



**New York State Department of Environmental Conservation  
Permit Review Report**

**Permit ID: 2-6202-00167/00005**

**Renewal Number: 2**

**Modification Number: 1 09/21/2012**

**Facility Identification Data**

Name: COLUMBIA UNIVERSITY-410 W 118TH ST  
Address: 410 W 118TH ST  
NEW YORK, NY 10027

**Owner/Firm**

Name: TRUSTEES OF COLUMBIA UNIVERSITY IN CITY OF NEW YORK  
Address: 535 W 116TH ST  
NEW YORK, NY 10027, USA  
Owner Classification: Corporation/Partnership

**Permit Contacts**

Division of Environmental Permits:  
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Air Permitting Contact:  
Name: FRANK MARTINO  
Address: COLUMBIA UNIV - PHYSICAL PLANT  
410 W 118TH ST  
NEW YORK, NY 10027  
Phone:2128540794

**Permit Description**

**Introduction**

The Title V operating air permit is intended to be a document containing only enforceable terms and conditions as well as any additional information, such as the identification of emission units, emission points, emission sources and processes, that makes the terms meaningful. 40 CFR Part 70.7(a)(5) requires that each Title V permit have an accompanying "...statement that sets forth the legal and factual basis for the draft permit conditions". The purpose for this permit review report is to satisfy the above requirement by providing pertinent details regarding the permit/application data and permit conditions in a more easily understandable format. This report will also include background narrative and explanations of regulatory decisions made by the reviewer. It should be emphasized that this permit review report, while based on information contained in the permit, is a separate document and is not itself an enforceable term and condition of the permit.

**Summary Description of Proposed Project**

The Facility (Columbia University) currently has an Air Title V permit to operate a central heating plant that has four (4) mid-size boilers, each with a maximum heat input capacity of 99.5 MMBtu/hr. The boilers fire natural gas and No. 6 fuel oil. Exhaust emissions are vented via a common stack.



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The facility had been utilizing a Continuous Emissions Monitoring System (CEMS) for Oxides of Nitrogen measurement. However, as per 6NYCRR 227-2.6(b), the facility would eliminate use of CEMS and instead perform compliance stack testing once every 5 years (or permit term) in order to comply with NOx requirements. The facility will use daily and monthly fuel consumption records along with average stack test emission factors to calculate 12-month rolling average. In lieu of a stack test factor (a possible interim period), the facility will utilize EPA's AP-42 factors of 100 lbs/mmcf of Natural Gas usage and 55 lbs/1000 gallons for No. 6 oil used.

This application is submitted to modify the permit as above.

**Attainment Status**

COLUMBIA UNIVERSITY-410 W 118TH ST is located in the town of MANHATTAN in the county of NEW YORK.

The attainment status for this location is provided below. (Areas classified as attainment are those that meet all ambient air quality standards for a designated criteria air pollutant.)

Criteria Pollutant	Attainment Status
Particulate Matter (PM)	ATTAINMENT
Particulate Matter < 10µ in diameter (PM10)	MODERATE NON-ATTAINMENT
Sulfur Dioxide (SO2)	ATTAINMENT
Ozone*	SEVERE NON-ATTAINMENT
Oxides of Nitrogen (NOx)**	ATTAINMENT
Carbon Monoxide (CO)	ATTAINMENT

\* Ozone is regulated in terms of the emissions of volatile organic compounds (VOC) and/or oxides of nitrogen (NOx) which are ozone precursors.

\*\* NOx has a separate ambient air quality standard in addition to being an ozone precursor.

**Facility Description:**

THE COLUMBIA UNIVERSITY MORNINGSIDE HEIGHTS CAMPUS COVERS AN AREA OF ABOUT 4.5 MILLION SQUARE FEET (ABOUT 70 BLDGS) IN THE UPPER WESTSIDE OF MANHATTAN. THE MAJOR EMISSION SOURCE ON CAMPUS IS THE CENTRAL STEAM BOILER PLANT WHICH IS LOCATED IN THE BASEMENT OF THE CEPSR (CENTER FOR ENG. & PHYSICAL SCIENCE RESEARCH) BUILDING (530 W. 120TH STREET). THE BOILERS PROVIDE THE STEAM USED FOR WINTER HEATING AND SUMMER COOLING THE NUMEROUS CAMPUS BUILDINGS. EACH OF THE FOUR BOILERS IS RATED AT 99.5 MMBTU/HR AND BURNS NO. 6 OIL OR NATURAL GAS FUEL. EXEMPT SOURCES ON CAMPUS INCLUDE ACADEMIC RESEARCH LABORATORY HOOD VENTS AND EMERGENCY DIESEL GENERATORS.

**Permit Structure and Description of Operations**

The Title V permit for COLUMBIA UNIVERSITY-410 W 118TH ST is structured in terms of the following hierarchy: facility, emission unit, emission point, emission source and process. A facility is defined as all emission sources located at one or more adjacent or contiguous



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subdivided into one or more emission units (EU). Emission units are defined as any part or activity of a stationary facility that emits or has the potential to emit any federal or state regulated air pollutant. An emission unit is represented as a grouping of processes (defined as any activity involving one or more emission sources (ES) that emits or has the potential to emit any federal or state regulated air pollutant). An emission source is defined as any apparatus, contrivance or machine capable of causing emissions of any air contaminant to the outdoor atmosphere, including any appurtenant exhaust system or air cleaning device. [NOTE: Indirect sources of air contamination as defined in 6 NYCRR Part 203 (i.e. parking lots) are excluded from this definition]. The applicant is required to identify the principal piece of equipment (i.e., emission source) that directly results in or controls the emission of federal or state regulated air pollutants from an activity (i.e., process). Emission sources are categorized by the following types:

- combustion - devices which burn fuel to generate heat, steam or power
- incinerator - devices which burn waste material for disposal
- control - emission control devices
- process - any device or contrivance which may emit air contaminants that is not included in the above categories.

