Jaricus Whitlock

From: Ivelina Pilgrim
Sent: Tuesday, April 19, 2022 10:00 AM
To: Mcilwain, Annie
Cc: Jaricus Whitlock
Subject: RE: Amite BioEnergy, LLC Construction Permit Mod and Title V Application

Good morning,

Yes, please correct the methanol emissions for AA-201. Additionally, the HAP totals in the emission calculations for AA-201 and AA-301 (pages 109-110 and 134-135) are incorrect. Please revise the necessary pages.

Since the facility will be a major source for HAPs, it will be subject to the case-by-case MACT (Subpart B). Although Amite Bio already controls HAPs with the RTO and RCO, we request that you submit a case-by-case MACT analysis as outlined in 40 CFR 63.43.

Please let me know if you have any questions.

Thank you,
Ivelina Pilgrim

From: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Sent: Tuesday, April 19, 2022 8:36 AM
To: Ivelina Pilgrim <IPilgrim@mdeq.ms.gov>
Subject: RE: Amite BioEnergy, LLC Construction Permit Mod and Title V Application

Good Morning,

Yes that is correct. They will be a major source for HAPs now. We did, however, notice that methanol was left off as a HAP for AA-201, which will be the largest HAP for that source. Does that need to be amended or can that just be accounted for in the emissions inventory?

Annie McIlwain, P.E.
District Manager
PPM Consultants, Inc.
289 Commerce Park Drive, Suite D
Ridgeland, MS 39157
p: 601-956-8233
m: 601-941-3719
annie.mcilwain@ppmco.com
www.ppmco.com [ppmco.com]

From: Ivelina Pilgrim <IPilgrim@mdeq.ms.gov>
Sent: Monday, April 11, 2022 11:29 AM
To: Mcilwain, Annie <annie.mcilwain@ppmco.com>; Jaricus Whitlock <jwhitlock@mdeq.ms.gov>

Cc: Joshua Jones1 <Joshua.Jones1@drax.com>; Amber Bouska <Amber.Bouska@draxbiomass.com>; Plummer, Rick <rick.plummer@PPMCo.com>
Subject: RE: Amite BioEnergy, LLC Construction Permit Mod and Title V Application

CAUTION: EXTERNAL EMAIL

Good morning Annie,

We just wanted to confirm with you and the facility that Amite BioEnergy is requesting to be permitted as a major source for HAPs in this application for a modification to the Permit to Construct and Title V Permit.

Thank you,
Iva Pilgrim

From: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Sent: Tuesday, March 8, 2022 1:34 PM
To: Jaricus Whitlock <jwhitlock@mdeq.ms.gov>; Ivelina Pilgrim <IPilgrim@mdeq.ms.gov>
Cc: Joshua Jones1 <Joshua.Jones1@drax.com>; Amber Bouska <Amber.Bouska@draxbiomass.com>; Plummer, Rick <rick.plummer@PPMCo.com>
Subject: Amite BioEnergy, LLC Construction Permit Mod and Title V Application

This Message Is From an External Sender
This message came from outside your organization.

Good Afternoon Jaricus and Ivelina,

Please find attached the electronic version of Amite BioEnergy's combined Construction Permit Modification and Initial Title V Application. Also attached is Amite BioEnergy's Certificate of Good Standing from the Mississippi Secretary of State. A paper copy of the attached is being mailed by Drax to you and should be arriving this week or early next week. If you have any questions, please feel free to reach out.

Thanks,

Annie McIlwain, P.E.
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Jaricus Whitlock

From: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Sent: Thursday, May 19, 2022 10:02 AM
To: Ivelina Pilgrim
Cc: Jaricus Whitlock; Joshua Jones1; Plummer, Rick; Amber Bouska
Subject: Amite BioEnergy Title V Permit Application Edits
Attachments: ABE - Title V Permit Application Review.pdf

Ivelina,

Attached is a summary, edited calculations, and edited forms for Amite BioEnergy's Title V Permit application. As I mentioned before, some pollutants like methanol were missing in calculations and emissions. If you have any questions, please feel free to reach out to me.

Thanks,

Annie McIlwain, P.E.
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Amite BioEnergy, LLC
Title V Air Permit Application Technical Review

1. Table in Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs) does not include Methanol for the AA-201. HAP emissions from the drying of wood AP-42 Section 10.6.2 are also not included.
2. AA-201 – Chip Dryer/Biomass Furnace System
    a. Note 2 states, "Emissions are the sum from the following individual components: Biomass furnace combustion of wood product and RTO burner combustion of natural gas." The component that is missing is the Wood Chip Dryer. Pollutant emissions for the chip dryer based on AP-42, Volume I, Chapter 1, Section 10.6.2 – Rotary Dryer (SCC 3-07-006-25). Pollutants that were not measured during the July 2021 stack test:
        i. Benzene
        ii. Dichloromethane
        iii. Methyl ethyl ketone
        iv. Styrene
        v. Toluene
    b. The HAPs referred to in Note 2 for the are summed from the Biomass Furnace and the RTO burner do not match the HAP emission presented in the AA-201 – Chip Dryer/Biomass Furnace table. These emission rates need to be corrected.
    c. Many of HAPs are not listed in the table for AA-201 – Natural Gas RTO Burner. It may be because the emissions rates are insignificant. Recommend adding all the HAPs to the table.
3. AA-203b – By-pass During Furnace Startup/Shutdown
    a. Recommend adding PM, SO_2, and NO_x pollutants to the table
    b. Emission factors to be used are those used by Trinity in the application submitted for furnace emissions:
        i. PM = 0.560 lb/MMBTU
        ii. PM-10 = 0.500 lb/MMBTU
        iii. PM-2.5 = 0.430 lb/MMBTU
        iv. NOx = 0.220 lb/MMBTU
        v. SO2 = 0.025 lb/MMBTU
    c. Hours of operation per year are 50 hours. Based on this information, PM, SO2, and NOx emissions were calculated to be:
        i. PM = 18.48 lb/hr (0.46 tpy)
        ii. PM-10 = 16.50 lb/hr (0.41 tpy)
        iii. PM-2.5 = 14.19 lb/hr (0.35 tpy)
        iv. NOx = 7.26 lb/hr (0.18 tpy)
        v. SO2 = 0.83 lb/hr (0.02 tpy)
4. AA-203c – By-pass During Furnace Idling

a. Recommend adding PM, SO_2, and NO_x pollutants to the table
b. Emission factors to be used are those used by Trinity in the application submitted for the dryer:
    i. PM = 9.24 lb/hr (2.31 tpy)
    ii. PM-10 = 8.25 lb/hr (2.06 tpy)
    iii. PM-2.5 =7.10 lb/hr (1.77 tpy)
    iv. NOx = 3.63 lb/hr (0.91 tpy)
    v. SO2 = 0.41 lb/hr (0.10 tpy)
c. Hours of operation per year are 500 hours. Based on this information, PM, SO2, and NOx emissions were calculated to be:
    i. PM = 5.45 lb/hr (1.36 tpy)
    ii. PM-10 = 4.79 lb/hr (1.2 tpy)
    iii. PM-2.5 = 4.13 lb/hr (1.03 tpy)
    iv. NOx = 3.63 lb/hr (0.91 tpy)
    v. SO2 = 0.41 lb/hr (0.10 tpy)

5. AA-204b – By-pass During Dryer Startup/Shutdown
    a. Recommend removing the SO_2 pollutant from the table. AP-42, Volume I, Chapter 1, Section 10.6.2 – Rotary Dryer (SCC 3-07-006-25) does not include SO_2. Any SO_2 from the furnace are accounted for in the furnace by-pass.
6. AA-301 – RCO
    a. The RCO is controlling emissions from the Pellet Coolers, Pellet Mills, Secondary Hammermills, and RCO Burner. The only component that is emitting SO_2 is the RCO Burner. The SO_2 emission rates (0.031 tons/hr)shown in the RCO table do not match the emission rate (0.04 tpy) from the RCO Burner.
7. AA-304 – Truck Dump
    a. Emissions from the truck dump are based on an annual throughput of 467,316 ODT/yr. The truck dump annual throughput should be based on the dry shavings throughput. The proposed permit is based on the following:
        i. Recommended Pellet Production – 624,700 ODT/yr
        ii. Recommended Chip Production – 467,316 ODT/yr
        iii. Dry Shaving Usage = Pellet Production minus Chip Production = 157,384 ODT/yr
8. Emission factors for the following sources are too low. The emission factors are based on previous stack test, scaled up 25%. The incorrect emission factors are based on the previously proposed production rates. PPM recommends the production rates listed in #6 be used to calculate the emission factors.
    a. AA-305 – Secondary Hammermill Silo 1
    b. AA-306 – Secondary Hammermill Silo 2
    c. AA-401A – Pellet Storage Silo 1
    d. AA-401B – Pellet Storage Silo 2
    e. AA-401C – Screened Materials Return

f. AA-401D – Pellet Loading

9. Monitoring of Temperature for WESP-RTO system.
    a. Please see attached Section M8 form for a clarified request on the Sampling and Analysis Method pertaining to the 3-hour block average of temperature and deviation reporting.
10. Monitoring of secondary current for WESP-RTO system.
    a. Please see attached Section M8 form for a clarified request on the Sampling and Analysis Method pertaining to the 3-hour block average of secondary current and deviation reporting.
11. Monitoring of secondary voltage for WESP-RTO system.
    a. Please see attached Section M8 form for a clarified request on the Sampling and Analysis Method pertaining to the 3-hour block average of secondary voltage and deviation reporting.
12. Monitoring of temperature for RCO system.
    a. Please see attached Section M8 form for a clarified request on the Sampling and Analysis Method pertaining to the 3-hour block average of temperature and deviation reporting.

Section B.1: Maximum Uncontrolled Emissions (under normal operating conditions)

Maximum Uncontrolled Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless operating capacity and/or hours of operation are specifically limited in an enforceable permit. (Existing limits on operating conditions, not emissions or use of a control device, may be used when determining uncontrolled emissions.) Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Emissions≥ 0.01 ton/yr from a specific emission unit must be included. Please do not change the column widths on this table.

