Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Title V / Synthetic Minor, Operating
Permit: V-25-017
Ameresco Benson Valley RNG LLC
2157 Highway 151
Frankfort, KY 40601

June 5, 2025
Stacie Daniels, P.E., Reviewer

SOURCE ID:	21-073-00112
AGENCY INTEREST:	167923
ACTIVITY:	APE20230003

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 4925, Mixed, Manufactured, or Liquefied Petroleum Gas Production and/or Distribution

Single Source Det. ☒ Yes ☐ No If Yes, Affiliated Source AI: 1372

Source-wide Limit ☒ Yes ☐ No If Yes, See Section 4, Table A

28 Source Category ☐ Yes ☒ No If Yes, Category:

County: Franklin
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead
If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☒ Yes ☐ No
If yes, list which pollutant(s):

PTE* greater than 25 tpy for combined HAP ☒ Yes ☐ No

*PTE does not include self-imposed emission limitations.

Description of Facility:
Ameresco Benson Valley RNG LLC is co-located at Benson Valley Landfill in Franklin County, Kentucky. These sources are considered a "single source" for Title V and PSD, and because Benson Valley Landfill is required to obtain a Title V permit according to 401 KAR 52:020, Section 1(4), Ameresco Benson Valley RNG must also obtain a Title V permit. However, due to the source-wide emission limitations on VOC and HAPs, for other regulatory applicability determinations, the facility is considered a conditional major source of VOC and HAPs.

Ameresco Benson Valley RNG purchases landfill gas from Benson Valley Landfill and treats it to meet pipeline-quality methane gas standards for injection into an interstate natural gas transmission pipeline. The treatment process involves removal of hydrogen sulfide, compression, dehydration, gas separation, filtration, and further compression before pipeline delivery. Waste gas from the treatment process will be sent to a thermal oxidizer and will be sent to an open flare during start-up, process upset conditions, and during equipment or pipeline purging. A 250 kW emergency diesel generator engine is available for backup and emergency purposes.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: V-25-017 Activities: APE20230003

Date Received: September 25, 2023 Application Complete Date: October 4, 2023

Permit Action: ☒ Initial ☐ Renewal ☐ Significant Rev ☒ Minor Rev ☐ Administrative
Construction/Modification Requested? ☒Yes ☐No NSR Applicable? ☐Yes ☒No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☒Yes ☐No

Description of Action:

- APE20220002 502(b)(10)/Off Permit Change request received 7/18/2022
  - Update vendor information for EUs 01 and 02.
  - Change EU 01 from "Recuperative Thermal Oxidizer" to "Thermal Oxidizer."
  - Update NO_x emission factor and VOC control efficiency for EU 01.
  - Increase landfill gas VOC concentration from 945 ppmv to 3,780 ppmv (945 x 4) to account for any future fluctuations in VOC content which would result in increased VOC emissions.
- APE20230001 Minor Revision Application received 4/26/2023
  - Addition of Emission Unit 03, Emergency Diesel Generator Engine, subject to 40 CFR 60, Subpart IIII and 40 CFR 63, Subpart ZZZZ.
- APE20230002 502(b)(10)/Off Permit Change request received 8/21/2023
  - Update descriptions for EUs 01 and 02.
- APE20230003 Initial Title V Application received 9/25/2023
  - The Division determined Ameresco Benson Valley RNG LLC (AI 167923) and Benson Valley Landfill (AI 1372) to be a single source, as Ameresco has compliance responsibilities under 40 CFR 63, Subpart AAAA, both facilities have the same first two digits of the SIC Code, and Ameresco is contiguous with the landfill. The Division requested this Title V application in an email to the facility on 9/7/2023.
  - Update source-wide emission limitation of HAPs from 22.5 tpy to 21.05 tpy to account for 1.45 tpy of fugitive HAP emissions from the landfill.
  - Incorporate 40 CFR 63, Subpart AAAA as an applicable regulation to EUs 01 and 02.
- APE20240001 502(b)(10) change request received 2/9/2024
  - Increase EU 02 fuel heat input from 50 scf/hr to 150 scf/hr
- APE20250001 502(b)(10) change request received 4/16/2025
  - Increase EU 02 maximum heat input from 33.9 to 70 MMBtu/hr.
  - Increase EU 02 maximum inlet gas flow rate from 90,000 scf/hr to 138,000 scf/hr.
- The facility has requested a limit to the open flare (EU 02) of 614.1 MMscf/yr, which is equal to running at maximum capacity for 4,450 hr/yr.

