

Louisville Metro Air Pollution Control District
850 Barret Ave., Louisville, Kentucky 40204
17 June 2009

PSD Permit Statement of Basis

Company: American Synthetic Rubber Company

Plant Location: 4500 Camp Ground Rd, Louisville, Kentucky 40216

Date Application Received: 6/10/2009

Application Number: 11337

Date of Draft Permit: 17 June 2009

District Engineer: Stephen Taylor

Permit No: 312-05-C (R1)

Plant ID: 0011

SIC Code: 2822

NAICS: 325212

AFS: 00011

Introduction:

This permit will be issued pursuant to District Regulation 2.04, Construction or Modification of Major Sources in or Impacting upon Non-Attainment Areas (Emission Offset Requirements) and District Regulation 2.05, Prevention of Significant Deterioration of Air Quality. Its purpose is to provide methods of determining continued compliance with all applicable requirements.

Jefferson County is classified as an attainment area for lead (Pb), sulfur dioxide (SO₂), 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}).

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. Product/Process Description: The source produces polybutadiene rubber (PBR) and styrene butadiene rubber (SSBR) by solution, and liquid polymer (LP). Through a continuous operation, the source reacts monomers using a solvent as a chain transfer agent, to produce SSBR and PBR crumb rubber. The crumb rubber is then compressed and baled prior to shipping. Liquid polymer is produced in a batch operation. The source produces steam for plant-wide use with coal- and gas-fired boilers.

2. Project Description:

The source installed two 212 MMBtu/hr coal fired boilers (Boiler #1 and #2) controlled by a dry lime scrubber and a baghouse, two 99 MMBtu/hr natural gas fired boilers (Boilers #3 and #4), boiler #4 can be fired by #2 fuel oil, coal handling system controlled by a baghouse, ash handling system controlled by a baghouse, ash load out system controlled by a baghouse, lime handling system controlled by a baghouse, truck fuel oil loading/unloading, and truck lime unloading in 1992. The company requested to change the PSD lb/hr SO₂ limit to the NSPS lb/MMBtu standard and including an Operation and Maintenance Plan for the SO₂ Removal System and Baghouse by submitting a new BACT. The District has included the new limits and monitoring, recordkeeping, and reporting in the revised PSD permit.

3. Site Determination: There are no other facilities that are contiguous or adjacent and under common control.

4. Emission Unit Summary:

Construction No.	Equipment Description
312-05-C (R1)	Two (2) 212 MMBtu/hr coal fired boilers

5. Permit Revisions

Revision No.	Date of Reissuance	Public Notice Date	Type	Emission Unit/Page No.	Description
Initial	12/31/2005	09/04/2005	Initial	Entire Permit	Remove all tpy limits, add 40 CFR 60 Subpart Db, remove Regulation 5.12, change PM ₁₀ limit to be PM, add monitoring, recordkeeping, and reporting
R1		6/17/2009	Significant	Entire Permit	Add new limit, maintenance, and training requirements

6. **Fugitive Sources:** Fugitive emissions of dust from any part of the plant are subject to Regulation 1.14, *Control of Fugitive Particulate Emissions*.

7. **Plantwide Emission Summary:**

Pollutant	Actual Emissions 2006 Data (tpy)	Major Source Status (based on PTE)
CO	283.79	Yes
NO _x	547.24	Yes
SO ₂	158.183	Yes
PM/PM ₁₀	17.88/11.97	Yes
VOC	384.39	Yes
Single HAP > 1 tpy		
1,3 Butadiene	4.29	Yes
Styrene	13.04	Yes
Hydrochloric Acid	6.71	Yes
Toluene	302.41	Yes
Total HAPs	328.66	Yes

8. **Applicable Requirements:**

PSD NSPS SIP MACT
 NSR NESHAPS District-Origin Other

9. **MACT Requirements:**

None

10. **Referenced Federal Regulations in Permit:**

40 CFR 60 Subpart A General Provisions
 40 CFR 60 Subpart Db Standards of Performance for
 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:** 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. This source 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): 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. The required Risk Management Plan was submitted on June 18, 2004.

