



Louisville Metro Air Pollution Control District
 701 West Ormsby Avenue, Suite 303
 Louisville, Kentucky 40203-3137



Title V Statement of Basis

Source: University of Louisville, Belknap
 Campus
 2301 S. Brook St.
 Louisville, KY 40208

Owner: University of Louisville
 2301 S. Brook St.
 Louisville, KY 40208

Application Documents:	See Table I-8	Administratively Complete:	August 16, 2021
Draft Permit:	03/24/2022	Proposed Permit:	03/24/2022
Permitting Engineer:	Yiqiu Lin	Permit Number:	O-0852-22-V
Plant ID: 0852	SIC: 8221	NAICS: 611310	

Introduction:

This permit will be issued pursuant to: (1) Regulation 2.16, (2) Title 40 of the Code of Federal Regulations Part 70, and (3) Title V of the Clean Air Act Amendments of 1990. Its purpose is to identify and consolidate existing District and Federal air requirements and to provide methods of determining continued compliance with these requirements.

This permit action is a scheduled operating permit renewal. This permit is also revised to include equipment changes since last permit renewal, including decommission of boiler #2, addition/removal of multiple small boilers, addition of a fine arts spray booth.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), and sulfur dioxide (SO₂). Jefferson County is classified as a nonattainment area for ozone (O₃).

Permit Application Type:

- | | | |
|---|--|--|
| <input type="checkbox"/> Initial issuance | <input type="checkbox"/> Permit Revision | <input checked="" type="checkbox"/> Permit renewal |
| | <input type="checkbox"/> Administrative | |
| | <input type="checkbox"/> Minor | |
| | <input type="checkbox"/> Significant | |

Compliance Summary:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Compliance certification signed | <input type="checkbox"/> Compliance schedule included |
| <input type="checkbox"/> Source is out of compliance | <input checked="" type="checkbox"/> Source is operating in compliance |

I Source Information**1. Product Description:**

The source is a university that primarily engaged in furnishing academic courses and granting degrees at baccalaureate or graduate levels.

2. Process Description:

The Steam and Chilled Water Plant, University of Louisville Belknap Campus, provides steam for heating and chilled water for air conditioning. There are also small boilers and emergency generators in various buildings.

3. Site Determination:

There are no other facilities that are contiguous or adjacent to this facility.

4. Emission Unit Summary:

Emission Unit	Equipment Description
U1/2	Boilers
U7	Portable gasoline storage tank
U8	Large emergency generators
U9	Hot water boilers, steam boilers, domestic boilers
U10	Groundwater remediation system
U11	Paint spray booths

5. Fugitive Sources:

There are fugitive VOC or HAP emissions from the parts cleaner, groundwater treatment system, and gasoline storage tank.

6. Permit Revisions:

Permit No.	Public Notice	Issue Date	Change Type	Description/Scope
329-03-TV	8/15/2004	11/17/2004	Initial	Initial Permit Issuance
329-03-TV (R1)	N/A	11/18/2004	Admin.	Corrected the usage limits of fuel oil, natural gas and coal
329-03-TV (R2)	9/15/2010	12/27/2010	Renewal & Revision	Permit renewal; Incorporation of construction permit; Incorporation of pollution prevention operation plan; Significant and minor permit revisions; Insignificant activities list update.

Permit No.	Public Notice	Issue Date	Change Type	Description/Scope
329-03-TV (R3)	5/9/2013	6/27/2013	Admin. & Sig.	Incorporation of construction permit (Admin): 47-10-C (New boiler #1) 30142-10-C (groundwater remediation system) 33168-11-C (New boiler #3) 37071-13-C (Paint booth) Incorporation of the Area Source MACT requirements (Sig)
O-0852-16-V	11/26/2016	12/28/2016	Renewal	Operating permit renewal; added regulatory citation to the TAC standards and updated S2.c.ii. in the Plantwide Emission Unit
O-0852-22-V	3/24/2022	5/09/2022	Renewal	Scheduled permit renewal, removed boiler #2, added/removed multiple small boilers, added a fine arts spray booth.

7. Construction Permit History:

Permit No.	Effective Date	Description
N/A	N/A	There was no construction permit issued since last Title V permit renewal.

8. Application and Related Documents

Document Number	Date	Description
230573	6/22/2021	Title V renewal application submitted
231805	6/25/2021	Title V renewal application completeness determination sent to company
235156	7/8/2021	Correspondences regarding Title V renewal application
235464	7/9/2021	District's question about boiler #3 gas fired boiler determination
236358	7/9/2021	Company response to MACT question
241319	7/28/2021	AP-100P addendum to June Title V renewal application
292747	12/20/2021	Information request (parts washer, NG emergency generator) for Title V permit renewal
292836	12/20/2021	Information for parts washer and NG generator provided by UofL
293010	12/20/2021	Third email regarding questions for Title V renewal

Document Number	Date	Description
293119	12/21/2021	Additional information for NG emergency generator provided by UofL
296508	1/3/2022	Additional information for NG emergency generator provided by UofL
303908	1/25/2022	Pre-draft permit sent to company for review
313669	2/21/2022	Company comments on pre-draft permit
323783	3/18/2022	District response to company pre-draft comments

9. Emission Summary

Pollutant	District Calculated Actual Emissions (tpy) 2020 Data	Pollutant that triggered Major Source Status (based on PTE)
CO	9.64	Yes
NO _x	6.83	Yes
SO ₂	0.07	No
PM ₁₀	2.93	No
VOC	1.19	No
Total HAPs	0.22	No
Single HAP		
Hexane	0.21	No

10. Applicable Requirements

- 40 CFR 60 SIP 40 CFR 63
 40 CFR 61 District Origin Other

11. Referenced Federal Regulations:

40 CFR 60 Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
40 CFR 60 Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
40 CFR 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

40 CFR 63 Subpart ZZZZ

National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

12. Non-Applicable Regulations:

Regulation	Title	Reason for Non-applicability
6.40	Standards of Performance for Gasoline Transfer to Motor Vehicles (Stage II Vapor Recovery and Control Systems)	Regulation is no longer applicable
40 CFR 63 Subpart JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	Boiler #3 is taking operating hour limit and designated as gas-fired boiler as defined in 40 CFR 63.11237

II Regulatory Analysis**1. Acid Rain Requirements:**

University of Louisville, Belknap Campus is not subject to the Acid Rain Program.

2. Stratospheric Ozone Protection Requirements:

Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. University of Louisville, Belknap Campus does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

3. Prevention of Accidental Releases 112(r):

University of Louisville, Belknap Campus does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, Chemical Accident Prevention Provisions, in a quantity in excess of the corresponding specified threshold amount.

4. 40 CFR Part 64 Applicability Determination:

The source does not have any emission units that have emissions greater than major source threshold and need control devices to achieve compliance with the standards. Therefore, the source is not subject to 40 CFR Part 64 - Compliance Assurance Monitoring (CAM) for Major Stationary Source.