COLUMBIA UNIVERSITY-410 W 118TH ST is defined by the following emission unit(s):

Emission unit U00101 - FOUR (4) BOILERS OF SAME SIZE (EACH B & W FM 103-88; WITH A MAXIMUM DESIGN HEAT INPUT CAPACITY OF 99.5 MILLION BTU/HOUR), DISCHARGING TO A COMMON EXISTING STACK. ALL ARE BURNING NATURAL GAS OR NO. 6 OIL, USING LOW NO<sub>x</sub> BURNERS. BOILERS LOCATED IN BASEMENT OF CEPSR BUILDING (530 WEST 120 ST). COMMON STACK EXTENDS ABOVE BUILDING ROOF.

THREE (3) BOILERS (# B&W01 THRU B&W03) WITH LOW NO<sub>x</sub> BURNERS WERE INSTALLED AS PER THE PURCHASE ORDER, DATED 8/22/1988. THE FOURTH BOILER (#B&W04) WITH FLUE GAS RECIRCULATION & LOW NO<sub>x</sub> BURNER WAS INSTALLED IN SEP. 1998. AT ANY TIME, NOT MORE THAN THREE (3) BOILERS ARE PERMITTED TO OPERATE SIMULTANEOUSLY.

Emission unit U00101 is associated with the following emission points (EP):  
00101

Process: 001 is located at BASEMENT, Building CEPSR - FOUR (4) PACKAGE BOILERS, EACH RATED AT 99.5 MMBTU/HR, GENERATE STEAM FOR HEATING AND COOLING NUMEROUS CAMPUS BUILDINGS. ALL BOILERS HAVE THE CAPABILITY TO BURN NO. 6 OIL OR NATURAL GAS. IN THIS PROCESS NO. 6 OIL IS BEING BURNED.

Process: 002 is located at BASEMENT, Building CEPSR - FOUR (4) PACKAGE BOILERS, EACH RATED 99.5 MMBTU/HR, GENERATE STEAM FOR HEATING AND COOLING NUMEROUS BUILDINGS. ALL BOILERS HAVE THE CAPABILITY TO BURN NO. 6 OIL OR NATURAL GAS. IN THIS PROCESS NATURAL GAS IS COMBUSTED.

**Title V/Major Source Status**

COLUMBIA UNIVERSITY-410 W 118TH ST is subject to Title V requirements. This determination is based on the following information:

Potential emissions of both sulfur dioxide and oxides of nitrogen are in excess of the major source thresholds of 100 tpy and 25 tpy, respectively.



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**Program Applicability**

The following chart summarizes the applicability of COLUMBIA UNIVERSITY-410 W 118TH ST with regards to the principal air pollution regulatory programs:

Regulatory Program	Applicability
PSD	YES
NSR (non-attainment)	NO
NESHAP (40 CFR Part 61)	NO
NESHAP (MACT - 40 CFR Part 63)	NO
NSPS	YES
TITLE IV	NO
TITLE V	YES
TITLE VI	NO
RACT	YES
SIP	YES

**NOTES:**

**PSD** Prevention of Significant Deterioration (40 CFR 52) - requirements which pertain to major stationary sources located in areas which are in attainment of National Ambient Air Quality Standards (NAAQS) for specified pollutants.

**NSR** New Source Review (6 NYCRR Part 231) - requirements which pertain to major stationary sources located in areas which are in non-attainment of National Ambient Air Quality Standards (NAAQS) for specified pollutants.

**NESHAP** National Emission Standards for Hazardous Air Pollutants (40 CFR 61) - contaminant and source specific emission standards established prior to the Clean Air Act Amendments of 1990 (CAAA) which were developed for 9 air contaminants (inorganic arsenic, radon, benzene, vinyl chloride, asbestos, mercury, beryllium, radionuclides, and volatile HAP's).

**MACT** Maximum Achievable Control Technology (40 CFR 63) - contaminant and source specific emission standards established by the 1990 CAAA. Under Section 112 of the CAAA, the US EPA is required to develop and promulgate emissions standards for new and existing sources. The standards are to be based on the best demonstrated control technology and practices in the regulated industry, otherwise known as MACT. The corresponding regulations apply to specific source types and contaminants.

**NSPS** New Source Performance Standards (40 CFR 60) - standards of performance for specific stationary source categories developed by the US EPA under Section 111 of the CAAA. The standards apply only to those stationary sources which have been constructed or modified after the regulations have been proposed by publication in the Federal Register and only to the specific contaminant(s) listed in the regulation.



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Title IV Acid Rain Control Program (40 CFR 72 thru 78) - regulations which mandate the implementation of the acid rain control program for large stationary combustion facilities.

Title VI Stratospheric Ozone Protection (40 CFR 82, Subparts A thru G) - federal requirements that apply to sources which use a minimum quantity of CFC's (chlorofluorocarbons), HCFC's (hydrofluorocarbons) or other ozone depleting substances or regulated substitute substances in equipment such as air conditioners, refrigeration equipment or motor vehicle air conditioners or appliances.

RACT Reasonably Available Control Technology (6 NYCRR Parts 212.10, 226, 227-2, 228, 229, 230, 232, 233, 234, 235, 236) - the lowest emission limit that a specific source is capable of meeting by application of control technology that is reasonably available, considering technological and economic feasibility. RACT is a control strategy used to limit emissions of VOC's and NOx for the purpose of attaining the air quality standard for ozone. The term as it is used in the above table refers to those state air pollution control regulations which specifically regulate VOC and NOx emissions.

SIP State Implementation Plan (40 CFR 52, Subpart HH) - as per the CAAA, all states are empowered and required to devise the specific combination of controls that, when implemented, will bring about attainment of ambient air quality standards established by the federal government and the individual state. This specific combination of measures is referred to as the SIP. The term here refers to those state regulations that are approved to be included in the SIP and thus are considered federally enforceable.

**Compliance Status**

Facility is in compliance with all requirements.

