



**I Source Information**

**1. Product Description:**

Louisville Gas & Electric- Mill Creek Generating Station generates electric energy for local and remote distribution.

**2. Process Description:**

Louisville Gas & Electric- Mill Creek Generating Station operates coal-fire boilers and natural gas-fired combined cycle (NGCC) unit to generate electricity. Coal is the primary fuel used to fire commercial boilers for generation of electricity via steam turbines and generators. Natural gas is another primary fuel used to fire NGCC unit for generation of electricity.

**3. Site Determination:**

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

**4. Environmental Justice Analysis**

According to U.S. EPA’s EJScreen 2.0, the area within a one-mile radius of Mill Creek Generating Station is comprised of 24% People of Color (POC) and 40% low-income. The state of Kentucky is comprised of 16% POC and 36% low-income. The approximate population within this area is 1,867 people.

**5. Emission Unit Summary:**

<b>Emission Unit</b>	<b>Equipment Description</b>
U23	Natural Gas-fired Combined Cycle (NGCC) Unit (MC5), rated capacity 4216 MMBtu/hr, 664 MW power output, consists of one gas combustion turbine (GT) with dry low NOx combustors, one single-shaft water cooled generator (7HA.03, 501JAC, 9000HL, or similar), one heat recovery steam generator (HRSG) equipped with NG-fired duct burners (DB), and one steam turbine (ST).
U24	Natural gas-fired auxiliary boiler used to assist NGCC turbine startups, make and model TBD, heat input capacity 99.9 MMBtu/hr, equipped with low NOx burner and flue gas recirculation.
U25	Diesel emergency generator, 2000 kW with associated diesel storage tank, make & model TBD.
U26	Natural gas-fired fuel gas (dewpoint) heater used to heat pipeline natural gas to combustion turbines and duct burners, make and model TBD, heat input capacity 15 MMBtu/hr
IA4	Emergency diesel fire pump, make & model TBD, rated at 400 HP with a 440-gallon diesel fuel tank.

Emission Unit	Equipment Description
IA-OT	Cooling Towers for NGCC unit

**6. Fugitive Sources:**

There are fugitive emissions from haul roads, landfill area, and material stock piles at this source.

**7. Permit Revisions:**

Permit No.	Public Notice	Issue Date	Change Type	Description/Scope
C-0127-22-0046-V	12/09/2023 - 02/06/2024	x/xx/2022	Initial	Initial issuance of construction permit

**8. Application and Related Documents**

Document Number	Date	Description
442016	12/15/2022	Mill Creek NGCC project application package
442019	12/15/2022	Mill Creek NGCC project Tier 4 modeling files
444205	12/16/2022	NGCC construction application form 100A
454150	1/6/2023	Calculation spreadsheet for NGCC construction application
537059	3/7/2023	Correspondence about NGCC permit progress
554580	5/19/2023	Update on NGCC permitting progress
561616	6/1/2023	Draft of NGCC construction permit sent to company for pre-review
588479	6/30/2023	LG&E's pre-review comments on NGCC permit
591687	7/14/2023	Revised NOx/VOC RACT Plant sent to company for review
597975	7/25/2023	NGCC project-wide requirements sent to LG&E for review
616387	8/22/2023	NGCC construction permit with comments & responses sent to LG&E
628307	9/8/2023	Quote legal notice NOx/VOC RACT board order
628308	9/8/2023	Legal notice NOx/VOC RACT

Document Number	Date	Description
628309, 628310	9/8/2023	Company copy NOx/VOC RACT board order
629409	9/13/2023	Company providing signed copy of board agreement for NOx/VOC RACT Plan
630094	9/13/2023	Email regarding status of NGCC construction permit public notice
638779, 638782	9/28/2023	2 <sup>nd</sup> Legal notice, quote, and proof for RACT Plan
651971	10/11/2023	Public comment proposed action No 645 anonymous
648251	10/11/2023	Public comment proposed action No 644 J. Venneman
651489	10/16/2023	Comments to proposed amended board order No 647 Kate Huddleston
651490	10/16/2023	Comments to proposed amended board order No 646 Ashley Wilmes
651947	10/17/2023	Comments proposed action No 648 Rob Maggard
651964, 651979	10/17/2023	Responses to public comments on RACT Plan Amendment
652640	10/18/2023	Board request on RACT
670421	11/15/2023	Agreed board order amendment 2
681872	12/4/2023	Legal notice NGCC construction quote
681870	12/4/2023	Legal notice NGCC construction

## 9. Emission Summary

Pollutant	Project Potential to Emit (PTE) Emissions (tpy)	Pollutant that triggered Major Source Status (based on PTE)
CO	970.1	Yes
NOx	1,529.0	Yes
SO <sub>2</sub>	25.3	Yes
PM <sub>10</sub>	101.4	Yes
PM <sub>2.5</sub>	100.4	Yes
VOC	82.9	Yes
Total HAPs	55.6	Yes
Single HAP > 1 tpy		
Toluene	2.28	No
Hexane	31.9	Yes

<b>Pollutant</b>	<b>Project Potential to Emit (PTE) Emissions (tpy)</b>	<b>Pollutant that triggered Major Source Status (based on PTE)</b>
Xylenes	1.12	No
Formaldehyde	12.5	No
Acetaldehyde	6.17	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 KKKK   | Standards of Performance for Stationary Combustion Turbines   |
| 40 CFR 60 Subpart TTTT   | Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units   |
| 40 CFR 63 Subpart YYYY   | National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines   |
| 40 CFR 63 Subpart ZZZZ   | National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines                                |
| 40 CFR 63, Subpart DDDDD | National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters |
| 40 CFR 72                | Permits Regulation  |
| 40 CFR 73                | Sulfur Dioxide Allowance System   |
| 40 CFR 75                | Continuous Emission Monitoring  |
| 40 CFR 77                | Excess Emissions  |
| 40 CFR 78                | Appeals Procedures for Acid Rain Program  |
| 40 CFR 97 Subpart AAAAA  | CSAPR NOx Annual Trading Program  |
| 40 CFR 97 Subpart CCCCC  | CSAPR SO <sub>2</sub> Group 1 Trading Program   |
| 40 CFR 97 Subpart EEEEE  | CSAPR NOx Ozone Season Group 2 Trading Program  |

**12. Non-Applicable Regulations:**

None

**II Regulatory Analysis**

**1. Acid Rain Requirements:**

The source is subject to the Acid Rain Program. The owner or operator shall comply with the acid rain requirements according to 40 CFR Parts 72, 75 and 76 for Group I boilers. Louisville Gas & Electric Company has chosen to meet the early election NOx requirements for Group I Phase II boilers. The Acid Rain permit, which is attached to the Title V permit, is going to be reissued at the same time of the Title V in order to make a combined Title V and Title IV permit.