5. Basis of Regulation Applicability

a. Applicable Regulations

Regulation	Title	Basis
5.00	Definitions	This regulation defines terms used in the Strategic Toxic Air Reduction Program.
5.01	General Provisions	This regulation contains a statement of general duty and a savings clause relating to federal and SIP emission standards.
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants	This regulation incorporates by reference certain national emission standards for hazardous air pollutants in 40 CFR Parts 61 and 63.
5.20	Methodology for Determining the Benchmark Ambient Concentration of a Toxic Air Contaminant	This regulation establishes the methodology for determining the benchmark ambient concentration of a toxic air contaminant.
5.21	Environmental Acceptability for Toxic Air Contaminants	This regulation establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant	This regulation establishes the procedures for determining the maximum concentration of a toxic air contaminant in the ambient air.
5.23	Categories of Toxic Air Contaminants	This regulation identifies the categories of toxic air contaminants to be addressed in these regulations.
6.18	Standards of Performance for Solvent Metal Cleaning Equipment	This regulation applies to each cold cleaner that use VOCs to remove soluble impurities from metal surfaces.
7.02	Adoption and Incorporation by Reference of Federal New Source Performance Standards	This regulation incorporates by reference certain federal Standards of Performance for New Stationary Sources in 40 CFR Part 60.
7.06	Standards of Performance for New Indirect Heat Exchangers	This regulation establishes the requirements for indirect heat exchangers that have a classification date after August 17, 1971.
7.08	Standards of Performance for New Process Operations	This regulation establishes the requirements for PM emission from new processes that commences construction after September 1, 1976.
7.15	Standards of Performance for Gasoline Transfer to New Service Station Storage Tanks (Stage I Vapor Recovery)	This regulation applies to the transfer of volatile organic compounds from transport vehicle tanks into storage tanks at new service stations (constructed or reconstructed after June 13, 1979) and the equipment involved therein.
7.25	Standard of Performance for New Sources Using Volatile Organic Compounds	This regulation applies to each affected facility not elsewhere regulated in Regulation 7 as to emissions of VOCs and which commenced after June 13, 1979.

Regulation	Title	Basis
40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	This regulation applies to small industrial, commercial, institutional steam generating units that is commenced after June 9, 1989.
40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	This regulation applies to manufacturers, owner or operators of new stationary compression ignition internal combustion engines.
40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	This regulation applies to manufacturers, owner or operators of new stationary spark ignition internal combustion engines.
40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	This regulation establishes national emission limitations and operating limitations for HAP emitted from stationary RICE located at major and area sources of HAP emissions.

b. Plantwide

- i. University of Louisville, Belknap Campus is a Title V major source for NOx and CO. Regulation 2.16 - *Title V Operating Permits* establishes requirements for major sources.
- ii. The source is subject to a plantwide limit of 100 tons per year for NOx emissions to avoid Regulation 6.42. To fulfill the 100 tons per year NOx limit, the source accepted plantwide fuel usage limits for fuel oil, diesel, and natural gas. With the fuel material usage limits, the CO, and SO₂ emissions cannot exceed their limits uncontrolled.
- iii. Regulations 5.00 5.20, 5.21, and 5.23 (STAR Program) establish requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.
- iv. University of Louisville submitted the TAC Environmental Acceptability Demonstration to the District in December 2006. SCREEN3 air dispersion modeling was performed for each emission unit that has non-de minimis TAC emissions. The District reviewed the EA Demonstration based on the submitted SCREEN3 modeling results, the 2013 revised TAC benchmark values, and updated emission units. Compliance with the STAR EA Goals was demonstrated. In July 2021, University of Louisville requested to designate Boiler #3 as gas fired only boiler as defined in 40 CFR 63.11237. EA demonstration for Boiler #3 is based on 500 hours on fuel oil for emergency use only. The following table demonstrates that the current carcinogen risk and non-carcinogen risk values comply with the STAR EA goals required in Regulation 5.21.

Plantwide Sum	Existing & new		All new P/PE	
Industrial Total R _C	0.02	< 75	0.02	< 38
Non-Ind. Total R _C	0.01	< 7.5	0.01	< 3.8
Industrial Total R _{NC} (max)	0.00	< 3.0		
Non-Ind. Total R _{NC} (max)	0.0001	< 1.0		

		R _{NC} Total		U1/U2 – E3 (fuel oil)			
		Indus.	Non-Ind	Industrial		Non-Indus	
TAC	CAS #	R _{NC}	R _{NC}	R _C	R _{NC}	R _C	R _{NC}
R _C Total / R _{NC} Max		0.0002	0.0001	0.021		0.006	
Arsenic compounds	7440-38-2	0.0002	0.0001	0.013	0.00	0.004	0.00
Chromium hexavalent compounds	7440-47-3	0.0001	0.00002	0.008	0.00	0.002	0.00

- v. Regulation 2.16, section 4.1.9.1 and 4.1.9.2 require monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the District upon request.
- vi. Regulation 2.16, section 4.3.5, requires stationary sources for which a Title V is issued shall submit an annual compliance certification by April 15 of the following calendar year. In addition, as required by Regulation 2.16, section 4.1.9.3, the source shall submit compliance reports at least every six months to show compliance with the permit. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.16, section 3.5.11.

c. Emission Unit U1/U2 – Boilers

EP	Description	Applicable Regulations	Control ID
E1	Natural gas fired boiler (#1) with flue gas recirculation and low NOx burners, rated heat input capacity 99 MMBtu/hr, make Victory Energy Operation, model VS-4-68.	STAR, 7.02, 7.06, 40CFR60 Subpart D _c	C4, C5
E3	Natural gas boiler (#3) with distillate fuel oil backup, equipped with low NOx burners and using flue gas recirculation, rated heat input 99.6 MMBtu/hr when burning natural gas and 99.3 when burning fuel oil, make Victory Energy Operations, model VS-4-68.	STAR, 7.02, 7.06, 40CFR60 Subpart D _c	C6, C7

Control ID	Description	Control Efficiency
C4	One (1) low NOx burner for Boiler #1	N/A
C5	One (1) FGR for Boiler #1	N/A
C6	One (1) low NOx burner for Boiler #3	N/A
C7	One (1) FGR for Boiler #3	N/A

i. **Standards**

(1) **Opacity**

- (a) The boilers are subject to the opacity standards in accordance with Regulation 7.06, section 4.2.
- (b) 40 CFR 60.43c(c) establishes standard for opacity for new oil-fired boilers.

(2) **PM**

- (a) The boilers are subject to Regulation 7.06. The emission standard for PM is determined in accordance with Regulation 7.06, section 4.1.4 as follows:

$$\text{Total Heat Input Capacity} = 249 \text{ MMBtu/hr}$$

$$\text{PM limit} = 1.919 \times (249)^{-0.535} = 0.10 \text{ lb/MMBtu}$$

- (b) 40 CFR 60.43c(e) establishes standard for PM for new oil-fired boilers.
- (c) U of L has completed the June 16, 2010 approved Pollution Prevention Operating Plan by September 20, 2013. All the coal-fired boilers have been converted into natural gas/fuel oil boilers according to the Pollution Prevention Operating Plan. Using AP-42 emission factors, the 0.10 lb/MMBtu standard cannot be exceeded when combusting natural gas or distillate fuel oil. Since the PM standards in 40 CFR 60 Subpart Dc are more stringent than that in Regulation 7.06, the source need only demonstrate compliance with the PM standard in 40 CFR 60 Subpart Dc.

(3) **SO₂**

- (a) In accordance with Regulation 7.06, section 5.1.3, the emission standards for SO₂ are determined as the following:

$$\text{Total Heat Input Capacity} = 249 \text{ MMBtu/hr}$$

$$\text{Liquid/Gas: } 7.7223 \times (249)^{-0.4106} = 0.80 \text{ lb/MMBtu}$$

- (b) 40 CFR 60.42c(d) establishes standard for SO₂ for new oil-fired boilers.

(4) **TAC**

- (a) It has been demonstrated that TAC emissions for Boiler #1 and #3 comply with the STAR uncontrolled. There are no specific TAC emission standards for these boilers.

