

**GOVERNMENT OF THE DISTRICT OF COLUMBIA**

**District Department of the Environment**

**Air Quality Division**



**FACT SHEET AND STATEMENT OF BASIS  
FOR PROPOSED PERMITTING ACTION  
UNDER 20 DCMR 300 (TITLE V-OPERATING PERMIT PROGRAM)**

This “Fact Sheet and Statement of Basis” has been prepared pursuant to 20 DCMR 303.1(c) and 40 CFR 70.7(a)(5).

**PERMIT NO. 013-R2**

**APPLICANT AND PERMITTEE:**

American University  
4400 Massachusetts Avenue, NW  
Washington, DC 20016

**FACILITY LOCATION:**

American University  
4400 Massachusetts Avenue, NW  
Washington, DC 20016

**FACILITY DESCRIPTION:**

American University is a provider of educational services facility covered by Standard Industrial Classification (SIC) 8221. The facility has the potential to operate twenty-four (24) hours per day, seven (7) days per week, fifty-two (52) weeks per year. The facility consists of four (4) major boilers and fourteen (14) small boilers, thirty (30) water heaters, twenty-one (21) emergency generators, nineteen (19) cooling towers/chillers, seven (7) fuel storage tanks, and thirty-three (33) fume hoods. The electric clay kiln is used for firing clay.

It should be noted that the Title V application refers to the Mary Graydon boiler as a 7.33 MMBTU/hr boiler. This conflicted with the old Title V permit, which indicated that the unit was 5.86 MMBTU/hr. During the renewal process, it was confirmed that the unit was 5.86 MMBTU/hr.



**Fact Sheet and Statement of Basis**

**Permit No. 013-R2**

**American University**

April 9, 2013

Page 2

**EMISSIONS SUMMARY:**

The facility reported the following emissions in the Title V permit application:

PLANTWIDE EMISSIONS SUMMARY [TONS PER YEAR]		
Criteria Pollutants	2011 Actual Emissions	Potential Emissions
Sulfur Dioxide (SO <sub>2</sub> )	0.0395	103.14
Nitrogen Oxides (NO <sub>x</sub> )	6.0595	153.21
Particulate Matter (PM & PM <sub>10</sub> )	2.099	13.27
Volatile Organic Compounds (VOC)	1.876	7.95
Carbon Monoxide (CO)	5.401	78.08

**BASIS OF 20 DCMR CHAPTER 3 (TITLE V) APPLICABILITY:**

American University has the potential to emit approximately 153.21 tons per year (TPY) of nitrogen oxides (NO<sub>x</sub>), 103.14 TPY of sulfur dioxide (SO<sub>2</sub>), 13.27 TPY of particulate matter (PM), and 7.95 TPY of volatile organic compounds (VOC), and 78.08 TPY of carbon monoxide. These values for SO<sub>2</sub> and NO<sub>x</sub> exceed the major source threshold in the District of Columbia of 25 TPY of NO<sub>x</sub> or VOC, and/or 100 TPY of any other criteria pollutant. As such, pursuant to 20 DCMR 300.1(a), the source is subject to Chapter 3 and must obtain an operating permit in accordance with that regulation and Title V of the federal Clean Air Act.

**LEGAL AND FACTUAL BASIS FOR DRAFT PERMIT CONDITIONS:**

The conditions contained in the Title V operating permit are based on underlying requirements of 20 DCMR as well as various federal regulations promulgated pursuant to the federal Clean Air Act. The regulations that are the basis of each condition are cited in the permit, except that conditions added to make another condition, with a direct underlying regulation, enforceable as a practical matter may, in some cases, not have a specific citation. These latter, un-cited conditions generally consist of monitoring, record keeping, and reporting requirements authorized under 20 DCMR 500.1.

The permit has been developed to incorporate the requirements of all applicable requirements as defined in 20 DCMR 399.1 along with additional conditions necessary to make all such requirements enforceable as a practical matter.