**SIC Codes**

SIC or Standard Industrial Classification code is an industrial code developed by the federal Office of Management and Budget for use, among other things, in the classification of establishments by the type of activity in which they are engaged. Each operating establishment is assigned an industry code on the basis of its primary activity, which is determined by its principal product or group of products produced or distributed, or services rendered. Larger facilities typically have more than one SIC code.

**SIC Code**

**Description**

4961  
8221

STEAM SUPPLY  
COLLEGES AND UNIVERSITIES, NEC

**SCC Codes**

SCC or Source Classification Code is a code developed and used" by the USEPA to categorize processes which result in air emissions for the purpose of assessing emission factor information.Each SCC represents a unique process or function within a source category logically associated with a point of air pollution emissions. Any operation that causes air pollution can be represented by one or more SCC's.

**SCC Code**

**Description**

1-02-006-02  
  
1-03-004-01

EXTERNAL COMBUSTION BOILERS - INDUSTRIAL  
INDUSTRIAL BOILER - NATURAL GAS  
10-100 MMBtu/Hr  
EXTERNAL COMBUSTION BOILERS -  
COMMERCIAL/INDUSTRIAL



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COMMERCIAL/INSTITUTIONAL BOILER - RESIDUAL  
 OIL  
 Grade 6 Oil

**Facility Emissions Summary**

In the following table, the CAS No. or Chemical Abstract Service code is an identifier assigned to every chemical compound. [NOTE: Certain CAS No.'s contain a 'NY' designation within them. These are not true CAS No.'s but rather an identification which has been developed by the department to identify groups of contaminants which ordinary CAS No.'s do not do. As an example, volatile organic compounds or VOC's are identified collectively by the NY CAS No. 0NY998-00-0.] The PTE refers to the Potential to Emit. This is defined as the maximum capacity of a facility or air contaminant source to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or air contamination source to emit any air contaminant, including air pollution control equipment and/or restrictions on the hours of operation, or on the type or amount of material combusted, stored, or processed, shall be treated as part of the design only if the limitation is contained in federally enforceable permit conditions. The PTE Range represents an emission range for a contaminant. Any PTE quantity that is displayed represents a facility-wide emission cap or limitation for that contaminant. If no PTE quantity is displayed, the PTE Range is provided to indicate the approximate magnitude of facility-wide emissions for the specified contaminant in terms of tons per year (tpy). The term 'HAP' refers to any of the hazardous air pollutants listed in section 112(b) of the Clean Air Act Amendments of 1990. Total emissions of all hazardous air pollutants are listed under the special NY CAS No. 0NY100-00-0. In addition, each individual hazardous air pollutant is also listed under its own specific CAS No. and is identified in the list below by the (HAP) designation.

Cas No.	Contaminant Name	PTE	
		lbs/yr	Range
000630-08-0	CARBON MONOXIDE		>= 25 tpy but < 40 tpy
007439-92-1	LEAD		> 0 but < 10 tpy
0NY210-00-0	OXIDES OF NITROGEN		>= 100 tpy but < 250 tpy
0NY075-00-0	PARTICULATES		>= 50 tpy but < 100 tpy
0NY075-00-5	PM-10		>= 50 tpy but < 100 tpy
007446-09-5	SULFUR DIOXIDE		>= 100 tpy but < 250 tpy
0NY998-00-0	VOC		> 0 but < 2.5 tpy

**NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS**

**Item A: Emergency Defense - 6 NYCRR 201-1.5**

An emergency constitutes an affirmative defense to an action brought for noncompliance with emissions limitations or permit conditions for all facilities in New York State.

(a) The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An emergency occurred and that the facility owner and/or operator can identify the cause(s) of the emergency;
- (2) The equipment at the permitted facility causing the emergency was at the time being properly operated;
- (3) During the period of the emergency the facility owner and/or operator took



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all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

(4) The facility owner and/or operator notified the Department within two working days after the event occurred. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding, the facility owner and/or operator seeking to establish the occurrence of an emergency has the burden of proof.

(c) This provision is in addition to any emergency or upset provision contained in any applicable requirement.

**Item B: Public Access to Recordkeeping for Title V Facilities - 6 NYCRR 201-1.10(b)**

The Department will make available to the public any permit application, compliance plan, permit, and monitoring and compliance certification report pursuant to Section 503(e) of the Act, except for information entitled to confidential treatment pursuant to 6 NYCRR Part 616 - Public Access to records and Section 114(c) of the Act.

**Item C: Timely Application for the Renewal of Title V Permits -6 NYCRR Part 201-6.3(a)(4)**

Owners and/or operators of facilities having an issued Title V permit shall submit a complete application at least 180 days, but not more than eighteen months, prior to the date of permit expiration for permit renewal purposes.

**Item D: Certification by a Responsible Official - 6 NYCRR Part 201-6.3(d)(12)**

Any application, form, report or compliance certification required to be submitted pursuant to the federally enforceable portions of this permit shall contain a certification of truth, accuracy and completeness by a responsible official. This certification shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

**Item E: Requirement to Comply With All Conditions - 6 NYCRR Part 201-6.5(a)(2)**

The permittee must comply with all conditions of the Title V facility permit. Any permit non-compliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

**Item F: Permit Revocation, Modification, Reopening, Reissuance or Termination, and Associated Information Submission Requirements - 6 NYCRR Part 201-6.5(a)(3)**

This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

**Item G: Cessation or Reduction of Permitted Activity Not a Defense - 6 NYCRR 201-6.5(a)(5)**

It shall not be a defense for a permittee in an enforcement action to claim that a cessation or reduction in the permitted activity would have been necessary in order to maintain compliance with the conditions of this permit.



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**Item H: Property Rights - 6 NYCRR 201-6.5(a)(6)**

This permit does not convey any property rights of any sort or any exclusive privilege.

**Item I: Severability - 6 NYCRR Part 201-6.5(a)(9)**

If any provisions, parts or conditions of this permit are found to be invalid or are the subject of a challenge, the remainder of this permit shall continue to be valid.

