



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



**December 11, 2019**

**Title V Statement of Basis**

**Source:** Recast Energy Louisville, LLC  
 4014 Bells Lane  
 Louisville, KY 40211

**Owner:** Recast Energy Louisville, LLC  
 4014 Bells Lane  
 Louisville, KY 40211

**Application Documents:** See Table 8      **Administratively Complete:** 01/25/2019  
**Draft Permit:** 10/26/2019      **Proposed Permit:** 10/26/2019  
**Permitting Engineer:** Shannon Hosey      **Permit Number:** O-1333-19-V  
**Plant ID:** 1333      **SIC:** 4961      **NAICS:** 221330

**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 renews the Title V Operating Permit.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), particulate matter less than 10 microns (PM<sub>10</sub>), and particulate matter less than 2.5 microns (PM<sub>2.5</sub>). Jefferson County is classified as a nonattainment area for ozone (O<sub>3</sub>). This facility is located in the portion of Jefferson County that is an attainment area for sulfur dioxide (SO<sub>2</sub>).

**Permit Application Type:**

- Initial issuance
- Permit Revision
  - Administrative
  - Minor
  - Significant
- Permit renewal

**Compliance Summary:**

- Compliance certification signed
- Compliance schedule included
- Source is out of compliance
- Source is operating in compliance

**I Source Information**

1. **Product Description:** Recast Energy is an industrial energy service provider.
2. **Process Description:** Recast Energy owns and operates boilers for the generation of steam that is then purchased by the adjacent chemical plants.
3. **Site Determination:** There are no other facilities that are contiguous or adjacent to this facility.

4. **Emission Unit Summary:**

Emission Unit	Equipment Description
BLR – Boilers	No. 4 Boiler Babcock & Wilcox (Wood Residue/Biomass Only) [190 MMBtu/Hr]  No. 8 Boiler Erie City with Low NO <sub>x</sub> Burners and Flue Gas Recirculation (Natural Gas Only) [99 MMBtu/Hr]  No. 9 Boiler Erie City with Low NO <sub>x</sub> Burners and Flue Gas Recirculation (Natural Gas Only) [99 MMBtu/Hr]

5. **Fugitive Sources:** There are fugitive emissions from fuel handling and ash handling operations.

6. **Permit Revisions:**

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Change Scope	Description
Initial	27652-14-TV	07/08/14	05/24/14	Initial	Entire Permit	Initial Permit Issuance
NA	O-1333-19-V	12/11/19	10/26/19	Renewal	Entire Permit	Title V Permit Renewal

7. **Permit Renewal-Related Documents**

Document Number	Date Received	Description
00096412	12/10/2018	Title V Renewal Application

**8. Emission Summary:**

Pollutant	District Calculated Actual Emissions (tpy) 2017 Data	Pollutant that triggered Major Source Status (based on PTE)
CO	128.74	Yes
NO <sub>x</sub>	85.32	Yes
SO <sub>2</sub>	8.77	No
PM <sub>10</sub>	6.69	Yes
VOC	6.01	No
<b>Total HAPs</b>	13.59	No
<b>Single HAP &gt; 1 tpy</b>		
Formaldehyde	1.54	No
Benzene	1.47	
Acrolein	1.40	

**9. Applicable Requirements:**

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

**10. Referenced MACT Federal Regulations:**

40 CFR Part 63 Subpart JJJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*

**11. Referenced non-MACT Federal Regulations:**

40 CFR Part 60 Subpart Db, *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units*

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

**12. Non-Applicable Regulations:**

HAP emission limits were taken to avoid applicability of 40 CFR Part 63 Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*.

**II Regulatory Analysis**

**1. Acid Rain Requirements:** Recast Energy 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. Recast Energy 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):** Recast Energy 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:** Recast Energy is not subject to 40 CFR Part 64 - *Compliance Assurance Monitoring for Major Stationary Sources*.
5. **Basis of Regulation Applicability**

- a. **Plantwide**

- i. Recast Energy is a potential major source for the pollutant CO, NO<sub>x</sub> and PM<sub>10</sub>. Regulation 2.16 – *Title V Operating Permits* establishes requirements for major sources.
- ii. Regulations 5.00 5.20, 5.21, and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards. The District received an initial EA demonstration from the facility December 28, 2010 and an updated EA demonstration June 4, 2014.

