requirements would only apply to sources in states that lack federally approved permit programs.

With regard to emissions standards and procedures, some of the CHP systems that may qualify to operate under the permit-by-rule will be subject to emissions standards and other requirements in new source performance standards (NSPS) or national emission standards for hazardous air pollutants (NESHAP) set out in 40 CFR 60 or 63, namely 40 CFR 60 subparts JJJJ and KKKK and 40 CFR 63 subpart ZZZZ. The applicability of such standards depends on the type of equipment used in the CHP system (*i.e.*, engine or turbine), the date of construction and the design capacity. The emissions standards of the permit-by-rule are, for a particular piece of equipment, more stringent than the standards in the applicable NSPS or NESHAP.

19 October 2012

Date

/s/Merrily A. Gere
Bureau of Air Management

ATTACHMENT 2

RCSA Section 22a-174-3d
As Proposed for Public Comment

Section 1. The Regulations of Connecticut State Agencies are amended by adding section 22a-174-3d, as follows:

(NEW)

Section 22a-174-3d. Permit-by-Rule for Combined Heat-and-Power Systems.

(a) **Definitions.** For the purposes of this section, the following definitions apply:

- (1) “Actual electrical output” means the gross electrical output to the facility measured at the terminals of the generator in units of MWh or kWh;
- (2) “Actual heat input” means the gross caloric value of all fuels combusted by the CHP system in MMBtu;
- (3) “Actual system efficiency” means, for a CHP system, the sum of the actual thermal output and actual electrical output as MMBtu divided by the actual heat input based on the higher heating value, and measured as a percent;
- (4) “Actual thermal output” means the total energy output of thermal energy of the CHP system in MMBtu;
- (5) “Annual capacity factor” means the ratio between the actual heat input to a CHP system from an individual fuel or combination of fuels during a period of 12 consecutive calendar months and the potential heat input to the CHP system from all fuels had the unit been operated at 8,760 hours/year at the maximum design heat input capacity;
- (6) “Combined heat-and-power system” or “CHP system” means a generation unit that simultaneously produces both electric power and thermal energy from a single source and that has a design system efficiency equal to or greater than 55%;
- (7) “Design system efficiency” means, for a CHP system, the sum of the full load design thermal output and electric output divided by the heat input;
- (8) “Federal hazardous air pollutant” means, notwithstanding the definition of “hazardous air pollutant” in section 22a-174-1 of the Regulations of Connecticut State Agencies, any air pollutant listed in Section 112(b) of the Act, excluding those substances approved by the Administrator for exclusion;
- (9) “ISO conditions” means the standard conditions used by the gas turbine industry, which are 59°F, 14.7 psia and 60% relative humidity;

(10) “Maximum design heat input capacity” means the ability of a CHP system’s generation unit to combust a stated maximum amount of fuel, or combination of fuels, on a steady-state basis as determined by the physical design and characteristics of the generation unit;

(11) “Nameplate capacity” means, starting from the initial installation of a generator, the maximum electrical generating output (in MW) that the generator is capable of producing on a steady-state basis and during continuous operation, when not restricted by seasonal or other derates, as specified by the manufacturer of the generator. If the owner makes any subsequent physical change in the generator resulting in an increase in the maximum electrical generating output (in MW) that the generator is capable of producing on a steady-state basis and during continuous operation, when not restricted by seasonal or other derates, such increased maximum amount as specified by the person conducting the physical change shall be considered the “nameplate capacity;”

(12) “Nearby” means, for a building, situated at a distance from the source less than or equal to five times the lesser of the building height or building width;

(13) “Shutdown” means the cessation of operation of a CHP system for any purpose;

(14) “Startup” means the setting in operation of a CHP system for any purpose;

(15) “Tune-up” means to perform maintenance and adjust equipment to a proper or required operating condition in accordance with the manufacturer’s written recommendations; and

(16) “12-month rolling aggregate” means the sum of a variable over the most recent prior 12 calendar months, computed monthly.

(b) Applicability.

(1) An owner or operator may construct and operate a CHP system without obtaining a permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

- (A) The CHP system has potential emissions of fifteen (15) tons or more per year of any individual air pollutant;
- (B) The CHP system is not a new major stationary source or major modification of an existing source;
- (C) The CHP system is not a newly constructed or reconstructed major source of federal hazardous air pollutants subject to the requirements of section 22a-174-3a(m) of the Regulations of Connecticut State Agencies; and
- (D) The owner or operator complies with all applicable provisions of this section.

(2) An owner or operator may modify a CHP system without obtaining a permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

- (A) Prior to the modification, the CHP system is not authorized to operate pursuant to an individual permit issued pursuant to section 22a-174-3a or former section 22a-174-3 of the Regulations of Connecticut State Agencies;
 - (B) The modification is not a major modification to an existing major stationary source; and
 - (C) The owner or operator complies with all applicable provisions of this section.
- (3) An owner or operator may only operate a CHP system pursuant to this section if construction of the CHP commences on or after the effective date of this section.
- (c) Emissions limits and other requirements.**
- (1) The maximum generator nameplate capacity for any CHP system shall be less than 10 MW.
 - (2) The aggregate of the maximum generator nameplate capacity for the CHP system and the maximum generator nameplate capacity for all other fossil fuel-fired electricity generating units, excluding emergency generators, located at the same premises shall, at the time of construction, be less than 10 MW.
 - (3) Except during periods of startup, shutdown, malfunction, and, as allowed by the commissioner during performance testing, the actual system efficiency of any CHP system operated pursuant to this section shall be no less than 55% per each consecutive 12-month period.
 - (4) The owner or operator of a CHP system shall use only the following fuels in the specified generation unit:
 - (A) Natural gas shall be the primary fuel combusted by a combustion turbine and the only fuel combusted by an internal combustion engine, and
 - (B) Distillate fuel oil may be combusted as an auxiliary fuel by a combustion turbine, as follows:
 - (i) Distillate fuel oil combusted shall contain less than or equal to 0.0015% sulfur, by weight, and
 - (ii) The annual capacity factor for all distillate fuel oil combusted in a combustion turbine shall not exceed 10% on a heat input basis.
 - (5) The height of any stack associated with the CHP system shall be no less than 10 meters and shall be at least as high as the lesser of:
 - (A) The maximum nearby building width; or
 - (B) The nearby building height multiplied by a factor of 1.3.