V-25-017 Emissions Summary		
Pollutant[a]	**V-25-017 Uncontrolled PTE (tpy)**	**Combined Facility[b] Controlled[c] PTE (tpy)**
CO	71.78	41.75
NO_X	16.30	21.11
PT	6.38	11.14
PM_{10}	6.38	11.14
$PM_{2.5}$	6.38	11.14
SO_2	33.74	25.60
VOC	812.95	12.05
Lead	0.00	0.00
Greenhouse Gases (GHGs)		
Carbon Dioxide	54,351	100,297
Methane	15,074	2,468
Nitrous Oxide	0.64	1.25
CO_2 Equivalent (CO_2e)	431,403	162,380
Hazardous Air Pollutants (HAPs)[d]		
Dichloromethane	2.24	0.16
Ethyl Benzene	0.92	0.15
Hexane; N-Hexane	1.11	0.12
Hydrochloric Acid	1.18	2.57
Tetrachloroethylene (PCE)	1.16	0.10
Toluene	6.77	0.79
Trichloroethylene	0.69	0.04
Vinyl Chloride	0.86	0.03
Xylenes (Total)	2.40	0.28
Combined HAPs:	21.78	4.59
Toxic Air Pollutants		
2-Propanol	5.66	0.09
Acetone	0.77	0.11
Bromodichloromethane	0.96	0.01
Butane	0.55	0.10
Dichlorodifluoromethane	3.65	0.08
Dichlorofluoromethane	0.50	0.08
Dimethyl Sulfide	0.91	0.10
Hydrogen Sulfide	17.57	0.49
Methyl Ethyl Ketone	0.96	0.14

[a] Source-wide PTE does not include fugitive emissions of criteria pollutants, as the facility is not a 28-source category (refer to 401 KAR 52:001, Section 1(45)(b)4.).

[b] Combined Facility PTE includes emissions from both the RNG plant and the landfill.

[c] Controlled PTE assumes a 98% destruction of VOCs and methane by the TO and a 98% control efficiency of HAPs. A 98% flare control efficiency is assumed for VOCs, methane, and HAPs.

[d] Includes all fugitive HAP emissions (reference 401 KAR 52:001, Section 1(45)(a)3.).

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 01 –Renewable Natural Gas (RNG) Plant				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	20% Opacity	401 KAR 59:010, Section 3(1)(a)	8.5 lb/MMscf (AP-42, Table 2.4-5) Natural Gas: 7.6 lb/MMscf (AP-42, Table 1.4-2)	Daily VE Monitoring / Recordkeeping, with Method 9 or corrective action taken if VEs observed
	2.34 lb/hr	401 KAR 59:010, Section 3(2)		Compliance Assumed based on current EFs
VOC	90 tpy source-wide	To preclude 401 KAR 51:017	1,316.9 lb/MMscf (Application: See **Comments**)	Monitoring and Recordkeeping

Initial Construction Date: January 2023

Process Description:
The facility pressurizes from 1 psig to approximately 10 psig, dehydrates, and filters the LFG before it enters a fixed bed activated carbon scrubber to remove H_2S. The gas is dehydrated again, at which point the gas is "partially processed" renewable natural gas (PPRNG) and sent for further processing or used as fuel in the thermal oxidizer. The thermal oxidizer receives waste gas from the VOC separation system, Pressure Swing Absorption (PSA) systems, Deoxo system, and nitrogen rejection unit (NRU).

The Temperature Swing Adsorption (TSA) system does not vent off-gases to the thermal oxidizer, as it is closed-loop. After separation, the gas is pressurized, filtered, cooled, and odorized to meet pipeline quality standards. The facility collects condensate into a condensate tank, which is pumped to the landfill's condensate system for disposal; measures have been taken to prevent LFG from entering the condensate system.

Maximum Heat Input: 17.3 MMBtu/hr
Waste Gas Maximum Input: 11.3 MMBtu/hr
Fuel: PPRNG with approximately 50% methane ***or*** natural gas
Control: 1,600 scfm thermal oxidizer with open flare (EU 02) backup
Control Efficiency: 98% (VOC); 98% (HAPs)

Applicable Regulations:
401 KAR 53:010, *Ambient air quality standards*, primary and secondary ambient air quality standards for sulfur oxides, PM, CO, ozone, nitrogen dioxide, lead, H_2S, gaseous fluorides, total fluorides, and odors specified in Appendix A.
401 KAR 59:010, *New process operations*, applicable to each affected facility (as related to process operations means the last operation preceding the emission of air contaminants which results in the separation of the air contaminant from the process materials) or source, associated with a process operation (any method, form, action, operation, or treatment of manufacturing or processing, including any storage or handling of materials or products, before, during, or after manufacturing or processing), which is not subject to another emission standard with respect to particulates in 401 KAR Chapter 59, commenced on or after July 2, 1975.