Emission Point ID	TSP[1] (PM)		PM-10[1]		PM-2.5[1]		SO_2		NOx		CO		VOC		TRS[2]		Lead		Total HAPs	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
AA-102	0.75	3.29	0.25	1.10	0.06	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-101	0.04	0.19	0.02	0.09	0.01	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	82.68	362.13	82.68	362.13	71.13	311.54	4.14	18.13	38.65	169.30	100.98	442.28	10.31	45.14	-	-	0.01	0.03	6.60	28.92
AA-203b	18.48	0.46	16.50	0.41	14.19	0.35	0.83	0.02	7.26	0.18	19.80	0.50	0.56	0.01	-	-	-	-	1.31	0.03
AA-203c	5.45	1.36	4.79	1.20	4.13	1.03	0.41	0.10	3.63	0.91	9.90	2.48	0.28	0.07	-	-	-	-	0.66	0.16
AA-204b	50.91	1.27	50.91	1.27	50.91	1.27	-	-	62.48	1.56	81.00	2.02	108.77	2.72	-	-	-	-	9.75	0.24
AA-302	0.19	0.84	0.19	0.84	0.19	0.84	-	-	-	-	-	-	1.48	6.50	-	-	-	-	0.29	1.27
AA-303	0.52	2.27	0.52	2.27	0.38	1.68	-	-	-	-	-	-	30.37	133.04	-	-	-	-	0.78	3.44
AA-307A	0.13	0.58	0.13	0.58	0.11	0.50	-	-	-	-	-	-	8.84	38.72	-	-	-	-	0.17	0.73
AA-307B	0.13	0.58	0.13	0.58	0.11	0.50	-	-	-	-	-	-	8.84	38.72	-	-	-	-	0.17	0.73
AA-307C	0.13	0.58	0.13	0.58	0.11	0.50	-	-	-	-	-	-	8.84	38.72	-	-	-	-	0.17	0.73
AA-305	0.19	0.84	0.19	0.84	0.19	0.84	-	-	-	-	-	-	1.32	6.46	-	-	-	-	0.26	1.25
AA-306	0.19	0.84	0.19	0.84	0.19	0.84	-	-	-	-	-	-	1.32	6.46	-	-	-	-	0.26	1.25
AA-308A	0.25	1.11	0.25	1.11	0.20	0.88	-	-	-	-	-	-	21.26	93.13	-	-	-	-	0.09	0.41
AA-308B	0.25	1.11	0.25	1.11	0.20	0.88	-	-	-	-	-	-	21.26	93.13	-	-	-	-	0.09	0.41
AA-308C	0.25	1.11	0.25	1.11	0.20	0.88	-	-	-	-	-	-	21.26	93.13	-	-	-	-	0.09	0.41
AA-308D	0.25	1.11	0.25	1.11	0.20	0.88	-	-	-	-	-	-	21.26	93.13	-	-	-	-	0.09	0.41
AA-308E	0.25	1.11	0.25	1.11	0.20	0.88	-	-	-	-	-	-	21.26	93.13	-	-	-	-	0.09	0.41
AA-308F	0.25	1.11	0.25	1.11	0.20	0.88	-	-	-	-	-	-	21.26	93.13	-	-	-	-	0.09	0.41
AA-301	0.10	0.46	0.10	0.46	0.10	0.46	0.01	0.04	1.37	6.01	1.15	5.05	0.08	0.33	-	-	0.00	0.00	0.03	0.11
AA-309	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-	-	-	1.11	4.86	-	-	-	-	0.22	0.95
AA-401B	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-	-	-	1.11	4.86	-	-	-	-	0.22	0.95
AA-401C	0.96	4.20	0.96	4.20	0.96	4.20	-	-	-	-	-	-	2.65	11.61	-	-	-	-	0.05	0.23
AA-401D	0.17	0.74	0.17	0.74	0.13	0.55	-	-	-	-	-	-	2.21	9.67	-	-	-	-	0.43	1.91
Truck Dump	0.01	0.02	0.01	0.01	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	0.66	2.87	0.66	2.87	0.16	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	0.08	0.00	0.08	0.00	0.08	0.00	0.51	0.03	1.65	0.08	1.67	0.08	1.65	0.08	-	-	-	-	0.01	0.00
AA-502	0.13	0.01	0.13	0.01	0.13	0.01	0.82	0.04	2.64	0.13	2.31	0.12	2.64	0.13	-	-	-	-	0.01	0.00
AA-304	0.01	0.04	0.01	0.04	0.00	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	**163.49**	**390.57**	**160.33**	**388.07**	**144.54**	**331.74**	**6.72**	**18.36**	**117.68**	**178.17**	**216.81**	**452.53**	**319.94**	**906.88**	**-**	**-**	**0.01**	**0.03**	**21.93**	**45.36**

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations for PM-10 and PM-2.5, but not for TSP (PM).

[2] **TRS:** Total reduced sulfur (TRS) is the sum of the sulfur compounds hydrogen sulfide (H_2S), methyl mercaptan (CH_4S), dimethyl sulfide (C_2H_6S), and dimethyl disulfide ($C_2H_6S_2$).

Section B.2: Proposed Allowable Emissions

Proposed Allowable Emissions (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Emissions ≥ 0.01 ton/yr from a specific emission unit must be included. Additional columns may be added if there are regulated pollutants (other than HAPs and GHGs) emitted at the facility. List HAPs in Section B.3 and GHGs in Section B.4 (if applicable).

Emission Point ID	TSP[1]		PM10[1]		PM2.5[1]		SO_2		NOx		CO		VOC		TRS		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
AA-102	0.04	0.16	0.01	0.05	0.003	0.01	-	-	-	-	-	-	-	-	-	-	-	-
AA-101	0.04	0.19	0.02	0.09	0.005	0.02	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	3.68	16.12	3.68	16.12	3.68	16.12	11.58	50.70	20.61	90.29	43.23	189.36	10.31	45.14	-	-	1.00E-04	1.00E-03
AA-203b	18.48	0.46	16.50	0.41	14.19	0.35	0.83	0.02	7.26	0.18	19.80	0.50	0.56	0.01	-	-	-	-
AA-203c	5.45	1.36	4.79	1.20	4.13	1.03	0.41	0.10	3.63	0.91	9.90	2.48	0.28	0.07	-	-	-	-
AA-204b	50.91	1.27	50.91	1.27	50.91	1.27	-	-	62.48	1.56	81.00	2.02	108.77	2.72	-	-	-	-
AA-302	0.19	0.84	0.19	0.84	0.19	0.84	-	-	-	-	-	-	1.48	6.50	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-307C	Emissions captured under the RCO																	
AA-305	0.19	0.84	0.19	0.84	0.19	0.84	-	-	-	-	-	-	1.32	6.46	-	-	-	-
AA-306	0.19	0.84	0.19	0.84	0.19	0.84	-	-	-	-	-	-	1.32	6.46	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	2.78	12.19	1.52	6.65	0.94	4.12	0.01	0.03	0.93	4.06	12.32	53.97	8.58	37.58	-	-	2.47E-08	1.08E-07
AA-309	0.0001	0.0002	0.0001	0.0002	0.0001	0.0002	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-	-	-	1.11	4.86	-	-	-	-
AA-401B	0.04	0.17	0.04	0.17	0.04	0.17	-	-	-	-	-	-	1.11	4.86	-	-	-	-
AA-401C	0.96	4.20	0.96	4.20	0.96	4.20	-	-	-	-	-	-	2.65	11.61	-	-	-	-
AA-401D	0.17	0.74	0.17	0.74	0.17	0.74	-	-	-	-	-	-	2.21	9.67	-	-	-	-
Truck Dump	0.01	0.04	0.01	0.04	0.001	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	0.66	2.87	0.66	2.87	0.16	0.71	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	0.08	0.004	0.08	0.004	0.08	0.004	0.51	0.03	1.65	0.08	1.67	0.08	1.65	0.08	-	-	-	-
AA-502	0.13	0.007	0.13	0.007	0.13	0.007	0.82	0.04	2.64	0.13	2.31	0.12	2.64	0.13	-	-	-	-
AA-304	0.01	0.04	0.001	0.006	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	**84.05**	**42.52**	**80.09**	**36.52**	**76.00**	**31.46**	**14.16**	**50.92**	**99.20**	**97.21**	**170.23**	**248.53**	**143.99**	**136.15**	**-**	**-**	**1.00E-04**	**1.00E-03**

[1] **Condensables:** Include condensable particulate matter emissions in particulate matter calculations for PM-10 and PM-2.5, but not for TSP (PM).

[2] **TRS:** Total reduced sulfur (TRS) is the sum of the sulfur compounds hydrogen sulfide (H_2S), methyl mercaptan (CH_4S), dimethyl sulfide (C_2H_6S), and dimethyl disulfide ($C_2H_6S_2$).

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an individual HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Total HAPs		Acetaldehyde		Acrolein		Benzene (including benzene from gasoline)		Carbon tetrachloride		Chlorine (non-voc)		Chlorobenzene		Chloroform		Ethyl benzene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	**2.40**	**10.67**	0.35	1.54	0.15	0.65	0.05	0.21	0.0010	0.030	0.01	0.04	0.0004	0.002	0.0003	0.001	0.0004	0.002
AA-203b	**1.25**	**0.03**	2.74E-02	-	1.32E-01	3.30E-03	1.39E-01	3.47E-03	-	-	2.61E-02	6.52E-04	-	-	-	-	-	-
AA-203c	**0.63**	**0.16**	1.37E-02	3.42E-03	6.60E-02	1.65E-02	6.93E-02	1.73E-02	7.43E-04	1.86E-04	1.30E-02	3.26E-03	5.45E-04	1.36E-04	4.62E-04	1.16E-04	5.12E-04	1.28E-04
AA-204b	**13.51**	**0.23**	1.74	0.04	0.53	0.01	0.18	0.004	-	-	-	-	-	-	-	-	4.00	-
AA-302	**0.28**	**1.28**	0.07	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO		Emissions captured under the RCO															
AA-307A			Emissions captured under the RCO															
AA-307B			Emissions captured under the RCO															
AA-305	**0.27**	**1.25**	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	**0.27**	**1.25**	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO		Emissions captured under the RCO															
AA-308B			Emissions captured under the RCO															
AA-308C			Emissions captured under the RCO															
AA-308D			Emissions captured under the RCO															
AA-308E			Emissions captured under the RCO															
AA-308F			Emissions captured under the RCO															
AA-301	**5.42**	**23.79**	0.26	1.16	0.10	0.44	-	-	-	-	-	-	-	-	-	-	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	**0.22**	**0.95**	0.06	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	**0.22**	**0.95**	0.06	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	**0.05**	**0.23**	0.01	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	**0.43**	**1.91**	0.11	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	**0.00**	**0.00**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	**0.00**	**0.00**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	**24.96**	**42.72**	2.84	4.78	0.98	1.12	0.44	0.23	0.002	0.030	0.05	0.04	0.001	0.002	0.0008	0.001	4.00	0.002

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Formaldehyde		Hexane		Hydrochloric acid (non-voc)		Mercury Compounds (non-voc)		Naphthalene		Phenol		Polycyclic Organic Matter		Propionaldehyde		Styrene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	0.88	3.86	0.03	0.19	0.11	0.49	0.000	0.002	0.001	0.005	0.68	2.99	0.0003	0.001	0.10	0.44	0.02	0.14
AA-203b	0.15	3.63E-03	-	-	0.63	0.02	-	-	3.20E-03	8.00E-05	-	-	-	-	-	-	6.00E-02	1.57E-03
AA-203c	0.07	0.02	-	-	0.31	0.08	5.78E-05	1.44E-05	1.60E-03	4.00E-04	8.42E-04	2.10E-04	4.61E-04	1.15E-04	1.01E-03	2.52E-04	3.14E-02	7.84E-03
AA-204b	3.24	0.08	-	-	-	-	-	-	-	-	0.65	0.02	-	-	0.30	0.01	0.01	0.0002
AA-302	0.14	0.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-305	0.13	0.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	0.13	0.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	0.25	1.09	0.01	0.05	0.06	0.25	-	-	-	-	1.58	6.93	-	-	0.24	1.06	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	0.10	0.45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	0.10	0.45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	0.03	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	0.21	0.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	0.002	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	0.001	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	5.43	8.81	0.04	0.24	1.11	0.84	0.000	0.002	0.006	0.01	2.91	9.94	0.0008	0.001	0.64	1.51	0.12	0.15

