

Louisville Metro Air Pollution Control District
850 Barret Ave., Louisville, Kentucky 40204
08 July 2014

Title V Statement of Basis

Company: Recast Energy Louisville, LLC (Recast)

Plant Location: 4014 Bells Lane, Louisville, KY 40211

Date Application Received: 11/01/13

Application Number: 60453

Date of Draft Permit: 05/24/14

District Engineer: Shannon Hosey

Permit No: 27652-14-TV

Plant ID: 1333

SIC Code: 4961

NAICS: 221330

AFS: 01333

Introduction:

This permit will be issued pursuant to: (1) District 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.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO₂), carbon monoxide (CO), 1 hr and 8 hr ozone (O₃), and particulate matter less than 10 microns (PM₁₀); and is a non-attainment area for particulate matter less than 2.5 microns (PM_{2.5}) and partial non-attainment for sulfur dioxide (SO₂).

Application Type/Permit Activity:

- Initial Issuance
- Permit Revision
 - Administrative
 - Minor
 - Significant
- Permit Renewal
- Construction

Compliance Summary:

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

I. Source Information

1. **Plant-Wide Overall Process Description:** The source owns and operates boilers for the generation of steam that is then purchased by the adjacent chemical plants.
2. **Site Determination:** There are no other facilities that are contiguous or adjacent and under common control.

3. **Emission Unit Summary:**

U-BLR:

- Wood biomass-fired Boiler #4, Babcock & Wilcox, 190 MMBtu/hr, controlled by a multiclone, Air Correction Division, followed by an electrostatic precipitator
- Natural gas-fired Boiler #5, Erie City Model 24 M Keystone, 174 MMBtu/Hr
- Natural gas-fired Boilers #8 and #9, each equipped with Low NOx Burners and Flue Gas Recirculation (FGD), 99 MMBtu/Hr
- Natural gas-fired Boiler #10, Make and Model to be determined, equipped with Low NOx Burners and Flue Gas Recirculation (FGD), not to exceed 99 MMBtu/Hr

4. **Permit Revisions**

Revision No.	Effective Date	Public Notice Date	Type	Page No.	Description
Initial	07/08/2014	05/24/2014	Initial	Entire Permit	Initial Permit Issuance

5. **Fugitive Sources:** There are no fugitive emissions for this project.

6. **Plant-Wide Emission Summary:**

Pollutant	District Calculated Actual Emissions (tpy) 2012 Data	Major Source Status (based on PTE)
CO	61.15	Yes
NO _x	48.73	Yes
SO ₂	1.61	No
PM	4.70	Yes (Uncontrolled)
PM ₁₀	1.89	Yes (Uncontrolled)
VOC	2.74	No
Single HAP > 1 tpy	various	Yes (Synthetic Minor)
Total HAPs	2.81	Yes (Synthetic Minor)

7. Applicable Requirements:

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

8. MACT Requirements: 40 CFR Part 63 Subpart A, *General Provisions*, and 40 CFR Part 63 Subpart JJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*

Other Referenced Federal Regulations in Permit: 40 CFR Part 60 Subpart A, *General Provisions*, 40 CFR Part 60 Subpart Db, *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units*, and 40 CFR Part 60 Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*

II. Regulatory Analysis

1. **Acid Rain Requirements:** The source is not subject to the Acid Rain Program.
2. **Stratospheric Ozone Protection Requirements:** This source does not manufacture, sell, or distribute any of the chemicals listed in Title VI of the CAAA. 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’s use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.
3. **Prevention of Accidental Releases 112(r):** The source 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. Basis of Regulation Applicability

a. Applicable Regulations:

Regulation	Title	Type
2.04	Construction or Modification of Major Sources In or Impacting Upon Non-Attainment Areas (Emission Offset Requirements)	SIP
2.05	Prevention of Significant Deterioration of Air Quality	SIP
2.16	Title V Operating Permits	SIP
5.00	Definitions (Standards for Toxic Air Contaminants and Hazardous Air Pollutants)	Local
5.01	General Provisions (Standards for Toxic Air Contaminants and Hazardous Air Pollutants)	Local
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants	Local
5.21	Environmental Acceptability for Toxic Air Contaminants	Local
7.02	Adoption of Federal New Source Performance Standards	Local
7.06	Standards of Performance for New Indirect Heat Exchangers	SIP
40 CFR Part 60, Subpart A	General Provisions	Federal
40 CFR Part 60 Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Federal
40 CFR Part 60 Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Federal
40 CFR Part 63, Subpart A	General Provisions	Federal
40 CFR Part 63 Subpart JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	Federal

b. Basis for Applicability:

Applicable Regulation	Basis for Applicability
5.00, 5.01, 5.21	Chapter 5 Regulations establish the requirements for Environmental Acceptability for TACs. The source is a Group I source with Category 1, 2, 3, and 4 TACs which could exceed the de minimis values.
7.06	Regulation 7.06 applies to new indirect heat exchangers which have a capacity less than 250 MMBtu/hr and are commenced after September 1, 1972.
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 ₂ or NO _x for wood combustion. Subpart Db does not apply to Boiler #5 because it was constructed prior to the applicability dates. An increase in the hours of operation is not considered a modification under 40 CFR Part 60. (40 CFR 60.14(e)(3))
40 CFR Part 60 Subpart Dc	Subpart Dc applies to Boilers #8, #9, and #10 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 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.

c. Standards/Operating Limits

1) CO

The potential uncontrolled CO emissions from Boilers #4, #5, #8, #9, and #10 will cause a significant emissions increase and a significant net emissions increase. CO emissions from Boilers #4, #5, #8, #9, and #10 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. To establish the annual emission limit, ninety percent of the significant emission rate was added to the contemporaneous decrease. The contemporaneous decrease in actual emissions is due to the shutdown of Boiler #1 and #6, on December 1, 2010.

2) NO_x

The source shall comply with the NO_x RACT Plan – Amendment 2 that

was adopted by Board Order on May 21, 2014.

3) **SO₂**

- i. For Boiler #4, in accordance with Regulation 7.06, SO₂ emissions shall not exceed 1.2 pounds per million BTU actual total heat input.
- ii. For each Boiler #5, #8, #9, and #10, in accordance with Regulation 7.06, SO₂ emissions shall not exceed 0.8 pound per million BTU actual total heat input.

4) **PM/PM₁₀/PM_{2.5}**

- i. For Boiler #4, with a maximum heat input capacity of less than 250 MMBtu/hr, PM emissions shall not exceed 0.10 lb/MMBtu heat input, in accordance with 40 CFR Part 60 Subpart Db.
- ii. For each Boiler #4, #5, #8, #9, and #10, 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.
- iii. 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.
- iv. The potential controlled PM₁₀ and PM_{2.5} emissions from Boilers #4, #5, #8, #9, and #10, will cause a significant emissions increase and a significant net emissions increase. PM₁₀ emissions from Boilers #4, #5, #8, #9, and #10 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_{2.5} emissions from Boilers #4, #5, #8, #9, and #10 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. To establish the annual emission limit, ninety percent of the significant emission rate was added 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 completed in early 2012. Fuel handling and ash handling operations were considered existing processes for the modification project.

5) Opacity

- i. For Boiler #4, pursuant to 40 CFR Part 60 Subpart Db, visible emissions shall not exceed 20 percent opacity.
- ii. For Boilers #4, #5, #8, #9, and #10, 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.
- iii. For Boilers #4, #5, #8, #9, and #10, pursuant to section 2.2 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.
- iv. For Boilers #4, #5, #8, #9, and #10, 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.

6) GHG

The potential CO₂e emissions from Boilers #4, #5, #8, #9, and #10, will cause a significant emissions increase and a significant net emissions increase. The owner or operator shall not allow or cause the CO₂e 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.

7) HAP

- i. 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 2.0 tons during any calendar month, and the plant-wide emissions of all HAPs combined shall not equal or exceed 25 tons during any consecutive 12-month period and 5.0 tons during any calendar month.
- ii. For Boiler #4, pursuant to 40 CFR Part 63 Subpart JJJJJJ, 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.