(6) If a combustion turbine is used as the generation unit of a CHP system, emissions shall not exceed the emission limits of Table 3d-1, except during periods of startup, shutdown or malfunction.

(7) If an internal combustion engine is used as the generation unit of a CHP system, emissions shall not exceed the emission limits of Table 3d-2, except during periods of startup, shutdown or malfunction.

(8) The emission limits for NO_x, CO and ammonia of Table 3d-1 are corrected to ISO conditions at 15% oxygen.

Table 3d-1. CHP combustion turbine emissions limits.

Pollutant	Emission limit while firing natural gas	Emission limit while firing distillate fuel	Averaging time, except as specified for a performance test approved by the Department
NO _x	2.5 ppmvd @ 15% oxygen	9.6 ppmvd @ 15% oxygen	1-hour block
CO	10 ppmvd @ 15% oxygen	10 ppmvd @ 15% oxygen	3-hour block
PM-10/2.5	2 lbs/hr	3 lbs/hr	1-hour block
Ammonia	5.0 ppmvd @ 15% oxygen	5.0 ppmvd @ 15% oxygen	1-hour block

Table 3d-2. CHP internal combustion engine emissions limits while firing natural gas.

Pollutant	Emission limit lbs/MMBtu	Averaging time, except as specified for a performance test approved by the Department
NO _x	0.08	1-hour block
CO	0.17	3-hour block
PM-10/2.5	0.02	1-hour block

(9) An owner or operator shall operate a CHP system in compliance with the applicable emissions limits of Table 3d-1 or Table 3d-2 of this section.

(10) An owner or operator shall determine compliance with the applicable emissions limits of Table 3d-1 or Table 3d-2 of this section through performance testing or continuous monitoring as specified in subsections (e) and (f) of this section.

(11) Annual emissions limitations. An owner or operator of a CHP system:

- (A) With a combustion turbine shall not allow the emissions of NO_x, CO, PM₁₀, PM_{2.5} or ammonia to exceed 15 tons per pollutant in any 12-month rolling aggregate;
- (B) With an internal combustion engine shall not allow the emissions of NO_x, CO, PM₁₀ or PM_{2.5} to exceed 15 tons per pollutant in any 12-month rolling aggregate; and
- (C) Shall not allow the aggregate emissions of federal hazardous air pollutants to exceed 3 tons in any 12-month rolling aggregate.

(d) Operating practices.

(1) The owner or operator of a CHP system shall perform a tune-up of the combustion unit and all air pollution control equipment at least once per calendar year and in accordance with the manufacturer's written specifications.

(2) The owner or operator of a CHP system shall operate air pollution control equipment at all times that the system is in operation and maintain such control equipment according to the manufacturer's written recommendations.

(3) In the event of a malfunction of air pollution control equipment that cannot be corrected within three hours of the discovery of the malfunction, the owner or operator shall immediately shutdown the CHP system.

(4) To minimize emissions during periods of startup and shutdown, the owner operator shall:

- (A) If ammonia injection is used, commence ammonia injection as soon as the minimum catalyst temperature is reached;
- (B) If using an oxidation catalyst system, not bypass the oxidation catalyst except during such time as bypass may be recommended in the manufacturer's written recommendations for operation;
- (C) Limit the duration of startup to 60 minutes or less, unless a longer time period is specified in the manufacturer's written recommendations; and
- (D) Limit the duration of shutdown to 30 minutes or less, unless a longer time period is specified in the manufacturer's written recommendations.

(e) Performance testing.

(1) The owner or operator of a CHP system shall conduct an initial performance test to determine compliance with the applicable emissions limits of this section. The initial performance test shall be conducted no later than the earlier of 60 days after achieving the maximum production rate or 180 days after initial startup. A performance test conducted in accordance with the applicable provisions of 40 CFR 60, 61 or 63 for the pollutants listed in

Tables 3d-1 and 3d-2 shall satisfy the initial performance test requirements on a per pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection.

(2) Following the initial performance test, the owner or operator of the CHP system shall conduct subsequent performance testing at least once every 60 months for each pollutant to which an emission limit applies, except that the owner or operator of a CHP system shall not be required to conduct performance tests subsequent to the initial performance test for any pollutant that the owner or operator monitors using continuous emissions monitoring. A performance test conducted in accordance with the applicable provisions of 40 CFR 60, 61 or 63 for the pollutants listed in Tables 3d-1 and 3d-2 shall satisfy the subsequent performance test requirements on a per pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection.

(3) Unless otherwise specified in this subdivision, all performance testing shall be conducted in accordance with the Department's Source Emissions Monitoring Test Guidelines, section 22a-174-5 of the Regulations of Connecticut State Agencies and the following:

- (A) Ammonia testing shall be conducted in accordance with EPA Conditional Test Method (CTM) 027 or an equivalent method approved by the Commissioner;
- (B) PM10/2.5 testing shall be conducted in accordance with 40 CFR 60, Appendix A, Reference Method 201A or an equivalent method approved by the Commissioner; and
- (C) Any test conducted under this section shall be completed within 24 hours of initiation unless completion in such time would endanger public health or safety.

(f) Monitoring.