**Item J: Permit Shield - 6 NYCRR Part 201-6.5(g)**

All permittees granted a Title V facility permit shall be covered under the protection of a permit shield, except as provided under 6 NYCRR Subpart 201-6. Compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that such applicable requirements are included and are specifically identified in the permit, or the Department, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the major stationary source, and the permit includes the determination or a concise summary thereof. Nothing herein shall preclude the Department from revising or revoking the permit pursuant to 6 NYCRR Part 621 or from exercising its summary abatement authority. Nothing in this permit shall alter or affect the following:

- i. The ability of the Department to seek to bring suit on behalf of the State of New York, or the Administrator to seek to bring suit on behalf of the United States, to immediately restrain any person causing or contributing to pollution presenting an imminent and substantial endangerment to public health, welfare or the environment to stop the emission of air pollutants causing or contributing to such pollution;
- ii. The liability of a permittee of the Title V facility for any violation of applicable requirements prior to or at the time of permit issuance;
- iii. The applicable requirements of Title IV of the Act;
- iv. The ability of the Department or the Administrator to obtain information from the permittee concerning the ability to enter, inspect and monitor the facility.

**Item K: Reopening for Cause - 6 NYCRR Part 201-6.5(i)**

This Title V permit shall be reopened and revised under any of the following circumstances:

- i. If additional applicable requirements under the Act become applicable where this permit's remaining term is three or more years, a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which this permit is due to expire, unless the original permit or any of its terms and conditions has been extended by the Department pursuant to the provisions of Part 201-6.7 and Part 621.
- ii. The Department or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
- iii. The Department or the Administrator determines that the Title V permit



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must be revised or reopened to assure compliance with applicable requirements.

iv. If the permitted facility is an "affected source" subject to the requirements of Title IV of the Act, and additional requirements (including excess emissions requirements) become applicable. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit.

Proceedings to reopen and issue Title V facility permits shall follow the same procedures as apply to initial permit issuance but shall affect only those parts of the permit for which cause to reopen exists.

Reopenings shall not be initiated before a notice of such intent is provided to the facility by the Department at least thirty days in advance of the date that the permit is to be reopened, except that the Department may provide a shorter time period in the case of an emergency.

**Item L: Permit Exclusion - ECL 19-0305**

The issuance of this permit by the Department and the receipt thereof by the Applicant does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Department may have against the Applicant for violations based on facts and circumstances alleged to have occurred or existed prior to the effective date of this permit, including, but not limited to, any enforcement action authorized pursuant to the provisions of applicable federal law, the Environmental Conservation Law of the State of New York (ECL) and Chapter III of the Official Compilation of the Codes, Rules and Regulations of the State of New York (NYCRR). The issuance of this permit also shall not in any way affect pending or future enforcement actions under the Clean Air Act brought by the United States or any person.

**Item M: Federally Enforceable Requirements - 40 CFR 70.6(b)**

All terms and conditions in this permit required by the Act or any applicable requirement, including any provisions designed to limit a facility's potential to emit, are enforceable by the Administrator and citizens under the Act. The Department has, in this permit, specifically designated any terms and conditions that are not required under the Act or under any of its applicable requirements as being enforceable under only state regulations.

**NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS**

**Item A: General Provisions for State Enforceable Permit Terms and Condition - 6 NYCRR Part 201-5**

Any person who owns and/or operates stationary sources shall operate and maintain all emission units and any required emission control devices in compliance with all applicable Parts of this Chapter and existing laws, and shall operate the facility in accordance with all criteria, emission limits, terms, conditions, and standards in this permit. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for the Department to revoke or deny a permit.

The owner or operator of the permitted facility must maintain all required records on-site

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for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

**Regulatory Analysis**

<b>Location Facility/EU/EP/Process/ES</b>	<b>Regulation</b>	<b>Condition</b>	<b>Short Description</b>
--			
FACILITY	ECL 19-0301	66	Powers and Duties of the Department with respect to air pollution control
FACILITY	40CFR 52-A.21(j)	1 -6, 1 -7	Best Available Control Technology
U-00101/-/001	40CFR 52-A.21(j)	62, 1 -8	Best Available Control Technology
U-00101/-/002	40CFR 52-A.21(j)	1 -9	Best Available Control Technology
U-00101	40CFR 60-A	45	General provisions
FACILITY	40CFR 60-A.14	32	General provisions - Modification
FACILITY	40CFR 60-A.15	33	General provisions - Reconstruction
FACILITY	40CFR 60-A.7(a)	28	Notification and Recordkeeping
FACILITY	40CFR 60-A.7(b)	29	Notification and Recordkeeping
U-00101	40CFR 60-A.7(c)	46	Notification and Recordkeeping
U-00101	40CFR 60-A.7(d)	47	Notification and Recordkeeping
FACILITY	40CFR 60-A.7(f)	30	Notification and Recordkeeping
U-00101	40CFR 60-A.8	48	General provisions - Performance tests
FACILITY	40CFR 60-A.9	31	General provisions - Availability of information
U-00101	40CFR 60-Dc.40c	49	Steam generators 10-100 million Btu per hour
U-00101	40CFR 60-Dc.42c(d)	50	Standard for Sulfur Dioxide Firing Oil. (see narrative)
U-00101	40CFR 60-Dc.43c(c)	51	Standard for Opacity.
U-00101	40CFR 60-Dc.44c(h)	52	Alternative Compliance and Performance Test Methods and Procedures for Sulfur Dioxide.
U-00101	40CFR 60-Dc.46c(d)(1)	53	Alternative sulfur dioxide monitoring.
U-00101	40CFR 60-Dc.47c	54	Emission Monitoring for Particulate Matter.
U-00101	40CFR 60-Dc.48c(a)	55	Reporting and Recordkeeping



