


Connecticut Department of

**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

**BUREAU OF AIR MANAGEMENT  
NEW SOURCE REVIEW PERMIT  
TO CONSTRUCT AND OPERATE A STATIONARY SOURCE**

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

<b>Owner/Operator</b>	Yale University – School of Medicine
<b>Address</b>	2 Whitney Avenue, 5 <sup>th</sup> Floor, New Haven, CT 06520
<b>Equipment Location</b>	Sterling Power Plant, 309 Congress Avenue, New Haven, CT 06519
<b>Equipment Description</b>	7.5 MW Solar Taurus 70 Turbine/Rentech Duct Burner with SCR and CO Catalyst Oxidizer
<b>Town-Permit Numbers</b>	117-0370
<b>Premises Number</b>	49
<b>Stack Number</b>	20
<b>Modification Issue Date</b>	<b>JAN 28 2019</b>
<b>Prior Permit Issue Date</b>	March 12, 2009
<b>Expiration Date</b>	None

  
Katherine S. Dykes  
Commissioner

1/28/19  
Date

ORIGINAL

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

## **PART I. DESIGN SPECIFICATIONS**

### **A. General Description**

7.5 MW Solar Taurus 70 turbine with a 67 MMBtu/hr Rentech duct burner.

This equipment is part of a combined heat and power facility which includes another 7.5 MW Solar Taurus 70 turbine with a 67 MMBtu/hr Rentech duct burner.

### **B. Equipment Design Specifications**

#### **1. Turbine**

- a. Maximum Natural Gas Firing Rate (MMscf/hr): 0.089
- b. Maximum Distillate Oil Firing Rate (gal/hr): 637.5

The maximum gross heat input for the turbine at any inlet air temperature, T (°F) shall be determined from the following equations:

- c. Maximum Gross Heat Input Firing Natural Gas (MMBtu/hr):

$$-0.0005T^2 - 0.1766T + 90.777$$

- d. Maximum Gross Heat Input Firing Distillate Oil (MMBtu/hr):

$$-0.0004T^2 - 0.1806T + 90.017$$

#### **2. Duct Burner (Natural Gas only)**

- a. Maximum Fuel Firing Rate (MMscf/hr): 0.066
- b. Maximum Gross Heat Input (MMBTU/hr): 67

### **C. Control Equipment Design Specifications**

#### **1. Selective Catalytic Reduction (SCR)**

- a. Make and Model: Rentech or equivalent
- b. Catalyst Type: Homogeneous Honeycomb or equivalent

#### **2. Oxidation Catalyst**

- a. Make and Model: Rentech or equivalent
- b. Catalyst Type: Platinum or alumina or equivalent

#### **3. Low NO<sub>x</sub> burners**

- a. Make and Model: Turbine – SoLoNO<sub>x</sub> dry low NO<sub>x</sub> combustor; Duct Burner – Rentech or equivalent low NO<sub>x</sub> burner

**D. Stack Parameters**

1. Minimum Stack Height (ft): 170
2. Stack Exit Diameter (ft): 5
3. Minimum Exhaust Gas Flow Rate at 100% load (acfm): 72,903<sup>1</sup>
4. Minimum Stack Exit Temperature at 100% load (°F): 306<sup>1</sup>
5. Minimum Distance from Stack to Nearest Property Line (ft): 219

<sup>1</sup> – Exhaust parameters reflect operation at 100% load and the following inlet air conditions: 20 °F, 14.7 psia and 60% relative humidity.

**PART II. OPERATIONAL CONDITIONS**

**A. Equipment**

1. Turbine
  - a. Fuel Types: Natural Gas, Distillate Oil
  - b. Maximum Natural Gas Consumption over any Consecutive 12 Month Period (MMscf/yr): 1,563.2<sup>2</sup>
  - c. Maximum Distillate Oil Consumption over any Consecutive 12 Month Period (gal/yr): 1,300,094<sup>2</sup>
  - d. Maximum Distillate Oil Sulfur Content (% by weight, dry basis): 0.0015
2. Duct Burner
  - a. Fuel Type: Natural gas
  - b. Maximum Fuel Consumption over any Consecutive 12 Month Period (MMscf/yr): 1,150.8<sup>2</sup>

<sup>2</sup> – Maximum fuel consumption values are the combined limits for Permit Nos. 117-0369 and 117-0370

**PART III. ALLOWABLE EMISSION LIMITS**

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

**A. Short Term Emission Limits**

These short term emission limits do not apply during periods of startup, shutdown and fuel switching, unless otherwise noted.