(1) An owner or operator of a CHP system shall demonstrate compliance for each pollutant to which an emission limit applies in Table 3d-1 or 3d-2, as follows:

- (A) By performing an initial performance test as required by subsection (e) of this section;
- (B) Through performance testing conducted at least once every 60 months subsequent to the initial performance test, as required by subsection (e) of this section, or through continuous emissions monitoring. If continuous emissions monitoring is used to determine compliance with an emissions limitation of this section, the owner or operator of a CHP system shall meet the requirements of section 22a-174-4 of the Regulations of Connecticut State Agencies; and
- (C) Through continuous parameter monitoring, by which the owner or operator shall monitor appropriate parameters to verify the proper operation of the emission controls. The range for such parameters shall be determined during the initial performance test required pursuant to subsection (e)(1).

(2) The owner or operator of a CHP system shall monitor the actual system efficiency on an hourly basis.

(3) An owner or operator shall prepare a written monitoring plan to address monitoring of emissions, CHP operating parameters and air pollution control equipment operating parameters. The plan shall be prepared no later than 60 days following the completion of the initial performance test required by this section. The monitoring plan shall include, at a minimum, the following information as may be applicable to the CHP system and chosen methods of determining compliance with the requirements of this section:

- (A) A description of how all pollutants and parameters will be monitored to demonstrate compliance with the emissions limits in Tables 3d-1 and 3d-2, as applicable, of this section;
- (B) Definitions of startup, shutdown and malfunction;
- (C) A description of the method and a sample calculation by which emissions during startup, shutdown and malfunction will be determined;
- (D) An identification of all the parameters to be monitored, including the following:
 - (i) For CHP systems that use selective catalytic or non-catalytic reduction to meet the NO_x limits of this section, monitored parameters shall include but not be limited to the hourly ammonia injection rate, oxygen content of the exhaust, exhaust temperature, fuel firing rate and pressure drop across the catalyst,
 - (ii) For turbine CHP systems that use low-NO_x burner technology, monitored parameters shall include but not be limited to the operating characteristics specified by the burner manufacture to indicate the unit is operating in low-NO_x mode, and
 - (iii) For CHP systems that use an oxidation catalyst to meet the CO limits of this section, monitored parameters shall include but not be limited to the exhaust gas temperature and the pressure drop across the catalyst;
- (E) A specification of the ranges or designated conditions of the parameters, and a description of the process by which such ranges or designated conditions will be established;
- (F) An explanation of the process used to ensure that the data obtained is representative of the emissions or parameters being monitored using such considerations as detector location or the installation specification;
- (G) A description of the quality assurance and control practices to ensure the continuing validity of the data; and
- (H) A description of the frequency of monitoring and the data collection procedures that the owner or operator will use.

(4) A monitoring plan established to satisfy requirements of 40 CFR 60, 61 or 63 applicable to the CHP system may be used to satisfy the monitoring plan requirements of this section provided that the plan is supplemented to address all the requirements of this section.

(5) The owner or operator shall maintain the monitoring plan at the facility where the CHP system is located and make the plan available to the commissioner upon request. The owner or operator shall review the monitoring plan on an annual basis and update the plan as needed.

(g) Record keeping.

(1) The owner or operator of a CHP system shall maintain records of the information specified in this subsection. All records made to determine compliance with the requirements of this section shall be:

- (A) Made available to the commissioner to inspect and copy upon request; and
- (B) Maintained for five (5) years from the date such record is created, unless another time is specified.

(2) The owner or operator of a CHP system shall record:

- (A) The fuel type and quantity used, in gallons or cubic feet for each month and each 12- month rolling aggregate;
- (B) The hours of operation for each fuel fired for each month and each 12-month rolling aggregate;
- (C) Data from all continuous monitoring conducted pursuant to this section;
- (D) The test reports and supporting calculations documenting the results of the initial and all subsequent performance tests conducted to determine compliance with the emission limits specified in this section;
- (E) The monthly and 12-month rolling aggregate emissions of PM-10, PM-2.5, NO_x, CO, aggregate federal hazardous air pollutants and ammonia, as applicable, in units of tons and including emissions during startups, shutdowns and malfunctions. Such records shall include a sample calculation for each pollutant. The owner or operator shall record each month's emissions data within 30 days of the end of the month for which the data is recorded;
- (F) If distillate fuel is used, the sulfur content for each fuel shipment received;
- (G) The air pollution control equipment design specifications including:
 - (i) Type(s) of control equipment,
 - (ii) Make and model number,

- (iii) Pollutants controlled, and
 - (iv) Catalyst type and configuration, if applicable;
- (H) Inspections and tune-ups of the CHP system or air pollution control equipment including:
 - (i) The date performed,
 - (ii) The name of person performing tune-up and/or inspection,
 - (iii) The procedures followed, and
 - (iv) The results and any corrective actions taken;
- (I) The occurrence and duration of any startup, shutdown, or malfunction in the operation of the CHP system and any malfunction of the air pollution control equipment including:
 - (i) The type of event (startup, shutdown or malfunction),
 - (ii) The equipment affected,
 - (iii) The date of event,
 - (iv) The duration of event in minutes,
 - (v) The fuel used during event,
 - (vi) The corrective actions take to address malfunction, and
 - (vii) The total NO_x and CO emissions emitted (lbs) during the event using either uncontrolled emission rates or manufacturer supplied data;
- (J) The actual CHP system efficiency for each month and each 12-month rolling period. Such records shall include a sample calculation. The owner or operator shall record each month's actual system efficiency and each 12-month rolling actual system efficiency within 30 days of the end of each month;
- (K) The maximum generator nameplate capacity for the CHP system and every other electric generating unit at the premises, individually and in aggregate;
- (L) The annual capacity factor for all distillate fuel oil combusted, if the CHP system uses a turbine; and
- (M) A plot plan of the facility and CHP system with information sufficient to demonstrate compliance with the stack height requirements of subsection (c)(5) of this section. Such a plot plan shall be maintained for the operating life of the CHP system.

(h) Reporting.