(5) **Unit Operation**

- (a) On July 28, 2021, U of L requested that Boiler #3 is designated as gas-fired boiler as defined in 40 CFR 63.11237. As such Boiler #3 is not subject to 40 CFR 63, Subpart JJJJJ according to 40 CFR 63.11195(e).

ii. **Monitoring and Recordkeeping**

(1) **Opacity**

- (a) 40 CFR 60.47c establishes opacity monitoring and record keeping requirements for fuel oil-fired boilers.

(2) **SO₂**

- (a) 40 CFR 60.42c and 48c establish monitoring and record keeping requirements for fuel oil-fired boilers.

iii. **Reporting**

(1) **Opacity**

- (a) 40 CFR 60.48c establishes opacity reporting requirements for fuel oil-fired boilers.

(2) **SO₂**

- (a) 40 CFR 60.48c establishes SO₂ reporting requirements for fuel oil-fired boilers.

iv. **Testing**

(1) **Opacity**

- (a) 40 CFR 60.45c and 47c establish opacity testing requirements for fuel oil-fired boilers.

(2) **SO₂**

- (a) 40 CFR 60.44c establishes SO₂ testing requirements for fuel oil-fired boilers.

d. Emission Unit U7 – Portable Gasoline Storage Tank

EP	Description	Applicable Regulations	Control ID
E10	Portable gasoline storage tank with a capacity of 550 gallons, equipped with a dual point vapor balance system. (Insignificant activity)	STAR, 7.15	C9

Control ID	Description	Control Efficiency
C9	Vapor balance and submerged fill	N/A

i. Standards/Operating Limits**(1) TAC**

- (a) According to Regulation 5.21, section 2.6, emissions from motor vehicle fueling or refueling are *de minimis*.

(2) VOC

- (a) Regulation 7.15, section 3 establishes installation, maintenance, and operation requirements for the storage tanks.

e. Emission Unit U8 – Large Emergency Generators

EP	Description	Applicable Regulations	Control ID
E12	Diesel fueled emergency generator rated at 1,208 HP (3.07 MMBtu/hr), make Caterpillar, model SR4, located at Miller Technology (Building #21A)	STAR	N/A
E15	Diesel fueled emergency generator rated at 1,342 HP (3.42 MMBtu/hr), make Caterpillar, model 3508, located at Shumaker Research Building (Building #4)		N/A

i. Standards**(1) TAC**

- (a) According to 40 CFR 63.6590(b)(3), the emergency generators under this unit are exempt from 40 CFR 63, Subpart ZZZZ since they are existing (before 6/12/2006) institutional emergency RICE located at an area source of HAP emissions. The proposed emergency generators are not subject to 40 CFR 60,

Subpart IIII because they were installed before July 12, 2006.

- (b) In accordance with Regulation 5.21, section 4, and utilizing AP-42 emission factors and the 500 hours of operating limits, it has been determined that the uncontrolled TAC emissions from this unit are *de minimis*.

f. Emission Unit U9 – Hot Water Boilers, Steam Boilers, Domestic Boilers

EP	Description	Applicable Regulations	Control ID
E16	Two (2) natural gas fired hot water boilers, rated at 1.0 MMBtu/hr for each, make Lochinvar, model SBN1000, located at basement mechanical room of Ernst Hall.	STAR, 7.06	N/A
E17	Two (2) natural gas-fired hot water boilers, rated at 1.3 MMBtu/hr for each, located at basement mechanical room of CUER.	STAR, 7.06	N/A
E18	Two (2) natural gas-fired hot water boilers, rated at 1.70 MMBtu/hr for each, make W/Mclain, model PG688WI and PG688WF, located at basement mechanical room of Louisville Hall.	STAR, 7.06	N/A
E19A	Two (2) natural gas-fired hot water boiler, rated at 1.5 MMBtu/hr for each, make Loch, model FBN-1500, located at basement mechanical room of UTA.	STAR, 7.06	N/A
E21	Two (2) natural gas-fired hot water boiler, rated at 1.0 MMBtu/hr for each, make Lochinvar, model SBN1000, located at central mechanical room of Thrust.	STAR, 7.06	N/A
E22A	Two (2) natural gas-fired hot water boilers, rated at 2.0 MMBtu/hr for each, make Cleaver B, model CFE-E, located at NE basement mechanical room of Chemistry.	STAR, 7.06	N/A
E23	Two (2) natural gas-fired hot water boilers, rated at 1.38 and 2.25 MMBtu/hr, make Ajax, model WGN1375S and WGN2250S, located at stockroom mechanical room and personnel WHS Side of Tafel.	STAR, 7.06	N/A
E24	Two (2) natural gas-fired hot water boilers, one rated at 1.5 MMBtu/hr, make/model Lochinvar/SBN1500; one rated at 1.99 MMBtu/hr for each, make/model Loch/FBN2001, located at W mechanical room of Schnellenger.	STAR, 7.06	N/A
E24A	Natural gas-fired hot water boilers, rated at 1.99 MMBtu/hr for each, make/model Loch/FBN2001, located at W mechanical room of Schnellenger.	STAR, 7.06	N/A

EP	Description	Applicable Regulations	Control ID
E25	Natural gas-fired hot water boiler, one rated at 2.0 MMBtu/hr, make/model Ben-Mark/ AR693390, one rated at 1.5 MMBtu/hr, make/model Aerco/BMK1500, located at basement mechanical room of Ekstrom Library.	STAR, 7.06	N/A
E25A	Natural gas-fired hot water boiler, rated at 1.5 MMBtu/hr, make/model Aerco/BMK1500, located at basement mechanical room of Ekstrom Library.	STAR, 7.06	N/A
E26A	Two (2) natural gas-fired hot water boilers, rated at 3.0 MMBtu/hr for each, make Lochinvar, model FBN3001 and VTG-3000 LGE, located at mechanical room of Natatorium.	STAR, 7.06	N/A
E27A	Two (2) natural gas-fired hot water boilers, rated at 1.0 MMBtu/hr for each, make Lochinvar, model AWN1000, located at 2 nd floor mechanical room of YUM Center.	STAR, 7.06	N/A
E29	One (1) natural gas-fired steam boiler, rated at 4.2 MMBtu/hr, make I-Fireman, model 202-50, located at basement mechanical room of Life Science.	STAR, 7.06	N/A
E30	One (1) natural gas-fired steam boiler, rated at 2.1 MMBtu/hr, make Bryan, model CL-210-5150FDG, located at basement mechanical room of Lutz Hall.	STAR, 7.06	N/A
E31	One (1) natural gas-fired steam boiler, rated at 1.34 MMBtu/hr, make Hurst, model unknown, located at basement mechanical room of Ernst Hall.	STAR, 7.06	N/A
E33A	One (1) natural gas-fired steam boiler, rated at 1.82 MMBtu/hr, make W/Mclain, model LGB-15, located at basement of Humana Gym.	STAR, 7.06	N/A
E34	Three (3) natural gas-fired steam boilers, rated at 3.5 MMBtu/hr for each, make Peerless, model TC11SP and GTC11SU, located at penthouse mechanical room of Shumaker Research Bldg.	STAR, 7.06	N/A
E35A	Two (2) natural gas-fired domestic hot water boilers, rated at 1.44 MMBtu/hr for each, make Loch, model CFN-1442PM, located at E mechanical penthouse of SAC.	STAR, 7.06	N/A
E38A	Two (2) natural gas fired-domestic hot water boilers, rated at 1.0 MMBtu/hr for each, make Lochinvar, model AWN100, located at 2 nd floor mechanical room of YUM Center.	STAR, 7.06	N/A
E43	Two (2) natural gas fired hot water boilers, rated at 1.0 MMBtu/hr for each, make Loch, model FBN1001, located at W mechanical penthouse of SAC	STAR, 7.06	N/A
E44	Two (2) natural gas fired hot water boilers, rated 3.0 MMBtu/hr for each, make Lochinvar, model FBN3000, located at Belknap Academic Building	STAR, 7.06	N/A

i. **Standards**

(1) **Opacity**

- (a) Regulation 7.06, section 4.2 limit the visible emissions to 20% opacity.
- (b) The District has determined that using a natural gas fired boiler will inherently meet the 20% opacity standard. Therefore, the company is not required to perform periodic monitoring to demonstrate compliance with the opacity standard.