Any condition of the draft Title V Permit that is enforceable by the District but is not federally-enforceable is identified in the Title V permit as such with an asterisk.

It should also be noted that this permit is being issued pursuant to the District's authority under 20 DCMR Chapter 2 as well as Chapter 3. When the permit is issued for public review, the

## **Fact Sheet and Statement of Basis**

**Permit No. 013-R2**

**American University**

April 9, 2013

Page 3

public notice will reflect this fact.

Any condition of the draft Title V Permit that is enforceable by the District but is not federally-enforceable is identified in the Title V permit as such with an asterisk.

### **REGULATORY REVIEW:**

This facility has been found to be subject to the requirements of the following regulations (except as specified in notes below):

#### **Federal and District Enforceable:**

20 DCMR Chapter 1 - General Rules

20 DCMR Chapter 2 - General and Non-Attainment Area Permits

20 DCMR Chapter 3 - Operating Permits and Acid Rain Programs

20 DCMR 500 - Records and Reports

20 DCMR 502 - Sampling, Tests, and Measurements.

20 DCMR 600 - Fuel-Burning Particulate Emission.

20 DCMR 604 - Open Burning

20 DCMR 605 - Control of Fugitive Dust

20 DCMR 606 - Visible Emissions

20 DCMR 700 - Miscellaneous Volatile Organic Compounds (VOCs)

20 DCMR 774 - Architectural and Industrial Maintenance Coatings

20 DCMR 800 - Control of Asbestos.

20 DCMR 801 - Sulfur Contents of Fuel Oils

20 DCMR 805 - Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen

40 CFR 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (NESHAP for RICE)

40 CFR 82, Subpart G - Protection of Stratospheric Ozone (Federally enforceable only except through Title V) (*Note: AQD did not make a positive determination that this regulation was applicable to the facility, but included it as a standard requirement in the permit.*)

40 CFR 82, Subpart H - Halon Emissions Reduction (Federally enforceable only except through Title V) (*Note: AQD did not make a positive determination that this regulation was applicable to the facility, but included it as a standard requirement in the permit.*)

40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

40 CFR 63, Subpart JJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

40 CFR 61.12 - Credible Evidence

## Fact Sheet and Statement of Basis

Permit No. 013-R2

American University

April 9, 2013

Page 4

### District Enforceable Only:

20 DCMR 402 – Chemical Accident Prevention (*Note: AQD did not make a positive determination that this regulation was applicable to the facility, but included it as a standard requirement in the permit.*)

20 DCMR 900 - Engine idling.

20 DCMR 901 - Vehicular exhaust emissions.

20 DCMR 902 - Lead Content of Gasoline.

20 DCMR 903 - Odorous or other nuisance air pollutants.

### 40 CFR 63, Subpart JJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

Because the three large boilers use fuel oil, the requirements of this NESHAP are applicable. Specifically, the facility is required to submit an initial notification of applicability to the EPA, perform biennial boiler tune-ups (the requirement for which was changed to annual tune-ups in the permit due to a similar requirement in 20 DCMR 805, but which requires annual tune-ups), and to have performed a one-time energy assessment. All of these requirements have been included in the permit. It is noteworthy that 20 DCMR 805 tune-up requirements and the Subpart JJJJJ tune-up requirements have a common emissions reduction goal. However, the approaches for achieving this goal differ modestly. Whereas the federal regulations requires that a subsequent tune-up after the initial tune-up must occur no later than 25 months, the DCMR RACT regulation of 20 DCMR 805, specify that combustion adjustments be performed annually.

In order to accommodate both rules in this permit, a streamlined approach was used in which Condition III (a)(2)(B) specifies a compromise frequency of 13 months (.i.e., twenty-five less twelve, equals thirteen (13)). Hence Permittee must conduct subsequent tune-ups no more than 13 months after the previous tune-up.