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U-00101	40CFR 60-Dc.48c (d)	56	Requirements. Reporting and Recordkeeping
U-00101	40CFR 60-Dc.48c (f) (2)	58	Requirements. Reporting and Recordkeeping
U-00101	40CFR 60-Dc.48c (g)	59	Requirements (residual oil). Reporting and Recordkeeping
U-00101	40CFR 60-Dc.48c (i)	60	Requirements. Reporting and Recordkeeping
FACILITY	40CFR 68	21	Requirements. Chemical accident prevention provisions
FACILITY	40CFR 82-F	22	Protection of Stratospheric Ozone - recycling and emissions reduction
FACILITY	6NYCRR 200.6	1	Acceptable ambient air quality.
FACILITY	6NYCRR 200.7	10	Maintenance of equipment.
FACILITY	6NYCRR 201-1.4	67	Unavoidable noncompliance and violations
FACILITY	6NYCRR 201-1.7	11	Recycling and Salvage
FACILITY	6NYCRR 201-1.8	12	Prohibition of reintroduction of collected contaminants to the air
FACILITY	6NYCRR 201-3.2 (a)	13	Exempt Activities - Proof of eligibility
FACILITY	6NYCRR 201-3.3 (a)	14	Trivial Activities - proof of eligibility
FACILITY	6NYCRR 201-6	23, 34, 35	Title V Permits and the Associated Permit Conditions
FACILITY	6NYCRR 201-6.5 (a) (4)	15	General conditions
FACILITY	6NYCRR 201-6.5 (a) (7)	2, 1 -1	General conditions
FACILITY	6NYCRR 201-6.5 (a) (8)	16	Fees
FACILITY	6NYCRR 201-6.5 (c)	3	General conditions
FACILITY	6NYCRR 201-6.5 (c) (2)	4	Permit conditions for Recordkeeping and Reporting of Compliance Monitoring
FACILITY	6NYCRR 201- 6.5 (c) (3) (ii)	5	Permit conditions for Recordkeeping and Reporting of Compliance Monitoring
FACILITY	6NYCRR 201-6.5 (d) (5)	17	Permit conditions for Recordkeeping and Reporting of Compliance Monitoring
FACILITY	6NYCRR 201-6.5 (e)	6	Compliance schedules
FACILITY	6NYCRR 201-6.5 (f) (6)	18	Compliance Certification
FACILITY	6NYCRR 202-1.1	19, 1 -2	Off Permit Changes Required emissions tests.
FACILITY	6NYCRR 202-1.2	1 -3	Notification.
FACILITY	6NYCRR 202-1.3	1 -4	Acceptable



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**Permit ID: 2-6202-00167/00005**

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**Applicability Discussion:**

Mandatory Requirements: The following facility-wide regulations are included in all Title V permits:

ECL 19-0301

This section of the Environmental Conservation Law establishes the powers and duties assigned to the Department with regard to administering the air pollution control program for New York State.

6 NYCRR 200.6

Acceptable ambient air quality - prohibits contravention of ambient air quality standards without mitigating measures

6 NYCRR 200.7

Anyone owning or operating an air contamination source which is equipped with an emission control device must operate the control consistent with ordinary and necessary practices, standards and procedures, as per manufacturer's specifications and keep it in a satisfactory state of maintenance and repair so that it operates effectively



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6 NYCRR 201-1.4

This regulation specifies the actions and recordkeeping and reporting requirements for any violation of an applicable state enforceable emission standard that results from a necessary scheduled equipment maintenance, start-up, shutdown, malfunction or upset in the event that these are unavoidable.

6 NYCRR 201-1.7

Requires the recycle and salvage of collected air contaminants where practical

6 NYCRR 201-1.8

Prohibits the reintroduction of collected air contaminants to the outside air

6 NYCRR 201-3.2 (a)

An owner and/or operator of an exempt emission source or unit may be required to certify that it operates within the specific criteria described in this Subpart. All required records must be maintained on-site for a period of 5 years and made available to department representatives upon request. In addition, department representatives must be granted access to any facility which contains exempt emission sources or units, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

6 NYCRR 201-3.3 (a)

The owner and/or operator of a trivial emission source or unit may be required to certify that it operates within the specific criteria described in this Subpart. All required records must be maintained on-site for a period of 5 years and made available to department representatives upon request. In addition, department representatives must be granted access to any facility which contains trivial emission sources or units subject to this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

6 NYCRR Subpart 201-6

This regulation applies to those terms and conditions which are subject to Title V permitting. It establishes the applicability criteria for Title V permits, the information to be included in all Title V permit applications as well as the permit content and terms of permit issuance. This rule also specifies the compliance, monitoring, recordkeeping, reporting, fee, and procedural requirements that need to be met to obtain a Title V permit, modify the permit and demonstrate conformity with applicable requirements as listed in the Title V permit. For permitting purposes, this rule specifies the need to identify and describe all emission units, processes and products in the permit application as well as providing the Department the authority to include this and any other information that it deems necessary to determine the compliance status of the facility.

6 NYCRR 201-6.5 (a) (4)

This mandatory requirement applies to all Title V facilities. It requires the permittee to provide information that the Department may request in writing, within a reasonable time, in order to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. The request may include copies of records required to be kept by the permit.

6 NYCRR 201-6.5 (a) (7)

This is a mandatory condition that requires the owner or operator of a facility subject to Title V requirements to pay all applicable fees associated with the emissions from their facility.

6 NYCRR 201-6.5 (a) (8)

This is a mandatory condition for all facilities subject to Title V requirements. It allows the Department



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to inspect the facility to determine compliance with this permit, including copying records, sampling and monitoring, as necessary.

6 NYCRR 201-6.5 (c)

This requirement specifies, in general terms, what information must be contained in any required compliance monitoring records and reports. This includes the date, time and place of any sampling, measurements and analyses; who performed the analyses; analytical techniques and methods used as well as any required QA/QC procedures; results of the analyses; the operating conditions at the time of sampling or measurement and the identification of any permit deviations. All such reports must also be certified by the designated responsible official of the facility.

6 NYCRR 201-6.5 (c) (2)

This requirement specifies that all compliance monitoring and recordkeeping is to be conducted according to the terms and conditions of the permit and follow all QA requirements found in applicable regulations. It also requires monitoring records and supporting information to be retained for at least 5 years from the time of sampling, measurement, report or application. Support information is defined as including all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

6 NYCRR 201-6.5 (c) (3) (ii)

This regulation specifies any reporting requirements incorporated into the permit must include provisions regarding the notification and reporting of permit deviations and incidences of noncompliance stating the probable cause of such deviations, and any corrective actions or preventive measures taken.