**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. The source stores refrigerants listed under Title VI of the CAAA in a service garage. The source will comply with the Title VI regulations for recycling and recovery. The District does not have Title VI authority.

**3. Prevention of Accidental Releases 112(r):**

The source does 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. Therefore, the source is required to develop and implement a Risk Management Plan pursuant to 40 CFR 68, Subpart G and Regulation 5.15.

**4. 40 CFR Part 64 Applicability Determination:**

The proposed NGCC unit is not subject to 40 CFR Part 64 - *Compliance Assurance Monitoring (CAM) for Major Stationary Source*. The pre-controlled NOx and formaldehyde emissions from the NGCC are above major threshold and these two pollutants are subject to emission standards. However, the applicable NOx and formaldehyde emission standards are from post-11/15/1990 NSPS or NESHEP. Therefore, NOx and formaldehyde are exempted from CAM rule.

**5. Basis of Regulation Applicability**

**a. Applicable Regulations**

<b>Regulation</b>	<b>Title</b>	<b>Basis</b>
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.
5.14	Hazardous Air Pollutants and Source Categories	This regulation establishes the hazardous air pollutants regulated by the District and the major and minor source categories of HAPs.
5.15	Chemical Accident Prevention Provisions	This regulation implements the provisions of 40 CFR Part 68 Chemical Accident Prevention Provisions as required by the Act §112 (r).
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.
6.42	Reasonably Available Control Technology Requirements for Major Volatile Organic Compound- and Nitrogen Oxides-Emitting Facilities	This regulation establishes the requirements for Reasonably Available Control Technology (RACT) determination, demonstration, and compliance for VOC and NO <sub>x</sub> emitting facilities for new or renewed operating permit applications.

<b>Regulation</b>	<b>Title</b>	<b>Basis</b>
6.47	Federal Acid Rain Program Incorporated by Reference	This regulation incorporates by reference the Federal Acid Rain Program of the Clean Air Act for affected facilities.
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 new indirect heat exchangers having a capacity less than 250 MMBtu/hr and commenced after the applicable classification date.
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.
40 CFR 60 Subpart Dc	Standards of Performance for Small Industrial- Commercial-Institutional Steam Generating Units	The boiler is subject to 40 CFR60, Subpart Dc if the commencement date of construction is after June 9, 1989 and the heat input capacity is less than 100 MMBtu/hr, but greater than 10 MMBtu/hr.
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 KKKK	Standards of Performance for Stationary Combustion Turbines	This regulation establishes emission standards and compliance schedules for stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005.
40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	This subpart establishes emission standards for greenhouse gas (GHG) emissions from a steam generating unit, IGCC, or a stationary combustion turbine that commences construction after January 8, 2014 or commences modification or reconstruction after June 18, 2014.

<b>Regulation</b>	<b>Title</b>	<b>Basis</b>
40 CFR 63 Subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines	Subpart YYYY establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emissions from stationary combustion turbines located at major sources of HAP emissions
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.
40 CFR 72	Permits Regulation	40 CFR 72 through 78 contain regulations for Acid Rain Program, including permits, allowance system, CEM, excess emissions, and appeal procedures.
40 CFR 73	Sulfur Dioxide Allowance System	
40 CFR 75	Continuous Emission Monitoring	
40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	
40 CFR 77	Excess Emissions	
40 CFR 78	Appeals Procedures for Acid Rain Program	
40 CFR 97 Subpart AAAAA	CSAPR NO <sub>x</sub> Annual Trading Program	This regulation sets forth the general, designated representative, allowance, and monitoring provisions for the CSAPR NO <sub>x</sub> Annual Trading Program.
40 CFR 97 Subpart CCCCC	CSAPR SO <sub>2</sub> Group 1 Trading Program	This regulation sets forth the general, designated representative, allowance, and monitoring provisions for the CSAPR SO <sub>2</sub> Group 1 Trading Program.
40 CFR 97 Subpart EEEEE	CSAPR NO <sub>x</sub> Ozone Season Group 2 Trading Program	This subpart sets forth the general, designated representative, allowance, and monitoring provisions for the CSAPR NO <sub>x</sub> Ozone Season Group 2 Trading Program.

**b. Plantwide**

- i. LG&E Mill Creek is a Title V major source for NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, PM<sub>10</sub>, Total HAP, and Single HAP. Regulation 2.16 - Title V Operating Permits establishes requirements for major sources. LG&E Mill Creek is one of the 28 source categories which have 100

typical major thresholds. Based on the plantwide PTE evaluation, LG&E is a PSD major source for NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, Particulate matter. LG&E Mill Creek is also a GHG major source.

- ii. 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.
- iii. LG&E Mill Creek submitted their TAC Environmental Acceptability Demonstration to the District on December 28, 2006, March 25, 2008, April 9, 2010, April 2, 2012, May 13, 2014, and January 21, 2016. Compliance with the STAR EA Goals was demonstrated in the source’s EA Demonstrations. SCREEN3 air dispersion modeling was performed for each emission unit that has non-de minimis TAC emissions. The carcinogen risk and non-carcinogen risk values, calculated using the District approved PTE for each unit and the SCREEN model results from the source’s EA Demonstration, are comply with the STAR EA goals required in Regulation 5.21. In December 2022, STAR EA Demo for the new emergency generator (U25) was submitted with NGCC construction application. Tier 4 modeling was used to demonstrate compliance with STAR. Risk values for U25 was incorporated into the plantwide STAR compliance summary.