### 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (NESHAP for RICE) located in an Area Source of HAPS

Subpart ZZZZ of 40 CFR 63 regulate/monitor Hazardous Air Pollutants (HAPs) such as acetaldehyde, acrolein, benzene, toluene, xylene, cadmium, chromium, lead, etc, through surrogate compounds such as formaldehyde, Carbon Monoxide (CO) and/or Volatile Organic Compounds (VOC).

A facility that emits or has the potential to emit 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs, is consider a major source. Any source that is not a major source is an area source. Because this facility does not have the potential to emit more than 10 tons/year of a single HAP or an aggregate of more than 25 tons of total HAPs, it is not a major source. It is rather an area source. Therefore the area source MACT for Reciprocating Internal Combustion Engines (RICE) is applicable to this facility.

## **Fact Sheet and Statement of Basis**

**Permit No. 013-R2**

**American University**

April 9, 2013

Page 5

Subpart ZZZZ for area source RICE is not applicable to any existing engine under the provisions of 40 CFR 63.6590; the facility is an institution, therefore these units would be considered “institutional emergency stationary RICE” which do not have to meet the requirements of subpart ZZZZ under 40 CFR 63.6590 (b)(3)(Viii).

However subpart ZZZZ is applicable to new or reconstructed SI and CI engines at this facility. New/Reconstructed stationary engines are those manufactured or reconstructed after June 12, 2006. Note that for new engines, Subpart ZZZZ defers their regulations to the New Source Performance Standard, 40 CFR Part 60 Subpart IIII. Only emergency stationary CI engines are in this facility based on the site visit of February 15, 2012 and latest equipment inventory submitted by the facility on February 16, 2012. There are eleven (11) new engines that fall into this category at the facility. The permit has been drafted to include the applicable requirements for these units.

### **Compliance Assurance Monitoring (CAM) [40 CFR 64]:**

Compliance Assurance Monitoring Plan (CAM) does not apply to this facility because none of the units in this facility rely on control devices for compliance with the particulate matter (PM) limitations. Facility inspection reveals that American University uses low NO<sub>x</sub> burners, but these do not constitute control devices. There is no need for this facility to install control devices as defined by 40 CFR 64. CAM does not apply.

### **New Source Performance Standards (NSPS) [40 CFR 60]:**

New Source Performance Standards (NSPS) apply to this facility as the following NSPS analyses and applicability determination indicate:

#### **Combustion Units: Boilers ASB-1, ASB-2, and ASB-3**

Applicability for NSPSs for boilers is based on unit size and age. Both criteria must be met for applicability of 40 CFR 60.40c – subpart Dc

Reference citation: 40 CFR 60, Subpart Dc

#### ***Test No. 1- Size Limitation***

Each of the three (3) boilers has heat input greater than 10 million Btu per hour (based on the LHV of fuel oil # 2). Boiler ASB-1 has a capacity of 26.14 MMBtu/hr while Boilers ASB-2 and ASB-3 have a capacity of 64.4 MMBtu/hr, respectively. The sizes are greater than the ten (10) million Btu per hour threshold. The units pass the size test. [40 CFR 60.40 – subpart Dc]

#### ***Test No. 2 – Age Limitation***

Boiler ASB-1 was installed in January 1, 1957. Boilers ASB-2 and ASB-3 were modified on August 1, 1996. Boiler MGC was installed January 1, 1993. Clearly the units were modified, or constructed after June 9, 1989. The units pass the age test, thus the NSPS is applicable.

## **Fact Sheet and Statement of Basis**

**Permit No. 013-R2**

**American University**

April 9, 2013

Page 6

The requirements of Subpart Dc have been incorporated in the permit as applicable.