6 NYCRR 201-6.5 (d) (5)

This condition applies to every Title V facility subject to a compliance schedule. It requires that reports, detailing the status of progress on achieving compliance with emission standards, be submitted semiannually.

6 NYCRR 201-6.5 (e)

Sets forth the general requirements for compliance certification content; specifies an annual submittal frequency; and identifies the EPA and appropriate regional office address where the reports are to be sent.

6 NYCRR 201-6.5 (f) (6)

This condition allows changes to be made at the facility, without modifying the permit, provided the changes do not cause an emission limit contained in this permit to be exceeded. The owner or operator of the facility must notify the Department of the change. It is applicable to all Title V permits which may be subject to an off permit change.

6 NYCRR 202-1.1

This regulation allows the department the discretion to require an emission test for the purpose of determining compliance. Furthermore, the cost of the test, including the preparation of the report are to be borne by the owner/operator of the source.

6 NYCRR 202-2.1

Requires that emission statements shall be submitted on or before April 15th each year for emissions of the previous calendar year.

6 NYCRR 202-2.5

This rule specifies that each facility required to submit an emission statement must retain a copy of the statement and supporting documentation for at least 5 years and must make the information available to



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department representatives.

6 NYCRR 211.2

This regulation limits opacity from sources to less than or equal to 20 percent (six minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity.

6 NYCRR 215.2

Except as allowed by section 215.3 of 6 NYCRR Part 215, no person shall burn, cause, suffer, allow or permit the burning of any materials in an open fire.

40 CFR Part 68

This Part lists the regulated substances and their applicability thresholds and sets the requirements for stationary sources concerning the prevention of accidental releases of these substances.

40 CFR Part 82, Subpart F

Subpart F requires the reduction of emissions of class I and class II refrigerants to the lowest achievable level during the service, maintenance, repair, and disposal of appliances in accordance with section 608 of the Clean Air Act Amendments of 1990. This subpart applies to any person servicing, maintaining, or repairing appliances except for motor vehicle air conditioners. It also applies to persons disposing of appliances, including motor vehicle air conditioners, refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment. Those individuals, operations, or activities affected by this rule, may be required to comply with specified disposal, recycling, or recovery practices, leak repair practices, recordkeeping and/or technician certification requirements.

**Facility Specific Requirements**

In addition to Title V, COLUMBIA UNIVERSITY-410 W 118TH ST has been determined to be subject to the following regulations:

40 CFR 52.21 (j)

BACT determinations are made on a case-by-case basis and can be no less stringent than any requirement that exists in the current State Implementation Plan (SIP) or 40 CFR 60 and 61. Emission and operational limitations required from a BACT determination will have to be entered into the special permit conditions, separately by the permit reviewer.

40 CFR 60.14

This regulation defines the term modification and what is and is not considered to be a modification, for the purpose of rule applicability.

40 CFR 60.15

This regulation defines the term reconstruction and what is and is not considered to be a reconstruction project, for the purpose of rule applicability.

40 CFR 60.40c

This regulation requires the source owner or operator to comply with the applicable General Provisions of 40 CFR 60 Subpart Dc. The facility owner is responsible for reviewing these general provisions in detail and complying with all applicable technical, administrative and reporting requirements.



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40 CFR 60.42c (d)

This regulation requires that on or after the date on which the initial performance test is completed or required to be completed under section 60.8 of 40 CFR 60 Subpart A, no owner or operator of an affected facility that combusts oil, shall combust oil with a sulfur content in excess of 0.5 percent by weight.

40 CFR 60.43c (c)

This regulation requires that on or after the date on which the initial performance test is completed or is required to be completed, an affected facility that combusts coal, wood, or oil and has a heat input of 30 million Btu per hour (8.7 MW) or greater, shall not cause any gases to be discharged to the atmosphere, that exhibit an opacity greater than 20% (based on a 6-minute average) or exceeds 27% for one 6-minute period per hour.

40 CFR 60.44c (h)

This regulation requires facilities demonstrating compliance through vendor certification to follow the compliance procedures listed in the appropriate paragraphs of 40 CFR 60-Dc.48c.

40 CFR 60.46c (d) (1)

This regulation allows the owner or operator of an affected facility to determine the average sulfur dioxide emission rate by sampling the fuel prior to its combustion and calculating the emissions instead of installing and operating a continuous emissions monitor at the inlet of the control device.

40 CFR 60.47c

This regulation requires that all continuous emissions monitors measuring opacity to be operated in accordance with Appendix B of this part 40 CFR 60.

40 CFR 60.48c (a)

This regulation requires the owner and operator of each affected facility to submit notification of the date of construction or reconstruction, anticipated startup, and actual startup of the facility. The notification must include the following information:

- (1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.
- (2) If applicable, a copy of any Federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under 40 CFR 60.42c., or 40 CFR 60.43c.
- (3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

40 CFR 60.48c (d)

This regulation requires the owner or operator of the facility subject to the SO<sub>2</sub> emission limits, fuel oil



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sulfur limits, or percent reduction requirements under §60.42c, to submit semi-annual reports to the EPA

40 CFR 60.48c (f) (2)

This condition sets forth the requirements to be met by the fuel supplier. These requirements apply to both distillate and residual oil.

40 CFR 60.48c (g)

The owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each day.

40 CFR 60.48c (i)

This regulation requires the source owner or operator to retain all records for a minimum of two years for compliance with the NSPS. This does not supercede any requirement that is more stringent, including the Title V requirement to maintain records for a minimum of 5 years.

40 CFR 60.7 (a)

This regulation requires any owner or operator subject to a New Source Performance Standard (NSPS) to furnish the Administrator with notification of the dates of: construction or reconstruction, initial startup, any physical or operational changes, commencement of performance testing for continuous monitors and anticipated date for opacity observations as required.