1. Criteria Pollutants
  - a. Turbine Operating on Natural Gas

Pollutant	lb/hr	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu <sup>1</sup>
PM <sub>10</sub>	1.91		0.02

PM <sub>2.5</sub>	1.91		0.02
SO <sub>2</sub>	0.31		
NO <sub>x</sub>	0.67	2.0	
VOC/HC	0.58		
CO	1.02	5.0	

b. Turbine Operating on Distillate Oil

Pollutant	lb/hr	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu <sup>1</sup>
PM <sub>10</sub>	3.24		0.04
PM <sub>2.5</sub>	3.24		0.04
SO <sub>2</sub>	0.13		
NO <sub>x</sub>	3.23	9.6	
VOC/HC	2.82		
CO	0.98	5.0	

c. Turbine and Duct Burner Operating on Natural Gas

Pollutant	lb/hr	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu <sup>1</sup>
PM <sub>10</sub>	2.41		0.02
PM <sub>2.5</sub>	2.41		0.02
SO <sub>2</sub>	0.35		
NO <sub>x</sub>	1.16	2.0	
VOC/HC	0.94		
CO	1.77	5.0	

d. Turbine Operating on Distillate Oil and Duct Burner Operating on Natural Gas

Pollutant	lb/hr	ppmvd @ 15% O <sub>2</sub>	lb/MMBtu <sup>1</sup>
PM <sub>10</sub>	3.74		0.03
PM <sub>2.5</sub>	3.74		0.03
SO <sub>2</sub>	0.17		
NO <sub>x</sub>	5.70	9.6	
VOC/HC	3.18		
CO	1.73	5.0	

<sup>1</sup> - These limits shall apply at all times, including periods of start-up and shutdown.

2. Non-Criteria Pollutants

For All Operating Scenarios:

Pollutant	ppmvd @ 15% O <sub>2</sub>	MASC (µg/m <sup>3</sup> )
Ammonia	5.0	263,000

**B. Startup, Shutdown and Fuel Switching Emission Limits**

1. CO event based limits for Natural Gas:

	<b>lb/event</b>
Startup	11.3
Shutdown	11.8
Fuel Switching	8.6

2. CO event based limits for Distillate Oil:

	<b>lb/event</b>
Startup	8.6
Shutdown	7.9
Fuel Switching	11.3

3. The Permittee shall minimize emissions during periods of startup and shutdown by the following work practices and time constraints:
- a. Start the ammonia injection as soon as minimum catalyst temperature is reached;
  - b. The oxidation catalyst shall not be bypassed during startup, shutdown or fuel switching;
  - c. The duration of startup shall not exceed 60 minutes for a hot start or warm start;
  - d. The duration of startup shall not exceed 240 minutes for a cold start;
  - e. The duration of a fuel switch shall not exceed 60 minutes;
  - f. The duration of shutdown shall not exceed 30 minutes;
  - g. A hot start shall be defined as a startup when the turbine has been down for less than 8 hours;
  - h. A warm start shall be defined as startup when the turbine has been down for more than 8 hours but less than 24 hours;
  - i. A cold start shall be defined as startup when the turbine has been down for more than 24 hours;
  - j. A fuel switch shall be defined as the period of time beginning with the firing of a fuel other than the initial fuel and ending when the firing of the initial fuel ends and the turbine returns to steady-state operation; and
  - k. Emissions during these periods shall be counted towards the annual emission limits stated herein.
4. The NO<sub>x</sub> CEM shall be operated at all times during periods of startup, shutdown and fuel switching and shall be used to determine NO<sub>x</sub> emissions during periods of startup, shutdown and fuel switching.