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an individual HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Tetrachloroethylene (Perchloroethylene) (non-voc)		Toluene		Trichloroethylene		Xylenes (isomers and mixture)		Arsenic Compounds (inorganic including arsine) (non-voc)		Lead Compounds (non-voc)		Manganese Compounds (non-voc)		Nickel Compounds (non-voc)		Phosphorus	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	4.00E-04	0.002	0.01	0.05	4.00E-04	0.002	3.00E-04	0.001	1.00E-04	3.00E-04	1.00E-04	0.001	0.00	0.02	1.00E-04	0.000	1.00E-04	3.00E-04
AA-203b	-	-	0.03	7.59E-04	-	-	-	-	-	-	-	-	0.05	0.001	-	-	-	-
AA-203c	6.27E-04	1.57E-04	0.015	0.004	4.95E-04	1.24E-04	4.13E-04	1.03E-04	3.63E-04	9.08E-05	7.92E-04	1.98E-04	0.026	0.007	5.45E-04	1.36E-04	4.46E-04	1.11E-04
AA-204b	-	-	0.30	0.01	-	-	0.01	3.00E-04	-	-	-	-	-	-	-	-	-	-
AA-302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	-	-	2.00E-05	1.00E-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	1.03E-03	2.16E-03	0.36	0.06	8.95E-04	2.12E-03	1.07E-02	1.40E-03	4.63E-04	3.91E-04	8.92E-04	1.20E-03	0.08	0.03	6.45E-04	2.36E-04	5.46E-04	4.11E-04

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Methanol																	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-203b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-203c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-204b	2.55	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-302	0.07	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-305	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	2.92	12.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	0.06	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	0.06	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	0.01	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	0.11	0.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	5.92	14.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

FORM 5	MDEQ	MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY APPLICATION FOR AIR POLLUTION CONTROL PERMIT

Recordkeeping **Section M8**

1. Applicable Emission Point Description

A. Emission Point Designation (Ref. No.): AA-201

B. Emission Point Description: WESP - RTO Control System

C. For what emission limit or standard does the recordkeeping demonstrate compliance?

Secondary Voltage

D. Is there an applicable underlying requirement for the recordkeeping?

[X] Yes [ ] No

If yes, what is that requirement (e.g., NSPS Subpart QQ, Permit to Construct issued…....., etc.)?

Condition 5.14 - Permit to Construct No. 0080-00031 issued March 9, 2021

2. Recordkeeping Information

A. Data/information recorded:

Parameter/Material	Units	Recordkeeping Frequency	Sampling and analysis method (e.g., EPA Method 24)
Secondary Voltage	Volts	3-hour block average	Continuously monitor & record the secondary voltage. Should secondary voltage decrease below manufacturer's specifications/ established limits, then one hour will be allowed for the facility to restore secondary voltage above limit. If secondary voltage remains below the established limit for over one hour, then this will be defined as a deviation and will be reported accordingly.

B. Compliance is determined:

[ ] Daily [ ] Weekly [ ] Monthly

[X] Other: As required based on the above.

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Chip Dryer/Biomass Furnace System	RTO	AA-201

The RTO stack exhausts controlled process VOC and PM emissions from the chip dryer as well as controlled combustion emissions from the biomass furnace. PM emissions are controlled with a wet electrostatic precipitator (WESP). VOC emissions from these sources are controlled by the RTO. Combustion emissions from the RTO's gas burner also exhaust out of the stack.

Operating Data	
Dryer Capacity[1]	467,316 ODT*/yr
Operating hours[1]	8,760 hrs/yr

*ODT = oven dried ton (U.S.) of chips

n-Hexane is only from the RTO Burner 0.19 uncontrolled 0.019 controlled

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
Criteria Pollutants				
$PM_{2.5}$	0.0690 lb/ODT	See Note 7	3.68	16.12
PM	0.0690 lb/ODT	See Note 7	3.68	16.12
SO	0.2170 lb/ODT	See Note 3	11.58	50.70
NOx	0.3864 lb/ODT	See Note 7	20.61	90.29
CO	0.8104 lb/ODT	See Note 7	43.23	189.36
VOC Total	0.1932 lb/ODT	See Note 7	10.31	45.14
Hazardous/Toxic Air Pollutants				
Acetaldehyde	0.0066 lb/ODT	See Note 7	0.352	1.542
Acrolein	0.0028 lb/ODT	See Note 7	0.149	0.654
Benzene	0.0009 lb/ODT	See Note 2	0.049	0.215
Carbon tetrachloride	0.0000 lb/ODT	See	0.001	0.002
Chlorine	0.0002 lb/ODT	See Note 2	0.009	0.040
Chlorobenzene	0.0000 lb/ODT	See Note 2	0.0004	0.002
Chloroform	0.0000 lb/ODT	See Note 2	0.0003	0.001
Chloromethane	0.0000 lb/ODT	See Note 2	0.0003	0.001
1,2-Dibromoethane	0.0000 lb/ODT	See Note 2	0.001	0.003
1,2-Dichloroethane	0.0000 lb/ODT	See Note 2	0.0003	0.001
Dichloromethane	0.0001 lb/ODT	See Note 2	0.003	0.015
1,2-Dichloropropane	0.0000 lb/ODT	See Note 2	0.0004	0.002
Ethyl benzene	0.0000 lb/ODT	See Note 2	0.0004	0.002
Formaldehyde	0.0165 lb/ODT	See Note 7	0.880	3.855
n-Hexane	0.001 lb/ODT		0.0300	0.131
Hydrochloric acid	0.0021 lb/ODT		0.112	0.491
Mercury (and compounds)	7.67E-06 lb/ODT	See Note 2	0.0004	0.002
Methanol	0.0296 lb/ODT	See Note 7	1.579	6.916
Naphthalene (and Methylnaphthalenes)	2.12E-05 lb/ODT	See Note 2	0.001	0.005
Phenol	0.0128 lb/ODT	See Note 7	0.683	2.991
Polynuclear Aromatic Hydrocarbons	6.12E-06 lb/ODT	See Note 2	0.0003	0.001
Proprionaldehyde	0.0019 lb/ODT	See Note 7	0.101	0.444
Styrene	4.16E-04 lb/ODT	See N	0.0222	0.097
Tetrachloroethylene	8.32E-06 lb/ODT	See Note 2	0.0004	0.002
Toluene	2.01E-04 lb/ODT	See Note 2	0.0107	0.047
1,1,1-Trichloroethane	6.79E-06 lb/ODT	See Note 2	0.0004	0.002
Trichloroethylene	6.57E-06 lb/ODT	See Note 2	0.0004	0.002
Trichlorofluoromethane	8.98E-05 lb/ODT	See Note 2	0.0048	0.021
Xylene	5.48E-06 lb/ODT	See Note 2	0.0003	0.001

0.030 tpy

0.19 tpy for NG burner - Uncontrol

0.14 tpy

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Chip Dryer/Biomass Furnace System	RTO	AA-201

The RTO stack exhausts controlled process VOC and PM emissions from the chip dryer as well as controlled combustion emissions from the biomass furnace. PM emissions are controlled with a wet electrostatic precipitator (WESP). VOC emissions from these sources are controlled by the RTO. Combustion emissions from the RTO's gas burner also exhaust out of the stack.

Operating Data	
Dryer Capacity[1]	467,316 ODT*/yr
Operating hours[1]	8,760 hrs/yr

*ODT = oven dried ton (U.S.) of chips

Hazardous/Toxic Air Pollutants				
Arsenic (and compounds)	1.20E-06 lb/ODT	See Note 2	0.0001	0.0003
Barium (and compounds)	9.31E-06 lb/ODT	See Note 2	0.0005	0.0022
Copper (and compounds)	2.68E-06 lb/ODT	See Note 2	0.0001	0.0006
Lead Compounds	2.63E-06 lb/ODT	See Note 2	0.0001	0.0006
Manganese (and compounds)	8.76E-05 lb/ODT	See Note 2	0.0047	0.0205
Nickel (and compounds)	1.81E-06 lb/ODT	See Note 2	0.0001	0.0004
Phosphorus	1.48E-06 lb/ODT	See Note 2	0.0001	0.0003
Zinc (and compounds)	2.30E-05 lb/ODT	See Note 2	0.0012	0.0054
		Total HAP Emissions	**4.00**	**17.52**
Greenhouse Gas Emissions				
CO e	-	See Note 2	-	12,312

REFERENCE/NOTES

1. Based on production information provided Josh Jones (Drax Biomass) to Sharon Killian (Trinity) via email.

2. Emissions are the sum from the following individual components: Biomass furnace combustion of wood product and RTO burner combustion of natural gas. Calculation of individual components are attached. Note that biogenic emissions have not been included.

3. SO_2 emission rates are based on the results of February 2016 stack testing at a sister facility (Drax Morehouse BioEnergy). Note that due to high variance in the three tests conducted for SO_2, Drax has chosen the highest reported hourly emissions as a conservative estimate. These emissions have also been scaled up to account for a 25% safety factor. Therefore, the new lb/ODT for these pollutants has been calculated based on the annual PTE after scaling up.

4. $PM_{10/2.5}$ emissions are based on a March 2019 engineering test at a sister facility (Drax Morehouse BioEnergy). These emissions have been scaled up to account for a 25% safety factor. Therefore, the new lb/ODT for these pollutants has been calculated based on the annual PTE after scaling up.

5. CO and NO_x emissions are based on a December 2015 stack test for the RTO stack. These emissions have been scaled up to account for a 25% safety factor. Therefore, the new lb/ODT for these pollutants has been calculated based on the annual PTE after scaling up.

6. VOC and Formaldehyde emissions are based on stack testing performed at the site in November 2018. A 25% safety factor has been added to the test results for conservatism. Stack testing emissions account for an effective RTO control efficiency of 90%. Therefore, the new lb/ODT for these pollutants has been calculated based on the annual PTE after scaling up.

7. From July 2021 Performance Test.

Note 2 - Does not included any emissions from drying of wood. Only emissions from the furnace and RTO Burner.