Emission Unit 01 –Renewable Natural Gas (RNG) Plant

401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 through 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, applicable to each municipal solid waste (MSW landfill that has accepted waste since November 8, 1987 and is a major source or an area source with design capacity greater than 2.5 million megagrams and cubic meters, and has uncontrolled emissions equal to or greater than 50 megagrams per year NMOC. This source is located at an MSW landfill as defined in 40 CFR 63.1990.
40 CFR 63.11, *Control device and work practice requirements*, applicable to control devices used to comply with applicable 40 CFR part 63 subparts. The requirements are placed in this section for administrative convenience and apply only to facilities covered by subparts referring to 40 CFR 63.11.

Precluded Regulation:
401 KAR 51:017, *Prevention of significant deterioration of air quality*, precluded for VOC emissions.

Comments:
Emission from the RNG plant through the thermal oxidizer are calculated using an hourly design rate of 1,600 scfm, the thermal oxidizer's maximum rating, at 8,760 hours per year. All pollutant emissions are calculated using a control efficiency of 98% except for CO, Mercury, NO_x, CO_2, Methane, Nitrous Oxide, PM, and SO_2.

- Most emission factors are concentration-based from AP-42, Table 2.4-1 and Table 2.4-2. The given concentrations are converted using the following equation:

$$EF\left(\frac{lb}{MMscf}\right) = \frac{ppmv\left(\frac{ft^3 pollutant}{10^6 ft^3 gas}\right) \times MW\left(\frac{lb}{lb-mole}\right) \times 14.7\ psia}{10.73 \frac{psia \times ft^3}{lb-mole \times °R} \times 528°R}$$
$$= ppmv \times MW \times 0.00259 \frac{lb-mole}{ft^3}$$

- CO emissions are calculated using the manufacturer guarantee of 0.31 lb/MMBtu in conjunction with the heat input (17.3 MMBtu/hr) and the hourly design rate (0.096 MMscf/hr).
- Similar to CO, NO_x emissions are calculated using the manufacturer guarantee of 0.068 lb/MMscf.
- PM emissions are based off an emission factor from AP-42, Table 2.4-5 of 17 lb/MMscf methane. The landfill gas methane content is approximately 50%, so the emission factor used for particulate matter is 50% of 17 lb/MMscf, or 8.5 lb/MMscf.
- The SO_2 emission factor utilizes the amount of total reduced sulfur (TRS), 277.92 ppmv, from the performance test at Benson Valley Landfill (AI 1372) performed on 11/19/2024 (CMN20240007), resulting in an emission factor of 46.1 lb/MMscf.
- H_2S (Hydrogen sulfide) emissions are calculated using the Benson Valley Landfill performance test results from 11/19/2024 (CMN20240007) of 273.67 ppmv, resulting in an emission factor of 24.16 lb/MMscf.
- CO_2 potential emissions are concentration-based. The Division assumes 40% (by volume) of the gas stream is CO_2 and converts from 400,000 ppmv to arrive at an emission factor of 45,584 lb/MMscf. Similarly, methane emissions are assumed to be 50% of the gas stream and converted to an emission factor of 22,792 lb/MMscf.
- A VOC emission concentration of 5,900 ppm as hexane is provided by the facility as an engineering estimate.

Emission Unit 01 –Renewable Natural Gas (RNG) Plant
Emissions from the pilot are calculated using emission factors for internal natural gas combustion from AP-42, Chapter 1.4 and 40 CFR 98, Tables C-1 and C-2 and an hourly design rate of 0.0049 MMscf/hr (5 MMBtu/hr / 1,020 Btu/scf). An initial performance test is required to establish a VOC and HAP DRE and minimum combustion chamber temperature. Testing is also required to ensure the control system is designed and operated to reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 ppmvd as hexane at 3% O_2.

Emission Unit 02 – Open Flare				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	20% opacity	401 KAR 63:015, Section 3	8.5 lb/MMscf (AP-42, Table 2.4-5) Natural Gas: 7.6 lb/MMscf (AP-42, Table 1.4-2)	Daily VE Monitoring / Recordkeeping, with Method 9 or corrective action taken if VEs observed
VOC	90 tpy source-wide	To preclude 401 KAR 51:017	843.72 lb/MMscf (See **Comments**) Natural Gas: 5.5 lb/MMscf (AP-42, Table 1.4-2)	Monitoring and Recordkeeping

Initial Construction Date: December 2022

Process Description:
Candlestick flare for destruction of waste gases generated during startup or upset conditions and for purging of gas from process equipment and pipelines. The off-spec gas includes partially processed renewable natural gas (PPRNG), CO_2/O_2 removal, N_2 removal, and system purge gas.