Plant-wide Sum	All existing & new		All new P/PE	
	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>
Industrial Total R <sub>C</sub>	4.90	< 75	1.35	< 38
Non-Ind. Total R <sub>C</sub>	4.90	< 7.5	1.35	< 3.8
Industrial Max. R <sub>NC</sub>	0.16	< 3.0		
Non-Ind. Max. R <sub>NC</sub>	0.16	< 1.0		

TAC	R <sub>NC</sub> Total	U1		U2		U3		U4		U8		U9		U22		U25	
	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>
<b>Total R<sub>C</sub>/ Max. R<sub>NC</sub></b>	<b>0.16</b>	<b>0.65</b>		<b>0.65</b>		<b>1.09</b>		<b>1.07</b>		<b>0.58</b>		<b>0.10</b>		<b>0.03</b>		<b>0.74</b>	
Arsenic	0.03	0.29	0.00	0.29	0.00	0.48	0.01	0.48	0.01	0.56	0.01	0.10	0.002	0.02	0.00		
Cadmium	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.03	0.00								
Chloroform	0.00							0.00	0.00								
Chromium (6)	0.02	0.28	0.00	0.28	0.00	0.48	0.00	0.47	0.00								
Chromium (3)	0.00		0.00		0.00		0.00		0.00								
Formaldehyde	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Nickel	0.03	0.02	0.01	0.02	0.01	0.03	0.01	0.03	0.01								
Cobalt	0.01	0.03	0.00	0.03	0.00	0.06	0.00	0.06	0.00	0.03	0.001			0.00	0.00		
Hydrofluoric acid	0.00		0.00		0.00		0.00		0.00								
Lead		0.00		0.00		0.00		0.00									
Manganese	0.01		0.00		0.00		0.00		0.00								

TAC	R <sub>NC</sub> Total	U1		U2		U3		U4		U8		U9		U22		U25	
	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>	R <sub>C</sub>	R <sub>NC</sub>
Naphthalene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Sulfuric acid	0.16		0.03		0.03		0.05		0.05								
Diesel PM																0.74	0.00

iv. Regulation 2.03, section 6.1 requires sufficient monitoring, record keeping, and reporting 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.

c. **Emission Unit U23: Natural Gas-fired Combined Cycle (NGCC) Unit**

EP	Description	Applicable Regulations	Control ID
E49	Natural gas-fired combined cycle (NGCC) power generating unit (MC5), rated capacity 4,216 MMBtu/hr, 664 MW power output, consists of one gas combustion turbine (GT) with dry low NOx combustors, one single-shaft water cooled generator (7HA.03, 501JAC, 9000HL, or similar), one heat recovery steam generator (HRSG) equipped with NG-fired duct burners (DB), and one steam turbine (ST).	STAR, 5.02, 5.14, 6.42, 6.47, 7.02, 40 CFR 60, KKKK and TTTT 40 CFR 63, YYYYY 40 CFR 72, 73, 75, 77, 78 40 CFR 97, AAAAA, CCCCC, EEEEE	C43, C44

Control ID	Description	Control Efficiency
C43	Selective Catalytic Reduction (SCR), make/model TBD, used to control NOx emissions	75-91%
C44	Oxidation catalyst, make/model TBD, used to control CO, VOC, and organic HAP emissions	50-90%

i. **Standards**

(1) **Acid Rain Program**

(a) 40 CFR 72, 40 CFR 73, 40 CFR 75, 40 CFR 77, and 40 CFR 78 establish requirements for Acid Rain Program.

(2) **Cross-State Air Pollution Rule (CSAPR)**

(a) 40 CFR 97 Subpart AAAAA, Subpart CCCCC, and Subpart EEEEE establish CSAPR requirements for EGUs.

(3) **Greenhouse Gases [40 CFR 60, Subpart TTTT]**

- (a) 40 CFR 60.5520 establishes emission standard for CO<sub>2</sub>.
  - (4) **HAP** [40 CFR 63, Subpart YYYYY]
  - (a) 40 CFR 63.6100 establishes emission standard for formaldehyde.
  - (5) **NO<sub>x</sub>/SO<sub>2</sub>** [40 CFR 60, Subpart KKKK, Regulation 6.42]
  - (a) 40 CFR 60.4320 establishes emission standard for NO<sub>x</sub>.
    - (b) 40 CFR 60.4330 establishes emission standard for SO<sub>2</sub>.
    - (c) Regulation 6.42, section 4.3 requires a NO<sub>x</sub> RACT Plan for applicable facility.
  - (6) **TAC**
  - (a) According to Regulation 5.21, section 2.7, TAC emissions from combustion of natural gas are de minimis.
  - (7) **VOC**
  - (a) Regulation 6.42, section 4.3 requires a VOC RACT Plan for applicable facility.
- ii. **Monitoring and Recordkeeping**
- (1) **Greenhouse Gases** [40 CFR 60, Subpart TTTT]
  - (a) 40 CFR 60.5520, 5560, and 5565 establish monitoring and record keeping requirements for this unit.
  - (2) **HAP** [40 CFR 63, Subpart YYYYY]
  - (a) 40 CFR 63.6110, 6115, 6120, 6125, 6130, 6135, 6140, 6155, and 6160 establish monitoring and record keeping requirements for this unit.
  - (3) **NO<sub>x</sub>/SO<sub>2</sub>** [40 CFR 60, Subpart KKKK, Regulation 6.42]
  - (a) 40 CFR 60.4333, 4340, 4345, 4350, 4360, 4365, 4370, 4380, 4405, and 4410 establish monitoring and record keeping requirements for this unit.
- iii. **Reporting**
- (1) **Greenhouse Gases** [40 CFR 60, Subpart TTTT]
  - (a) 40 CFR 60.5550 establishes reporting requirements for this unit.
  - (2) **HAP** [40 CFR 63, Subpart YYYYY]

- (a) 40 CFR 63.6145 and 6150 establish reporting requirements for this unit.
- (3) **NOx/SO2** [40 CFR 60, Subpart KKKK, Regulation 6.42]
  - (a) 40 CFR 60.4375 and 4395 establish reporting requirements for this unit.