- (1) Any person intending to operate a CHP system pursuant to this section shall submit a notification to the commissioner on a form designated by the commissioner no later than 30 days after beginning actual construction.
- (2) Not more than 60 days after the completion of a performance test conducted pursuant to this section, the owner or operator shall submit to the commissioner a complete performance test report detailing the operating parameters and emissions results of that performance test.
- (3) The owner or operator of any CHP system operating pursuant to this section shall, upon request by the commissioner, submit information regarding air pollutant emissions from the CHP system and any other stationary sources located on the premises.
- (4) The owner or operator of a CHP system operating pursuant to this section shall submit a notification to the commissioner within 15 days of any violation of a requirement in this section.
- (5) The owner or operator shall notify the commissioner within (30) days after removing or rendering non-operational a CHP system for which a notification of operation was submitted pursuant to subsection (h)(1) of this section.
- (6) Any report required to be submitted to the commissioner by this section shall include a certification signed in accordance with section 22a-174-2a(a)(4) of the Regulations of Connecticut State Agencies.
- (7) Any document required to be submitted to the commissioner pursuant to this section shall, unless otherwise specified in writing by the commissioner, be directed to: Supervisor; Compliance Assurance and Coordination Unit; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

(i) Application for an individual permit.

- (1) Nothing in this section shall preclude the commissioner from requiring an owner or operator to obtain an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies.
- (2) Nothing in this section shall preclude an owner or operator from applying for an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies, if applicable.

Sec. 2. Section 22a-174-3a(a)(2) of the Regulations of Connecticut State Agencies is amended to read as follows:

- (2) Exemptions. Notwithstanding the provisions of subdivision (1) of this subsection, the owner or operator of a stationary source or modification may conduct activities listed in subdivision (2)(A), and may construct or operate the sources listed in subdivision (2)(B) and (2)(C) of this section, without a permit under this section:

- (A) Any activity that:
- (i) adds air pollution control equipment or implements process changes to control air pollution unless the addition or implementation results in an increase in actual emissions of any individual air pollutant of fifteen (15) tons or more per year, or ten (10) tons or more per year of a hazardous air pollutant subject to the provisions of subsection (m) of this section,
 - (ii) relocates a portable rock crusher which is subject to a permit or exemption letter issued by the commissioner pursuant to former section 22a-174-3 Regulations of Connecticut State Agencies, or which is registered under a general permit for such sources issued by the commissioner pursuant to section 22a-174(l) of the Connecticut General Statutes, provided the owner or operator is in compliance with any such permits and provides written notice to the commissioner prior to such relocation,
 - (iii) constitutes a conversion from fuel oil to natural gas, or in addition to fuel oil, provided such conversion does not increase actual emissions of any individual air pollutant by fifteen (15) tons or more per year, unless such conversion results in reconstruction; or
 - (iv) constitutes a conversion from residual fuel oil to distillate fuel oil, or in addition to residual fuel oil, provided such conversion does not increase actual emissions of any individual air pollutant by fifteen (15) tons or more per year, unless such conversion results in reconstruction;
- (B) Any stationary source that is:
- (i) registered under and is in compliance with any new source review general permit to construct and operate a new or existing stationary source issued pursuant to section 22a-174(l) of the Connecticut General Statutes,
 - (ii) a stripping facility used to remove VOC from contaminated groundwater or soil pursuant to an order issued by the commissioner, provided such facility has a control device with VOC removal efficiency of at least ninety-five percent (95%),
 - (iii) a portable engine or boiler temporarily replacing an existing engine or boiler, provided the replacement units have a combined emission rate equal to or less than the existing units and that the number of days total that any and all such portable engines or boilers may be used does not exceed ninety (90) days in any calendar year,
 - (iv) in compliance with section 22a-174-3b, [Section] section 22a-174-3c, section 22a-174-3d or [Section] section 22a-174-42 of the Regulations of Connecticut State Agencies, unless otherwise subject to this section pursuant to subdivision (7) of this subsection, or

- (v) a “dispensing facility,” as defined in section 22a-174-30(a)(3) of the Regulations of Connecticut State Agencies.

Statement of Purpose

(1) The purpose of the regulation, including the problems, issues or circumstances that the regulation proposes to address:

Since 2002, the Department has used a permit-by-rule, in lieu of the requirement to obtain an individual permit, for categories of sources for which the Department may develop standardized permit conditions that limit actual pollutant emissions to levels protective of public health and air quality. The use of permits-by-rule has reduced workload, reduced permitting timeframes and provided a fair and consistent basis for source operations.

Based on our experience with recently issued individual permits for combined heat-and-power (CHP) systems, the Department has determined that CHP systems of less than 10 MW of capacity are suitable for a permit-by-rule. The adoption of this permit-by-rule will reduce the time for the owner of a new CHP system to obtain a permit from about seven months to zero days.

(2) A summary of the main provisions of the regulation:

The rule includes all the restrictions necessary to limit emissions of air pollutants from a regulated CHP system to a level that protects air quality and public health. The regulation includes limitations for nitrogen oxides, particulate emissions and carbon monoxide; restrictions on hazardous air emissions; monitoring requirements sufficient to measure compliance with the emissions limitations; and record keeping and reporting requirements sufficient to ensure that compliance with the limits may be evaluated and enforced. Large CHP installations or CHP systems added to facilities that are major sources may not operate under this regulation. CHP systems that trigger environmental justice review may not operate under this regulation.

(3) The legal effects of the regulation, including all the ways that the regulation would change existing regulations or other law:

Absent this permit-by-rule, the owner of a new CHP system would need to apply for and obtain an individual permit prior to beginning construction. Issuance of an individual permit typically takes about seven months, creates regulatory uncertainty and places an administrative and financial burden on the CHP system owner.

The permit-by-rule allows the owner of a qualifying CHP system to satisfy the need to obtain an individual permit by operating in accordance with the permit-by-rule. The time to obtain a permit is reduced to zero and the result is certain, thereby saving time and money and increasing certainty for Connecticut businesses.