(2) **PM**

- (a) The total heat input capacity for boilers subject to Regulation 7.06 is more than 250 MMBtu/hr. In accordance with Regulation 7.06, section 4.1.4, the emission standards for this unit is 0.1 lb/MMBtu.
- (b) A PM and SO₂ compliance demonstration has been performed for the boiler, using AP-42 emission factors and combusting natural gas, and the emission standards should be met uncontrolled. Therefore, there are no monitoring, record keeping, and reporting requirements for this boiler with respect to PM and SO₂ emission limits.

(3) **SO₂**

- (a) The total heat input capacity for boilers subject to Regulation 7.06 is more than 250 MMBtu/hr. In accordance with Regulation 7.06, section 5.1.1, the emission standards for this unit is 0.8 lb/MMBtu.
- (b) A PM and SO₂ compliance demonstration has been performed for the boiler, using AP-42 emission factors and combusting natural gas, and the emission standards should be met uncontrolled. Therefore, there are no monitoring, record keeping, and reporting requirements for this boiler with respect to PM and SO₂ emission limits.

(4) **TAC**

- (a) The TAC emissions from the combustion of natural gas are considered to be “*de minimis* emissions” per Regulation 5.21, section 2.7.

g. **Emission Unit U10 – Groundwater Remediation System**

EP	Description	Applicable Regulations	Control ID
E39	Custom-made groundwater remediation system with a treatment capacity of 20 gallons water per min	STAR, 7.25	C10

Control ID	Description	Control Efficiency
C10	Dual carbon adsorption system consists of two activated carbon adsorption units in series, each make Tetrasolv Filtration, model VFV-250, with a capacity of 120 acfm.	99%

i. **Standards**

(1) **TAC**

- (a) The potential uncontrolled emissions of all TACs are below the *de minimis* threshold levels except for Benzene. Benzene emission can exceed its *de minimis* level (216.0 lb/yr) uncontrolled, but not controlled. In lieu of performing environmental acceptability demonstration by modeling, University of Louisville is required to demonstrate that the Benzene emission is below *de minimis* level.

(2) **VOC**

- (a) Regulation 7.25, section 3 establishes VOC standards for the affected facilities. The source is required to utilize best available control technology (BACT) and set out the designated specifications as permit conditions to ensure compliance with the requirements. The source accepted a plantwide 5 tons per year limit to avoid BACT.
- (b) The total VOC emissions from all facilities subject to Regulation 7.25, including the groundwater remediation system (U10) and paint spray booth (U11), are subject to the 5 tons per year limit.

h. **Emission Unit U11 – Paint Spray Booths**

EP	Description	Applicable Regulations	Control ID
E40	Theatre Arts Spray Booth for aerosol can spray paint or RIT dye application to stage production clothing, shoes, and jewelry,	STAR, 7.08, 7.25	C11

EP	Description	Applicable Regulations	Control ID
	ventilating rate 8000 cfm, equipped with a 0.625 MMBtu/hr direct natural gas heater and a fiber filter.		
E41	Fine Arts Spray Booth for the application of paints to fine art artworks using aerosol spray cans, equipped with induced draft exhaust and fabric filters.	STAR, 7.08, 7.25	C12

Control ID	Description	Control Efficiency
C11	Fabric filters	90%
C12	Fabric filters	90%

i. **Standards**

(1) **Opacity**

- (a) Regulation 7.08, section 3.1.1 establishes an opacity standard of less than 20%.

(2) **PM**

- (a) In accordance with Regulation 7.08, Table 1, PM standards for the paint booth is 2.34 lb/hr.
- (b) A PM compliance demonstration has been performed for this equipment and the lb/hr standard should be met uncontrolled. Therefore, there are no monitoring, record keeping, and reporting requirements with respect to PM lb/hr emission limits.

(3) **TAC**

- (a) It was demonstrated that the TAC emissions from the paint booth are *de minimis* uncontrolled and TAC emissions from the natural gas heater are *de minimis* per definition (Regulation 5.21, section 2.7). Therefore, this unit is in compliance with STAR Program.

(4) **VOC**

- (a) Regulation 7.25, section 3 establishes VOC standards for all affected facilities at a source. The source is required to utilize best available control

technology (BACT) if total VOC emissions from all affected facilities exceed 5 tons per year.

- (b) The total VOC emissions from all facilities subject to Regulation 7.25, including the groundwater remediation system (U10) and paint spray booth (U11), are subject to the 5 tons per year limit.

III Other Requirements

1. Temporary Sources:

The source did not request to operate any temporary facilities.

2. Short Term Activities:

The source did not report any short-term activities.

3. Emissions Trading:

The source is not subject to emission trading.

4. Alternative Operating Scenarios:

The source did not request alternative operating scenario in this Title V application.

5. Compliance History:

There are no records of any violations for this company since the Title V permit was last issued.

6. Calculation Methodology or Other Approved Method:

In general, emissions are calculated by multiplying the process throughput or hours of operation by the emission factor and by the control efficiency of any control device. For example:

$$E_x = \left(\text{throughput}, \left[\frac{lb}{hr} \right] \right) \left(EF, \left[\frac{lb \text{ emission}}{lb_{\text{throughput}} \text{ hr of operation}} \right] \right) (1 - \text{control efficiency})$$

Alternatively, the mass balance method considers the total throughput and the fraction of that throughput that is made up by the pollutant under consideration. For example:

$$E_x = \left(\text{throughput} \left[\frac{gal}{yr} \right] \right) \cdot (\text{pollutant percentage}) \cdot (1 - \text{control efficiency})$$

Other methods of determining emissions may be used if proposed by the Company and approved in writing by the District, or if required by permit conditions.

Unit ID	Emi. Point ID	Emission Point Description	Pollutant	Uncontr. Emission Factor	Contr. Emission Factor	Unit	Emission Factor Sources	Control Efficiency & Source
U1/ U2	E1	Natural gas boiler	Various	Emission factors from AP-42, 1.4 (See Note b)				
	E3	Natural gas/fuel oil boiler	Various	Emission factors from AP-42, 1.3 and 1.4 (See Note b and c)				
U7	E10	Gasoline tank	VOC	EPA TANK4.0 Program				
U8	E12	Diesel generator	Various	Emission factors from AP-42, 3.4 (See Note d)				
	E15	Diesel generator	Various	Emission factors from AP-42, 3.4 (See Note d)				
U9	E16 - E44	Small boilers	Various	Emission factors from AP-42, 1.4 (See Note b)				
U10	E39	Groundwater remediation system	VOC	0.29	0.003	lb/hr	Site analytical results	99%, Option 1
			Benzene	0.077	7.7×10^{-4}	lb/hr	Site analytical results	99%, Option 1
			Ethyl benzene	0.018	1.8×10^{-4}	lb/hr	Site analytical results	99%, Option 1
			Toluene	0.065	6.5×10^{-4}	lb/hr	Site analytical results	99%, Option 1
			Xylene	0.13	1.3×10^{-3}	lb/hr	Site analytical results	99%, Option 1
U11	E40	Art spray booth	Various	Mass balance method				
	E41	Art spray booth	Various	Mass balance method				
IA2	E5, E45	Parts washer	VOC	Mass balance method				
IA3	E14	Diesel generator	Various	Emission factors from AP-42, 3.4 (See Note d)				
	E42	Diesel generator	Various	Emission factors from AP-42, 3.4 and EPA certificate (See Note e)				
IA4	E46	N.G. generator	Various	Emission factors from AP-42, 3.2 (See Note g)				
		Small diesel engines	Various	Emission factors from AP-42, 3.3 (See Note f)				

Notes:

a. Control efficiency determination options:

Option 1: Use District pre-approved control efficiency

Option 2: Submit a signature guarantee from the control device manufacture stating the control device efficiency

Option 3: Perform stack test.