d. **Emission Unit U24: Auxiliar Boiler**

EP	Description	Applicable Regulations	Control ID
E50	Natural gas-fired auxiliary boiler used to assist NGCC turbine startups, make and model TBD, heat input capacity 99.9 MMBtu/hr, equipped with low NOx burner and flue gas recirculation.	STAR, 7.06 40 CFR 60, Dc 40 CFR 63, DDDDD	N/A

i. **Standards**

- (1) **HAP** [40 CFR 63, Subpart DDDDD]
  - (a) 40 CFR 63.7500 establishes operating practice standards for the boilers.
- (2) **NOx**
  - (a) Regulation 6.42, section 4.3 requires a NOx RACT Plan for applicable facility.
- (3) **Opacity**
  - (a) Regulation 7.06, section 4.2 establishes opacity standards for the boilers.
  - (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 when combusting natural gas.
- (4) **PM**
  - (a) PM limit is determined based on the total heat input capacity of all affected facilities, in accordance Regulation 7.06, section 4.1.3.
  - (b) It has been demonstrated that the PM emissions from the natural gas fired boiler and process heater cannot be exceeded uncontrolled.
- (5) **SO<sub>2</sub>**

(a) SO<sub>2</sub> limit is determined based on the total heat input capacity of all affected facilities, in accordance Regulation 7.06, section 5.1.1.

(b) It has been demonstrated that the SO<sub>2</sub> emissions from the natural gas fired boiler and process heater cannot be exceeded uncontrolled.

(6) **TAC**

(a) According to Regulation 5.21, section 2.7, TAC emissions from combustion of natural gas are de minimis.

(7) **VOC**

(a) Regulation 6.42, section 4.3 requires a VOC RACT Plan for applicable facility.

ii. **Monitoring and Recordkeeping**

(1) **HAP** [40 CFR 63, Subpart DDDDD]

(a) 40 CFR 63.7500, 7515, 7540, 7555, and 7560 establish monitoring and record keeping requirements for the boilers.

(2) **NO<sub>x</sub>**

(a) In accordance with Regulation 6.42, section 4.3, the NO<sub>x</sub> RACT Plan establishes monitoring and record keeping requirements to assure compliance with the NO<sub>x</sub> emission standards.

(3) **SO<sub>2</sub>**

(a) 40 CFR 60.48c(g)(2) establishes recording keeping requirements for SO<sub>2</sub>.

iii. **Reporting**

(1) **HAP** [40 CFR 63, Subpart DDDDD]

(a) 40 CFR 63.7545 establishes reporting requirements for the boilers.

e. **Emission Unit U25: Emergency Generator**

EP	Description	Applicable Regulations	Control ID
E51	Diesel emergency generator, 2000 kW with associated diesel storage tank, make & model TBD.	STAR, 40 CFR 60, IIII, 40 CFR 63, ZZZZ	N/A

i. **Standards**

- (1) **HAP**
  - (a) 40 CFR 63.6604, 6605, and 6640 establish operating requirements for this engine.
- (2) **TAC**
  - (a) Environmental acceptability demonstration for these emergency generators were based on 500 hours per year operation time.
  - (b) The source has demonstrated that TAC emissions from this emergency generator are below de minimis thresholds except for diesel PM. Based on the source’s Tier 4 STAR modeling analysis, carcinogenic risk (Rc) of diesel PM is 0.74, which is less than the environmental acceptability goal, 1.0.
- (3) **Unit Operation**
  - (a) 40 CFR 60.4202, 4205, 4211 establish unit operation requirements for the nonroad engines.
  - (b) 40 CFR 60.4207(b) and 40 CFR 1090.305 have fuel requirement for diesel fuel.

ii. **Monitoring and Recordkeeping**

- (1) **Unit Operation**
  - (a) 40 CFR 60.4209 and 4214 establish recordkeeping requirements for this unit.
  - (b) 40 CFR 80.510(b)(1)(i) establishes fuel requirement for diesel fuel used in nonroad engines.

f. **Emission Unit U26: Fuel Gas (Dewpoint) Heater**

EP	Description	Applicable Regulations	Control ID
E52	Natural gas-fired fuel gas (dewpoint) heater used to heat pipeline natural gas to combustion turbines and duct burners, make and model TBD, heat input capacity 15 MMBtu/hr	STAR, 7.06 40 CFR 60, Dc 40 CFR 63, DDDDD	N/A

i. **Standards**

- (1) **HAP** [40 CFR 63, Subpart DDDDD]
  - (a) 40 CFR 63.7500 establishes operating practice standards for the boilers.
- (2) **NOx**
  - (a) Regulation 6.42, section 4.3 requires a NOx RACT Plan for applicable facility.

(3) **Opacity**

- (a) Regulation 7.06, section 4.2 establishes opacity standards for the boilers.
- (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 when combusting natural gas.

(4) **PM**

- (a) PM limit is determined based on the total heat input capacity of all affected facilities, in accordance Regulation 7.06, section 4.1.3.
- (b) It has been demonstrated that the PM emissions from the natural gas fired boiler and process heater cannot be exceeded uncontrolled.

(5) **SO<sub>2</sub>**

- (a) SO<sub>2</sub> limit is determined based on the total heat input capacity of all affected facilities, in accordance Regulation 7.06, section 5.1.1.
- (b) It has been demonstrated that the SO<sub>2</sub> emissions from the natural gas fired boiler and process heater cannot be exceeded uncontrolled.

(6) **TAC**

- (a) According to Regulation 5.21, section 2.7, TAC emissions from combustion of natural gas are de minimis.

(7) **VOC**

- (a) Regulation 6.42, section 4.3 requires a VOC RACT Plan for applicable facility.

ii. **Monitoring and Recordkeeping**

(1) **HAP** [40 CFR 63, Subpart DDDDD]

- (a) 40 CFR 63.7500, 7515, 7540, 7555, and 7560 establish monitoring and record keeping requirements for the boilers.

(2) **NO<sub>x</sub>**

- (a) In accordance with Regulation 6.42, section 4.3, the NO<sub>x</sub> RACT Plan establishes monitoring and record keeping requirements to assure compliance with the NO<sub>x</sub> emission standards.