40 CFR 60.7 (b)

This regulation requires the owner or operator to maintain records of the occurrence and duration of any startup, shutdown, or malfunction of the source or control equipment or continuous monitoring system.

40 CFR 60.7 (c)

This requirement details the information to be submitted in excess emissions and monitoring systems performance reports which must be submitted at least semi-annually for sources with compliance monitoring systems.

40 CFR 60.7 (d)

This condition specifies the required information and format for a summary report form and details when either a summary form and/or excess emissions reports are required.

40 CFR 60.7 (f)

This condition specifies requirements for maintenance of files of all measurements, including continuous monitoring system (CMS), monitoring device, and performance testing measurements; all CMS performance evaluations; all CMS or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices for at least two years.



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40 CFR 60.8

This general provision of the New Source Performance Standards or NSPS, sets forth the performance test requirements for all NSPS applicable sources. Basically, all performance tests must be conducted within 60 days after achieving the maximum production rate but no later than 180 days after initial startup using procedures consistent with methods and procedures approved by the Administrator.

40 CFR 60.9

This rule citation allows the public access to any information submitted to the EPA Administrator (or state contact), in conjunction with a project subject to this section of the regulation.

40 CFR Part 60, Subpart A

This regulation contains the General Provisions of 40 CFR 60. The facility owner is responsible for reviewing these general provisions in detail and complying with all applicable technical, administrative and reporting requirements

6 NYCRR 202-1.2

This regulation specifies that the department is to be notified at least 30 days in advance of any required stack test. The notification is to include a list of the procedures to be used that are acceptable to the department. Finally, free access to observe the stack test is to be provided to the department's representative.

6 NYCRR 202-1.3

This regulation requires that any emission testing, sampling and analytical determination used to determine compliance must use methods acceptable to the department. Acceptable test methods may include but are not limited to the reference methods found in 40 CFR Part 60 appendix A and Part 61, appendix B. Alternate methods may be also be used provided they are determined to be acceptable by the department. Finally, unless otherwise specified, all emission test reports must be submitted within 60 days after completion of testing.

6 NYCRR 211.1

This regulation requires that no person shall cause or allow emissions of air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property.

6 NYCRR 225.1 (a) (3)

This regulation limits the amount of sulfur that can be in fuel burned at a stationary source. It references Table 1 of the 1979 version of the sulfur in fuel limitations expressed in terms of percent by weight for fuel oil and pounds per million Btu gross heat content for solid fuel. **NOTE: This citation has been replaced by requirements cited under 225-1.2(a)(2) and is no longer part of current State regulations, however, it remains part of New York State's approved State Implementation Plan (SIP).**

6 NYCRR 225.7 (a)



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The commissioner may require an owner of an air contamination source to retain for up to three years, and to submit to him, fuel analyses, information on the quantity of fuel received, burned or sold, and results of stack sampling, stack monitoring and other procedures to ensure compliance with the provisions of the Part. **NOTE: This citation has been replaced by requirements cited under 225-1.8(a) and is no longer a part of current State regulations, however, it remains as part of New York State's approved State Implementation Plan (SIP).**

6 NYCRR 225-1.8

This regulation requires an owner or operator of a facility which purchases and fires coal and/or oil to submit reports to the commissioner containing fuel analysis data, information on the quantity of the fuel received, burned, and results of any stack sampling, stack monitoring and any other procedures to ensure compliance with the provisions of 6 NYCRR Part 225-1.

6 NYCRR 227.2 (b) (1)

This regulation is from the 1972 version of Part 227 and still remains as part of New York's SIP. The rule establishes a particulate limit of 0.10 lbs/mmBtu based on a 2 hour average emission for any oil fired stationary combustion installation.

6 NYCRR 227.5 (a)

This regulation is from a 1972 version of the Part 227 stationary combustion installation rule. The citation is no longer a current New York State regulation but remains part of New York's SIP, hence federally enforceable. It requires stationary combustion installations with heat inputs exceeding 250 million Btu to monitor opacity of smoke emissions on a continuous basis. If natural gas is being burned, the recording of smoke emissions is not required.

6 NYCRR 227-1.3 (a)

This regulation prohibits any person from operating a stationary combustion installation which emits smoke equal to or greater than 20% opacity except for one six-minute period per hour of not more than 27% opacity.

6 NYCRR 227-1.4 (a)

Subdivisions (a) and (f) of this section (227-1.4) have not been approved by EPA and have not been included in the NYS SIP.

6 NYCRR 227-1.4 (b)

This regulation requires the specific contents of excess emissions reports for opacity from facilities that employ continuous opacity monitors (COMs).

6 NYCRR 227-1.4 (c)

This is the applicability section for requiring the use of COMs for monitoring purposes.

6 NYCRR 227-1.7 (b)

This specifies the requirement for acceptable fuel sample test methods.



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6 NYCRR 227-2.4 (c) (1) (i)

Existing NOx RACT presumptive limit that expires on 6/30/14.

6 NYCRR 227-2.4 (c) (1) (ii)

Future NOx RACT presumptive limit effective 7/1/14.

6 NYCRR 227-2.6 (b)

Any owner or operator of a combustion source subject to reasonably available control technology (RACT) requirements, under this subdivision, for NOx and either is required or opts to employ a continuous emissions monitoring system (CEMS) must:

- 1) Submit a CEMS monitoring plan for approval by the Department,
- 2) Submit a CEMS certification protocol,
- 3) Meet CEMS monitoring requirements as detailed in this paragraph of this subdivision, and
- 4) Meet CEMS recordkeeping and reporting requirements as detailed in this paragraph of this subdivision.

6 NYCRR Subpart 231-2

The provisions of Subpart 231-2 apply to new or modified major facilities. The contaminants of concern state-wide are nitrogen oxides and volatile organic compounds since New York State is located in the ozone transport region and because there are ozone non-attainment areas within the state. In addition, particulate matter less than 10 microns in size (PM-10) is a non-attainment contaminant in Manhattan County.