Until the District receives a signature guarantee from the control device manufacturer stating the control device efficiency is higher (Option 2), or an approved stack test (Option 3), the pre-approved efficiency (Option 1) will be used in all calculations to demonstrate compliance with applicable standards and calculations for emission inventory.

b. Emission factors for natural gas-fired boilers (E1, E3, and small boilers):

Pollutant	CAS No.	EF (lb/mmcf)	EF Source
NH3		0.49	FIRE
CO		84	AP-42, 1.4-1
NOx		32 (E1) 50 (E3) 100 (others)	AP-42, 1.4-1

Pollutant	CAS No.	EF (lb/mmcf)	EF Source
PM (TSP)		0.52	2011 NEI
PM-Con		0.32	2011 NEI
PM10-Fil		0.20	2011 NEI
PM2.5-Fil		0.11	2011 NEI
SO2		0.60	AP-42, 1.4-2
VOC		5.50	AP-42, 1.4-2
2-Methylnaphthalene	91-57-6	2.40E-05	AP-42, 1.4-3
3-Methylchloranthrene	56-49-5	1.80E-06	AP-42, 1.4-3
7,12-Dimethylbenz(a)Anthracene	57-97-6	1.60E-05	AP-42, 1.4-3
Acenaphthene	83-32-9	1.80E-06	AP-42, 1.4-3
Acenaphthylene	203-96-8	1.80E-06	AP-42, 1.4-3
Anthracene	120-12-7	2.40E-06	AP-42, 1.4-3
Arsenic	As	2.00E-04	AP-42, 1.4-4
Benz(a)anthracene	56-55-3	1.80E-06	AP-42, 1.4-3
Benzene	71-43-2	2.10E-03	AP-42, 1.4-3
Benzo(a)pyrene	50-32-8	1.20E-06	AP-42, 1.4-3
Benzo(b)fluoranthene	205-99-2	1.80E-06	AP-42, 1.4-3
Benzo(g,h,i)perylene	191-24-2	1.20E-06	AP-42, 1.4-3
Benzo(k)fluoranthene	205-82-3	1.80E-06	AP-42, 1.4-3
Beryllium	Be	1.20E-05	AP-42, 1.4-4
Cadmium	Cd	1.10E-03	AP-42, 1.4-4
Chromium VI	Cr	1.40E-03	AP-42, 1.4-4
Chrysene	218-01-9	1.80E-06	AP-42, 1.4-3
Cobalt	Co	8.40E-05	AP-42, 1.4-4
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	AP-42, 1.4-3
Fluoranthene	206-44-0	3.00E-06	AP-42, 1.4-3
Fluorene	86-73-7	2.80E-06	AP-42, 1.4-3
Formaldehyde	50-00-0	7.50E-02	AP-42, 1.4-3
Hexane	110-54-3	1.80E+00	AP-42, 1.4-3
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	AP-42, 1.4-3
Manganese	Mn	3.80E-04	AP-42, 1.4-4
Mercury	Hg	2.60E-04	AP-42, 1.4-4
Naphthalene	91-20-3	6.10E-04	AP-42, 1.4-3
Nickel	Ni	2.10E-03	AP-42, 1.4-4
Phenanthrene	85-01-8	1.70E-05	AP-42, 1.4-3
Pyrene	129-00-0	5.00E-06	AP-42, 1.4-3
Selenium	Se	2.40E-05	AP-42, 1.4-4
Toluene	108-88-3	3.40E-03	AP-42, 1.4-3

c. Emission factors for fuel oil-fired boilers (E3):

Pollutant	CAS No.	EF (lb/10 ³ gal)	EF Source
NOx		20	FIRE
CO		5.00	AP-42, 1.4-1
SO2		7.10	AP-42, 1.4-1
VOC		0.20	2011 NEI

Pollutant	CAS No.	EF (lb/10 ³ gal)	EF Source
PM		3.30	2011 NEI
PM10		2.30	2011 NEI
PM2.5		1.55	2011 NEI
Acenaphthene (POM,83-32-9)	83-32-9	2.11E-05	AP-42, 1.3-9
Acenaphthylene (POM,208-96-8)	208-96-8	2.53E-07	AP-42, 1.3-9
Anthracene (POM,120-12-7)	120-12-7	1.22E-06	AP-42, 1.3-9
Benz(a)anthracene	56-55-3	4.01E-06	AP-42, 1.3-9
Benzene	71-43-2	2.14E-04	AP-42, 1.3-9
Ethylbenzene	100-41-4	6.36E-05	AP-42, 1.3-9
Benzo(b)fluoranthene	205-99-2	1.46E-06	AP-42, 1.3-9
Benzo(g,h,i)perylene (POM, 191-24-2)	191-24-2	2.26E-06	AP-42, 1.3-9
Chrysene	218-01-9	2.38E-06	AP-42, 1.3-9
Dibenzo(a,h)anthracene	53-70-3	1.67E-06	AP-42, 1.3-9
Fluoranthene (POM, 206-44-0)	206-44-0	4.84E-06	AP-42, 1.3-9
Fluorene (POM, 86-73-7)	86-73-7	4.47E-06	AP-42, 1.3-9
Formaldehyde	50-00-0	3.30E-02	AP-42, 1.3-9
Indeno(1,2,3-cd)pyrene	193-39-5	2.14E-06	AP-42, 1.3-9
Naphthalene	91-20-3	1.13E-03	AP-42, 1.3-9
Phenanathrene (POM, 85-01-8)	85-01-8	1.05E-05	AP-42, 1.3-9
Pyrene (POM, 129-00-0)	129-00-0	4.25E-06	AP-42, 1.3-9
o-Xylene (part of xylene, 95-47-6)	1330-20-7	1.09E-04	AP-42, 1.3-9
1,1,1-Trichloroethane	71-55-6	2.36E-04	AP-42, 1.3-9
Toluene	108-88-3	6.20E-03	AP-42, 1.3-9
Antimony	7440-36-0	0	AP-42, 1.3-10
Arsenic	7440-38-2	5.60E-04	AP-42, 1.3-10
Beryllium	7440-41-7	4.20E-04	AP-42, 1.3-10
Cadmium	7440-43-9	4.20E-04	AP-42, 1.3-10
Chromium III	16065-83-1	2.97E-04	AP-42, 1.3-10
Chromium VI	7440-47-3	1.23E-04	AP-42, 1.3-10
Cobalt	7440-48-4	0	AP-42, 1.3-10
Lead	7439-92-1	1.26E-03	AP-42, 1.3-10
Manganese	7439-96-5	8.40E-04	AP-42, 1.3-10
Mercury	7439-97-6	4.20E-04	AP-42, 1.3-10
Nickel	7440-02-0	4.20E-04	AP-42, 1.3-10
Phosphorous	7723-14-0	0	AP-42, 1.3-10
Selenium	7782-49-2	2.10E-03	AP-42, 1.3-10

d. Emission factors for large diesel engines > 600 HP (E12, E14, E15):