**C. Annual Emission Limits**

Combined annual emission limits for Permit Nos. 117-0369 and 117-0370.

<b>Pollutant</b>	<b>tons per 12 consecutive months</b>
PM <sub>10</sub>	22.6
PM <sub>2.5</sub>	22.6
SO <sub>2</sub>	3.1

NO <sub>x</sub>	15.1
VOC/HC	10.7
CO	15.5

**D. Hazardous Air Pollutants**

This equipment shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

**E. Opacity**

This equipment shall not exceed 10% opacity during any six minute block average as measured by 40 CFR 60, Appendix A, Reference Method 9.

**F. Demonstration of compliance with the above emission limits may be met by calculating the emission rates using emission factors from the following sources:**

- NO<sub>x</sub>: CEM data
- PM<sub>10</sub>, PM<sub>2.5</sub>, CO, VOC/HC, Ammonia: Stack test results
- SO<sub>x</sub>, HAPs: Compilation of Air Pollutant Emission Factors, AP-42, fifth edition, Section 3.1, April 2000 (turbine) and Section 1.4, July 1998 (duct burners).

The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

**PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS**

**A. Monitoring**

1. The Permittee shall comply with the CEM requirements as set forth in RCSA Section 22a-174-4. CEM shall be required for the following pollutant/operational parameters and enforced on the following basis:

Pollutant/Operational Parameter	Averaging Times	Emission Limit	Units
NO <sub>x</sub>	24 hour rolling	2.0 (Natural Gas) <sup>1</sup> 9.6 (Distillate Oil) <sup>1</sup>	ppmvd @ 15% O <sub>2</sub>
O <sub>2</sub>	1 hour block	none	

<sup>1</sup> – Limit does not apply during startup, shutdown or fuel switching

2. The Permittee shall use individual non-resettable totalizing fuel metering devices or billing meters to continuously monitor fuel feed to the turbine and duct burner.
3. The Permittee shall continuously monitor and continuously record the SCR aqueous ammonia injection rate (lb/hr), operating temperature (°F) and pressure drop (inches of water) across the catalyst bed. The Permittee shall maintain these parameters within the ranges recommended by the manufacturer to achieve compliance with the emission limits in this permit.

4. The Permittee shall continuously monitor and continuously record the oxidation catalyst inlet temperature (°F). The Permittee shall maintain this parameter within the range recommended by the manufacturer to achieve compliance with the emission limits in this permit.
5. The Permittee shall perform inspections of the SCR and oxidation catalysts as recommended by the manufacturer.

## **B. Record Keeping**

1. The Permittee shall keep records of monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding (for each fuel) the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by the equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.
3. The Permittee shall calculate and record the monthly and consecutive 12 month PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC, and CO emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.

Emissions during startup, shutdown and fuel switching shall be counted towards the annual emission limitation in Part III.C of this permit.

4. The Permittee shall keep records of all exceedances of any emissions limitation or operating parameter. Such records shall include:
  - a. the date and time of the exceedance;
  - b. a detailed description of the exceedance; and
  - c. the duration of the exceedance.
5. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the stationary gas turbine/duct burner; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR §60.7(b)]

Such records shall contain the following information:

- a. type of event (startup, shutdown, or malfunction);
- b. equipment affected;
- c. date of event;
- d. duration of event (minutes);
- e. fuel being used during event; and
- f. total NO<sub>x</sub> and CO emissions emitted (lb) during the event.

6. The Permittee shall keep records of the occurrence and duration of any fuel switching event in the operation of the stationary gas turbine/duct burner.