(3) **SO<sub>2</sub>**

- (a) 40 CFR 60.48c(g)(2) establishes recording keeping requirements for SO<sub>2</sub>.

iii. **Reporting**

(1) **HAP** [40 CFR 63, Subpart DDDDD]

- (a) 40 CFR 63.7545 establishes reporting requirements for the boilers.

**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 any alternative operating scenarios.

**5. Compliance History Since Last Permit:**

LG&E entered into a [Consent Decree](#) to resolve an alleged violation in 2021 for excess Sulfuric Acid emissions that occurred prior to the 2015 upgrades to air pollution control equipment at the facility.

**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:

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

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:

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

For the insignificant activities, if the emissions are minor, the owner or operator may use the PTE (See table of Insignificant Activities) as the annual emissions PM/PM<sub>10</sub> emissions.

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.

Table A1. U23 - Natural Gas-fired Combined Cycle Unit (E49)

Pollutant	CAS No.	EF (lb/MMcf)	Control Efficiency (%)	Source
CO		52.259	90%	Maximum emission factors of Vendor A, B, and C, operated 2,000 hr/yr at 15 °F, 4,760 hr/yr at 57 °F, and 2,000 hr/yr at 90 °F.
NO <sub>x</sub>		85.892	90%	
PM		5.717		
PM condensable				
PM <sub>10</sub>		5.717		
PM <sub>2.5</sub>		5.717		
SO <sub>2</sub>		1.427		
VOC		3.649	50%	
NH <sub>3</sub>		7.141		
H <sub>2</sub> SO <sub>4</sub>		0.503		
CO <sub>2</sub>		123,879		40CFR98, Sub C
CH <sub>4</sub>		8.77		AP-42, 3.1-2a
N <sub>2</sub> O		3.06		AP-42, 3.1-2a
Single HAP				
1,3-Butadiene	106-99-0	4.39E-04	50%	AP-42 Table 3.1
Acetaldehyde	75-07-0	3.59E-01	50%	AP-42 Table 3.1 & 3-4 of BID
Acrolein	107-02-8	6.53E-03	43%	AP-42 Table 3.1 & 3-4 of BID
Benzene	71-43-2	1.22E-02	73%	AP-42 Table 3.1 & 3-4 of BID
Dichlorobenzene	25321-22-6	1.20E-03	50%	AP-42 Table 1.4-3
Ethylbenzene	100-41-4	3.26E-02	50%	AP-42 Table 3.1
Formaldehyde	50-00-0	7.24E-01	68%	LG&E Requirement
Hexane	110-54-3	1.80E+00	50%	AP-42 Table 1.4-3
Naphthalene	91-20-3	1.33E-03	50%	AP-42 Table 3.1
Propylene Oxide	75-56-9	2.96E-02	50%	AP-42 Table 3.1
Toluene	108-88-3	1.33E-01	50%	AP-42 Table 3.1
Xylenes	1330-20-7	6.53E-02	50%	AP-42 Table 3.1
Arsenic	7440-38-2	2.00E-04	0%	AP-42 Table 1.4-4
Beryllium	7440-41-7	1.20E-05	0%	AP-42 Table 1.4-4

Pollutant	CAS No.	EF (lb/MMcf)	Control Efficiency (%)	Source
Cadmium	7440-43-9	1.10E-03	0%	AP-42 Table 1.4-4
Chromium	7440-47-3	1.40E-03	0%	AP-42 Table 1.4-4
Cobalt	7440-48-4	8.40E-05	0%	AP-42 Table 1.4-4
Lead	7439-92-1	5.00E-04	0%	AP-42 Table 1.4-4
Manganese	7439-96-5	3.80E-04	0%	AP-42 Table 1.4-4
Mercury	7439-97-6	2.60E-04	0%	AP-42 Table 1.4-4
Nickel	7440-02-0	2.10E-03	0%	AP-42 Table 1.4-4
Selenium	7782-49-2	2.40E-05	0%	AP-42 Table 1.4-4
PAH		2.24E-03	50%	AP-42 Table 3.1

Table A2. U24 - Natural Gas-fired Auxiliary Boiler (E50)

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
NOx		38.56	Vendor guaranteed/LG&E Requirement
CO		39.12	Vendor guaranteed/LG&E Requirement
SO <sub>2</sub>		1.43	Pipeline specification
H <sub>2</sub> SO <sub>4</sub>		0.109	Pipeline spec, 5% conversion rate
VOC		5.50	AP-42, 1.4-2
PM		0.52	2011 NEI, EPA
PM <sub>10</sub>		0.52	2011 NEI, EPA
PM <sub>2.5</sub>		0.43	2011 NEI, EPA
Ammonia (NH <sub>3</sub> )		0.49	EPA 1994 Report
CO <sub>2</sub>		123,797	40CFR98, T-C1
Methane (CH <sub>4</sub> )		12.34	40CFR98, T-C2
N <sub>2</sub> O		10.234	40CFR98, T-C2
Single HAP			
2-Methylnaphthalene	91-57-6	2.40E-5	AP-42, 1.4-3
3-Methylchloranthrene	56-49-5	1.8E-61	AP-42, 1.4-3
DMBA	57-97-6	1.6E-5	AP-42, 1.4-3
Acenaphthene	83-32-9	1.80E-06	AP-42, 1.4-3
Acenaphthylene	208-96-8	1.80E-06	AP-42, 1.4-3
Anthracene	120-12-7	2.40E-06	AP-42, 1.4-3
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

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
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
Chrysene	218-01-9	1.80E-06	AP-42, 1.4-3
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	AP-42, 1.4-3
Dichlorobenzene	25321-22-6	1.20E-03	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
Naphthalene	91-20-3	6.10E-04	AP-42, 1.4-3
Phenanthrene	85-01-8	1.70E-05	AP-42, 1.4-3
Pyrene	129-00-0	5.00E-06	AP-42, 1.4-3
Toluene	108-88-3	3.40E-03	AP-42, 1.4-3
Arsenic	7440-38-2	2.00E-04	AP-42, 1.4-4
Beryllium	7440-41-7	1.20E-05	AP-42, 1.4-4
Cadmium	7440-43-9	1.10E-03	AP-42, 1.4-4
Chromium	7440-47-3	1.40E-03	AP-42, 1.4-4
Cobalt	7440-48-4	8.40E-05	AP-42, 1.4-4
Lead	7439-92-1	5.00E-04	AP-42, 1.4-2
Manganese	7439-96-5	3.80E-04	AP-42, 1.4-4
Mercury	7439-97-6	2.60E-04	AP-42, 1.4-4
Nickel	7440-02-0	2.10E-03	AP-42, 1.4-4
Selenium	7782-49-2	2.40E-05	AP-42, 1.4-4