Pollutant	CAS No.	EF (lb/hp-hr)	EF Source
NOx		0.024	AP-42, 3.4-1
CO		5.50E-03	AP-42, 3.4-1
SOx		4.05E-04	AP-42, 3.4-1
VOC		6.42E-04	AP-42, 3.4-1
PM		7.00E-04	AP-42, 3.4-1
PM10		3.99E-04	AP-42, 3.4-2

Pollutant	CAS No.	EF (lb/hp-hr)	EF Source
Benzene	71-43-2	5.49E-06	AP-42, 3.4-3
Toluene	108-88-3	1.99E-06	AP-42, 3.4-3
xylenes	1330-20-7	1.36E-06	AP-42, 3.4-3
Formaldehyde	50-00-0	5.58E-07	AP-42, 3.4-3
Acetaldehyde	75-07-0	1.78E-07	AP-42, 3.4-3
Acrolein	107-02-8	5.57E-08	AP-42, 3.4-3
Naphthalene	91-20-3	9.19E-07	AP-42, 3.4-4
Acenaphthylene (POM, 208-96-8)	208-96-8	6.53E-08	AP-42, 3.4-4
Acenaphthene (POM, 83-32-9)	83-32-9	3.31E-08	AP-42, 3.4-4
Fluorene (POM, 86-73-7)	86-73-7	9.05E-08	AP-42, 3.4-4
Phenanathrene (POM, 85-01-8)	85-01-8	2.88E-07	AP-42, 3.4-4
Anthracene (POM,120-12-7)	120-12-7	8.70E-09	AP-42, 3.4-4
Fluoranthene (POM, 206-44-0)	206-44-0	2.85E-08	AP-42, 3.4-4
Pyrene (POM, 129-00-0)	129-00-0	2.62E-08	AP-42, 3.4-4
Benzo(a)anthracene	56-55-3	4.40E-09	AP-42, 3.4-4
Chrysene	218-01-9	1.08E-08	AP-42, 3.4-4
Benzo(b)fluoranthene	205-99-2	7.85E-09	AP-42, 3.4-4
Benzo(k)fluoranthene	207-08-9	1.54E-09	AP-42, 3.4-4
Benzo(a)pyrene	50-32-8	1.82E-09	AP-42, 3.4-4
Indeno(1,2,3-cd)pyrene	193-39-5	2.93E-09	AP-42, 3.4-4
Dibenz(a,h)anthracene	53-70-3	2.45E-09	AP-42, 3.4-4
Benzo(g,h,i)perylene (POM, 191-24-2)	191-24-2	3.93E-09	AP-42, 3.4-4

e. Emission factors for large diesel engines > 600 HP (E42):

Pollutant	CAS No.	EF (lb/hp-hr)	EF Source
NOx		9.69E-03	Tier 2 compliance statement
CO		1.10E-03	Tier 2 compliance statement
SOx		4.05E-04	AP-42, 3.4-1
VOC		6.42E-04	AP-42, 3.4-1
PM		2.20E-04	Tier 2 compliance statement
PM10		2.20E-04	Tier 2 compliance statement
Benzene	71-43-2	5.49E-06	AP-42, 3.4-3
Toluene	108-88-3	1.99E-06	AP-42, 3.4-3
xylenes	1330-20-7	1.36E-06	AP-42, 3.4-3
Formaldehyde	50-00-0	5.58E-07	AP-42, 3.4-3
Acetaldehyde	75-07-0	1.78E-07	AP-42, 3.4-3
Acrolein	107-02-8	5.57E-08	AP-42, 3.4-3
Naphthalene	91-20-3	9.19E-07	AP-42, 3.4-4
Acenaphthylene (POM, 208-96-8)	208-96-8	6.53E-08	AP-42, 3.4-4
Acenaphthene (POM, 83-32-9)	83-32-9	3.31E-08	AP-42, 3.4-4
Fluorene (POM, 86-73-7)	86-73-7	9.05E-08	AP-42, 3.4-4
Phenanathrene (POM, 85-01-8)	85-01-8	2.88E-07	AP-42, 3.4-4
Anthracene (POM,120-12-7)	120-12-7	8.70E-09	AP-42, 3.4-4
Fluoranthene (POM, 206-44-0)	206-44-0	2.85E-08	AP-42, 3.4-4
Pyrene (POM, 129-00-0)	129-00-0	2.62E-08	AP-42, 3.4-4

Pollutant	CAS No.	EF (lb/hp-hr)	EF Source
Benzo(a)anthracene	56-55-3	4.40E-09	AP-42, 3.4-4
Chrysene	218-01-9	1.08E-08	AP-42, 3.4-4
Benzo(b)fluoranthene	205-99-2	7.85E-09	AP-42, 3.4-4
Benzo(k)fluoranthene	207-08-9	1.54E-09	AP-42, 3.4-4
Benzo(a)pyrene	50-32-8	1.82E-09	AP-42, 3.4-4
Indeno(1,2,3-cd)pyrene	193-39-5	2.93E-09	AP-42, 3.4-4
Dibenz(a,h)anthracene	53-70-3	2.45E-09	AP-42, 3.4-4
Benzo(g,h,i)perylene (POM, 191-24-2)	191-24-2	3.93E-09	AP-42, 3.4-4

f. Emission factors for small diesel engines < 600 HP (Various existing small engines):

Pollutant	CAS No.	EF (lb/hp-hr)	EF Source
NOx		0.031	AP-42, 3.3-1
CO		6.68E-03	AP-42, 3.3-1
SOx		4.05E-04	AP-42, 3.3-1
VOC		2.51E-03	AP-42, 3.3-1
PM		2.20E-03	AP-42, 3.3-1
PM10		2.20E-03	AP-42, 3.3-1
Benzene	71-43-2	6.6E-06	AP-42, 3.3-2
Toluene	108-88-3	2.9E-06	AP-42, 3.3-2
xylenes	1330-20-7	2.0E-06	AP-42, 3.3-2
1,3-Butadiene	106-99-0	2.8E-07	AP-42, 3.3-2
Formaldehyde	50-00-0	8.3E-06	AP-42, 3.3-2
Acetaldehyde	75-07-0	5.4E-06	AP-42, 3.3-2
Acrolein	107-02-8	6.5E-07	AP-42, 3.3-2
Naphthalene	91-20-3	6.0E-07	AP-42, 3.3-2
Acenaphthylene (POM, 208-96-8)	208-96-8	3.6E-08	AP-42, 3.3-2
Acenaphthene (POM, 83-32-9)	83-32-9	1.0E-08	AP-42, 3.3-2
Fluorene (POM, 86-73-7)	86-73-7	2.1E-07	AP-42, 3.3-2
Phenanthrene (POM, 85-01-8)	85-01-8	2.1E-07	AP-42, 3.3-2
Anthracene (POM,120-12-7)	120-12-7	1.3E-08	AP-42, 3.3-2
Fluoranthene (POM, 206-44-0)	206-44-1	5.4E-08	AP-42, 3.3-2
Pyrene (POM, 129-00-0)	129-00-0	3.4E-08	AP-42, 3.3-2
Benzo(a)anthracene	56-55-3	1.2E-08	AP-42, 3.3-2
Chrysene	218-01-9	2.5E-09	AP-42, 3.3-2
Benzo(b)fluoranthene	205-99-2	7.0E-10	AP-42, 3.3-2
Benzo(k)fluoranthene	207-08-9	1.1E-09	AP-42, 3.3-2
Benzo(a)pyrene	50-32-8	1.3E-09	AP-42, 3.3-2
Indeno(1,2,3-cd)pyrene	193-39-5	2.7E-09	AP-42, 3.3-2
Dibenz(a,h)anthracene	53-70-3	4.1E-09	AP-42, 3.3-2
Benzo(g,h,i)perylene (POM, 191-24-2)	191-24-2	3.5E-09	AP-42, 3.3-2

g. Emission factors for natural gas engines:

Pollutant	CAS No.	EF (lb/MMBtu)	EF Source
NOx		4.08	AP-42, 3.2-2

Pollutant	CAS No.	EF (lb/MMBtu)	EF Source
CO		0.317	AP-42, 3.2-2
SOx		0.000588	AP-42, 3.2-2
VOC		0.118	AP-42, 3.2-2
PM		0.00991	AP-42, 3.2-2
PM10		7.71E-05	AP-42, 3.2-2
1,1,2,2-Tetrachloroethane	79-34-5	4.00E-05	AP-42, 3.2-2
1,1,2-Trichloroethane	79-00-5	3.18E-05	AP-42, 3.2-2
1,1-Dichloroethane	75-34-3	2.36E-05	AP-42, 3.2-2
1,2-Dichloroethane	107-06-2	2.36E-05	AP-42, 3.2-2
1,3-Dichloropropene	542-75-6	2.64E-05	AP-42, 3.2-2
2,2,4-Trimethylpentane	540-84-1	2.50E-04	AP-42, 3.2-2
Acetaldehyde	75-07-0	8.36E-03	AP-42, 3.2-2
Acrolein	107-02-8	5.14E-03	AP-42, 3.2-2
Benzene	71-43-2	4.40E-04	AP-42, 3.2-2
Biphenyl	92-52-4	2.12E-04	AP-42, 3.2-2
Carbon Tetrachloride	56-23-5	3.67E-05	AP-42, 3.2-2
Chlorobenzene	108-90-7	3.04E-05	AP-42, 3.2-2
Chloroform	67-66-3	2.85E-05	AP-42, 3.2-2
Ethylbenzene	100-41-4	3.97E-05	AP-42, 3.2-2
Ethylene Dibromide	106-93-4	4.43E-05	AP-42, 3.2-2
Formaldehyde	50-00-0	5.28E-02	AP-42, 3.2-2
Methanol	67-56-1	2.50E-03	AP-42, 3.2-2
Methylene Chloride	75-09-2	2.00E-05	AP-42, 3.2-2
Hexane	110-54-3	1.11E-03	AP-42, 3.2-2
Naphthalene	91-20-3	7.44E-05	AP-42, 3.2-2
Phenol	108-95-2	2.40E-05	AP-42, 3.2-2
Styrene	100-42-5	2.36E-05	AP-42, 3.2-2
Tetrachloroethane	79-34-5	2.48E-06	AP-42, 3.2-2
Toluene	108-88-3	4.08E-04	AP-42, 3.2-2
Vinyl Chloride	75-01-4	1.49E-05	AP-42, 3.2-2
Xylene	1330-20-7	1.84E-04	AP-42, 3.2-2

7. Insignificant Activities

Description	Qty.	PTE (tpy)	Basis for Exemption
Portable gasoline storage tank, 550 gallons (See unit U7)	1	0.87 VOC	Regulation 1.02, Appendix A
Non-halogenated cold solvent parts cleaner (See unit IA2)	1	0.02 VOC	Regulation 1.02
New emergency generators, 805 HP and 1,314 HP (See unit IA3)	1	4.83 NOx	Regulation 1.02

Description	Qty.	PTE (tpy)	Basis for Exemption
Existing diesel emergency generators installed before 6/12/2006 (See Note 8)	17	4.83 NO _x	Regulation 1.02
Existing natural gas emergency generators installed before 6/12/2006 (See Note 8)	6	1.03 NO _x	Regulation 1.02
Combustion Sources <1.0 MMBtu/hr, including 13 hot water boilers, 2 steam boilers, and 15 domestic hot water boilers (See Note 9)	34	0.43 NO _x	Regulation 1.02, Appendix A
Silver stream color+ negative maker	1	0.063 VOC	EPA White Papers
Digital dry toner printers	3	0	EPA White Papers
Residential/Domestic Equipment	637	0	Regulation 1.02, Appendix A
Emergency relief vents and ventilating systems (not otherwise regulated)	426	0	Regulation 1.02, Appendix A
Academic Labs for Research and Development	<100	0	Regulation 1.02, Appendix A
Diesel Fuel Storage Tanks used for emergency generators and boilers	28	0.01 VOC	Regulation 1.02, Appendix A
Four (4) 280 gallon used oil storage tanks and three (3) 294 gallon used cooking grease tank	7	0.01 VOC	Regulation 1.02, Appendix A
Natural gas fired crucible furnace, capacity 1.75 gal (0.95 MMBtu/hr), for melting aluminum and bronze used in Fine Arts Department	1	0.41 NO _x	Regulation 1.02, Appendix A
Soil or Groundwater Remediation Projects - Passive or total removal	1	0.01 VOC	Regulation 1.02, Appendix A
Lab ventilating and exhausting systems for nonradioactive materials	80	0.39 VOC	Regulation 1.02, Appendix A
Cooling Towers	7	0.87 PM ₁₀	Regulation 1.02

1. Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements pursuant to Regulation 2.16, section 3.5.4.1.4.
2. Insignificant activities identified in District Regulation 1.02, Appendix A shall comply with generally applicable requirements as required by Regulation 2.16, section 4.1.9.4.

3. The Insignificant Activities Table is correct as of the date the permit was proposed for review by U.S. EPA, Region 4.
4. Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.
5. The owner or operator shall submit an updated list of insignificant activities that occurred during the preceding year pursuant to Regulation 2.16, section 4.3.5.3.6.
6. The owner or operator may elect to monitor actual throughputs for each of the insignificant activities and calculate actual annual emissions or use Potential to Emit (PTE) to be reported on the annual emission inventory.
7. The District has determined pursuant to Regulation 2.16, section 4.1.9.4 that no monitoring, record keeping, or reporting requirements apply to the insignificant activities listed, except for the equipment that has an applicable regulation and permitted under an insignificant activity (IA) unit.
8. The emergency generators in the following table meet the definition of insignificant activity in Regulation 1.02. According to 40 CFR 63.6585(f)(3), existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii) are not subject to 40 CFR 63, Subpart ZZZZ.

Bldg No.	Building Name	Fuel Type	Capacity (Btu/hr)	Capacity (HP)	Tank Location
90	Business School	Diesel	426,875	168	NE basement Mech. Room
36	Chemistry	Diesel	211,730	83	NW basement Mech. Room
84	Education Bldg.	Diesel	341,500	134	N end Mech. Room
9	Ekstrom Library	Diesel	1,366,000	537	SE end Mech. Room
81	Houchens	Diesel	102,450	40	SE corner of Bldg.
19	Law School	Diesel	102,450	40	W/S basement Mech.
28	Duthie	Diesel	341,500	134	SE side of Bldg.
23	Lutz Hall	Diesel	1,366,000	537	W of MITC UG Bldg
83	Music School	Diesel	443,950	175	E side of Bldg.
16	SAC	Diesel	853,750	336	NW basement Mech. Room
70	Steam & Chill	Diesel	1,366,000	537	SE corner Mech. Room
88	Strickler	Diesel	204,900	81	SW basement Mech. Room
99/31	Vogt Bldg/Sackett Hall	Diesel	341,500	134	N central Mech. Room
99	Vogt Bldg	Diesel	546,400	215	S side of Bldg.
48	University Tower	Diesel	683,000	268	SW side of Bldg.
75	Public Safety	Diesel	341,500	134	SW corner of Bldg.
108	Cardinal Stadium	Diesel	2,049,000	805	NW end of Stadium Bldg.
18	Life Sciences	Natural Gas	341,210	134	W end of Bldt
45	Louisville Hall	Natural Gas	341,210	134	E side of Bldg.
47	Unitas Tower	Natural Gas	102,363	40	E end of Bldg.