As operation under the permit-by-rule is voluntary, an owner of a CHP system may opt to apply for an individual permit.

ATTACHMENT 3

Final
RCSA Section 22a-174-3d

Section 1. The Regulations of Connecticut State Agencies are amended by adding section 22a-174-3d, as follows:

(NEW)

Section 22a-174-3d. Permit-by-Rule for Combined Heat-and-Power Systems.

(a) Definitions. For the purposes of this section, the following definitions apply:

- (1) “Actual electrical output” means the gross electrical output measured at the terminals of the generator in units of MWh or kWh;
- (2) “Actual heat input” means the gross caloric value of all fuels combusted by the CHP system in MMBtu;
- (3) “Actual system efficiency” means, for a CHP system, the sum of the actual thermal output and actual electrical output as MMBtu divided by the actual heat input based on the higher heating value, and measured as a percent;
- (4) “Actual thermal output” means the total energy output of thermal energy of the CHP system in MMBtu;
- (5) “Annual capacity factor” means the ratio between the actual heat input to a CHP system from an individual fuel or combination of fuels during a period of 12 consecutive calendar months and the potential heat input to the CHP system from all fuels had the unit been operated at 8,760 hours/year at the maximum design heat input capacity;
- (6) “Combined heat-and-power system” or “CHP system” means a generation unit that simultaneously produces both electric power and thermal energy from a single source and that has a design system efficiency equal to or greater than 55%;
- (7) “Design system efficiency” means, for a CHP system, the sum of the full load design thermal output and electric output divided by the heat input;
- (8) “Federal hazardous air pollutant” means, notwithstanding the definition of “hazardous air pollutant” in section 22a-174-1 of the Regulations of Connecticut State Agencies, any air pollutant listed in Section 112(b) of the Act, excluding those substances approved by the Administrator for exclusion;
- (9) “ISO conditions” means the standard conditions used by the gas turbine industry, which are 59°F, 14.7 pounds per square inch absolute and 60% relative humidity;

(10) “Maximum design heat input capacity” means the ability of a CHP system’s generation unit to combust a stated maximum amount of fuel, or combination of fuels, on a steady-state basis as determined by the physical design and characteristics of the generation unit;

(11) “Nameplate capacity” means, starting from the initial installation of a generator, the maximum electrical generating output (in MW) that the generator is capable of producing on a steady-state basis and during continuous operation, when not restricted by seasonal or other derates, as specified by the manufacturer of the generator. If the owner makes any subsequent physical change in the generator resulting in an increase in the maximum electrical generating output (in MW) that the generator is capable of producing on a steady-state basis and during continuous operation, when not restricted by seasonal or other derates, such increased maximum amount as specified by the person conducting the physical change shall be considered the “nameplate capacity;”

(12) “Nearby” means, for a building, situated at a distance from the source less than or equal to five times the lesser of the building height or maximum projected building width;

(13) “Shutdown” means the cessation of operation of a CHP system for any purpose;

(14) “Startup” means the setting in operation of a CHP system for any purpose;

(15) “Tune-up” means to perform maintenance and adjust equipment to a proper or required operating condition in accordance with the manufacturer’s written recommendations; and

(16) “12-month rolling aggregate” means the sum of a variable over the most recent prior 12 calendar months, computed monthly.

(b) Applicability.

(1) An owner or operator may construct and operate a CHP system without obtaining an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

- (A) The CHP system has potential emissions of fifteen (15) tons or more per year of any individual air pollutant;
- (B) The CHP system is not a new major stationary source or major modification of an existing source;
- (C) The CHP system is not a newly constructed or reconstructed major source of federal hazardous air pollutants subject to the requirements of section 22a-174-3a(m) of the Regulations of Connecticut State Agencies; and
- (D) The owner or operator complies with all applicable provisions of this section.

(2) An owner or operator may modify a CHP system without obtaining an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies if:

- (A) Prior to the modification, the CHP system is not authorized to operate pursuant to an individual permit issued pursuant to section 22a-174-3a or former section 22a-174-3 of the Regulations of Connecticut State Agencies;
 - (B) The modification is not a major modification or a reconstruction; and
 - (C) The owner or operator complies with all applicable provisions of this section.
- (3) An owner or operator may only operate a CHP system pursuant to this section if construction of the CHP system commences on or after the effective date of this section.
- (c) Emissions limits and other requirements.**
- (1) The maximum generator nameplate capacity for any CHP system shall be less than 10 MW.
- (2) The aggregate of the maximum generator nameplate capacity for the CHP system and the maximum generator nameplate capacity for all other fossil fuel-fired electricity generating units, excluding emergency generators, located at the same premises shall, at the time of construction, be less than 10 MW.
- (3) Except during periods of startup, shutdown, malfunction, and, as allowed by the Commissioner during performance testing, the actual system efficiency of any CHP system operated pursuant to this section shall be no less than 55% per each consecutive 12-month period.
- (4) The owner or operator of a CHP system shall use only the following fuels in the specified generation unit:
- (A) Natural gas shall be the primary fuel combusted by a combustion turbine and the only fuel combusted by an internal combustion engine; and
 - (B) Distillate fuel oil may be combusted as an auxiliary fuel by a combustion turbine, as follows:
 - (i) Distillate fuel oil combusted shall contain less than or equal to 0.0015% sulfur, by weight, and
 - (ii) The annual capacity factor for all distillate fuel oil combusted in a combustion turbine shall not exceed 10% on a heat input basis.
- (5) The height of any stack associated with the CHP system shall be no less than 10 meters and shall be at least as high as the lesser of:
- (A) The maximum nearby building projected width; or
 - (B) The nearby building height multiplied by a factor of 1.3.

(6) If a combustion turbine is used as the generation unit of a CHP system, emissions shall not exceed the emission limits set forth in Table 3d-1, except during periods of startup, shutdown or malfunction.