4. Basis of Regulation Applicability

a. Plant-wide

There are no plantwide limits in this permit.

b. Permit 312-05-C (R1)

i. Equipment:

Emission Unit	Equipment Description	Applicable Regulation	Basis for Applicability
U4 Powerhouse	Boiler #1 and #2	2.04	The project is subject to Non-Attainment NSR since the District was not in attainment with ozone when the permit was originally issued in 1992.
		2.05	The project is subject to PSD since the District was in attainment with SO ₂ , NO _x , CO, PM, PM ₁₀ , and Pb when the permit was originally issued in 1992.
		7.06	The boilers are subject to Regulation 7.06 since the boilers are greater than 1 MMBtu/hr and installed after April 9, 1972.
		40 CFR 60 Subpart Db	The boilers are subject to 40 CFR 60 Subpart Db since the boilers are greater than 100 MMBtu/hr and installed after June 19, 1984.
		6.42	The boilers are subject to Regulation 6.42 since the boilers are major NO _x emitting facilities.

ii. Standards/Operating Limits

a. NO_x

- 1) The 254.4 pounds per hour based on a 3 hour averaging period is based on the limit from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05. Regulation 7.06, section 7.8 says the District can apply the requirements in this section to boilers less than 100 MMBtu/hr. Therefore, the District applied the three hour averaging period from Regulation 7.06, section 7.7.3.
- 2) The 0.60 lb/MMBtu of heat input based on a 30-day rolling average is from 40 CFR 60.44b(a)(3)(ii) and 60.44b(i).
- 3) The 0.50 lb/MMBtu of heat input, based upon a 30-day rolling average is from Regulation 6.42, section 4.3, which requires NO_x RACT. This limit applies at all times, including periods of startup, shutdown, or malfunction. The NO_x RACT Plan contained this limit in Element 1, which was effective on January 1, 2001.

b. **SO₂**

- 1) The limits on the exhaust gas where they cannot contain SO₂ in excess of 10 % (0.10) of the potential SO₂ emission rate (90 % reduction) or contain sulfur dioxide in excess of 0.20 lbs/MM Btu. Both the percent reduction requirement and the emission limit are based on a 30-day rolling average. The sulfur dioxide emission limits and percent reduction requirements apply at all times, including periods of startup, shutdown, and malfunction. These limits are from 40 CFR 60.42b(k)(4), 60.42b(e) and 60.42b(g).
- 2) The 1.2 lbs/MM Btu actual heat input based on a 30-day rolling average limit is from Regulation 7.06, section 5.1.2.
- 3) The 0.20 lb/MMBtu actual heat input based on a 30 day rolling average limit is from the BACT required by Regulation 2.05.
- 4) The maximum sulfur content limit to meet the definition of low sulfur coal (1.0%S or less) is from the BACT required by Regulation 2.05.

- 5) The requirement to institute an Initial Operator Training and Certification Program, which involves 3 - 6 months of training and testing, and includes a formal written module on the mechanical aspects of the spray reactor atomizer drives, lube oil unit, and the operation of the SO₂ scrubbing process is from the BACT required by Regulation 2.05.
- 6) The requirement to recertify all operators of the SO₂ Removal System and Baghouse every three (3) years after initial certification is from the BACT required by Regulation 2.05.
- 7) The requirement to review and upgrade the Operator Training and Certification Program at least every 2 years as recommended by a root cause analysis team is from the BACT required by Regulation 2.05.
- 8) The requirement to have a formal written Operation and Maintenance Plan for the SO₂ Removal System and Baghouse is from the BACT required by Regulation 2.05.

c. **PM**

- 1) The PM emissions combined limit of 12.72 pounds per hour is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05.
- 2) The PM emissions limit of 0.030 lb/MM Btu heat input based on a 30-day rolling average is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05.
- 3) The PM emissions limit from Boiler #1 and Boiler #2 of 0.051 lb/MM Btu heat input is from 40 CFR 60.43b(a)(1)(i) and 60.43b(g). This standard applies at all times, except during periods of start-up, shutdown or malfunction.
- 4) The PM emissions limit from Boiler #1 and Boiler #2 of 0.10 lb/MM Btu actual heat input is from Regulation 7.06, section 4.1.2.

d. Opacity

- 1) The limit of 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27% opacity is from 40 CFR 60.43b(f) and 63.43b(g). This standard applies at all times, except during periods of startup, shutdown or malfunction.
- 2) The limit of 20% opacity except, a maximum of 40% opacity shall be permissible for not more than two consecutive minutes in any 60 consecutive minutes; a maximum of 40% opacity shall be permissible for not more than six consecutive minutes in any 60 consecutive minutes during cleaning the fire box or blowing soot; or for emissions from any of the boilers during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations is from Regulation 7.06, section 4.2.