Bldg No.	Building Name	Fuel Type	Capacity (Btu/hr)	Capacity (HP)	Tank Location
9	Ekstrom Library	Natural Gas	426,513	168	N side of Bldg.
12	Natorium	Natural Gas	85,303	34	W side of Bldg.
14	YUM Center	Natural Gas	170,605	67	W side of Bldg.
123	Student Rec Center	Natural Gas	511,815	201	W side of Bldg.
124	Lynn Soccer Stadium	Natural Gas	204,726	80	E side of Bldg.

9. List of small water boilers, steam boilers, and domestic hot water boilers with capacity less than 1.0 MMBtu/hr:

Location	Boiler Type	Capacity (Btu/hr)	Location Description
Playhouse	hot water boiler	500,000	Basement Mech Room
University Club	hot water boiler	725,000	Basement Mech Room
University Club	hot water boiler	725,000	Basement Mech Room
Red Barn	hot water boiler	212,500	2nd Floor Mech Room
Triangle Frat	hot water boiler	360,000	Hatch Basement Mech Room
Sigma Chi	hot water boiler	225,000	Basement Mech Room
Duthie	hot water boiler	700,000	Central Mech Room
Public Safety	hot water boiler	500,000	North Mech Room
Public Safety	hot water boiler	990,000	South Mech Room
Cardinal Park	hot water boiler	794,000	South Mech Room
Cardinal Park	hot water boiler	794,000	North Mech Room
Fairfax	hot water boiler	500,000	East Mech Room
SAC	domestic hot water boiler	360,000	W Mech Penthouse
SAC	domestic hot water boiler	360,000	W Mech Penthouse
University Club	domestic hot water boiler	500,000	Basement Storage Area
Miller Hall	domestic hot water boiler	360,000	Basement Mech Room
Miller Hall	domestic hot water boiler	360,000	Basement Mech Room
Miller Hall	domestic hot water boiler	360,000	Basement Mech Room
Louisville Hall	domestic hot water boiler	800,000	Basement Mech Room
Louisville Hall	domestic hot water boiler	800,000	Basement Mech Room
Cardinal Park	domestic hot water boiler	720,000	South Mech Room
Cardinal Park	domestic hot water boiler	720,000	South Mech Room
Schnellenberger	hot water boiler	800,000	NE Expansion, Mech Room
Schnellenberger	hot water boiler	800,000	NE Expansion, Mech Room
Schnellenberger	hot water boiler	399,999	NE Expansion, Mech Room
Schnellenberger	hot water boiler	399,999	NE Expansion, Mech Room
Schnellenberger	hot water boiler	399,999	NE Expansion, Mech Room
Schnellenberger	hot water boiler	399,999	NE Expansion, Mech Room
Schnellenberger	hot water boiler	399,999	NE Expansion, Mech Room
Schnellenberger	hot water boiler	399,999	NE Expansion, Mech Room

Location	Boiler Type	Capacity (Btu/hr)	Location Description
Natorium	domestic hot water boiler	399,999	
Natorium	domestic hot water boiler	399,999	
UPDC	hot water boiler	399,999	Basement
Lyon Resident Hall	domestic hot water boiler	399,999	
Lyon Resident Hall	domestic hot water boiler	399,999	

10. List of cooling towers:

Location	Capacity – Circulation Rate (gpm)
Steam & Chill Plant – North Row 1	1,500
Steam & Chill Plant – North Row 2	1,500
Steam & Chill Plant – North Row 3	1,500
Steam & Chill Plant – North Row 4	1,500
Steam & Chill Plant – North Row 5	1,500
Steam & Chill Plant – North Row 6	1,500
Steam & Chill Plant – North Row 7	1,500
Steam & Chill Plant – South Row 1	2,250
Steam & Chill Plant – South Row 2	2,250
Steam & Chill Plant – South Row 3	2,250
Steam & Chill Plant – South Row 4	2,250
Steam & Chill Plant – South Row 5	2,250
Steam & Chill Plant – South Row 6	2,250
Steam & Chill Plant – South Row 7	2,250
Tower #15	2,500
Tower #16	2,500
Alumni Club	475
Henry Vogt	600
Louisville Hall	450
University Tower Aps	450

a. **Emission Unit IA2 – Non-halogenated Cold Solvent Parts Cleaners**

EP	Description	Applicable Regulations	Control ID
E5	Non-halogenated cold solvent metal parts washer with a secondary reservoir, make Graymills, model HK150, capacity 10 gallon.	STAR, 6.18	N/A
E45	Non-halogenated cold solvent metal parts washer with a secondary reservoir, Central Machinery, model 60769, capacity 20 gallon, located at Belknap Academic Building		N/A

i. **Standards**

(1) **VOC**

- (a) Standards for all solvent-based metal cleaning equipment are set by Regulation 6.18, section 4.
- (b) The PTE for this equipment is less than 5 tons. Under Regulation 2.16, section 1.23.1.2, this allows this equipment to be classified as an insignificant activity.

ii. **Monitoring and Record Keeping**

(1) **VOC**

- (a) Regulation 6.18, section 4.4 establishes record keeping requirements for cold cleaners.

b. **Emission Unit IA3 – New Diesel Emergency Generators**

EP	Description	Applicable Regulations	Control ID
E14	Diesel fueled emergency generator, rated at 805 HP (2.05 MMBtu/hr), make Caterpillar, model 3412 and LC7 C18, located at NE end of Cardinal Stadium (Building #108)	STAR, 5.02, 7.02, 40 CFR 60 subpart III;	N/A
E42	Diesel fueled emergency generator, rated at 1341 HP (3.42 MMBtu/hr), make Cummins, model QST30-G5, located at NW Cardinal Stadium	40 CFR 63 subpart ZZZZ	N/A

i. **Standards**

(1) **HAP**

- (a) These engines (E14 and E42) are subject to 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, because it involves a stationary reciprocating internal combustion engine (RICE) located at a minor source of HAP emissions.
- (b) A new compression ignition engine must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart III. There are no further requirements for this engine in Subpart ZZZZ.

(2) **Unit Operation**

- (a) 40 CFR 60.4205, 4207, and 4211 establish unit operation requirements and fuel requirements for emergency generators.

ii. **Monitoring and Record Keeping**

(1) **Unit Operation**

- (a) 40 CFR 60.4209 and 4214 establish monitoring and record keeping for emergency generators.

c. **Emission Unit IA4 – New Natural Gas Emergency Generator**

EP	Description	Applicable Regulations	Control ID
E46	Natural gas fueled emergency generator, rated at 268 HP (2.41 MMBtu/hr), make Caterpillar, model Olympian G200LG6, located at Belknap Academic Building, located at Belknap Academic Building	STAR, 5.02, 7.02, 40 CFR 60 subpart JJJJ; 40 CFR 63 subpart ZZZZ	N/A

i. **Standards**

(1) **HAP**

- (a) The engine (E46) is subject to 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, because it involves a stationary reciprocating internal combustion engine (RICE) located at an area source of HAP emissions.
- (b) A new spark ignition engine must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ. There are no further requirements for this engine in Subpart ZZZZ.

(2) **Unit Operation**

- (a) 40 CFR 60.4230, 4233, 4234, and 4243 establish unit operation requirements and fuel requirements for emergency generators.

ii. **Monitoring and Record Keeping**

(1) **Unit Operation**

- (a) 40 CFR 60.4237 and 4245 establish monitoring and record keeping for emergency generators.