(7) If an internal combustion engine is used as the generation unit of a CHP system, emissions shall not exceed the emission limits set forth in Table 3d-2, except during periods of startup, shutdown or malfunction.

(8) The emission limits for NO_x, CO and ammonia set forth in Table 3d-1 are corrected to ISO conditions at 15% oxygen.

Table 3d-1. CHP combustion turbine emissions limits.

Pollutant	Emission limit while firing natural gas	Emission limit while firing distillate fuel	Averaging time, except as specified for a performance test approved by the Department
NO _x	2.5 ppmvd @ 15% oxygen	9.6 ppmvd @ 15% oxygen	1-hour block
CO	10 ppmvd @ 15% oxygen	10 ppmvd @ 15% oxygen	3-hour block
PM-10/2.5	2 lbs/hr	3 lbs/hr	1-hour block
Ammonia	5.0 ppmvd @ 15% oxygen	5.0 ppmvd @ 15% oxygen	1-hour block

Table 3d-2. CHP internal combustion engine emissions limits while firing natural gas.

Pollutant	Emission limit lbs/MMBtu	Averaging time, except as specified for a performance test approved by the Department
NO _x	0.08	1-hour block
CO	0.17	3-hour block
PM-10/2.5	0.02	1-hour block

(9) An owner or operator shall operate a CHP system in compliance with the applicable emissions limits set forth in Table 3d-1 or Table 3d-2 of this section.

(10) An owner or operator shall determine compliance with the applicable emissions limits set forth in Table 3d-1 or Table 3d-2 of this section through performance testing or continuous monitoring as specified in subsections (e) and (f) of this section.

(11) Annual emissions limitations. An owner or operator of a CHP system:

- (A) With a combustion turbine shall not allow the emissions of NO_x, CO, PM₁₀, PM_{2.5} or ammonia to exceed 15 tons per pollutant in any 12-month rolling aggregate;
- (B) With an internal combustion engine shall not allow the emissions of NO_x, CO, PM₁₀ or PM_{2.5} to exceed 15 tons per pollutant in any 12-month rolling aggregate; and
- (C) Shall not allow the aggregate emissions of federal hazardous air pollutants to exceed 3 tons in any 12-month rolling aggregate.

(d) Operating practices.

(1) The owner or operator of a CHP system shall perform a tune-up of the combustion unit and all air pollution control equipment at least once per calendar year and in accordance with the manufacturer's written specifications.

(2) The owner or operator of a CHP system shall operate air pollution control equipment at all times that the system is in operation and maintain such control equipment according to the manufacturer's written recommendations.

(3) In the event of a malfunction of air pollution control equipment that cannot be corrected within three hours of the discovery of the malfunction, the owner or operator shall immediately shutdown the CHP system.

(4) To minimize emissions during periods of startup and shutdown, the owner operator shall:

- (A) If ammonia injection is used, commence ammonia injection as soon as the minimum catalyst temperature is reached;
- (B) If using an oxidation catalyst system, not bypass the oxidation catalyst except during such time as bypass may be recommended in the manufacturer's written recommendations for operation;
- (C) Limit the duration of startup to 60 minutes or less, unless a longer time period is specified in the manufacturer's written recommendations; and
- (D) Limit the duration of shutdown to 30 minutes or less, unless a longer time period is specified in the manufacturer's written recommendations.

(e) Performance testing.

(1) The owner or operator of a CHP system shall conduct an initial performance test to determine compliance with the applicable emissions limits of this section. A performance test conducted in accordance with the applicable provisions of 40 CFR 60, 61 or 63 for the pollutants listed in Tables 3d-1 and 3d-2 shall satisfy the initial performance test requirements on a per

pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection. The initial performance test shall be conducted no later than the earlier of the dates determined by subparagraph (A) or (B), as follows:

- (A) 60 days after achieving the maximum production rate; or
- (B) 180 days after initial startup.

(2) Following the initial performance test, the owner or operator of the CHP system shall conduct subsequent performance testing at least once every 60 months for each pollutant to which an emission limit applies, except that the owner or operator of a CHP system shall not be required to conduct performance tests subsequent to the initial performance test for any pollutant that the owner or operator monitors using continuous emissions monitoring. A performance test conducted in accordance with the applicable provisions of 40 CFR 60, 61 or 63 for the pollutants listed in Tables 3d-1 and 3d-2 shall satisfy the subsequent performance test requirements on a per pollutant basis, provided the testing is performed in accordance with subdivision (3) of this subsection.

(3) Unless otherwise specified in this subdivision, all performance testing shall be conducted in accordance with the Department's Source Emissions Monitoring Test Guidelines, section 22a-174-5 of the Regulations of Connecticut State Agencies and the following:

- (A) Ammonia testing shall be conducted in accordance with EPA Conditional Test Method (CTM) 027 or an equivalent method approved by the Commissioner and the Administrator;
- (B) PM10/2.5 testing shall be conducted in accordance with 40 CFR 60, Appendix A, Reference Method 201A or an equivalent method approved by the Commissioner and the Administrator; and
- (C) Any test conducted under this section shall be completed within 24 hours of initiation unless completion in such time would endanger public health or safety.

(f) Monitoring.

(1) An owner or operator of a CHP system shall demonstrate compliance for each pollutant to which an emission limit applies in Table 3d-1 or 3d-2, as follows:

- (A) By performing an initial performance test as required by subsection (e) of this section;
- (B) Through performance testing conducted at least once every 60 months subsequent to the initial performance test, as required by subsection (e) of this section, or through continuous emissions monitoring. If continuous emissions monitoring is used to determine compliance with an emissions limitation of this section, the owner or operator of a CHP system shall meet the requirements of section 22a-174-4 of the Regulations of Connecticut State Agencies; and

- (C) Through continuous parameter monitoring, by which the owner or operator shall monitor appropriate parameters to verify the proper operation of the emission controls. The range for such parameters shall be determined during the initial performance test required pursuant to subsection (e)(1).