All Note 2 emissions do not compare to the Furnace emission.
For example Benzene is 0.30 tpy for the furnace
Styrene is 0.14 tpy

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	EMISSION POINT ID	Emissions Point ID
By-pass During Furnace Startup/Shutdown	Furnace SUSD Bypass Stack	AA-203b

Operating Data		
Furnace capacity[1]	33.0	MMBtu/hr
RTO control efficiency[2]	0.0	%
Operating hours[1]	50	hrs/yr

Why not PM, SO2, NOx

Emission Totals:				
Pollutant	Emission Factor	Reference	Emission Rates[3,4] PTE (lb/hr)	Annual (tons/yr)
Criteria Pollutants				
CO	0.60 lb/MMBtu	AP-42; Table 1.6-2	19.80	0.50
VOC Total	0.017 lb/MMBtu	AP-42; Table 1.6-3	0.56	0.01
Hazardous/Toxic Air Pollutants				
Acetaldehyde	0.00083 lb/MMBtu	AP-42; Table 1.6-3	*0.03*	0.0007
Acrolein	0.004 lb/MMBtu	AP-42; Table 1.6-3	*0.13*	0.0033
Benzene	0.0042 lb/MMBtu	AP-42; Table 1.6-3	*0.14*	0.0035
Carbon tetrachloride	0.000045 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Chlorine	0.00079 lb/MMBtu	AP-42; Table 1.6-3	*0.03*	0.0007
Chlorobenzene	0.000033 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Chloroform	0.000028 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Chloromethane	0.000023 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
1,2-Dibromoethane	0.000055 lb/MMBtu	AP-42; Table 1.6-3	*0.002*	0.0000
1,2-Dichloroethane	0.000029 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Dichloromethane	0.00029 lb/MMBtu	AP-42; Table 1.6-3	*0.01*	0.0002
1,2-Dichloropropane	0.000033 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Ethylbenzene	0.000031 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Formaldehyde	0.0044 lb/MMBtu	AP-42; Table 1.6-3	*0.15*	0.0036
Hydrochloric acid*	0.019 lb/MMBtu	AP-42; Table 1.6-3	*0.63*	0.0157
Mercury (and compounds)	0.0000035 lb/MMBtu	AP-42; Table 1.6-4	*1.16E-04*	0.0000
Naphthalene	0.000097 lb/MMBtu	AP-42; Table 1.6-3	*0.003*	0.0001
Phenol	0.000051 lb/MMBtu	AP-42; Table 1.6-3	*0.002*	0.0000
Polynuclear Aromatic Hydrocarbons	See Below	See Below	*9.23E-04*	0.0000
Propionaldehyde	0.000061 lb/MMBtu	AP-42; Table 1.6-3	*0.002*	0.0001
Styrene	0.0019 lb/MMBtu	AP-42; Table 1.6-3	*0.06*	0.0016
Tetrachloroethane	0.000038 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Toluene	0.00092 lb/MMBtu	AP-42; Table 1.6-3	*0.03*	0.0008
1,1,1-Trichloroethane	0.000031 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Trichloroethylene	0.00003 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Trichlorofluoromethane	0.00041 lb/MMBtu	AP-42; Table 1.6-3	*0.01*	0.0003
Xylene	0.000025 lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0000
Arsenic	0.000022 lb/MMBtu	AP-42; Table 1.6-4	*0.001*	0.0000
Barium	0.00017 lb/MMBtu	AP-42; Table 1.6-4	*0.01*	0.0001
Copper	0.000049 lb/MMBtu	AP-42; Table 1.6-4	*0.002*	0.0000
Lead	0.000048 lb/MMBtu	AP-42; Table 1.6-4	*0.002*	0.0000
Manganese	0.0016 lb/MMBtu	AP-42; Table 1.6-4	*0.05*	0.0013
Nickel	0.000033 lb/MMBtu	AP-42; Table 1.6-4	*0.001*	0.0000
Phosphorus	0.000027 lb/MMBtu	AP-42; Table 1.6-4	*0.001*	0.0000
Zinc (and compounds)	0.00042 lb/MMBtu	AP-42; Table 1.6-4	*0.01*	0.0003

All check out

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	EMISSION POINT ID	Emissions Point ID
By-pass During Furnace Startup/Shutdown	Furnace SUSD Bypass Stack	AA-203b

Operating Data		
Furnace capacity[1]	33.0	MMBtu/hr
RTO control efficiency[2]	0.0	%
Operating hours[1]	50	hrs/yr

Polynuclear Aromatic Hydrocarbons Emissions:

Pollutant	Emission Factor		Reference	Emission Rates[3,4] PTE (lb/hr)	Emission Rates[3,4] Annual (tons/yr)
Acenaphthene	9.1E-07	lb/MMBtu	AP-42; Table 1.6-1	*3.00E-05*	7.51E-07
Acenaphthylene	5.0E-06	lb/MMBtu	AP-42; Table 1.6-1	*1.65E-04*	4.13E-06
Acetophenone	3.2E-09	lb/MMBtu	AP-42; Table 1.6-2	*1.06E-07*	2.64E-09
Anthracene	3.0E-06	lb/MMBtu	AP-42; Table 1.6-2	*9.90E-05*	2.48E-06
Benzo(a)anthracene	6.5E-08	lb/MMBtu	AP-42; Table 1.6-2	*2.15E-06*	5.36E-08
Benzo(a)pyrene	2.6E-06	lb/MMBtu	AP-42; Table 1.6-3	*8.58E-05*	2.15E-06
Benzo(b)fluoranthene	1.0E-07	lb/MMBtu	AP-42; Table 1.6-3	*3.30E-06*	8.25E-08
Benzo(e)pyrene	2.6E-09	lb/MMBtu	AP-42; Table 1.6-3	*8.58E-08*	2.15E-09
Benzo(g,h,i)perylene	9.3E-08	lb/MMBtu	AP-42; Table 1.6-3	*3.07E-06*	7.67E-08
Benzo(j,k)fluoranthene	1.6E-07	lb/MMBtu	AP-42; Table 1.6-3	*5.28E-06*	1.32E-07
Benzo(k)fluoranthene	3.6E-08	lb/MMBtu	AP-42; Table 1.6-3	*1.19E-06*	2.97E-08
2-Chloronaphthalene	2.4E-09	lb/MMBtu	AP-42; Table 1.6-3	*7.92E-08*	1.98E-09
Chrysene	3.8E-08	lb/MMBtu	AP-42; Table 1.6-3	*1.25E-06*	3.14E-08
Dibenzo(a,h)anthracene	9.1E-09	lb/MMBtu	AP-42; Table 1.6-3	*3.00E-07*	7.51E-09
Fluoranthene	1.6E-06	lb/MMBtu	AP-42; Table 1.6-3	*5.28E-05*	1.32E-06
Fluorene	3.4E-06	lb/MMBtu	AP-42; Table 1.6-3	*1.12E-04*	2.81E-06
Indeno(1,2,3,c,d)pyrene	8.7E-08	lb/MMBtu	AP-42; Table 1.6-3	*2.87E-06*	7.18E-08
2-Methylnaphthalene	1.6E-07	lb/MMBtu	AP-42; Table 1.6-3	*5.28E-06*	1.32E-07
Perylene	5.2E-10	lb/MMBtu	AP-42; Table 1.6-3	*1.72E-08*	4.29E-10
Phenanthrene	7.0E-06	lb/MMBtu	AP-42; Table 1.6-3	*2.31E-04*	5.78E-06
Pyrene	3.7E-06	lb/MMBtu	AP-42; Table 1.6-3	*1.22E-04*	3.05E-06
Total				*0.0009*	2.31E-05

REFERENCE/NOTES

1. Conservative assumption. Furnace capacity during startup-shutdown operations is estimated to be no more than 20% (33 MMbtu/hr) of furnace max firing rate while also being no less than 10% (16.5 MMBtu/hr) of furnace max firing rate (165 MMBtu/hr).

2. RTO is assumed to be down for maintenance.

3. $ER_{avg/max}$ (lb/hr) = Furnace capacity (MMBtu/hr) x EF (lb/MMBtu) x((100-Control factor)/100)
   ER_{ann} (tons/yr) = (ER_{avg} (lbs/hr) x Operating Time (hrs))/2000 lbs/ton

4. CO, and VOC, and HAP emissions are included because these two pollutants are specifically controlled by the RTO. GHG pollutants are expected to have higher emissions during normal operations due to higher furnace capacity, and those emissions have already been included under the RTO emissions point ID (AA-201).

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	EMISSION POINT ID	Emissions Point ID
By-pass During Furnace Idling	Furnace Idling Bypass Stack	AA-203c

Operating Data		
Furnace capacity[1]	16.5	MMBtu/hr
RTO control efficiency[2]	0.0	%
Operating hours[1]	500	hrs/yr

What about PM, SO2, and NOx

Emission Totals:					
Pollutant	Emission Factor		Reference	Emission Rates[3,4] PTE (lb/hr)	Annual (tons/yr)
Criteria Pollutants					
CO	0.60	lb/MMBtu	AP-42; Table 1.6-2	9.90	2.48
VOC Total	0.017	lb/MMBtu	AP-42; Table 1.6-3	0.28	0.07
Hazardous/Toxic Air Pollutants					
Acetaldehyde	0.00083	lb/MMBtu	AP-42; Table 1.6-3	*0.01*	0.0034
Acrolein	0.004	lb/MMBtu	AP-42; Table 1.6-3	*0.07*	0.0165
Benzene	0.0042	lb/MMBtu	AP-42; Table 1.6-3	*0.07*	0.0173
Carbon tetrachloride	0.000045	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0002
Chlorine	0.00079	lb/MMBtu	AP-42; Table 1.6-3	*0.01*	0.0033
Chlorobenzene	0.000033	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0001
Chloroform	0.000028	lb/MMBtu	AP-42; Table 1.6-3	*0.000*	0.0001
Chloromethane	0.000023	lb/MMBtu	AP-42; Table 1.6-3	*0.000*	0.0001
1,2-Dibromoethane	0.000055	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0002
1,2-Dichloroethane	0.000029	lb/MMBtu	AP-42; Table 1.6-3	*0.000*	0.0001
Dichloromethane	0.00029	lb/MMBtu	AP-42; Table 1.6-3	*0.00*	0.0012
1,2-Dichloropropane	0.000033	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0001
Ethylbenzene	0.000031	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0001
Formaldehyde	0.0044	lb/MMBtu	AP-42; Table 1.6-3	*0.07*	0.0182
Hydrochloric acid*	0.019	lb/MMBtu	AP-42; Table 1.6-3	*0.31*	0.0784
Mercury (and compounds)	0.0000035	lb/MMBtu	AP-42; Table 1.6-4	*5.78E-05*	0.0000
Naphthalene	0.000097	lb/MMBtu	AP-42; Table 1.6-3	*0.002*	0.0004
Phenol	0.000051	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0002
Polynuclear Aromatic Hydrocarbons	See Below		See Below	*4.61E-04*	0.0001
Propionaldehyde	0.000061	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0003
Styrene	0.0019	lb/MMBtu	AP-42; Table 1.6-3	*0.03*	0.0078
Tetrachloroethane	0.000038	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0002
Toluene	0.00092	lb/MMBtu	AP-42; Table 1.6-3	*0.02*	0.0038
1,1,1-Trichloroethane	0.000031	lb/MMBtu	AP-42; Table 1.6-3	*0.001*	0.0001
Trichloroethylene	0.00003	lb/MMBtu	AP-42; Table 1.6-3	*0.000*	0.0001
Trichlorofluoromethane	0.00041	lb/MMBtu	AP-42; Table 1.6-3	*0.01*	0.0017
Xylene	0.000025	lb/MMBtu	AP-42; Table 1.6-3	*0.000*	0.0001
Arsenic	0.000022	lb/MMBtu	AP-42; Table 1.6-4	*0.000*	0.0001
Barium	0.00017	lb/MMBtu	AP-42; Table 1.6-4	*0.00*	0.0007
Copper	0.000049	lb/MMBtu	AP-42; Table 1.6-4	*0.001*	0.0002
Lead	0.000048	lb/MMBtu	AP-42; Table 1.6-4	*0.001*	0.0002
Manganese	0.0016	lb/MMBtu	AP-42; Table 1.6-4	*0.03*	0.0066
Nickel	0.000033	lb/MMBtu	AP-42; Table 1.6-4	*0.001*	0.0001
Phosphorus	0.000027	lb/MMBtu	AP-42; Table 1.6-4	*0.000*	0.0001
Zinc (and compounds)	0.00042	lb/MMBtu	AP-42; Table 1.6-4	*0.01*	0.0017