Such records shall contain the following information:

- a. date of event;
  - b. duration of event (minutes);
  - c. fuel being used during event; and
  - d. total NO<sub>x</sub> and CO emissions emitted (lb) during the event.
7. The Permittee shall keep records of each delivery of aqueous ammonia. The records shall include:
    - a. the date of delivery;
    - b. the name of the supplier;
    - c. the quantity of aqueous ammonia delivered; and
    - d. the percentage of ammonia in solution, by weight.
  8. The Permittee shall keep records of the inspection and maintenance of the SCR and oxidation catalysts. The records shall include:
    - a. the name of the person;
    - b. the date;
    - c. the results or actions; and
    - d. the date the catalyst is replaced.
  9. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

### C. Reporting

1. The Permittee shall notify the commissioner in writing of any exceedance of an emissions limitation or operating parameter, and shall identify the cause or likely cause of such exceedance, all corrective actions and preventive measures taken with respect thereto, and the dates of such actions and measures as follows:
  - a. For any hazardous air pollutant, no later than 24 hours after such exceedance commenced; and
  - b. For any other regulated air pollutant or operating parameter, no later than ten days after such exceedance commenced.
2. The Permittee shall notify the commissioner in writing of any malfunction of the stationary gas turbine/duct burner, the air pollution control equipment or the continuous monitoring system. The Permittee shall submit such notification within ten days of the malfunction. The notification shall include the following:
  - a. a description of the malfunction and a description of the circumstances surrounding the cause or likely cause of such malfunction; and
  - b. a description of all corrective actions and preventive measures taken and/or planned with respect to such malfunction and the dates of such actions and measures.

### PART V. STACK EMISSION TEST REQUIREMENTS

Stack emission testing shall be performed in accordance with the Emission Test Guidelines available on the DEEP website.



Recurring stack testing shall be required for the following pollutants:

PM     PM<sub>10</sub>     PM<sub>2.5</sub>     SO<sub>2</sub>     NO<sub>x</sub>     CO  
 VOC     Opacity     Other (HAPs): Ammonia

Recurrent stack testing for CO and ammonia shall be conducted within five years from the date of the previous stack test to demonstrate compliance with their respective limits.

Stack testing shall be conducted for all operating modes.

Stack test results shall be reported as follows: all pollutants in units of lb/hr and CO in units of ppmvd at 15% O<sub>2</sub>, ammonia in units of µg/m<sup>3</sup> and ppmvd at 15% O<sub>2</sub>.

## PART VI. OPERATION AND MAINTENANCE REQUIREMENTS

- A. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- B. The Permittee shall operate and maintain this equipment, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, fuel switching and malfunction.
- C. The Permittee shall properly operate the control equipment at all times that this equipment is in operation and emitting air pollutants.

## PART VII. SPECIAL REQUIREMENTS

- A. The Permittee shall comply with all applicable sections of the following New Source Performance Standard at all times.

Title 40 CFR Part 60, Subparts KKKK and A.

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

- B. In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three hours, the Permittee shall immediately institute shutdown of the turbine/duct burner.
- C. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]
- D. The Permittee shall not allow total actual annual NO<sub>x</sub> emissions from this premises to exceed 116.6 tons. This limit includes emissions from all permitted and registered fuel burning equipment at the premises, any sources at the Premises operating under Section 22a-174-3b of RCSA, and any other source of NO<sub>x</sub> emissions at the premises. Compliance with this NO<sub>x</sub> emissions cap shall be determined on a rolling 12 month basis. The Permittee shall make records sufficient to document compliance with this requirement within ten days of the end of each month. All such records shall be retained for a period of not less than five years from the

making of such record. Any exceedance of the cap shall be reported to the commissioner within ten days of the Permittee becoming aware of such exceedance.

#### **PART VIII. ADDITIONAL TERMS AND CONDITIONS**

- A.** This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- B.** Any representative of the DEEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C.** This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D.** This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E.** Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F.** Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G.** Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H.** The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date

three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

- I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.