Table A3. U25 – Emergency Generators (E51)

Pollutant	CAS No.	EF (lb/10 <sup>3</sup> gal)	Source	EF (lb/hp-hr)	Source
NO <sub>x</sub>		438.40	AP-42, 3.4-1	0.014	Manufacturer Emission Data
CO		116.45	AP-42, 3.4-1	1.19E-03	Manufacturer Emission Data
SO <sub>2</sub>		0.208	AP-42, 3.4-1	1.21E-05	AP-42, 3.4-1
PM		9.549	AP-42, 3.4-2	8.81E-05	Manufacturer Emission Data
PM <sub>10</sub>		7.850	AP-42, 3.4-2	8.81E-05	Manufacturer Emission Data
PM <sub>2.5</sub>		7.617	AP-42, 3.4-2	8.81E-05	Manufacturer Emission Data
VOC		12.33	AP-42, 3.4-1	3.08E-04	Manufacturer Emission Data
CO <sub>2</sub>		22,342	40CFR98, T-C1	1.26	40CFR98, T-C1
Methane (CH <sub>4</sub> )		0.906	40CFR98, T-C2	5.10E-05	40CFR98, T-C2

Pollutant	CAS No.	EF (lb/10 <sup>3</sup> gal)	Source	EF (lb/hp-hr)	Source
N <sub>2</sub> O		0.181	40CFR98, T-C2	1.02E-05	40CFR98, T-C2
Single HAP					
Benzene	71-43-2	1.06E-01	AP-42, 3.4-3	5.49E-06	AP-42, 3.4-3
Toluene	108-88-3	3.85E-02	AP-42, 3.4-3	1.99E-06	AP-42, 3.4-3
Xylenes	1330-20-7	2.64E-02	AP-42, 3.4-3	1.36E-06	AP-42, 3.4-3
Formaldehyde	50-00-0	1.08E-02	AP-42, 3.4-3	5.58E-07	AP-42, 3.4-3
Acetaldehyde	75-07-0	3.45E-03	AP-42, 3.4-3	1.78E-07	AP-42, 3.4-3
Acrolein	107-02-8	1.08E-03	AP-42, 3.4-3	5.57E-08	AP-42, 3.4-3
Naphthalene	91-20-3	1.78E-02	AP-42, 3.4-4	9.19E-07	AP-42, 3.4-4
Acenaphthylene (POM)	208-96-8	1.26E-03	AP-42, 3.4-4	6.53E-08	AP-42, 3.4-4
Acenaphthene (POM)	83-32-9	6.41E-04	AP-42, 3.4-4	3.31E-08	AP-42, 3.4-4
Fluorene (POM)	86-73-7	1.75E-03	AP-42, 3.4-4	9.05E-08	AP-42, 3.4-4
Phenanathrene (POM)	85-01-8	5.59E-03	AP-42, 3.4-4	2.88E-07	AP-42, 3.4-4
Anthracene (POM)	120-12-7	1.69E-04	AP-42, 3.4-4	8.70E-09	AP-42, 3.4-4
Fluoranthene (POM)	206-44-0	5.52E-04	AP-42, 3.4-4	2.85E-08	AP-42, 3.4-4
Pyrene (POM, 129-00-0)	129-00-0	5.08E-04	AP-42, 3.4-4	2.62E-08	AP-42, 3.4-4
Benzo(g,h,i)perylene (POM)	191-24-2	7.62E-05	AP-42, 3.4-4	3.93E-09	AP-42, 3.4-4
Benzo(a)anthracene	56-55-3	8.52E-05	AP-42, 3.4-4	4.40E-09	AP-42, 3.4-4
Chrysene	218-01-9	2.10E-04	AP-42, 3.4-4	1.08E-08	AP-42, 3.4-4
Benzo(b)fluoranthene	205-99-2	1.52E-04	AP-42, 3.4-4	7.85E-09	AP-42, 3.4-4
Benzo(k)fluoranthene	207-08-9	2.99E-05	AP-42, 3.4-4	1.54E-09	AP-42, 3.4-4
Benzo(a)pyrene	50-32-8	3.52E-05	AP-42, 3.4-4	1.82E-09	AP-42, 3.4-4
Indeno(1,2,3-cd)pyrene	193-39-5	5.67E-05	AP-42, 3.4-4	2.93E-09	AP-42, 3.4-4
Dibenz(a,h)anthracene	53-70-3	4.74E-05	AP-42, 3.4-4	2.45E-09	AP-42, 3.4-4

Table A4. U26 - Natural Gas-fired Fuel Gas Heater (E52)

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
NO <sub>x</sub>		38.56	Vendor guaranteed/LG&E Requirement
CO		79.025	Vendor guaranteed/LG&E Requirement
SO <sub>2</sub>		1.43	Pipeline specification
H <sub>2</sub> SO <sub>4</sub>		0.109	Pipeline spec, 5% conversion rate
VOC		5.50	AP-42, 1.4-2
PM		0.52	2011 NEI, EPA
PM <sub>10</sub>		0.52	2011 NEI, EPA