All check out

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	EMISSION POINT ID	Emissions Point ID
By-pass During Furnace Idling	Furnace Idling Bypass Stack	AA-203c

Operating Data		
Furnace capacity[1]	16.5	MMBtu/hr
RTO control efficiency[2]	0.0	%
Operating hours[1]	500	hrs/yr

Polynuclear Aromatic Hydrocarbons Emissions:

Pollutant	Emission Factor		Reference	Emission Rates[3,4] Avg (lb/hr)	Annual (tons/yr)
Acenaphthene	9.1E-07	lb/MMBtu	AP-42; Table 1.6-1	*1.50E-05*	3.75E-06
Acenaphthylene	5.0E-06	lb/MMBtu	AP-42; Table 1.6-1	*8.25E-05*	2.06E-05
Acetophenone	3.2E-09	lb/MMBtu	AP-42; Table 1.6-2	*5.28E-08*	1.32E-08
Anthracene	3.0E-06	lb/MMBtu	AP-42; Table 1.6-2	*4.95E-05*	1.24E-05
Benzo(a)anthracene	6.5E-08	lb/MMBtu	AP-42; Table 1.6-2	*1.07E-06*	2.68E-07
Benzo(a)pyrene	2.6E-06	lb/MMBtu	AP-42; Table 1.6-3	*4.29E-05*	1.07E-05
Benzo(b)fluoranthene	1.0E-07	lb/MMBtu	AP-42; Table 1.6-3	*1.65E-06*	4.13E-07
Benzo(e)pyrene	2.6E-09	lb/MMBtu	AP-42; Table 1.6-3	*4.29E-08*	1.07E-08
Benzo(g,h,i)perylene	9.3E-08	lb/MMBtu	AP-42; Table 1.6-3	*1.53E-06*	3.84E-07
Benzo(j,k)fluoranthene	1.6E-07	lb/MMBtu	AP-42; Table 1.6-3	*2.64E-06*	6.60E-07
Benzo(k)fluoranthene	3.6E-08	lb/MMBtu	AP-42; Table 1.6-3	*5.94E-07*	1.49E-07
2-Chloronaphthalene	2.4E-09	lb/MMBtu	AP-42; Table 1.6-3	*3.96E-08*	9.90E-09
Chrysene	3.8E-08	lb/MMBtu	AP-42; Table 1.6-3	*6.27E-07*	1.57E-07
Dibenzo(a,h)anthracene	9.1E-09	lb/MMBtu	AP-42; Table 1.6-3	*1.50E-07*	3.75E-08
Fluoranthene	1.6E-06	lb/MMBtu	AP-42; Table 1.6-3	*2.64E-05*	6.60E-06
Fluorene	3.4E-06	lb/MMBtu	AP-42; Table 1.6-3	*5.61E-05*	1.40E-05
Indeno(1,2,3,c,d)pyrene	8.7E-08	lb/MMBtu	AP-42; Table 1.6-3	*1.44E-06*	3.59E-07
2-Methylnaphthalene	1.6E-07	lb/MMBtu	AP-42; Table 1.6-3	*2.64E-06*	6.60E-07
Perylene	5.2E-10	lb/MMBtu	AP-42; Table 1.6-3	*8.58E-09*	2.15E-09
Phenanthrene	7.0E-06	lb/MMBtu	AP-42; Table 1.6-3	*1.16E-04*	2.89E-05
Pyrene	3.7E-06	lb/MMBtu	AP-42; Table 1.6-3	*6.11E-05*	1.53E-05
Total				*0.0005*	1.15E-04

REFERENCE/NOTES

1. Conservative assumption. Furnace capacity during idling was previously permitted for 5 MMbtu/hr. Drax is requesting that this capacity be updated to be no more than 10% (16.5 MMBtu/hr) of furnace max firing rate (165 MMBtu/hr).

2. RTO is assumed to be down for maintenance.

3. $ER_{avg/max}$ (lb/hr) = Furnace capacity (MMBtu/hr) x EF (lb/MMBtu) x((100-Control factor)/100)

   ER_{ann} (tons/yr) = (ER_{avg} (lbs/hr) x Operating Time (hrs))/2000 lbs/ton

4. CO, and VOC, and HAP emissions are included because these two pollutants are specifically controlled by the RTO. GHG pollutants are expected to have higher emissions during normal operations due to higher furnace capacity, and those emissions have already been included under the RTO emissions point ID (AA-201).

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
By-pass During Dryer Startup/Shutdown	Dryer SUSD Bypass Stack	AA-204b

The RTO stack exhausts controlled process VOC and PM emissions from the chip dryer as well as controlled combustion emissions from the biomass furnace. PM emissions are controlled with a wet electrostatic precipitator (WESP). VOC emissions from these sources are controlled by the RTO. Com burner also exhaust out of the stack.

Based on AP-42 10.6.2 the dryer emits no SO2. Recommend not including it, since accounted for in the furnace emission factor of 0.025 lb/MMBTU (0.225 lb/ODT).

Operating Data	
Dryer Capacity[1]	23 ODT*/hr
Operating hours[1]	50 hrs/yr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates Hourly (lb/hr)	Emission Rates Annual (tons/yr)
Criteria Pollutants				
$PM_{2.5}$	2.20 lb/ODT	See Note 2	50.91	1.27
PM	2.20 lb/ODT	See Note 2	50.91	1.27
~~SO~~	~~0.15 lb/ODT~~	~~See Note 3~~	~~3.47~~	~~0.09~~
NOx	2.70 lb/ODT	See Note 2	62.48	1.56
CO	3.50 lb/ODT	See Note 2	81.00	2.02
VOC Total	4.70 lb/ODT	See Note 2	108.77	2.72
Hazardous/Toxic Air Pollutants				
Acetaldehyde	0.08 lb/ODT	See Note 4	1.74	0.04
Acrolein	2.30E-02 lb/ODT	See Note 4	0.53	0.01
Benzene	7.60E-03 lb/ODT	See Note 4	0.18	0.00
Cumene	2.00E-03 lb/ODT	See Note 4	0.05	0.00
Formaldehyde	0.140 lb/ODT	See Note 4	3.24	0.08
Methylene Chloride	1.80E-03 lb/ODT	See Note 4	0.04	0.001
Methanol	0.110 lb/ODT	See Note 4	2.55	0.06
Methyl Isobutyl Ketone	6.90E-03 lb/ODT	See Note 4	0.16	0.004
Phenol	2.80E-02 lb/ODT	See Note 4	0.65	0.02
Proprionaldehyde	1.30E-02 lb/ODT	See Note 4	0.30	0.01
Styrene	3.60E-04 lb/ODT	See Note 4	0.01	0.00
Toluene	1.30E-02 lb/ODT	See Note 4	0.30	0.01
Xylene	4.80E-04 lb/ODT	See Note 4	0.01	0.00
		Total HAP Emissions	**9.75**	**0.24**

REFERENCE/NOTES

1. Based on dryer feed rate information provided Josh Jones (Drax Biomass) to Sharon Killian (Trinity) via email on December 14, 2021. At 25% feed rate, the capacity is 16.53 ODT/hr. therefore, at 35% feed rate, the capacity is calaculated as 23 ODT/hr.

2. Emission factors for PM, CO, VOC, and NOx are based on AP-42 Chapter 10.6. Emissions have been conserv atively estimated based on SCC 3-07-006-25 assuming inlet moisture content > 50%, dry basis.

3. SO_2 emission rates are based on the results of February 2016 stack testing at a sister facility (Drax Morehouse BioEnergy). Note that due to high variance in the three tests conducted for SO_2, Drax has chosen the highest reported hourly emissions as a conservative estimate. These emissions have also been scaled up to account for a 25% safety factor. Therefore, the new lb/ODT for these pollutants has been calculated based on the annual PTE after scaling up.

4. HAP emissions are based on AP-42 Chapter 10.6, Table 10.6.2-3. Emissions have been conservatively estimated based on SCC 3-07-006-25 assuming inlet moisture content > 50%, dry basis. GHG pollutants are expected to have higher emissions during normal operations due to higher furnace capacity, and those emissions have already been included under the RTO emissions point ID (AA-201).

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emission Point ID
Pellet Coolers, Pellet Mills, Secondary Hammermills, and RCO Burner	RCO	AA-301

The RCO stack will exhaust controlled process VOC emissions from the dry primary hammermills, secondary hammermills, and pellet coolers Combustion emissions from the RCO's gas burner will also exhaust out of the RCO stack.

Operating Data		
Facility Capacity[1]	624,700	ODT*/yr
Hourly Throughput	71.31	ODT*/hr
RCO VOC Control Efficiency	95	%
RCO HAP Control Efficiency	50	%
Operating hours[1]	8,760	hrs/yr

*ODT = oven dried ton (U.S.) of chips

RCO Burner has 0.04 tpy

Emission Totals:				
Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
Criteria Pollutants				
$PM_{2.5}$	0.0132 lb/ODT	July 2021 Performance Test Data	0.94	4.12
PM	0.0213 lb/ODT	July 2021 Performance Test Data	1.52	6.65
SO	0.0001 lb/ODT		0.01	0.031
NOx	0.0130 lb/ODT	July 2021 Performance Test Data	0.93	4.06
CO	0.1728 lb/ODT	July 2021 Performance Test Data	12.32	53.97
VOC Total	0.1203 lb/ODT	July 2021 Performance Test Data	8.58	37.58
Hazardous/Toxic Air Pollutants				
Methanol	0.0410 lb/ODT	July 2021 Performance Test Data	2.924	12.806
Formaldehyde	0.0035 lb/ODT	July 2021 Performance Test Data	0.250	1.093
Acetaldehyde	0.0037 lb/ODT	July 2021 Performance Test Data	0.264	1.156
2-Methylnaphthalene	2.40E-05 $lb/10^6$ scf	See Note 4	1.65E-07	7.21E-07
3-Methylchloranthene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05 $lb/10^6$ scf	See Note 4	1.10E-07	4.81E-07
Acenaphthene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
Acenaphthylene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
Acrolein	0.0014 lb/ODT	July 2021 Performance Test Data	0.100	0.437
Anthracene	2.40E-06 $lb/10^6$ scf	See Note 4	1.65E-08	7.21E-08
Arsenic	2.00E-04 $lb/10^6$ scf	See Note 4	2.75E-06	1.20E-05
Benz(a)anthracene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
Benzene	2.10E-03 $lb/10^6$ scf	See Note 4	1.44E-05	6.31E-05
Benzo(a)pyrene	1.20E-06 $lb/10^6$ scf	See Note 4	8.24E-09	3.61E-08
Benzo(b)fluoranthene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
Benzo(g,h,i)perylene	1.20E-06 $lb/10^6$ scf	See Note 4	8.24E-09	3.61E-08
Benzo(k)fluoranthene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
Beryllium	1.20E-05 $lb/10^6$ scf	See Note 4	1.65E-07	7.21E-07
Cadmium	1.10E-03 $lb/10^6$ scf	See Note 4	1.51E-05	6.61E-05
Chromium VI	1.40E-03 $lb/10^6$ scf	See Note 4	1.92E-05	8.42E-05
Chrysene	1.80E-06 $lb/10^6$ scf	See Note 4	1.24E-08	5.41E-08
Cobalt	8.40E-05 $lb/10^6$ scf	See Note 4	1.15E-06	5.05E-06
Dibenzo(a,h)anthracene	1.20E-06 $lb/10^6$ scf	See Note 4	8.24E-09	3.61E-08
Dichlorobenzene	1.20E-03 $lb/10^6$ scf	See Note 4	8.24E-06	3.61E-05
Fluoranthene	3.00E-06 $lb/10^6$ scf	See Note 4	2.06E-08	9.02E-08
Indeno(1,2,3-cd)pyrene	2.80E-06 $lb/10^6$ scf	See Note 4	1.92E-08	8.42E-08
Lead	1.80E-06 $lb/10^6$ scf	See Note 4	2.47E-08	1.08E-07
Manganese	3.80E-04 $lb/10^6$ scf	See Note 4	5.22E-06	2.28E-05
Mercury	2.60E-04 $lb/10^6$ scf	See Note 4	3.57E-06	1.56E-05
Naphthalene	6.10E-04 $lb/10^6$ scf	See Note 4	4.19E-06	1.83E-05
Nickel	2.10E-03 $lb/10^6$ scf	See Note 4	2.88E-05	1.26E-04