### **Emergency Generators**

NSPS Subpart IIII applicability for the generators was considered for this facility. Based on the date of applicability (July 11, 2005), this subpart is applicable to twelve (12) new compression ignition internal combustions engines (CIICE) under 40 CFR 60, Subpart IIII. The engines identified are as follows:

<b>Equipment Location</b>	<b>Emission Unit Description</b>	<b>Equipment Serial Number</b>
Transmitter Building	One (1) TB 450 kW Cummins Diesel Generator	B100097232
Nebraska Hall	One (1) NEH 60 kW Cummins Generator	D070045800
Bender Library	One (1) BL 60 kW Cummins Diesel Generator	A100092569
Letts Hall	One (1) LTH 200 kW Cummins Diesel Generator	A100092571
Leonard Hall	One (1) LNH 250 kW Caterpillar Diesel Generator	K060991203
Brandywine	One (1) BDW.250 kW Generac Diesel Generator	131049-0906
McDowell-Generator	One (1) MDH 200 kW Cummins Diesel Generator	F110223068
Sport Center Bender Arena	One (1) SCB 350 kW Cummins Diesel Generator	E080185469 SPEC
School of International Svc. Bldg.	One (1) ISB 250 kW Cummins Diesel Generator	G090018479
Asbury Building	One (1) ASB 500 kW Cummins Diesel Generator	J070113585 SPECF
McKinley Building	One (1) MB 242 kW Cummins Diesel Generator	Model #QSB7-G5NR3

### **Chapter 2 Permits:**

The requirements of the following permit(s) issued under the authority of 20 DCMR Chapter 2 have been incorporated into the Title V permit:

- Permits #6311-6313 – Permit to operate three emergency generators were issued on March 5, 2010 to this facility.
- Permit #6628-Brandywine Building emergency generator (formerly Permit # 5882)
- Permit #6643- School of International Service emergency generator

## **Fact Sheet and Statement of Basis**

**Permit No. 013-R2**

**American University**

April 9, 2013

Page 7

- Permit #6627 – Sport Center Bender Arena (formerly Permit #6113, issued 10-14-08)
- Permit #6671- One 364 hp McDowell Hall Emergency Generator engine that replaced a fire pump engine.
- Three generators covered by Permit #5991 and located at Asbury Building, Leonard and Nebraska Halls.3
- Two other generators, namely Mary Graydon Tunnel (Permit #6701) and McKinley Building (Permit #6702) have also been incorporated into the Title V permit.

AQD is also using Chapter 2 authority to place unpermitted units which should have previously obtained Chapter 2 permits, but did not, directly into the Title V permit, along with appropriate requirements established pursuant to Chapter 2. AQD is also using Chapter 2 authority to update other permit requirements. As such, this Title V permit will be issued for public notice pursuant to both Chapter 2 and Chapter 3 public notice requirements.

### **COMMENT PERIOD:**

Beginning Date:

Ending Date:

All written comments should be addressed to the following individual and office:

Stephen S. Ours, P.E.  
Chief, Permitting Branch  
District Department of the Environment  
Air Quality Division  
1200 First Street, NE, 5<sup>th</sup> Floor  
Washington, D.C. 20002

### **PROCEDURE FOR REQUESTING PUBLIC HEARING:**

During public comment period any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The District shall grant such a request if it is deemed appropriate. The venue, date, and time for any public hearing shall be announced in the District Register and a daily newspaper.

### **POINT OF CONTACT FOR INQUIRIES:**

John C. Nwoke  
Environmental Engineer

**Fact Sheet and Statement of Basis**

**Permit No. 013-R2**

**American University**

April 9, 2013

Page 8

District Department of the Environment

Air Quality Division

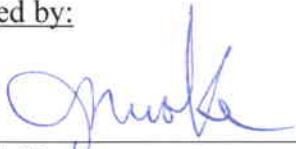
1200 First Street NE, 5<sup>th</sup> Floor

Washington, DC 20002

(202) 724-7778

**REVIEWS:**

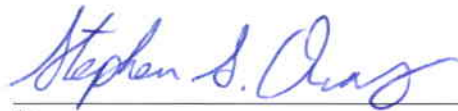
Prepared by:



John C. Nwoke

Environmental Engineer

Approved by:



Stephen S. Ours, P.E.

Chief, Permitting Branch

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