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
PM <sub>2.5</sub>		0.43	2011 NEI, EPA
Ammonia (NH <sub>3</sub> )		0.49	EPA 1994 Report
CO <sub>2</sub>		123,797	40CFR98, T-C1
Methane (CH <sub>4</sub> )		2.34	40CFR98, T-C2
N <sub>2</sub> O		0.234	40CFR98, T-C2
Single HAP			
2-Methylnaphthalene	91-57-6	2.40E-5	AP-42, 1.4-3
3-Methylchloranthrene	56-49-5	1.8E-6	AP-42, 1.4-3
DMBA	57-97-6	1.6E-5	AP-42, 1.4-3
Acenaphthene	83-32-9	1.80E-06	AP-42, 1.4-3
Acenaphthylene	208-96-8	1.80E-06	AP-42, 1.4-3
Anthracene	120-12-7	2.40E-06	AP-42, 1.4-3
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
Chrysene	218-01-9	1.80E-06	AP-42, 1.4-3
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	AP-42, 1.4-3
Dichlorobenzene	25321-22-6	1.20E-03	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
Naphthalene	91-20-3	6.10E-04	AP-42, 1.4-3
Phenanathrene	85-01-8	1.70E-05	AP-42, 1.4-3
Pyrene	129-00-0	5.00E-06	AP-42, 1.4-3
Toluene	108-88-3	3.40E-03	AP-42, 1.4-3
Arsenic	7440-38-2	2.00E-04	AP-42, 1.4-4
Beryllium	7440-41-7	1.20E-05	AP-42, 1.4-4
Cadmium	7440-43-9	1.10E-03	AP-42, 1.4-4
Chromium	7440-47-3	1.40E-03	AP-42, 1.4-4
Cobalt	7440-48-4	8.40E-05	AP-42, 1.4-4
Lead	7439-92-1	5.00E-04	AP-42, 1.4-2
Manganese	7439-96-5	3.80E-04	AP-42, 1.4-4

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
Mercury	7439-97-6	2.60E-04	AP-42, 1.4-4
Nickel	7440-02-0	2.10E-03	AP-42, 1.4-4
Selenium	7782-49-2	2.40E-05	AP-42, 1.4-4

Table A5. IA4 – Fire Pump Engine (IE25)

Pollutant	CAS No.	EF (lb/10 <sup>3</sup> gal)	Source	EF (lb/hp-hr)	Source
NOx		604.17	AP-42, 3.3-1	0.006	Manufacturer Emission Data
CO		130.15	AP-42, 3.3-1	1.76E-03	Manufacturer Emission Data
SO <sub>2</sub>		0.208	AP-42, 3.3-1	1.21E-05	AP-42, 3.4-1
PM		42.47	AP-42, 3.3-1	2.20E-04	Manufacturer Emission Data
PM <sub>10</sub>		42.47	AP-42, 3.3-1	2.20E-04	Manufacturer Emission Data
PM <sub>2.5</sub>		42.47	AP-42, 3.3-1	2.20E-04	Manufacturer Emission Data
VOC		49.32	AP-42, 3.3-1	2.20E-04	Manufacturer Emission Data
CO <sub>2</sub>		22,342	40CFR98, T-C1	1.26	40CFR98, T-C1
Methane (CH <sub>4</sub> )		0.906	40CFR98, T-C2	5.10E-05	40CFR98, T-C2
N <sub>2</sub> O		0.181	40CFR98, T-C2	1.02E-05	40CFR98, T-C2
Single HAP					
Benzene	71-43-2	1.28E-01	AP-42, 3.3-2	6.6E-06	AP-42, 3.3-2
Toluene	108-88-3	5.60E-02	AP-42, 3.3-2	2.9E-06	AP-42, 3.3-2
xylenes	1330-20-7	3.90E-02	AP-42, 3.3-2	2.0E-06	AP-42, 3.3-2
1,3-Butadiene	106-99-0	5.36E-03	AP-42, 3.3-2	2.8E-07	AP-42, 3.3-2
Formaldehyde	50-00-0	1.62E-01	AP-42, 3.3-2	8.3E-06	AP-42, 3.3-2
Acetaldehyde	75-07-0	1.05E-01	AP-42, 3.3-2	5.4E-06	AP-42, 3.3-2
Acrolein	107-02-8	1.27E-02	AP-42, 3.3-2	6.5E-07	AP-42, 3.3-2
Naphthalene	91-20-3	1.16E-02	AP-42, 3.3-2	6.0E-07	AP-42, 3.3-2
Acenaphthylene (POM)	208-96-8	6.93E-04	AP-42, 3.3-2	3.6E-08	AP-42, 3.3-2
Acenaphthene (POM)	83-32-9	1.95E-04	AP-42, 3.3-2	1.0E-08	AP-42, 3.3-2
Fluorene (POM)	86-73-7	4.00E-03	AP-42, 3.3-2	2.1E-07	AP-42, 3.3-2
Phenanathrene (POM)	85-01-8	4.03E-03	AP-42, 3.3-2	2.1E-07	AP-42, 3.3-2
Anthracene (POM)	120-12-7	2.56E-04	AP-42, 3.3-2	1.3E-08	AP-42, 3.3-2
Fluoranthene (POM)	206-44-0	1.04E-03	AP-42, 3.3-2	5.4E-08	AP-42, 3.3-2
Pyrene (POM, 129-00-0)	129-00-0	6.55E-04	AP-42, 3.3-2	3.4E-08	AP-42, 3.3-2
Benzo(g,h,i)perylene (POM)	191-24-2	6.70E-05	AP-42, 3.3-2	3.5E-09	AP-42, 3.3-2
Benzo(a)anthracene	56-55-3	2.30E-04	AP-42, 3.3-2	1.2E-08	AP-42, 3.3-2
Chrysene	218-01-9	4.84E-05	AP-42, 3.3-2	2.5E-09	AP-42, 3.3-2
Benzo(b)fluoranthene	205-99-2	1.36E-05	AP-42, 3.3-2	7.0E-10	AP-42, 3.3-2

Pollutant	CAS No.	EF (lb/10 <sup>3</sup> gal)	Source	EF (lb/hp-hr)	Source
Benzo(k)fluoranthene	207-08-9	2.12E-05	AP-42, 3.3-2	1.1E-09	AP-42, 3.3-2
Benzo(a)pyrene	50-32-8	2.58E-05	AP-42, 3.3-2	1.3E-09	AP-42, 3.3-2
Indeno(1,2,3-cd)pyrene	193-39-5	5.14E-05	AP-42, 3.3-2	2.7E-09	AP-42, 3.3-2
Dibenz(a,h)anthracene	53-70-3	7.99E-05	AP-42, 3.3-2	4.1E-09	AP-42, 3.3-2