8) **TAC**

Pursuant to Regulation 5.21, TAC emissions shall not equal or exceed environmentally acceptable (EA) levels. The potential uncontrolled TAC emissions result in an R_C of 0.95 and the highest HQ of 0.509 for Acrolein. All other uncontrolled TAC emissions are de minimis. The TAC emissions from the combustion of natural gas are considered to be “de minimis emissions” by the District.

9) **Operations**

- i. The source has removed Boilers #1, #6 and #7.
- ii. For Boiler #10, authorized by Construction Permit 32409-11-C(R3), which was subsequently re-issued as Construction Permit 32409-11-C(R4), as approval to construct shall become invalid if construction is not commenced within 12 months of receipt of approval. (Regulation 2.03, Section 6.4)

d. Monitoring and Record Keeping1) **CO**

Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 establish monitoring and record keeping to ensure ongoing compliance with the terms and conditions of the permit.

2) **NO_x**

Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 establish monitoring and record keeping to ensure ongoing compliance with the terms and conditions of the permit.

3) **SO₂**

- i. Because the emission standard in Regulation 7.06 cannot be exceeded, there are no monitoring or record keeping requirements for SO₂ compliance for Regulation 7.06.
- ii. 40 CFR 60.48c establishes recording keeping requirements for Boilers #8, #9, and #10.

4) **PM/PM₁₀/PM_{2.5}**

- i. Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 establish monitoring and record keeping to ensure ongoing compliance with the terms and conditions of the permit.

- ii. For Boiler #4, to demonstrate compliance with the standards in Regulations 2.05, 7.06, and 40 CFR Part 60 Subpart Db, the source shall perform a monthly visual inspection of the structural and mechanical integrity of each control device and maintain monthly records of the results.
- iii. For Boiler #4, in accordance with 40 CFR Part 60 Subpart Db, the source shall determine compliance with the emission standards through performance testing.
- iv. For Boilers #5, #8, #9, and #10, there are no monitoring or record keeping requirements for PM compliance for Regulation 7.06 because the emission standard cannot be exceeded.

5) **Opacity**

- i. For Boiler #4, Regulation 40 CFR Part 60 Subpart Db requires the source to install, certify, maintain, and operate a continuous opacity monitoring system (COMS) for measuring the opacity of emissions and maintain records of the output of the system.
- ii. Compliance with opacity standards shall be determined by conducting observations in accordance with the reference method as defined in Regulation 1.02, pursuant to section 2.1 of Regulation 1.05.
- iii. For Boilers #5, #8, #9, and #10, there are no monitoring or record keeping requirements for Opacity. The District has determined that using a natural gas fired boiler will inherently meet the 20% opacity standard.

6) **GHG**

The source shall calculate and record the calendar month and rolling 12-month plant-wide GHG emissions, as CO₂e.

7) **HAP**

Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 establish monitoring and record keeping to ensure ongoing compliance with the terms and conditions of the permit.

8) **TAC**

Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 establish monitoring and record keeping to ensure ongoing compliance with the terms and conditions of the permit.

e. **Reporting**

1) **CO**

Regulation 2.16, sections 4.1.9.3 establishes reporting to ensure ongoing compliance with the terms and conditions of the permit.

2) **NO_x**

i. Regulation 6.42 requires the source to comply with the reporting requirements contained in the NO_x RACT Plan – Amendment 2.

ii. Regulation 2.16, sections 4.1.9.3 establishes reporting to ensure ongoing compliance with the terms and conditions of the permit.

3) **SO₂**

40 CFR 60.48c establishes reporting requirements for 40 CFR Part 60 Subpart Dc for Boilers #8, #9, and #10. There are no other reporting requirements.

4) **PM/PM₁₀/PM_{2.5}**

Regulation 2.16, sections 4.1.9.3 establishes reporting to ensure ongoing compliance with the terms and conditions of the permit.

5) **Opacity**

i. For Boiler #4, in accordance with 40 CFR Part 60 Subpart Db, excess emission reports are required to be submitted for any excess emissions that occurred during the reporting period.

ii. Regulation 2.16, sections 4.1.9.3 establishes reporting to ensure ongoing compliance with the terms and conditions of the permit.

iii. 40 CFR Part 60 Subpart Db establishes reporting requirements for Boiler #4.