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emission Point ID
Pellet Coolers, Pellet Mills, Secondary Hammermills, and RCO Burner	RCO	AA-301

The RCO stack will exhaust controlled process VOC emissions from the dry primary hammermills, secondary hammermills, and pellet coolers Combustion emissions from the RCO's gas burner will also exhaust out of the RCO stack.

Operating Data		
Facility Capacity[1]	624,700	ODT*/yr
Hourly Throughput	71.31	ODT*/hr
RCO VOC Control Efficiency	95	%
RCO HAP Control Efficiency	50	%
Operating hours[1]	8,760	hrs/yr

*ODT = oven dried ton (U.S.) of chips

Hazardous/Toxic Air Pollutants					
Phenanathrene	1.70E-05	lb/10^6 scf	See Note 4	1.17E-07	5.11E-07
Pyrene	5.00E-06	lb/10^6 scf	See Note 4	3.43E-08	1.50E-07
Selenium	2.40E-05	lb/10^6 scf	See Note 4	3.29E-07	1.44E-06
Toluene	3.40E-03	lb/10^6 scf	See Note 4	2.33E-05	1.02E-04
n-Hexane	1.80	lb/10^6 scf	See Note 4	1.24E-02	5.41E-02
Propionaldehyde	0.0034	lb/ODT	July 2021 Performance Test Data	0.242	1.062
Hydrogen Chloride	0.0008	lb/ODT	July 2021 Performance Test Data	0.057	0.250
Phenol	0.0222	lb/ODT	July 2021 Performance Test Data	1.583	6.934
			Total HAP Emissions (RCO Stack)	**3.55**	**15.55**
Greenhouse Gas Emissions					
CO e	-		See Note 4	-	7182

REFERENCE/NOTES

1. Based on information provided by Josh Jones (Drax Biomass) to Sharon Killian (Trinity) via email on February 16, 2022.

2. $PM_{10/2.5}$, VOC, and Formaldehyde lb/hr emissions are the sum of the following individual components: 6 Primary Hammermills, 6 Pellet Coolers, 3 Seconadry Hammermills, and RCO Burner. For the tpy emissions, the combination of the primary hammermills and secondary hammermills is such that the total will not exceed production of 660,000 U.S. tons. VOC emissions also include 95% RCO control efficiency, and HAP emissions include 50% RCO control efficiency. The effective emission factor (lb/ODT) is based on the the overall stream from various sources to the RCO post-control.

3. Methanol and Acetaldehyde lb/hr emissions are the sum of the following individual components: 6 Primary Hammermills, 6 Pellet Coolers, and 3Secondary Hammermills. For the tpy emissions, the combination of the primary hammermills and secondary hammermills is such that the total will not exceed production of 660,000 U.S. tons. HAP emissions include 50% RCO control efficiency.

4. SO_2, NO_x, CO, GHG emissions and all other HAP emissions are only associated with the RCO burner emissions.

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Truck Dump	DSTD	AA-304

Operating Data		
Potential maximum hourly throughput[1]	150	MTPH
Annual throughput through source[1]	467,316	ODT*/yr
Potential average hourly throughput[1]	53.35	ODT*/hr
Moisture Content[2]	8	%
Operating hours[1]	8,760	hr/yr

Dry shavings throughput should be 192,684 tons/yr

22.00 ODT/hr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:				
Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Annual (tons/yr)
PM_{10}	1.61E-04 lb/ODT	AP-42, Section 13.2.4	0.01	0.04
$PM_{2.5}$	2.44E-05 lb/ODT	AP-42, Section 13.2.4	0.001	0.006

REFERENCE/NOTES

1. Based on production information provided by Josh Jones (Drax Biomass) to Sharon Killian (Trinity) via email.
2. Moisture Content is based on similar information for pine and hardwood dry shavings at other pellet mills in Mississippi.
3. PM emission rates calculated based on AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06). Wind speed assumed to be no more than 5 mph for the area assuming calm winds.

0.013 tpy
0.002 tpy

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Secondary Hammermill Silo 1 with Bin Vent	SHFS1	AA-305

Operating Data		
Exhaust flow[1]	1,500	acfm
Annual throughput through source[1]	416,467	ODT*/yr
Potential maximum hourly throughput[1]	47.54	ODT*/hr
Exhaust temperature[1]	77	°F
Operating hours[1]	8,760	hr/yr

*ODT = oven dried ton (U.S.) of chips

Same as previous permit using 50.23 ODT/hr

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
$PM_{2.5}$	0.015 gr/scf	Vendor guarantee	0.19	0.84
PM	0.015 gr/scf	Vendor guarantee	0.19	0.84
VOC Total	0.0278 lb/ODT	Based on scaled u	6.46	1.32	5.79
Methanol	0.0014 lb/ODT	Based on scaled u	0.3230	0.07	0.30
Formaldehyde	0.0027 lb/ODT	Based on scaled u	0.6055	0.13	0.55
Acetaldehyde	0.0014 lb/ODT	Based on scaled u	0.3230	0.07	0.30

REFERENCE/NOTES

1. Provided by facility. It is assumed that the No.1 feed silo bin vent will store up to 66.6% of the total feed throughput.

2. Stack testing conducted at a sister facility (Drax Morehouse BioEnergy) on February 10-16, 2016. These emissions have been scaled up to account for a 25% safety factor.

3. PM Emission rates (ER) calculated as follows:
   PM $ER_{avg/max}$ (lb/hr) = ((EF (gr/scf) x Exhaust Flow (acfm)) x (60 min/hr) x (1 lb/7000 gr) x (Standard Temp (°R)/Actual Temp (°R))
   PM ER_{ann} (tons/yr) = (PM ER_{avg} (lbs/hr) x Operating hours) x (1 ton/2000 lbs)

4. VOC/TAP ER calculated as follows:
   VOC/TAP_{ann} (tons/yr) = (Annual throughput (ODT/yr) x EF (lb/ODT))/(1 ton/2000 lbs)
   VOC/TAP_{avg} (lb/hr) = (VOC/TAP_{ann} (tons/yr) x (2000 lbs/ton))/Operating hours (hr/yr)
   VOC/TAP_{max} (lb/hr) = Potential max hourly throughput (ODT/hr) x EF (lb/ODT)

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Secondary Hammermill Silo 2 with Bin Vent	SHFS2	AA-306

Operating Data		
Exhaust flow[1]	1,500	acfm
Annual throughput through source[1]	208,233	ODT*/yr
Potential maximum hourly throughput[1]	23.77	ODT*/hr
Exhaust temperature[1]	77	°F
Operating hours[1]	8,760	hr/yr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
$PM_{2.5}$	0.015 gr/scf	Vendor guarantee	0.19	0.84
PM	0.015 gr/scf	Vendor guarantee	0.19	0.84
VOC Total	0.0278 lb/ODT	Based on scaled up stack test results[2]	0.74	3.23
Methanol	0.0014 lb/ODT	Based on scaled up stack test results[2]	0.03	0.15
Formaldehyde	0.0027 lb/ODT	Based on scaled up stack test results[2]	0.06	0.28
Acetaldehyde	0.0014 lb/ODT	Based on scaled up stack test results[2]	0.03	0.15

See AA-305

REFERENCE/NOTES

1. Provided by facility. It is assumed that the No.2 feed silo bin vent will store up to 33.3% of the total feed throughput.
2. Stack testing conducted at a sister facility (Drax Morehouse BioEnergy) on February 10-16, 2016. These emissions have been scaled up to account for a 25% safety factor.
3. PM Emission rates (ER) calculated as follows:
   PM $ER_{avg/max}$ (lb/hr) = ((EF (gr/scf) x Exhaust Flow (acfm)) x (60 min/hr) x (1 lb/7000 gr) x (Standard Temp (°R)/Actual Temp (°R))
   PM ER_{ann} (tons/yr) = (PM ER_{avg} (lbs/hr) x Operating hours) x (1 ton/2000 lbs)
4. VOC/TAP ER calculated as follows:
   VOC/TAP_{ann} (tons/yr) = (Annual throughput (ODT/yr) x EF (lb/ODT))/(1 ton/2000 lbs)
   VOC/TAP_{avg} (lb/hr) = (VOC/TAP_{ann} (tons/yr) x (2000 lbs/ton))/Operating hours (hr/yr)
   VOC/TAP_{max} (lb/hr) = Potential max hourly throughput (ODT/hr) x EF (lb/ODT)

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Pellet Storage Silo No. 1 with Bin Vent	PS1	AA-401A

Operating Data		
Exhaust flow[1]	300	acfm
Annual throughput through source[1]	312,350	ODT*/yr
Potential maximum hourly throughput[1]	35.66	ODT*/hr
Exhaust temperature[1]	77	°F
Operating hours[1]	8,760	hr/yr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
$PM_{2.5}$	0.015 gr/scf	Vendor guarantee	0.04	0.17
PM	0.015 gr/scf	Vendor guarantee	0.04	0.17
VOC Total	0.0279 lb/ODT	Based on stack test results[2]	1.00	4.36
Methanol	0.0014 lb/ODT	Based on stack test results[2]	0.05	0.22
Formaldehyde	0.0027 lb/ODT	Based on stack test results[2]	0.09	0.41
Acetaldehyde	0.0014 lb/ODT	Based on stack test results[2]	0.05	0.22

REFERENCE/NOTES

1. Based on information provided by Josh Jones (Drax Biomass) to Sharon Killian (Trinity) via email on February 16, 2021.