Maximum Rated Capacity: 2,300 scf/min LFG
Pilot Heat Input: 150 scf/hr
Fuel: Natural Gas
Control Efficiency: 98% (VOCs & HAPs)

Applicable Regulations:
401 KAR 53:010, *Ambient air quality standards*, primary and secondary ambient air quality standards for sulfur oxides, PM, CO, ozone, nitrogen dioxide, lead, H_2S, gaseous fluorides, total fluorides, and odors specified in Appendix A.
401 KAR 63:015, *Flares*, applicable to each affected facility which means flares (a device at the tip of a stack or other opening used for the disposal of waste gas streams by combustion).
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 through 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*, applicable to each municipal solid waste (MSW landfill that has accepted waste since November 8, 1987 and is a major source or an area source with design capacity greater than 2.5 million megagrams and cubic meters, and

Emission Unit 02 – Open Flare

has uncontrolled emissions equal to or greater than 50 megagrams per year NMOC. This source is located at an MSW landfill as defined in 40 CFR 63.1990.
40 CFR 63.11, *Control device and work practice requirements*, applicable to control devices used to comply with applicable 40 CFR part 63 subparts. The requirements are placed in this section for administrative convenience and apply only to facilities covered by subparts referring to 40 CFR 63.11.

Precluded Regulation:
401 KAR 51:017, *Prevention of significant deterioration of air quality*, precluded for VOC emissions.

Comments:
Self-Imposed Limit: 614.1 MMscf LFG/off-spec/waste gas to open flare during any 12-month period. The facility calculated emissions from the open flare using a conservative 4,450 hours per year. Rather than limit the hours of operation, the facility has chosen to take a limit on yearly capacity.

The concentration used to calculate potential VOC emissions is 3,780 ppmv (945 ppmv x 4 to account for VOC concentration fluctuations) with a molecular weight of 86.18 g/mol. This calculation is provided by the facility and is based on samples taken at the landfill (945 ppmv) on 1/23/2020, with analytical results provided by Analytical Solutions, Inc. on 2/17/2020. The control efficiency is based off of the manufacturer guarantee of 98%. An initial performance test and subsequent performance tests will be used to determine the destruction and removal efficiency for VOC once every 5 years.

Emission Unit 03 – Emergency Diesel Generator Engine

Emission Standard:
Tier 2 or Tier 3 emission standards for new nonroad combustion ignition engines for the same rated power as described in 40 CFR part 1039, Appendix I, for all pollutants and the smoke standards as specified in 40 CFR 1039.105. [40 CFR 60.4205(b), referencing 40 CFR 60.4202(a)(2)]

Initial Construction Date: April 2023
Manufacture Date: 2023

Process Description:
Caterpillar D250GC EPA Tier 3 Certified
Rated Capacity: 240 kW (335 HP)
Fuel: Diesel
Maximum Fuel Input: 19.4 gal/hr

Applicable Regulation:
401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* , applicable to owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines.
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, applicable to stationary RICE at a major or area source of HAP emissions. The engine shall meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the

Emission Unit 03 – Emergency Diesel Generator Engine

requirements of 40 CFR 60, Subpart IIII.

Comments:
Emissions guaranteed by the manufacturer are used to calculated PTE for CO, NO_x, PM, and VOC. The SO_2 emission factor is from AP-42, Table 3.3-1. Greenhouse gas emission factors (CO_2, CH_4, and N_2O) are from Tables C-1 and C-2 to 40 CFR 98, Subpart C, and HAP emission factors are from AP-42, Table 3.3-2 and converted using a higher heating value of 137,000 Btu/gal.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements\Results:

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
01	Thermal Oxidizer	VOC & HAP DRE and min. combustion chamber temp.	401 KAR 50:055	Initial and every 5 years	Method 25A	N/A	TBD	TBD	TBD	TBD
01	Thermal Oxidizer	NMOC	40 CFR 63.1959(b)(2)(iii)(B)	Initial	Method 25 or 25C; Method 3, 3A, or 3C	98% reduction or 20 ppmv outlet concentration	TBD	TBD	TBD	TBD
01	Thermal Oxidizer	LFG net heating value	40 CFR 63.1959(b)(2)(iii)(A)	Initial	Method 3C	N/A	TBD	TBD	TBD	TBD
01	N/A	NO_x	401 KAR 50:055	Initial	Method 7E	N/A	Max: 0.38 lb/hr; Normal: 0.17 lb/hr	Max: 15.93 MMBtu/hr & 1681°F Normal: 10.19 MMBtu/hr & 1682°F	CMN20230001	11/15/2023
	N/A	CO			Method 10	N/A	Max: 0.37 lb/hr; Normal: 0.02 lb/hr			
	Thermal Oxidizer	NMHC %DRE			Method 25A	N/A	Max: 99.52%; Normal: 99.76%			