TAC	Modeled Concentrations	BAC <sub>C</sub>	BAC <sub>NC</sub>	R <sub>C</sub>	HQ
Acetaldehyde	2.06E-03	0.45	9	0.0046	0.0002
Acrolein	9.92E-03	--	0.02	--	0.4960
Arsenic & Compounds	5.46E-05	0.00023	0.015	0.2374	0.0036
Benzene	1.04E-02	0.45	30	0.0231	0.0003
Benzo(a)pyrene	6.45E-06	0.00091	--	0.0071	--
Beryllium	2.73E-06	0.00042	0.02	0.0065	0.0001
Cadmium	1.02E-05	0.00056	0.02	0.0182	0.0005
Carbon tetrachloride	1.12E-04	0.17	0.1	0.0007	0.0001
Chlorine	1.96E-03	--	0.2	--	0.0006
Chloroform	6.94E-05	0.043	300	0.0016	6.53E-06
Chromium, hex.	8.68E-06	0.000083	0.008	0.1046	0.0087
Cobalt & Compounds	3.55E-04	--	0.2	--	4.34E-05

Copper & Compounds	2.67E-03	--	2	--	0.0002
Ethylene dichloride (1,2-dichloroethane)	7.19E-05	0.038	400	0.0019	6.68E-06
Formaldehyde	1.09E-02	0.077	9	0.1416	7.99E-06
Hydrogen chloride	4.71E-02	--	20	--	0.0005
Lead & Compounds	1.19E-04	0.08	--	0.0015	--
Manganese & Compounds	3.97E-03	--	0.05	--	0.0794
Naphthalene	2.41E-04	0.029	3	0.0083	0.0001
Nickel & Compounds	7.94E-05	0.0038	0.05	0.0209	0.0016
Pentachlorophenol	1.26E-07	0.196	17.5	6.43E-07	7.20E-09
Phosphorus	6.70E-05	--	0.07	--	0.0010
Polycyclic Organic Matter	3.10E-04	0.00091	--	0.3407	--
Styrene	4.71E-03	1.7	1000	0.0028	4.71E-06
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	2.13E-11	2.63E-08	4.00E-05	0.0008	5.33E-07
<b>Sum</b>				<b>0.9221</b>	<b>0.5930</b>
<b>EA Goal</b>				<b>3.8</b>	

<b>TAC with De Minimis Emissions</b>	
Acetophenone	Methyl Bromide (bromomethane)
Aluminum	Methyl Chloride (chloromethane)
Antimony & Cmpd	Methyl Chloroform (111 trichloroethane)
Benzo(a)anthracene	Methylene Chloride (dichloromethane)
Benzo(b)fluoranthene	Nitrophenol, 4-
Benzo(j,k)fluoranthene	Perchloroethylene (tetrachloroethylene)
Bis(2-ethylhexyl)phthalate (DEHP)	Phenol
Chlorobenzene	Polychlorinated biphenyls
Chromium, trivalent	Propionaldehyde
Chrysene	Propylene dichloride (1,2-dichloropropane)
Dibenzo(a,h)anthracene	Selenium
Dinitrophenol, 2,4-	Toluene
Ethylbenzene	Trichloroethylene (trichloroethene)
Hexane	Vinyl chloride
Indeno(1,2,3,c,d)pyrene	o-Xylene
Mercury	

- iii. Regulation 2.16, section 4.1.9.1 and 4.1.9.2 requires monitoring and record keeping to ensure 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.

<b>Regulation</b>	<b>Basis for Applicability</b>
1.14	Control of Fugitive Particulate Emissions
2.04	Construction or Modification of Major Sources in or Impacting upon Non-Attainment Areas (Emission Offset Requirements)
2.05	Prevention of Significant Deterioration of Air Quality
5.00	Establishes definitions of terms used in the Strategic Toxic Air Reduction Program
5.01	Establishes general provisions for process equipment from which a toxic air contaminant is or may be emitted
5.20	Establishes the methodology for determining the benchmark ambient concentration of a toxic air contaminant
5.21	Establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants
5.22	Establishes the procedures for determining the maximum ambient concentration of a toxic air contaminant
5.23	Establishes categories of toxic air contaminants
7.06	Applies to each indirect heat exchanger having input capacity of more than one million BTU per hour commenced after September 1, 1976
40 CFR 60 Subpart A	General Provisions
40 CFR Part 60 Subpart Db	Subpart Db establishes a PM emission limit for Boiler #4, a modified Subpart Db affected facility. There are no emission limits for SO <sub>2</sub> or NO <sub>x</sub> for wood combustion.
40 CFR Part 60 Subpart Dc	Subpart Dc applies to Boilers #8 and #9 as steam generating units for which construction is commenced after June 9, 1989 and have heat input capacities less than 100 MMBtu/hr, but greater than 10 MMBtu/hr.
40 CFR 63 Subpart A	Regulates specific categories of stationary sources that emit (or have the potential to emit) one or more hazardous air pollutants
40 CFR Part 63 Subpart JJJJJ	Subpart JJJJJ establishes work practice standards, emission reduction measures, and management practices for Boiler #4, an existing affected source. Subpart JJJJJ does not apply to natural gas-fired boilers.