(2) The owner or operator of a CHP system shall monitor the actual system efficiency on an hourly basis.

(3) An owner or operator shall prepare a written monitoring plan to address monitoring of emissions, CHP operating parameters and air pollution control equipment operating parameters. The plan shall be prepared no later than 60 days following the completion of the initial performance test required by this section. The monitoring plan shall include, at a minimum, the following information as may be applicable to the CHP system and chosen methods of determining compliance with the requirements of this section:

- (A) A description of how all pollutants and parameters will be monitored to demonstrate compliance with the emissions limits set forth in Tables 3d-1 and 3d-2, as applicable, of this section;
- (B) Definitions of startup, shutdown and malfunction;
- (C) A description of the method and a sample calculation by which emissions during startup, shutdown and malfunction will be determined;
- (D) An identification of all the parameters to be monitored, including the following:
 - (i) For CHP systems that use selective catalytic or non-catalytic reduction to meet the NO_x limits of this section, monitored parameters shall include but not be limited to the hourly ammonia injection rate, oxygen content of the exhaust, exhaust temperature, fuel firing rate and pressure drop across the catalyst,
 - (ii) For turbine CHP systems that use low-NO_x burner technology, monitored parameters shall include, but not be limited to, the operating characteristics specified by the burner manufacturer to indicate the unit is operating in low-NO_x mode, and
 - (iii) For CHP systems that use an oxidation catalyst to meet the CO limits of this section, monitored parameters shall include, but not be limited to, the exhaust gas temperature and the pressure drop across the catalyst;
- (E) A specification of the ranges or designated conditions of the parameters, and a description of the process by which such ranges or designated conditions have been established during the initial performance test;
- (F) An explanation of the process used to ensure that the data obtained is representative of the emissions or parameters being monitored using such considerations as detector location or the installation specification;

- (G) A description of the quality assurance and control practices to ensure the continuing validity of the data; and
- (H) A description of the frequency of monitoring and the data collection procedures that the owner or operator will use.

(4) A monitoring plan established to satisfy requirements of 40 CFR 60, 61 or 63 applicable to the CHP system may be used to satisfy the monitoring plan requirements of this section provided that the plan is supplemented to address all the requirements of this section.

(5) The owner or operator shall maintain the monitoring plan at the facility where the CHP system is located and make the plan available to the Commissioner upon request. The owner or operator shall review the monitoring plan on an annual basis and update the plan as needed.

(g) Record keeping.

(1) The owner or operator of a CHP system shall maintain records of the information specified in this subsection. All records made to determine compliance with the requirements of this section shall be:

- (A) Made available to the Commissioner to inspect and copy upon request; and
- (B) Maintained for five (5) years from the date such record is created, unless another time is specified.

(2) The owner or operator of a CHP system shall record:

- (A) The fuel type and quantity used, in gallons or cubic feet for each month and each 12-month rolling aggregate;
- (B) The hours of operation for each fuel fired for each month and each 12-month rolling aggregate;
- (C) Data from all continuous monitoring conducted pursuant to this section;
- (D) The test reports and supporting calculations documenting the results of the initial and all subsequent performance tests conducted to determine compliance with the emission limits specified in this section;
- (E) The monthly and 12-month rolling aggregate emissions of PM-10, PM-2.5, NO_x, CO, aggregate federal hazardous air pollutants and ammonia, as applicable, in units of tons and including emissions during startups, shutdowns and malfunctions. Such records shall include a sample calculation for each pollutant. The owner or operator shall record each month's emissions data within 30 days of the end of the month for which the data is recorded;
- (F) If distillate fuel is used, the sulfur content for each fuel shipment received;
- (G) The air pollution control equipment design specifications including:

- (i) Type(s) of control equipment,
 - (ii) Make and model number,
 - (iii) Pollutants controlled, and
 - (iv) Catalyst type and configuration, if applicable;
- (H) Inspections and tune-ups of the CHP system or air pollution control equipment including:
- (i) The date performed,
 - (ii) The name of person performing tune-up and/or inspection,
 - (iii) The procedures followed, and
 - (iv) The results and any corrective actions taken;
- (I) The occurrence and duration of any startup, shutdown, or malfunction in the operation of the CHP system and any malfunction of the air pollution control equipment including:
- (i) The type of event (startup, shutdown or malfunction),
 - (ii) The equipment affected,
 - (iii) The date of event,
 - (iv) The duration of event in minutes,
 - (v) The fuel used during event,
 - (vi) The corrective actions take to address malfunction, and
 - (vii) The total NO_x and CO emissions emitted (lbs) during the event using either uncontrolled emission rates or manufacturer supplied data;
- (J) The actual CHP system efficiency for each month and each 12-month rolling period. Such records shall include a sample calculation. The owner or operator shall record each month's actual system efficiency and each 12-month rolling actual system efficiency within 30 days of the end of each month;
- (K) The maximum generator nameplate capacity for the CHP system and every other electric generating unit at the premises, individually and in aggregate;
- (L) The annual capacity factor for all distillate fuel oil combusted, if the CHP system uses a turbine; and

- (M) A plot plan of the facility and CHP system with information sufficient to demonstrate compliance with the stack height requirements of subsection (c)(5) of this section. Such a plot plan shall be maintained for the operating life of the CHP system.

(h) Reporting.