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
	N/A	SO_2			Method 6C	N/A	Max: 0.06 lb/hr; Normal: 0.06 lb/hr			

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	To preclude 401 KAR 51:017	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 53:010, *Ambient air quality standards*	Site Wide
401 KAR 59:010, *New process operations*	EU 01
401 KAR 63:015, *Flares*	EU 02
401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*	EU 03
401 KAR 63:002, Section 2(4)(hhh), 40 C.F.R. 63.1930 through 63.1990, Table 1 (Subpart AAAA), *National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills*	EUs 01 & 02
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*	EU 03
40 CFR 63.11, *Control device and work practice requirements*	EUs 01 & 02

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 51:017, *Prevention of significant deterioration of air quality*	EUs 01 & 02

Table D - Summary of Non Applicable Regulations:
N/A

Air Toxic Analysis:
N/A

Single Source Determination:

Ameresco Benson Valley RNG LLC, Source ID #: 21-073-00112 (A.I. #167923), and the adjacent Benson Valley Landfill, Source ID #: 21-073-00053 (A.I. #1372), are considered by the Cabinet and the United States Environmental Protection Agency to be a "single source" in determining applicability under 401 KAR 51:017, Prevention of significant deterioration of air quality (PSD) and 401 KAR 52:020, Title V permits. Each source is subject to 401 KAR 52:020 and will be issued individual Title V operating permits. Pursuant to the respective Title V permits, each permittee is responsible and liable for their own violations unless there is a joint cause for the violations.

SECTION 5 – PERMITTING HISTORY

Permit	Permit type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-21-028	Initial	APE20210002	8/16/2021	11/7/2021	Initial Construction	Syn Minor

SECTION 6 – PERMIT APPLICATION HISTORY

None

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS – Ambient Air Quality Standards
AP-42 – Compilation of Air Emission Factors
BACT – Best Available Control Technology
Btu – British thermal unit
°C – Degrees Celsius
CAM – Compliance Assurance Monitoring
CFR – Code of Federal Regulations
CO – Carbon Monoxide
CO_2 – Carbon Dioxide
Division – Kentucky Division for Air Quality
DRE – Destruction or Removal Efficiency
dscf – Dry Standard Cubic Feet
EF – Emission Factor
ESP – Electrostatic Precipitator
EU – Emission Unit
°F – Degrees Fahrenheit
ft – Foot / Feet, where 1 foot = 12 inches
g – Grams
GHG – Greenhouse Gas
H_2S – Hydrogen Sulfide
HAP – Hazardous Air Pollutant
HF – Hydrogen Fluoride (Gaseous)
HHV – Higher Heating Value
hr – Hour
K – Kelvin
KAR – Kentucky Administrative Regulations
kg – Kilogram
lb – Pound
m – Meter
min – Minute
MSDS – Material Safety Data Sheets
MMBtu – Million Btu
mmHg – Millimeter of mercury column height
MMscf – Million Standard Cubic Feet
mol – Mole
MW – Molecular Weight
N_2 – Nitrogen Gas
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NMOC – Non-Methane Organic Compound
NO_x – Nitrogen Oxides
NRU – Nitrogen Rejection Unit
NSR – New Source Review
O_2 – Oxygen Gas
Pa – Pascal
PM – Particulate Matter

APPENDIX A – ABBREVIATIONS AND ACRONYMS (CONTINUED)

PM_{10} – Particulate Matter equal to or smaller than 10 micrometers
$PM_{2.5}$ – Particulate Matter equal to or smaller than 2.5 micrometers
ppmv – Parts Per Million by Volume
PPRNG – Partially Processed Renewal Natural Gas
PSA – Pressure Swing Absorption
PSD – Prevention of Significant Deterioration
PTE – Potential to Emit
RNG – Renewable Natural Gas
scfm – Standard Cubic Feet per Minute
SO_2 – Sulfur Dioxide
TF – Total Fluoride (Particulate & Gaseous)
TO – Thermal Oxidizer
tpy – Tons Per Year
VE – Visible Emission
VOC – Volatile Organic Compounds