**NSR Engineering Evaluation**  
 CT Department of Energy and Environmental Protection  
 Bureau of Air Management

<b>Company Name:</b>	Yale University – School of Medicine	<b>Permit No.:</b>	117-0369, 117-0370
<b>Equipment Location:</b>	309 Congress Street, New Haven, CT 06519	<b>Date App Received:</b>	6/30/2015
<b>Mailing Address:</b>	2 Whitney Avenue, New Haven, CT 06510	<b>SIMS No.:</b>	201504503, 201504504
<b>Contact Person:</b>	Mr. James Romanski	<b>Date Prepared:</b>	12/12/2018
<b>Contact Title:</b>	Powerhouse EH&S Manager	<b>Prepared By:</b>	Dave LaRiviere
<b>Contact Phone:</b>	203 737 4338	<b>Single or Multiple Units:</b>	Multiple
<b>Contact Email:</b>	James.romanski@yale.edu	<b>Permit Type:</b>	Minor Mod (prepaid)
<b>Ozone:</b>	serious non-attainment	<b>Premises Size:</b>	Major
<b>PM2.5:</b>	attainment	<b>Equipment Size:</b>	Minor
<b>Equipment Description</b>	(2) 7.5 MW Solar Taurus 70 turbine with (2) 67 MMBtu/hr Rentech duct burner	<b>TV/GPLPE Permit No:</b>	117-0271-TV
Step 1: Complete all the fields above			
Step 2: <input type="button" value="Generate Eval"/>		Step 3: <input type="button" value="Update Fields"/>	

**Introduction**

**Reason for Application**

Yale University - School of Medicine (Yale) submitted NSR minor modification applications for Permit Nos. 117-0369 and 117-0370 to add ambient temperature dependent maximum heat input curves for the turbines, change reference to No. 2 fuel to distillate fuel and add fuel switching to transient operating scenarios.

**Regulatory Applicability**

The proposed changes meet the criteria of RCSA §22a-174-2a(e).

**Discussion of Modification**

Yale submitted the minor modifications to add temperature dependent curves for heat input to the turbines:

Maximum Gross Heat Input Firing Natural Gas (MMBtu/hr):  $-0.0005T^2 - 0.1766T + 90.777$

Maximum Gross Heat Input Firing Distillate Oil (MMBtu/hr):  $-0.0004T^2 - 0.1806T + 90.017$

The equations were derived from the Predicted Engine Performance Data Sheet provided by Solar Turbines (Job ID: 3T311, August 7, 2014, Engine Performance Code: Rev 4.13.1.15.9) and are expected but not guaranteed values. The equation provided by Solar for natural gas firing was modified based on actual performance test data, per attached email from Yale.

Yale requested that references to No. 2 fuel oil, an alternative fuel for the turbines, be changed to distillate oil to allow for the use a fuel that does not meet the specific definition of No. 2 fuel oil (e.g., biodiesel). The turbines have not been physically modified nor would they need to be to accommodate this. The permitted fuel sulfur content (0.0015 wt %, dry) and emission rates (hourly and annual) will not be changed.

Yale requested the addition of 'fuel switching' be added to the list of transient operating scenarios, currently including startup and shutdown. It will have its own event based emission rate for CO. During transient operations, the NO<sub>x</sub> CEM is used to measure NO<sub>x</sub> emissions during these events.

The permits were modified as requested with minor edited to the marked-up permits submitted with the applications. In addition, the latest CHP permit template was used.

*Regulatory Analysis*

The requested changes do not trigger any new regulatory requirements.

*Public Notification*

The applicant will not be required to publish Notice of Tentative Determination in accordance with RCSA §22a-174-2a(b)(3) and E&E Division policy.

*Environmental Compliance History Policy*

The compliance record was reviewed in accordance with the Environmental Compliance History Policy. The applicant submitted a compliance history of the previous five years and has indicated no violations. Agency records (including the SIMS database) were reviewed for information to evaluate the applicant's compliance history (see attached). Additionally, a review of air program compliance was requested from the Enforcement Section and that response forms a part of this record.