- (1) Any person intending to operate a CHP system pursuant to this section shall submit a notification to the Commissioner on a form designated by the Commissioner no later than 30 days after beginning actual construction.
- (2) Not more than 60 days after the completion of a performance test conducted pursuant to this section, the owner or operator shall submit to the Commissioner a complete performance test report detailing the operating parameters and emissions results of that performance test.
- (3) The owner or operator of any CHP system operating pursuant to this section shall, upon request by the Commissioner, submit information regarding air pollutant emissions from the CHP system and any other stationary sources located on the premises.
- (4) The owner or operator of a CHP system operating pursuant to this section shall submit a notification to the Commissioner within 15 days of any violation of a requirement in this section.
- (5) The owner or operator shall notify the Commissioner within (30) days after removing or rendering non-operational a CHP system for which a notification of operation was submitted pursuant to subsection (h)(1) of this section.
- (6) Any report required to be submitted to the Commissioner by this section shall include a certification signed in accordance with section 22a-174-2a(a)(4) of the Regulations of Connecticut State Agencies.
- (7) Any document required to be submitted to the Commissioner pursuant to this section shall, unless otherwise specified in writing by the Commissioner, be directed to: Supervisor; Compliance Assurance and Coordination Unit; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

(i) Application for an individual permit.

- (1) Nothing in this section shall preclude the Commissioner from requiring an owner or operator of a CHP system to obtain an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies.
- (2) Nothing in this section shall preclude an owner or operator of a CHP system from applying for an individual permit pursuant to section 22a-174-3a of the Regulations of Connecticut State Agencies, if applicable.

Sec. 2. Section 22a-174-3a(a)(2) of the Regulations of Connecticut State Agencies is amended to read as follows:

(2) Exemptions. Notwithstanding the provisions of subdivision (1) of this subsection, the owner or operator of a stationary source or modification may conduct activities listed in subdivision (2)(A), and may construct or operate the sources listed in subdivision (2)(B) and (2)(C) of this section, without a permit under this section:

(A) Any activity that:

- (i) adds air pollution control equipment or implements process changes to control air pollution unless the addition or implementation results in an increase in actual emissions of any individual air pollutant of fifteen (15) tons or more per year, or ten (10) tons or more per year of a hazardous air pollutant subject to the provisions of subsection (m) of this section,
- (ii) relocates a portable rock crusher which is subject to a permit or exemption letter issued by the commissioner pursuant to former section 22a-174-3 Regulations of Connecticut State Agencies, or which is registered under a general permit for such sources issued by the commissioner pursuant to section 22a-174(l) of the Connecticut General Statutes, provided the owner or operator is in compliance with any such permits and provides written notice to the commissioner prior to such relocation,
- (iii) constitutes a conversion from fuel oil to natural gas, or in addition to fuel oil, provided such conversion does not increase actual emissions of any individual air pollutant by fifteen (15) tons or more per year, unless such conversion results in reconstruction[;] , or
- (iv) constitutes a conversion from residual fuel oil to distillate fuel oil, or in addition to residual fuel oil, provided such conversion does not increase actual emissions of any individual air pollutant by fifteen (15) tons or more per year, unless such conversion results in reconstruction;

(B) Any stationary source that is:

- (i) registered under and is in compliance with any new source review general permit to construct and operate a new or existing stationary source issued pursuant to section 22a-174(l) of the Connecticut General Statutes,
- (ii) a stripping facility used to remove VOC from contaminated groundwater or soil pursuant to an order issued by the commissioner, provided such facility has a control device with VOC removal efficiency of at least ninety-five percent (95%),
- (iii) a portable engine or boiler temporarily replacing an existing engine or boiler, provided the replacement units have a combined emission rate equal to or less than the existing units and that the number of days total

that any and all such portable engines or boilers may be used does not exceed ninety (90) days in any calendar year,

- (iv) in compliance with section 22a-174-3b, [Section] section 22a-174-3c, section 22a-174-3d or [Section] section 22a-174-42 of the Regulations of Connecticut State Agencies, unless otherwise subject to this section pursuant to subdivision (7) of this subsection, or
- (v) a “dispensing facility,” as defined in section 22a-174-30(a)(3) of the Regulations of Connecticut State Agencies.

Statement of Purpose

(1) The purpose of the regulation, including the problems, issues or circumstances that the regulation proposes to address:

Since 2002, the Department has used a permit-by-rule, in lieu of the requirement to obtain an individual permit, for categories of sources for which the Department may develop standardized permit conditions that limit actual pollutant emissions to levels protective of public health and air quality. The use of permits-by-rule has reduced workload, reduced permitting timeframes and provided a fair and consistent basis for source operations.

Based on our experience with recently issued individual permits for combined heat-and-power (CHP) systems, the Department has determined that CHP systems of less than 10 MW of capacity are suitable for a permit-by-rule. The adoption of this permit-by-rule will reduce the time for the owner of a new CHP system to obtain a permit from about seven months to zero days.

(2) A summary of the main provisions of the regulation:

The rule includes all the restrictions necessary to limit emissions of air pollutants from a regulated CHP system to a level that protects air quality and public health. The regulation includes limitations for nitrogen oxides, particulate emissions and carbon monoxide; restrictions on hazardous air emissions; monitoring requirements sufficient to measure compliance with the emissions limitations; and record keeping and reporting requirements sufficient to ensure that compliance with the limits may be evaluated and enforced. Large CHP installations or CHP systems added to facilities that are major sources may not operate under this regulation. CHP systems that trigger environmental justice review may not operate under this regulation.

(3) The legal effects of the regulation, including all the ways that the regulation would change existing regulations or other law:

Absent this permit-by-rule, the owner of a new CHP system would need to apply for and obtain an individual permit prior to beginning construction. Issuance of an individual permit typically takes about seven months, creates regulatory uncertainty and places an administrative and financial burden on the CHP system owner.

The permit-by-rule allows the owner of a qualifying CHP system to satisfy the need to obtain an individual permit by operating in accordance with the permit-by-rule. The time to obtain a permit is reduced to zero and the result is certain, thereby saving time and money and increasing certainty for Connecticut businesses.

As operation under the permit-by-rule is voluntary, an owner of a CHP system eligible for this permit-by-rule may opt to apply for an individual permit.