2. Stack testing conducted at a sister facility (Drax Morehouse BioEnergy) on February 10-16, 2016. These emissions have been scaled up to account for a 25% safety factor.

3. PM Emission rates (ER) calculated as follows:
   PM $ER_{avg/max}$ (lb/hr) = ((EF (gr/scf) x Exhaust Flow (acfm)) x (60 min/hr) x (1 lb/7000 gr) x (Standard Temp (°R)/Actual Temp (°R))
   PM ER_{ann} (tons/yr) = (PM ER_{avg} (lbs/hr) x Operating hours) x (1 ton/2000 lbs)

4. VOC/TAP ER calculated as follows:
   VOC/TAP_{ann} (tons/yr) = (Annual throughput (ODT/yr) x EF (lb/ODT))/(1 ton/2000 lbs)
   VOC/TAP_{avg} (lb/hr) = (VOC/TAP_{ann} (tons/yr) x (2000 lbs/ton))/Operating hours (hr/yr)
   VOC/TAP_{max} (lb/hr) = Potential max hourly throughput (ODT/hr) x EF (lb/ODT)

0.0311
0.0016
0.0029
0.0016

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Pellet Storage Silo No. 2 with Bin Vent	PS2	AA-401B

Operating Data		
Exhaust flow[1]	300	acfm
Annual throughput through source[1]	312,350	ODT*/yr
Potential maximum hourly throughput[1]	35.66	ODT*/hr
Exhaust temperature[1]	77	°F
Operating hours[1]	8,760	hr/yr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
$PM_{2.5}$	0.015 gr/scf	Vendor guarantee	0.04	0.17
PM	0.015 gr/scf	Vendor guarantee	0.04	0.17
VOC Total	0.0279 lb/ODT	Based on stack test results[2]	1.00	4.36
Methanol	0.0014 lb/ODT	Based on stack test results[2]	0.05	0.22
Formaldehyde	0.0027 lb/ODT	Based on stack test results[2]	0.09	0.41
Acetaldehyde	0.0014 lb/ODT	Based on stack test results[2]	0.05	0.22

REFERENCE/NOTES

1. Based on information provided by Jamaria Warren (Drax Biomass) to Sharon Killian (Trinity) via email on August 23,2021.

2. Stack testing conducted at a sister facility (Drax Morehouse BioEnergy) on February 10-16, 2016. These emissions have been scaled up to account for a 25% safety factor.

3. PM Emission rates (ER) calculated as follows:
   PM $ER_{avg/max}$ (lb/hr) = ((EF (gr/scf) x Exhaust Flow (acfm)) x (60 min/hr) x (1 lb/7000 gr) x (Standard Temp (°R)/Actual Temp (°R))
   PM ER_{ann} (tons/yr) = (PM ER_{avg} (lbs/hr) x Operating hours) x (1 ton/2000 lbs)

4. VOC/TAP ER calculated as follows:
   VOC/TAP_{ann} (tons/yr) = (Annual throughput (ODT/yr) x EF (lb/ODT))/(1 ton/2000 lbs)
   VOC/TAP_{avg} (lb/hr) = (VOC/TAP_{ann} (tons/yr) x (2000 lbs/ton))/Operating hours (hr/yr)
   VOC/TAP_{max} (lb/hr) = Potential max hourly throughput (ODT/hr) x EF (lb/ODT)

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Screened Materials Return Systen	SMS	AA-401D

AA-401C

Operating Data		
Exhaust flow[1]	7,452	acfm
Annual throughput through source[1]	62,470	ODT*/yr
Potential maximum hourly throughput[1]	7.13	ODT*/hr
Exhaust temperature[1]	77	°F
Operating hours[1]	8,760	hr/yr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
$PM_{2.5}$	0.015 gr/scf	Vendor guarantee	0.96	4.20
PM	0.015 gr/scf	Vendor guarantee	0.96	4.20
VOC Total	0.0279 lb/ODT	Based on stack test results[2]	0.20	0.87
Methanol	0.0014 lb/ODT	Based on stack test results[2]	0.01	0.04
Formaldehyde	0.0027 lb/ODT	Based on stack test results[2]	0.02	0.08
Acetaldehyde	0.0014 lb/ODT	Based on stack test results[2]	0.01	0.04

0.3718
0.0019
0.0036
0.0019

REFERENCE/NOTES

1. It is assumed that 10% of material may be screened and returned to the process.Based on information provided by Jamaria Warren (Drax Biomass) to Sharon Killian (Trinity) via email on August 23,2021, it is assu 24,700 ODT/year based on an email from Josh Jones (Drax Biomass) to Sharon Killian on February 16, 2022.

2. Stack testing conducted at a sister facility (Drax Morehouse BioEnergy) on Fe missions have been scaled up to account for a 25% safety factor.

3. PM Emission rates (ER) calculated as follows:
   PM ER_{ann} (tons/yr) = (PM ER_{avg} (lbs/hr) x Operating hours) x (1 ton/2000 lbs)

4. VOC/TAP ER calculated as follows:
   VOC/TAP_{ann} (tons/yr) = (Annual throughput (ODT/yr) x EF (lb/ODT))/(1 ton/2000 lbs)
   VOC/TAP_{avg} (lb/hr) = (VOC/TAP_{ann} (tons/yr) x (2000 lbs/ton))/Operating hours (hr/yr)
   VOC/TAP_{max} (lb/hr) = Potential max hourly throughput (ODT/hr) x EF (lb/ODT)

COMPANY		FACILITY NAME
Amite BioEnergy LLC		Wood Pellet Manufacturing Facility
DESCRIPTIVE NAME OF EMISSION POINT	Short Name	Emissions Point ID
Pellet Truck Loadout System	PLS	AA-401E

AA-401D

Operating Data		
Exhaust flow[1]	13,000	acfm
Annual throughput through source[1]	624,700	ODT*/yr
Potential maximum hourly throughput[1]	71.31	ODT*/hr
Exhaust temperature[1]	77	°F
Operating hours[1]	8,760	hr/yr

*ODT = oven dried ton (U.S.) of chips

Emission Totals:

Pollutant	Emission Factor	Reference	Emission Rates PTE (lb/hr)	Emission Rates Annual (tons/yr)
$PM_{2.5}$	0.0018 lb/ODT	Based on stack test results[3]	0.13	0.55
PM	0.0024 lb/ODT	Based on stack test results[3]	0.17	0.74
VOC Total	0.029 lb/ODT	Based on stack test results[5]	2.21	9.67
Methanol	0.0014 lb/ODT	Based on stack test results[2]	0.10	0.43
Formaldehyde	0.0027 lb/ODT	Based on stack test results[2]	0.19	0.83
Acetaldehyde	0.0014 lb/ODT	Based on stack test results[2]	0.10	0.43

0.0310
0.0016
0.0029
0.0016

REFERENCE/NOTES

1. Based on information provided by Josh Jones (Drax Biomass) to Sharon Killian (Trinity) via email on February 16, 2021.

2. Stack testing conducted at a sister facility (Drax Morehouse BioEnergy) on February 10-16, 2016. These emissions have been scaled up to account for a 25% safety factor.

3. PM emission rates calculated based on March 2019 engineering testing at a sister facility (Drax Morehouse BioEnergy) with scaled up operations and an additional 25% safety factor.

PM ER_{ann} (tons/yr) = (PM ER_{avg} (lbs/hr) x Operating hours) x (1 ton/2000 lbs)

4. VOC/TAP ER calculated as follows:

VOC/TAP_{ann} (tons/yr) = (Annual throughput (ODT/hr) x EF (lb/ODT))/(1 ton/2000 lbs)

VOC/TAP_{avg} (lb/hr) = (VOC/TAP_{ann} (tons/yr) x (2000 lbs/ton))/Operating hours (hr/yr)

VOC/TAP_{max} (lb/hr) = Potential max hourly throughput (ODT/hr) x EF (lb/ODT)

5. VOC emission rates calculated based on November 2018 engineering testing at the site. These emissions have been scaled up to account for a 25% safety factor. These emissions have been scaled up to account for the new production capacity (771,392 U.S. tons), and a 25% safety factor.

Jaricus Whitlock

From: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Sent: Thursday, June 2, 2022 4:11 PM
To: Ivelina Pilgrim
Cc: Jaricus Whitlock; Joshua Jones1; Plummer, Rick; Amber Bouska
Subject: RE: Amite BioEnergy Title V Permit Application Edits
Attachments: SectionB-Facility-wideEmissionsInformation.pdf

Ivelina,

We have corrected Section B (See attached). Sorry for that oversight.

Annie McIlwain, P.E.
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From: Ivelina Pilgrim <IPilgrim@mdeq.ms.gov>
Sent: Wednesday, June 1, 2022 12:11 PM
To: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Cc: Jaricus Whitlock <jwhitlock@mdeq.ms.gov>; Joshua Jones1 <Joshua.Jones1@drax.com>; Plummer, Rick <rick.plummer@PPMCo.com>; Amber Bouska <Amber.Bouska@draxbiomass.com>
Subject: RE: Amite BioEnergy Title V Permit Application Edits

Annie,

I have reviewed the comments/suggestions on the TV application. I noticed that some of the values (n-hexane and styrene for AA-201 (WESP-RTO)) were updated in the Section B forms but a lot of them were not (e.g. methanol is still missing for AA-201). There are proposed re-calculations of emissions (such as adding the HAPs resulting from chip drying) but they haven't been incorporated in the inventory. I wanted to check if these are revisions that you all are still finalizing.

Thank you,
Ivelina Pilgrim

From: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Sent: Thursday, May 19, 2022 10:02 AM
To: Ivelina Pilgrim <IPilgrim@mdeq.ms.gov>
Cc: Jaricus Whitlock <jwhitlock@mdeq.ms.gov>; Joshua Jones1 <Joshua.Jones1@drax.com>; Plummer, Rick <rick.plummer@PPMCo.com>; Amber Bouska <Amber.Bouska@draxbiomass.com>
Subject: Amite BioEnergy Title V Permit Application Edits

Ivelina,

Attached is a summary, edited calculations, and edited forms for Amite BioEnergy's Title V Permit application. As I mentioned before, some pollutants like methanol were missing in calculations and emissions. If you have any questions, please feel free to reach out to me.

