Missouri Department of NATURAL RESOURCES
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Michael L. Parson, Governor
Carol S. Comer, Director

NOV 1 3 2019

Mr. Mike Kane
Senior Process Engineer
Maryville Carbon Solutions
600 Wilson Industrial Road
Maryville, MO 64468

RE: New Source Review Permit Amendment – Permit Number: 042017-014B
Project Number: 2019-08-035; Installation Number: 147-0043

Dear Mr. Kane:

Maryville Carbon Solutions operates a tire pyrolysis facility in Maryville, Missouri. The installation is considered a de minimis source for all pollutants and is not required to have an operating permit. Construction Permit No. 042017-014 was issued to Maryville Carbon Solutions in April 2017, which authorized the replacement of the existing pyrolysis system, the installation of a flare, and the construction of an additional tire shredding/storage area. An amendment (042017-014A) was made to the Construction Permit in April 2019 to allow for an upgrade to the pyrolysis system, which included the replacement of the pyrolysis heater, the replacement of the flare, and the modification of the char transfer system.

Special Condition 17.C. in Construction Permit No. 042017-014 required Maryville Carbon Solutions to test the nuisance dust baghouse (EP-3) and the pelletizer dryer baghouse emissions (EP-5) for the presence of pyrolysis gas, which has the potential to be absorbed into the char and released during pelletization. Testing was performed in March 2019 for the presence of VOCs, which is the most viable indicator of absorbed syngas being released. The average VOC emission rate from EP-3 and EP-5 were measured to be 0.365 lb/hr and 0.914 lb/hr, respectively. Since the results showed evidence of pyrolysis gas, Maryville Carbon Solutions was required to amend Construction Permit No. 042017-014 (and subsequently 042017-014A) to account for the potential emissions associated with the released pyrolysis gas. This amendment serves to update the emission factors for EP-3 and EP-5. Tables 1 and 2 provide the results of the testing and the calculated emission factors. These values have been reproduced and approved by the Air Pollution Control Program.

Table 1: EP-3 Test Results and Calculated Emission Factor

Test Time	System Throughput (lb/hr)	Tested Emission Rate (lb VOC/hr)	Tested Emission Factor (lb VOC/lb)
08:45-09:45	1,940	0.368	1.897×10^{-4}
09:51-10:51	1,921	0.384	1.999×10^{-4}
11:01-12:01	1,900	0.342	1.800×10^{-4}
Average Emission Factor (lb VOC/ton)			0.380

Table 2: EP-5 Test Results and Calculated Emission Factor

Test Time	System Throughput (lb/hr)	Tested Emission Rate (lb VOC/hr)	Tested Emission Factor (lb VOC/lb)
13:05-14:05	1,670	0.489	2.928×10^{-4}
14:16-15:16	1,865	0.708	3.796×10^{-4}
15:31-16:04 16:42-17:10	1,820	1.55	8.516×10^{-4}
Average Emission Factor (lb VOC/ton)			1.02

Table 3 provides an updated emissions summary for the installation. Existing potential emissions were taken from Construction Permit No. 042017-014. Existing actual emissions were taken from the installation's most recent EIQ. The emissions increase of the project represents the VOC emissions associated with the release of uncombusted pyrolysis gas detected in EP-3 and EP-5. The VOC increase from EP-3 is conservative because this emission point also includes natural gas combustion emissions from the existing pellet dryer, which are already accounted for in Construction Permit No. 042017-014. Although the pyrolysis gas may contain particulates, sulfur compounds, and HAPs, the worst case scenario for these pollutants is when the syngas is completely combusted. The emission calculations from Construction Permit No. 042017-014 assume complete combustion of the syngas; therefore, these combustion emissions are already accounted for.

Table 3: Emissions Summary (tons per year)

Pollutant	De Minimis Level/SMAL	Existing Potential Emissions	Existing Actual Emissions (2018 EIQ)	Emissions Increase of the Project	Potential Emissions of the Installation
PM	25.0	11.10	N/D	N/A	11.10
PM_{10}	15.0	10.27	0.10	N/A	10.27
$PM_{2.5}$	10.0	<10.0	0.03	N/A	<10.0
SO_x	40.0	<40.0	2.05	N/A	<40.0
NO_x	40.0	7.55	0.41	N/A	7.55
VOC	40.0	4.01	0.17	5.60	9.61
CO	100.0	9.01	0.48	N/A	9.01
Total HAPs	25.0	2.00	N/D	N/A	N/A
Anthracene	0.01	<0.01	N/D	N/A	<0.01
Benzene	2.0	0.32	N/D	N/A	0.32
Ethyl Benzene	10.0	0.25	N/D	N/A	0.25
Hexane	10.0	0.24	N/D	N/A	0.24
2-Methylnaphthalene	0.01	<0.01	N/D	N/A	<0.01
Styrene	1.0	0.35	N/D	N/A	0.35
Toluene	10.0	0.32	N/D	N/A	0.32
Xylene	10.0	0.27	N/D	N/A	0.27

N/A = Not Applicable; N/D = Not Determined

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this amendment, please contact Ryan Schott, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale

Kendall B. Hale
Permits Section Chief

KBH:rsa

Enclosures

c: Kansas City Regional Office
PAMS File: 2019-08-035