e. CO

- 1) The CO emissions limit from Boiler #1 and Boiler #2 combined of 90.6 pounds per hour is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05.
- 2) The CO emissions limit from Boiler #1 and Boiler #2 to exceed 0.21 lb/MM Btu heat input based on a 30-day rolling average is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05.

f. Lead (Pb)

The Lead (Pb) emissions limit from Boiler #1 and Boiler #2 combined to exceed 0.00114 lb/hr is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05.

g. Sulfuric Acid (H₂SO₄)

- 1) The H₂SO₄ emissions limit from Boiler #1 and Boiler #2 combined to exceed 1.73 lbs/hr is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05. The District has determined the Spray Dryer Reactor, C-U4-SDR, for sulfur dioxide control, meets the PSD BACT requirements for H₂SO₄. Therefore, SO₂ is used as a surrogate for H₂SO₄.
- 2) The H₂SO₄ emissions limit from Boiler #1 and Boiler #2 to exceed 0.00408 lb/MM Btu heat input capacity is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.05. The District has determined the Spray Dryer Reactor, C-U4-SDR, for sulfur dioxide control, meets the PSD BACT requirements for H₂SO₄.

h. **VOC**

The VOC emissions from Boiler #1 and Boiler #2 combined to exceed 1.27 lbs/hr is from the BACT analysis submitted with the PSD final determination on October 24, 1990 as required by Regulation 2.04.

iii. **Monitoring**

a. **NO_x**

The requirement to install, calibrate, maintain and operate a continuous monitoring system, and record the output of the system, for measuring nitrogen oxides emissions discharged to the atmosphere is from 40 CFR 60.48b(b)(1) and Regulation 6.42.

b. **SO₂**

The requirement to install, calibrate, maintain and operate a continuous emission monitoring system (CEMs) for measuring SO₂ concentrations and carbon dioxide (CO₂) concentrations and record the output of the systems is from 40 CFR 60.47b(a). The SO₂ and carbon dioxide concentrations shall both be monitored at the inlet and outlet of the SO₂ control device.

c. **PM**

The requirement to conduct a Method 5 performance test for PM within 60 days of issuance of this permit is from Regulation 2.03, section 5.1, where the District can require any monitoring requirements that are necessary to ensure compliance with the standards. The source performed an EPA Reference Method 5 performance test for PM emissions from Boiler #1 and Boiler #2 on December 3, 1992. The performance test demonstrated the PM emissions are 2.13 lb/hr and 0.007 lb/MMBtu from each boiler, which are in compliance with the PSD limits.

d. **Opacity**

The requirement to install, calibrate, maintain and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system is from 40 CFR 60.48b(a).

e. **CO**

For Boiler #1 and Boiler #2, when combusting coal, the owner or operator submitted a one-time compliance demonstration on March 10, 2004, showing that the potential CO emissions do not exceed the applicable standards in Specific Condition S1.e. Therefore, there are no CO compliance monitoring, recordkeeping, or reporting requirements for these boilers.

f. **Lead (Pb)**

For Boiler #1 and Boiler #2, when combusting coal, the owner or operator submitted a one-time compliance demonstration on August 31, 2000, showing that the potential Lead (Pb) emissions do not exceed the standards in Specific Condition S1.f. Therefore, there are no Lead (Pb) compliance monitoring, recordkeeping, or reporting requirements for these boilers.

g. **Sulfuric Acid (H₂SO₄)**

For Boiler #1 and Boiler #2, when combusting coal, the District has determined that the SO₂ compliance monitoring requirements in Specific Condition S2.b. are sufficient to

assure H₂SO₄ compliance per the PSD Final Determination dated October 24, 1990.

h. VOC

For Boiler #1 and Boiler #2, when combusting coal, the owner or operator submitted a one-time compliance demonstration dated March 10, 2004 showing that the potential VOC emissions do not exceed the applicable standards in Specific Condition S1.h. Therefore, there are no VOC compliance monitoring, recordkeeping, or reporting requirements for these boilers.

iv. Record Keeping

a. NO_x

- 1) The requirement to maintain records of the amount of coal fuel combusted during each day and calculate the annual capacity factor individually for coal for the reporting period is from 40 CFR 60.49b(d). The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.
- 2) The requirement to maintain records contained in 40 CFR 60.49b(g) for each steam generating unit operating day is from 40 CFR 60.49b(g).
- 3) The requirement to maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the boilers; any malfunction of the air pollution control equipment; or any periods during which a CEMS or monitoring device is inoperative is from 40 CFR 60.7(b).
- 4) The requirement to keep a record identifying all deviations from the requirements of the NO_x RACT Plan is from Regulation 6.42, section 4.3, which requires NO_x RACT. The NO_x RACT Plan contained this requirement in Element 7, which was effective on January 1, 2001.