**Emissions Change from Modification/Revision**

<b>Pollutant</b>	<b>Existing Permit (tpy)</b>	<b>Modified Permit (tpy)</b>	<b>Change in Emissions (tpy)</b>
<b>PM<sub>10</sub></b>	22.6	22.6	0
<b>PM<sub>2.5</sub></b>	22.6	22.6	0
<b>SO<sub>2</sub></b>	3.1	3.1	0
<b>NO<sub>x</sub></b>	15.1	15.1	0
<b>VOC/HC</b>	10.7	10.7	0
<b>CO</b>	15.5	15.5	0

**Comments:** Permitted annual emissions limits for both turbines combined.

**Ambient Air Quality Impact Analysis** (Attachment L of NSR Application)

An Ambient Impact Analysis is not required since there are no changes in emissions.

**Applicant Review of Drafts**

The above referenced pre-paid NSR minor modification drafts were sent to Yale for review on December 19, 2018. Yale’s comments are attached (See emails from James Romanski of Yale dated January 18, 2019 and January 23, 2019) with responses below:

Bullets 1, 2, 3 – Response: Comments were incorporated as submitted.

Bullet 4 – Removal of the word ‘limits’ from transient operations table (startup, shutdown, fuel switching)

Response: Yale argues that these values were never ‘limits’ in the previous versions of the permits, they are manufacturer’s non-guaranteed data. Regardless, these are limits used to calculate annual emissions. Permit language will remain as drafted.

Bullet 5 – Substitute a 63 month recurring stack test period for the current five year period for CO and NH<sub>3</sub> to avoid schedule creep. Citing that this timeframe appears in other NSR permits and regulatory programs.

Response: This 63 month period appears in RCSA §22a-174-22e. It had been used in one NSR permit, by way of a request from the Stack Test Group to avoid testing in winter on a very tall stack. The understanding has been that this 63 month period is not intended to replace the standard five year period for recurring testing and will not be incorporated into these minor mods. Permit language will remain as drafted.

**Permit Fee(s)** (Double Click to edit)

Equipment Size  Major  Minor

Permit Type  ▼

Permit Fee \$1,750 ea

Municipality  Yes

# of Permits/Applications 1 \$1,750

Application Fee Submitted  Yes -\$940

Was Permit Fee paid with Application Fee?  Yes -810

**Additional Application Fees (\$1750 Each)**

	Quantity	
BACT Review	0	\$0
LAER Review	0	\$0
<b>Money Owed</b>		<b>\$0</b>

**Comments:**

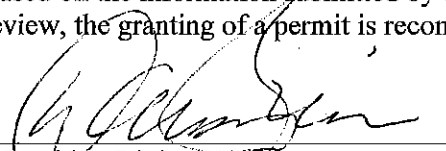
## Compliance History Review

Was the SIMS Enforcement Report run and reviewed for this applicant?	Yes
Were other bureaus contacted to resolve any outstanding enforcement actions shown in the SIMS Report?	N/A
What is the date on the Enforcement Section's review of air compliance email?	12/12/2018
Was the compliance record reviewed in accordance with the Environmental Compliance History Policy?	Yes

### Comments:

## Recommendation

Based on the information submitted by the applicant, this engineering evaluation and the compliance history review, the granting of a permit is recommended for Yale University – School of Medicine.

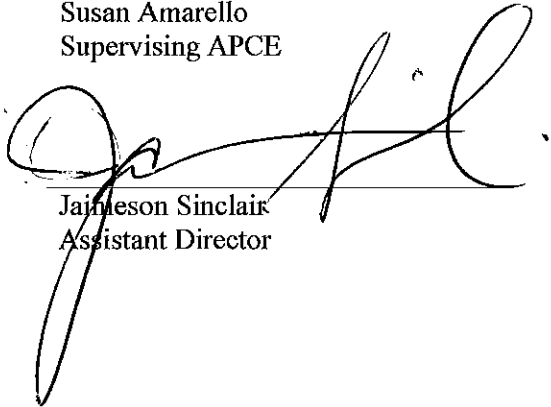
  
\_\_\_\_\_  
David LaRiviere  
APCE III

1.24.19  
\_\_\_\_\_  
Date

## Approvals

  
\_\_\_\_\_  
Susan Amarello  
Supervising APCE

1/24/2019  
\_\_\_\_\_  
Date

  
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Jameson Sinclair  
Assistant Director

1/25/19  
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Date