**b. Plantwide Limits**

**i. CO**

The potential uncontrolled CO emissions from Boilers #4, #5, #8, #9, and #10 caused a significant emissions increase and a significant net emissions increase. CO emissions shall not equal or exceed 249.4 tons during any consecutive 12-month period and 49.9 tons during any calendar month to avoid PSD, pursuant to Regulation 2.05. The annual emission limit was established by taking ninety percent of the significant emission rate and added that to the contemporaneous decrease. The contemporaneous decrease in actual emissions is due to the shutdown of Boiler #1 and #6, on December 1, 2010.

ii. **GHG<sup>1</sup>**

The potential CO<sub>2</sub>e emissions from Boilers #4, #5, #8, #9, and #10, caused a significant emissions increase and a significant net emissions increase. The owner or operator shall not allow or cause the CO<sub>2</sub>e emissions from Boilers #4, #5, #8, #9, and #10 to equal or exceed 230,375 tons during any consecutive 12-month period to avoid PSD, pursuant to Regulation 2.05.

iii. **HAP**

To avoid the applicability of 40 CFR Part 63 Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, the plant-wide emissions of any individual HAP shall not equal or exceed 10 tons during any consecutive 12-month period, and the plant-wide emissions of all HAPs combined shall not equal or exceed 25 tons during any consecutive 12-month period.

iv. **NO<sub>x</sub>**

The source shall comply with the NO<sub>x</sub> RACT Plan – Amendment 2 that was adopted by Board Order on May 21, 2014.

v. **PM/PM<sub>10</sub>/PM<sub>2.5</sub>**

The potential controlled PM<sub>10</sub> and PM<sub>2.5</sub> emissions from Boilers #4, #5, #8, #9, and #10, caused a significant emissions increase and a significant net emissions increase. PM<sub>10</sub> emissions shall not equal or exceed 37.8 tons during any consecutive 12-month period and 7.6 tons during any calendar month to avoid PSD, pursuant to Regulation 2.05. PM<sub>2.5</sub> emissions shall not equal or exceed 18.3 tons during any consecutive 12-month period and 3.7 tons during any calendar month to avoid Nonattainment NSR, pursuant to Regulation 2.04. The annual emission limit was established by taking ninety percent of the significant emission rate and added that to the contemporaneous decrease. The contemporaneous decrease in actual emissions is due to the shutdown of Boiler #1 and #6, on December 1, 2010. The replacement of the Ash Silo is both a contemporaneous increase and a contemporaneous decrease. Note, however, the Ash Silo was subsequently physically removed from the plant site, not to return. This removal of the Ash Silo was

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<sup>1</sup> A policy statement from EPA was released on 4/23/2018 on EPA's Treatment of Biogenic CO<sub>2</sub>, and this policy isn't changing any regulations as of now.

completed in early 2012. Fuel handling and ash handling operations were considered existing processes for the modification project.

c. **Emission Unit BLR – Boilers**

i. **Equipment:<sup>2</sup>**

<b>Emission Point</b>	<b>Description</b>	<b>Install Date</b>	<b>Applicable Regulation</b>
E-BLR-#4BLR	No. 4 Boiler, with an oxygen trim system, Babcock & Wilcox (Wood Residue/Biomass Only) [190 MMBtu/Hr]	1980	2.05, 6.42, 7.06, 40 CFR Part 60 Db, and 40 CFR Part 63 Subpart JJJJJ
E-BLR-#8BLR	No. 8 Boiler Erie City with Low NO <sub>x</sub> Burners and Flue Gas Recirculation (Natural Gas Only) [99 MMBtu/Hr]	2014	2.05, 6.42, 7.06, and 40 CFR Part 60 Subpart Dc
E-BLR-#9BLR	No. 9 Boiler Erie City with Low NO <sub>x</sub> Burners and Flue Gas Recirculation (Natural Gas Only) [99 MMBtu/Hr]	2014	2.05, 6.42, 7.06, and 40 CFR Part 60 Subpart Dc

ii. **Standards/Operating Limits**

1) **HAP**

For Boiler #4, pursuant to 40 CFR Part 63 Subpart JJJJJ, the source shall conduct a tune-up of the boiler every five years and have a one-time energy assessment performed by a qualified energy assessor.

2) **Opacity**

(a) For Boiler #4, pursuant to 40 CFR Part 60 Subpart Db, visible emissions shall not exceed 20 percent opacity.

(b) For Boilers #4, #8, and #9, pursuant to Regulation 7.06, visible emissions shall not exceed 20 percent opacity with the exceptions as noted in section 4.2 of that regulation.

(c) For Boilers #4, #8, and #9, pursuant to section 2.2

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<sup>2</sup> The source has removed boilers #1, #6, #7 and never installed #10. Boiler #5 has been permanently decommissioned/disconnected but has not physically been removed.



of Regulation 1.05, the opacity standards set forth in these regulations shall apply at all times except during periods of start-up, shutdown, malfunction, and as otherwise provided in the applicable standard.