**Compliance Certification**

**Summary of monitoring activities at COLUMBIA UNIVERSITY-410 W 118TH ST:**

<b>Location Facility/EU/EP/Process/ES</b>	<b>Cond No.</b>	<b>Type of Monitoring</b>
---		
FACILITY	1-6	record keeping/maintenance procedures
FACILITY	1-7	record keeping/maintenance procedures
U-00101/-/001	1-8	monitoring of process or control device parameters as surrogate
U-00101/-/001	62	monitoring of process or control device parameters as surrogate
U-00101/-/002	1-9	monitoring of process or control device parameters as surrogate
U-00101	46	record keeping/maintenance procedures
U-00101	50	work practice involving specific operations
U-00101	51	monitoring of process or control device parameters as surrogate



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U-00101	52	monitoring of process or control device parameters as surrogate
U-00101	53	monitoring of process or control device parameters as surrogate
U-00101	54	monitoring of process or control device parameters as surrogate
U-00101	55	record keeping/maintenance procedures
U-00101	56	record keeping/maintenance procedures
U-00101	58	record keeping/maintenance procedures
U-00101	60	record keeping/maintenance procedures
FACILITY	5	record keeping/maintenance procedures
FACILITY	6	record keeping/maintenance procedures
FACILITY	7	record keeping/maintenance procedures
FACILITY	24	work practice involving specific operations
FACILITY	25	record keeping/maintenance procedures
U-00101	36	record keeping/maintenance procedures
U-00101	41	intermittent emission testing
U-00101/00101	65	monitoring of process or control device parameters as surrogate
U-00101	37	monitoring of process or control device parameters as surrogate
U-00101	69	monitoring of process or control device parameters as surrogate
FACILITY	26	record keeping/maintenance procedures
U-00101	64	intermittent emission testing
U-00101	1-11	intermittent emission testing
U-00101	42	record keeping/maintenance procedures

**Basis for Monitoring**

Conditions under 40 CFR 52-A.21(j): These conditions require the facility to maintain the actual emissions within the set upper emission limits to comply with PSD cap. Any exceedance of the emissions beyond these limits would be considered a violation of PSD regulations.

Condition under 40 CFR 60-A.7(c): This condition details the information to be submitted in excess emissions and monitoring systems performance reports which must be submitted at least semi-annually for sources with compliance monitoring systems.

Condition under 40 CFR 60-Dc.43c(c): This condition requires the facility to comply with the NSPS requirements by monitoring and recording the opacity data on a continuous basis using a COM system. NSPS 40 CFR Subpart Dc is applicable to the fourth boiler installed in 1998.

Conditions under 40 CFR 60-Dc.42c(d); 40 CFR 60-Dc.44c(h); and 40 CFR 60-Dc.46c(d)(1): These conditions require the facility to comply with the NSPS requirements by demonstrating monitoring of sulfur content in residual fuel oil (# 6 oil), which must not exceed the upper limit of 0.30 percent by weight. These are made facility-specific to streamline with 6 NYCRR 225-1(a)(3). NSPS 40 CFR Subpart Dc is applicable to the fourth boiler installed in 1998.

Conditions under 40 CFR 60-Dc.47c; and 40 CFR 60-Dc.48c: These Emission Unit level conditions require the facility to comply with the New Source Performance Standard (NSPS) monitoring and reporting requirements. NSPS 40 CFR Subpart Dc is applicable to the fourth boiler installed in 1998.

Condition under 6 NYCRR 201-6.5(c)(3)(ii) is a facility-wide condition that applies to monitoring conditions in all Title V Permits. All facilities that are subject to the Title V requirements must



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submit reports of any required monitoring to the NYSDEC every six months.

Condition under 6 NYCRR 201.6.5(e) is a facility-wide record keeping requirement that applies to all Title V facilities. These facilities must submit an annual compliance certification to the NYSDEC and the USEPA.

Condition under 6 NYCRR 202-2.1 is a requirement for all Title V facilities. These facilities must submit an annual emission statement by April 15th of each year.

Condition under 6 NYCRR 225-1(a)(3) is a facility level condition regarding limiting the sulfur content of fuel oil used at the facility. The sulfur content must be determined by the seller. The facility must maintain a log of the sulfur content of oil on a per delivery basis. However, this sulfur content limit in fuel is independent of the facility's PTE limit for SO<sub>2</sub>.

Condition under 6 NYCRR 225.7(a): This condition requires the facility to retain fuel oil supplier certification for each delivery and submit to NYSDEC the fuel analysis.

Condition under 6 NYCRR 225-1.8: This condition requires the facility to ensure that the residual fuel oil (# 6 oil) combusted must be less than 6.28 million gallons annually for any 12-month rolling period.

Condition under 6 NYCRR 227-2(b)(1) is an Emission Unit level condition for limiting the emissions of Particulate Matter from oil fired stationary combustion installations. The facility must comply with the upper limit of Particulates to 0.10 pounds per million Btu. NYSDEC believes that there is no need to carry over the limit of 9.95 pounds per hour for each boiler as it means the same thing. Each boiler's maximum design heat input is 99.5 million Btu/hour.

Condition under 6 NYCRR 227.5(a): This condition requires the facility to use Continuous Opacity Monitoring (COM) system for monitoring smoke emissions.

Condition under 6 NYCRR 227-1.3(a) is an Emission Unit level condition for limiting smoke emissions by limiting opacity.

Conditions under 6 NYCRR 227-1.4(a); and 6 NYCRR 227-1.4(b): These conditions require the facility to comply with the monitoring and reporting requirements for maintaining continuous opacity monitoring (COM) system.

Conditions under 6 NYCRR 227-2.4(c)(2) are Process level conditions to comply with NO<sub>x</sub> RACT requirements for emission of Oxides of Nitrogen from mid-size boilers.

Condition under 6 NYCRR 231-2: This condition requires the facility to adhere to the set restrictions to avoid applicability of New Source Review regulations and comply with the Part 231-2 exemption requirements so that the emission increase is always zero.