Table A6. Insignificant Activities - Natural Gas-fired HVAC Heaters

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
NO <sub>x</sub>		100	AP-42, 1.4-1
CO		84	AP-42, 1.4-1
SO <sub>2</sub>		1.42	Derived per sulfur content
H <sub>2</sub> SO <sub>4</sub>		0.109	Pipeline spec, 5% conversion rate
VOC		5.50	AP-42, 1.4-2
PM		0.52	2011 NEI, EPA
PM <sub>10</sub>		0.52	2011 NEI, EPA
PM <sub>2.5</sub>		0.43	2011 NEI, EPA
Ammonia (NH <sub>3</sub> )		0.49	EPA 1994 Report
CO <sub>2</sub>		123,797	40CFR98, T-C1
Methane (CH <sub>4</sub> )		2.34	40CFR98, T-C2
N <sub>2</sub> O		0.234	40CFR98, T-C2
Single HAP			
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
DMBA	57-97-6	1.60E-05	AP-42, 1.4-3
Acenaphthene	83-32-9	1.80E-06	AP-42, 1.4-3
Acenaphthylene	208-96-8	1.80E-06	AP-42, 1.4-3
Anthracene	120-12-7	2.40E-06	AP-42, 1.4-3
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
Chrysene	218-01-9	1.80E-06	AP-42, 1.4-3
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	AP-42, 1.4-3
Dichlorobenzene	25321-22-6	1.20E-03	AP-42, 1.4-3
Fluoranthene	206-44-0	3.00E-06	AP-42, 1.4-3

Pollutant	CAS No.	EF (lb/MMcf)	EF Source
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
Naphthalene	91-20-3	6.10E-04	AP-42, 1.4-3
Phenanathrene	85-01-8	1.70E-05	AP-42, 1.4-3
Pyrene	129-00-0	5.00E-06	AP-42, 1.4-3
Toluene	108-88-3	3.40E-03	AP-42, 1.4-3
Arsenic	7440-38-2	2.00E-04	AP-42, 1.4-4
Beryllium	7440-41-7	1.20E-05	AP-42, 1.4-4
Cadmium	7440-43-9	1.10E-03	AP-42, 1.4-4
Chromium	7440-47-3	1.40E-03	AP-42, 1.4-4
Cobalt	7440-48-4	8.40E-05	AP-42, 1.4-4
Lead	7439-92-1	5.00E-04	AP-42, 1.4-2
Manganese	7439-96-5	3.80E-04	AP-42, 1.4-4
Mercury	7439-97-6	2.60E-04	AP-42, 1.4-4
Nickel	7440-02-0	2.10E-03	AP-42, 1.4-4
Selenium	7782-49-2	2.40E-05	AP-42, 1.4-4

Table A7. Cooling Towers

Unit	Emission Point	Process Description	% drift	TSD (ppm)	Calculation Methodologies, Emission Factor Sources
IA-OT	IE26	Cooling tower for NGCC Unit	0.001%	Most recent sampling data	AP-42, 13.4

Table A8. Other Insignificant Activities

Unit	Emission Point	Process Description	Calculation Methodologies, Emission Factor Sources
N/A	N/A	Lube oil system demister vents	0.021 gal/hr and 7.26 lb/gal density. Construction permit application
N/A	N/A	Diesel storage tanks	TankESP Analysis using AP-42, Section 7.1, based on fluid properties and fuel usage.

## 7. Insignificant Activities

<b>Equipment</b>	<b>Qty</b>	<b>PTE (ton/yr)</b>	<b>Regulation Basis</b>
HVAC heaters, total heat input < 10 MMBtu/hr	multiple	4.14 NO <sub>x</sub>	Regulation 1.02, Appendix A
Cooling Towers for NGCC unit (See unit IA-OT)	1	0.97 PM <sub>10</sub>	Regulation 2.16, section 1.23
Fire pumps, 400 HP (See unit IA4)	1	0.58 NO <sub>x</sub>	Regulation 2.16, section 1.23
Lube oil system demister vents	1	0.66 VOC	Regulation 2.16, section 1.23
Diesel storage tanks <sup>1</sup>	2	0.001 VOC	Regulation 2.16, section 1.23

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) Basis of Regulation Applicability for IA units

## **8. Basis of Regulation Applicability for IA units**

### **a. Emission Unit IA4 – Fire Pump Engines**

<sup>1</sup> These diesel storage tanks include a 440-gallon tank within fire pump (IE25) enclosure and a 4,000-gallon tank for the new emergency generator (E52).

EP	Description	Applicable Regulations
IE25	Emergency diesel fire pump, make & model TBD, rated at 400 HP with a 440-gallon diesel fuel tank.	STAR, 40 CFR 63-ZZZZ, 40 CFR 60-III

i. **Standards**

(1) **HAP**

(a) According to 40 CFR 63.6590(c), this engine must meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart III, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. No further requirements apply for the engine under 40 CFR 63 Subpart ZZZZ.

(2) **TAC**

(a) This emission unit is subject to STAR. Per Regulation 5.21, section 2.3, emissions from insignificant activity are de minimis.

(3) **Unit Operation**

(a) 40 CFR 60.4202, 4205, 4211 establish unit operation requirements for the nonroad engines.  
 (b) 40 CFR 60.4207(b) and 40 CFR 1090.305 have fuel requirement for diesel fuel.

ii. **Monitoring and Recordkeeping**

(1) **Unit Operation**

(a) 40 CFR 4214 establishes recordkeeping requirements for this unit.

b. **Emission Unit IA1-OT– Other Insignificant Activities**

EP	Description	Applicable Regulations
IE26	Cooling Towers for NGCC unit	STAR, 7.08

i. **Standards/Operating Limits**

(1) **Opacity**

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

(2) **PM**

- (a) PM standard for cooling tower is determined in accordance with Regulation 7.08, Table 1. It has been demonstrated that PM emissions from this equipment cannot exceed the lb/hr PM standards uncontrolled.
- (3) **TAC**
  - (a) Per Regulation 5.21, section 2.3, TAC emissions from the insignificant activities are de minimis.