- (d) For Boilers #4, #8, and #9, pursuant to section 5 of Regulation 1.05, at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

3) **PM/PM<sub>10</sub>/PM<sub>2.5</sub>**

- (a) For Boiler #4, with a maximum heat input capacity of less than 250 MMBtu/hr, PM emissions shall not exceed 0.10 lb/M
- (b) For each Boiler #4, #8, and #9, based on a combined total heat input capacity of 250 MMBtu/Hr or more, particulate matter emissions shall not exceed 0.10 pound per million BTU actual total heat input, in accordance with Regulation 7.06.
- (c) For Boiler #4, to meet the requirements of Regulation 2.04, 2.05, 7.06 and 40 CFR Part 60 Subpart Db, the multiclone and electrostatic precipitator (ESP) shall be operated at all times during normal operation of Boiler #4, as recommended by the manufacturer.

4) **SO<sub>2</sub>**

- (a) For Boiler #4, in accordance with Regulation 7.06, SO<sub>2</sub> emissions shall not exceed 1.2 pounds per million BTU actual total heat input.
- (b) For each Boiler #8 and #9, in accordance with Regulation 7.06, SO<sub>2</sub> emissions shall not exceed 0.8 pound per million BTU actual total heat input.

### 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:** N/A
4. **Alternative Operating Scenarios:** The source did not request any alternative operating scenarios.
5. **Compliance History:** NA
6. **Calculation Methodology or Other Approved Method:**

The emission calculations are derived from stack test results, AP-42 emission factors, EPA guidance documents, mass balances and engineering judgments.

(a) **CO**

$$E_{\text{month}} = (EF_4 \times U_4) + (EF_8 \times U_8) + (EF_9 \times U_9)$$

Where:

$$\begin{aligned} E_{\text{month}} &= \text{CO emissions/month} \\ EF &= \text{Emission factor (AP-42 emission factor, unless a performance test has been completed)} \\ U_4 &= \text{Wood heat input/month (MMBtu/month)} \\ U_8, U_9 &= \text{Natural gas fired/month (standard cubic feet/month)} \end{aligned}$$

(b) **GHG**

$$E_{\text{month}} = (EF_4 \times U_4) + (EF_8 \times U_8) + (EF_9 \times U_9)$$

Where:

$$\begin{aligned} E_{\text{month}} &= \text{Emissions/month (tons)} \\ EF &= \text{CO}_2\text{e emission factor, expressed in terms of CO}_2\text{e} \\ U_4 &= \text{Wood heat input/month (MMBtu/month)} \\ U_8, U_9 &= \text{Natural gas fired/month (standard cubic feet/month)} \end{aligned}$$

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

$$E_{\text{month}} = (EF_4 \times U_4) + (EF_8 \times U_8) + (EF_9 \times U_9)$$

Where:

$$\begin{aligned} E_{\text{month}} &= \text{NO}_x \text{ emissions/month} \\ EF &= \text{Emission factor (AP-42 emission factor, unless a performance test has been completed)} \\ U_4 &= \text{Wood heat input/month (MMBtu/month)} \\ U_8, U_9 &= \text{Natural gas fired/month (standard cubic feet/month)} \end{aligned}$$

(d) **PM/PM<sub>10</sub>/PM<sub>2.5</sub>**

$$E_{\text{month}} = [(EF_4 \times U_4 \times (1-CE))] + (EF_8 \times U_8) + (EF_9 \times U_9)$$

Where:

$$E_{\text{month}} = \text{Emissions/month}$$

- EF = Emission factor (AP-42 emission factor, unless a performance test has been completed)
- U<sub>4</sub> = Wood heat input/month (MMBtu/month)
- U<sub>8</sub>, U<sub>9</sub> = Natural gas fired/month (standard cubic feet/month)
- CE = Control efficiency (80% for the Multiclone and 96% for the ESP ((1-0.80)\*(1-0.96)) unless a performance test has been completed.

**7. Insignificant Activities**

Equipment	Quantity	PTE (tpy)	Regulation Basis
Containers, reservoirs or tanks used exclusively for storage of lubricating oils or fuel oils with a vapor pressure of less than 10 mm Hg at conditions of 20C and 760 mm Hg. (Boiler House 1,000 Gallon Diesel Fuel Storage Tank (AST with Submerged Fill) and Portable Diesel Fuel Tote (Less than 250 gals))	1	VOC = 0.0004	Regulation 1.02, Appendix A, 3.9.2
Emission Fuel Handling	NA	PM = 0.160	Regulation 1.02, section 1.38.1.1
Ash Handling	1	PM = 0.008	Regulation 1.02, section 1.38.1.1

- 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) 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.
- 5) 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.
- 6) 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.