b. SO₂

- 1) The requirement to maintain records of the following information contained in 40 CFR 60.49b(k) for each steam generating unit operating day is from 40 CFR 60.49b(k).
- 2) The requirement to keep records of the weekly average sulfur content and monthly calculate and record the monthly average sulfur content is from Regulation 2.03, section 5.1.
- 3) The requirement to form a root cause analysis team to determine the cause of the upset and to prepare a plan to prevent a recurrence of the upset for each upset of the sulfur removal system that causes an exceedance is from Regulation 2.03, section 5.1. The plan shall be kept for each upset. The root cause analysis team shall be composed of operators, engineers, supervisors, and outside consultants as appropriate to address the particular issue being reviewed.
- 4) The requirement to keep records of the Operator Training and Certification Program including the operator's name, date of initial training, and the dates of the subsequent training is from Regulation 2.03, section 5.1.
- 5) The requirement to keep records of the Operation and Maintenance Plan for the SO₂ Removal System including a list of the current spare parts in the inventory, date and inspection results of the spray reactor cone, date of the lime line acidizing, date and inspection results of the concentricity and polarity checks of the gearboxes is from Regulation 2.03, section 5.1.

c. **PM**

The requirement to conduct a Method 5 performance test for PM within 60 days of issuance of this permit is from Regulation 2.03, section 5.1, where the District can require any monitoring requirements that are necessary to ensure compliance with the standards. The source performed an EPA Reference Method 5 performance test for PM emissions from Boiler #1 and Boiler #2 on December 3, 1992. The performance test demonstrated the PM emissions

are 2.13 lb/hr and 0.007 lb/MMBtu from each boiler, which are in compliance with the PSD limits.

d. **Opacity**

The requirement to maintain records of the opacity is from 40 CFR 60.49b(f).

e. **CO**

For Boiler #1 and Boiler #2, when combusting coal, and Boiler #4, when combusting fuel oil, the owner or operator submitted a one-time compliance demonstration dated March 10, 2004 showing that the potential CO emissions do not exceed the applicable standards in Specific Condition S1.e. Therefore, there are no CO monitoring, recordkeeping, or reporting requirements for these boilers.

f. **Lead (Pb)**

For Boiler #1 and Boiler #2, when combusting coal, the owner or operator submitted a one-time compliance demonstration on August 31, 2000, showing that the potential Lead (Pb) emissions do not exceed the standards in Specific Condition S1.f. Therefore, there are no Lead (Pb) compliance monitoring, recordkeeping, or reporting requirements for these boilers.

g. **Sulfuric Acid (H₂SO₄)**

For Boiler #1 and Boiler #2, when combusting coal, the District has determined that the SO₂ compliance monitoring requirements in Specific Condition S2.b. are sufficient to assure H₂SO₄ compliance per the PSD Final Determination dated October 24, 1990.

h. **VOC**

For Boiler #1 and Boiler #2, when combusting coal, the owner or operator submitted a one-time compliance demonstration dated March 10, 2004 showing that the potential VOC emissions do not exceed the applicable standards in Specific Condition S1.h. Therefore, there are no VOC compliance monitoring, recordkeeping, or reporting requirements for these boilers.

v. **Reporting**

a. **NSPS**

The requirement to report semiannually the information contained in 40 CFR 60.49b(g), (k), and (m) is from 40 CFR 60.49b(w).

b. **Title V Semiannual Reports**

The requirement to submit the Title V Semiannual Report is from Regulation 2.16, section 4.1.9.3.

c. **NO_x RACT Plan Semiannual Reports**

The requirement to submit the NO_x RACT Plan Semiannual report is from Regulation 6.42, section 4.3, which requires NO_x RACT. The NO_x RACT Plan contained this requirement in Element 7, which was effective on January 1, 2001.

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 Status:** The source signed and submitted a Title V compliance certification.
6. **Permit Fee:** PSD Construction Permit Revision 312-05-C (R1) permit fees are based on the permit being subject to Federal PSD/NSR.
7. **Insignificant Activities:** There are no insignificant activities contained in this construction permit.