6) **GHG**

The source shall report the rolling 12-month plant-wide GHG emissions, as CO₂e emissions for each month in the reporting period.

7) **HAP**

Regulation 2.16, sections 4.1.9.3 establishes reporting to ensure ongoing compliance with the terms and conditions of the permit.

8) **TAC**

Regulation 2.16, sections 4.1.9.3 establishes reporting to ensure ongoing compliance with the terms and conditions of the permit.

f. **Testing**

1) **NO_x**

In accordance with Regulation 6.42, the source shall comply with the testing requirements contained in the NO_x RACT Plan – Amendment 2.

2) **PM/PM₁₀/PM_{2.5}**

For Boiler #4, in accordance with 40 CFR Part 60 Subpart Db, the source shall conduct the performance tests as required.

3) **Opacity**

For Boiler #4, in accordance with 40 CFR Part 60 Subpart Db, the source shall conduct the performance tests as required.

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. **Operational Flexibility:** The source did not request any operational flexibility for these emission points.
5. **Compliance History:** N/A
6. **Permit Fee:**

The permit fees are based on the following pursuant to the Regulation 2.08, section 12.

Fee Type	Description	Amount
Significant Permit Revisions	Initial Issuance of Permit 27652-14-TV	\$2,500
Total		\$2,500

7. Insignificant Activities:

Equipment	Quantity	Regulation Basis
Fixed or mobile internal combustion engines and vehicles used for transport of passengers or freight, unless regulated elsewhere. (Forklifts, Vehicles, Fuel-Moving Equipment, etc.)	12	Regulation 1.02, Appendix A, 2.2
Brazing, soldering or welding equipment. (Maintenance Portable Welding Station(s) – EPA White Papers)	7	Regulation 1.02, Appendix A, 3.4
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))	2	Regulation 1.02, Appendix A, 3.9.2
Emergency relief vents, stacks and ventilating systems not otherwise regulated. Includes, but is not limited to, steam, return condensate and natural gas lines.	30	Regulation 1.02, Appendix A, 3.10
Lab exhaust systems (1 On-Site Laboratory)	1	Regulation 1.02, Appendix A, 3.11
Storage vessels for VOCs with a maximum capacity of 250 gallons or less. (Maintenance Materials Miscellaneous Totes and Drums)	25	Regulation 1.02, Appendix A, 3.24
Recast Maintenance Water/Steam Blasting Cleaning	2	EPA White Papers
Recast Boiler Water Chemical Treatment System, Including (but not limited to) Make-Up Water/Process Tanks and Associated Truck Loading/Unloading	1	EPA White Papers
Wood Conveying System for Boiler #4, including truck unloading of wood	N/A	Regulation 1.02, section 1.38.1.1
Ash Handling and Dumpsters Containing Boiler #4 Ash	5	Regulation 1.02, section 1.38.1.1

- 1) Insignificant Activities identified in District Regulation 1.02, section 1.38, may be subject to size or production rate disclosure requirements pursuant to District Regulation 2.16, section 3.5.4.1.4.
- 2) Insignificant Activities identified in District Regulation 1.02, section 1.38.1, shall comply with generally applicable requirements.
- 3) Activities identified in Regulation 1.02, section 1.38.1, may not require a permit and may be insignificant with regard to application disclosure requirements but may still have generally applicable requirements that continue to apply to the

source and must be included in the permit pursuant to District Regulation 2.16, section 4.1.9.4.

- 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) In lieu of recording annual throughputs and calculating actual annual emissions, the owner or operator may elect to report the pollutant Potential-to-Emit (PTE) as the annual emission for each listed Insignificant Activity.
- 6) The Insignificant Activities Table is correct as of the date the permit was proposed for review by U.S. EPA Region 4.
- 7) The owner or operator shall annually submit an updated list of Insignificant Activities, including an identification of the additions and removals of Insignificant Activities that occurred during the preceding year, with the compliance certification due April 15th.