Thanks,

Annie McIlwain, P.E.
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Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Total HAPs		Acetaldehyde		Acrolein		Benzene (including benzene from gasoline)		Carbon tetrachloride		Chlorine (non-voc)		Chlorobenzene		Chloroform		Ethyl benzene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	**4.11**	**18.02**	0.35	1.54	0.15	0.65	0.11	0.48	0.0007	0.003	0.01	0.06	0.0005	0.002	0.0005	0.002	0.0005	0.0022
AA-203b	**1.25**	**0.03**	2.74E-02	-	1.32E-01	3.30E-03	1.39E-01	3.47E-03	-	-	2.61E-02	6.52E-04	-	-	-	-	-	-
AA-203c	**0.63**	**0.16**	1.37E-02	3.42E-03	6.60E-02	1.65E-02	6.93E-02	1.73E-02	7.43E-04	1.86E-04	1.30E-02	3.26E-03	5.45E-04	1.36E-04	4.62E-04	1.16E-04	5.12E-04	1.28E-04
AA-204b	**9.51**	**0.23**	1.74	0.04	0.53	0.01	0.18	0.004	-	-	-	-	-	-	-	-	-	-
AA-302	**0.30**	**1.33**	0.08	0.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO		Emissions captured under the RCO															
AA-307A			Emissions captured under the RCO															
AA-307B			Emissions captured under the RCO															
AA-305	**0.29**	**1.25**	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	**0.14**	**0.63**	0.04	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO		Emissions captured under the RCO															
AA-308B			Emissions captured under the RCO															
AA-308C			Emissions captured under the RCO															
AA-308D			Emissions captured under the RCO															
AA-308E			Emissions captured under the RCO															
AA-308F			Emissions captured under the RCO															
AA-301	**5.42**	**23.79**	0.26	1.16	0.10	0.44	-	-	-	-	-	-	-	-	-	-	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	**0.22**	**0.94**	0.06	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	**0.22**	**0.94**	0.06	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	**0.04**	**0.19**	0.01	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	**0.43**	**1.89**	0.11	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	**0.00**	**0.00**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	**0.00**	**0.00**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	**22.56**	**49.42**	2.81	4.59	0.98	1.12	0.50	0.51	0.001	0.003	0.05	0.06	0.001	0.003	0.0009	0.002	0.0010	0.002

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Formaldehyde		Hexane		Hydrochloric acid (non-voc)		Mercury Compounds (non-voc)		Naphthalene		Phenol		Polycyclic Organic Matter		Propionaldehyde		Styrene	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	0.88	3.86	0.0042	0.0186	0.11	0.49	0.000	0.002	0.002	0.007	0.68	2.99	0.0005	0.002	0.10	0.44	0.03	0.15
AA-203b	0.15	3.63E-03	-	-	0.63	0.02	-	-	3.20E-03	8.00E-05	-	-	-	-	-	-	6.00E-02	1.57E-03
AA-203c	0.07	0.02	-	-	0.31	0.08	5.78E-05	1.44E-05	1.60E-03	4.00E-04	8.42E-04	2.10E-04	4.61E-04	1.15E-04	1.01E-03	2.52E-04	3.14E-02	7.84E-03
AA-204b	3.24	0.08	-	-	-	-	-	-	-	-	0.65	0.02	-	-	0.30	0.01	0.01	0.0002
AA-302	0.15	0.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-305	0.14	0.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	0.07	0.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	0.25	1.09	0.01	0.05	0.06	0.25	-	-	-	-	1.58	6.93	-	-	0.24	1.06	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	0.10	0.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	0.10	0.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	0.02	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	0.21	0.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	0.002	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	0.001	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	5.39	8.55	0.01	0.07	1.11	0.84	0.000	0.002	0.006	0.01	2.91	9.94	0.0010	0.002	0.64	1.51	0.13	0.16

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Tetrachloroethylene (Perchloroethylene) (non-voc)		Toluene		Trichloroethylene		Xylenes (isomers and mixture)		Arsenic Compounds (inorganic including arsine) (non-voc)		Lead Compounds (non-voc)		Manganese Compounds (non voc)		Nickel Compounds (non-voc)		Phosphorus	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	6.27E-04	0.003	0.08	0.37	4.95E-04	0.002	4.13E-04	0.002	9.09E-05	3.98E-04	1.98E-04	0.001	0.01	0.03	1.37E-04	0.001	1.11E-04	4.88E-04
AA-203b	-	-	0.03	7.59E-04	-	-	-	-	-	-	-	-	0.05	0.001	-	-	-	-
AA-203c	6.27E-04	1.57E-04	0.015	0.004	4.95E-04	1.24E-04	4.13E-04	1.03E-04	3.63E-04	9.08E-05	7.92E-04	1.98E-04	0.026	0.007	5.45E-04	1.36E-04	4.46E-04	1.11E-04
AA-204b	-	-	0.30	0.01	-	-	0.01	3.00E-04	-	-	-	-	-	-	-	-	-	-
AA-302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	-	-	2.00E-05	1.00E-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	1.25E-03	2.90E-03	0.43	0.38	9.90E-04	2.29E-03	1.08E-02	2.21E-03	4.54E-04	4.89E-04	9.90E-04	1.07E-03	0.08	0.04	6.82E-04	7.38E-04	5.57E-04	5.99E-04

Section B.3: Proposed Allowable Hazardous Air Pollutants (HAPs)

Proposed Allowable HAPs (Potential to Emit) are those emissions the facility is currently permitted to emit as limited by a specific permit requirement or federal/state standard (e.g., a MACT standard); or the emission rate at which the facility proposes to emit considering emissions control devices, restrictions to operating rates/hours, or other requested permit limits that reduce the maximum emission rates. Select an inidividual HAP from the dropdown list provided. **Emissions ≥ 0.01 ton/yr of an indiviudal HAP from a specific emission unit must be provided.** Emission Point numbering must be consistent throughout the application package and, for existing emission points, should match any MDEQ ID's in the current permit. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or are below the reporting threshold. Select the appropriate HAP from the drop down menu in the header cell of the given column in the table below. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Methanol																	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Chipper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debarker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-201	1.579	6.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-203b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-203c	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-204b	2.55	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-302	0.07	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-303	Emissions captured under the RCO																	
AA-307A	Emissions captured under the RCO																	
AA-307B	Emissions captured under the RCO																	
AA-305	0.07	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-306	0.04	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-308A	Emissions captured under the RCO																	
AA-308B	Emissions captured under the RCO																	
AA-308C	Emissions captured under the RCO																	
AA-308D	Emissions captured under the RCO																	
AA-308E	Emissions captured under the RCO																	
AA-308F	Emissions captured under the RCO																	
AA-301	2.92	12.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401A	0.06	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401B	0.06	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401C	0.01	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-401D	0.11	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paved Roads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-501	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:	7.46	21.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

State of Mississippi

TATE REEVES
GOVERNOR

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

CHRIS WELLS, EXECUTIVE DIRECTOR

October 13, 2023

Mr. Wayne Kooy, Director of Environment
wayne.kooy@drax.com
Amite BioEnergy, LLC
1763 Georgia Pacific Road No. 2
Gloster, MS 39638

OFFICIAL CORRESPONDENCE SENT VIA E-MAIL

Re: Air Toxics Impact Analysis and Additional Info. Required
Amite BioEnergy, LLC –
Wood Pellet Manufacturing Facility
Air Ref. No. 0080-00031
Amite County

Dear Ms. Bouska:

On March 28, 2022, the Environmental Permits Division (EPD) received an application from the referenced facility requesting a modification of the Permit to Construct Air Emissions Equipment issued March 9, 2021. This application also served as a revision to the Title V Operating Permit (TVOP) application received on April 5, 2017. Upon review, it was discovered that the facility's potential hazardous air pollutant (HAP) emissions exceeded the applicable major source thresholds: 10 tons per year (tpy) for an individual HAP and 25 tpy for all HAPs combined. Accordingly, due to its operations and classification as a HAP major source, the facility became subject to 40 CFR Part 63, Subpart B [Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections 112(g) and 112(j)].

In accordance with Subpart B, the facility was required to submit a "Case-By-Case Maximum Achievable Control Technology (MACT) Determination" to demonstrate compliance with certain requirements. However, as no such determination was included in the mentioned application, the facility's consultant was notified of this deficiency on April 19, 2022. Subsequently, an initial Case-By-Case MACT Determination was received by Mississippi Department of Environmental Quality (MDEQ) on July 26, 2022. Following MDEQ's review and response to the facility, a revised Case-By-Case MACT Determination was received on November 11, 2022.

In order to proceed with processing the above-referenced permitting actions, the MDEQ is requiring the facility to conduct an impact analysis on air toxics emitted from its overall operations to demonstrate the facility's emission of "air toxics" (methanol, formaldehyde, acetaldehyde, etc.) are at such rates to not adversely affect human health in accordance with Mississippi Administrative Code, Title 11, Part 2, Chapter 2, Rule 2.5.A.(3)(a) – (b). As part of this impact analysis, the facility must submit a protocol that details all methodologies and data sets to be utilized in completing the analysis no later than November 13, 2023. Additionally, the facility must submit the results of the completed analysis no later than December 12, 2023.

OFFICE OF POLLUTION CONTROL
PO BOX 2261 • JACKSON, MISSISSIPPI 39225-2261 • TEL: (601) 961-5171 • FAX: (601) 354-6612 • www.mdeq.ms.gov
Facebook: @mdeq.ms • Twitter: @MDEQ • Instagram: @MDEQ
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Lastly, the MDEQ has determined that the facility must address the following items and submit the corresponding documentation no later than December 12, 2023 in order for a complete evaluation of the aforementioned permit application and the revised Case-By-Case MACT Determination:

- A "Start-Up, Shutdown, and Malfunction Plan" (SSMP) developed and completed in accordance with 40 CFR 63.6(e)(3)(i); Subpart A that address all applicable sources.

- A completed Section B.5 (Stack Parameters and Exit Conditions) of MDEQ's consolidated air application.

- As Subpart B requires that a complete "Case-By-Case MACT Determination" addresses all sources of HAP emissions that are not subject to a separate "National Emissions Standard for Hazardous Air Pollutants (NESHAP), the facility must complete an amendment to the revised Case-By-Case MACT Determination to include an analysis of the "Primary Hammermill Feed Silo" (Emission Point AA-302).

- As it has come to the MDEQ's attention that the facility has implemented improvements to the existing regenerative thermal oxidizer (RTO) and regenerative catalytic oxidizer (RCO), the facility must complete an evaluation that assesses the potential pollutant destruction capability of each device.

- There appears to be a discrepancy in the Compliance Assurance Monitoring (CAM) Plan provided for the RTO and RCO in which annual inspections are conducted on key components of each device (found in the Monitoring Approach" section) but reviews are logged monthly (found in the "QA/QC Practices and Criteria" section). As such, the facility must amend each CAM Plan to denote a consistent frequency for both sections.

If you have any questions or concerns, please do not hesitate to contact me [(601) 961-5303; jwhitlock@mdeq.ms.gov] or Krystal Rudolph [(601) 961-5096; krudolph@mdeq.ms.gov].

Sincerely,

Jaricus Whitlock

Jaricus Whitlock, P.E.
Chief, Air Division

Electronic cc: Brennen Beard, Safety Manager, Amite BioEnergy, LLC
Jeff Crawford, Plant Manager, Drax Biomass, Inc.
Annie McIlwain, PPM Consultants, Inc.
Krystal Rudolph, Environmental Permits Division (EPD) Chief, MDEQ
Michelle Clark, Environmental Compliance & Enforcement Division (ECED) Chief, MDEQ
Kenny Pilgrim, Air 2 Compliance Branch Manager, MDEQ
Geoffrey Martin, Enforcement Branch Manager, MDEQ
Tyler Hardy, Air Program Manager – ECED, MDEQ
Ivelina Pilgrim, Air Program Manager – EPD, MDEQ
Laura James, Air Program Development Branch Manager

Jaricus Whitlock

From: Jaricus Whitlock
Sent: Friday, October 13, 2023 2:36 PM
To: wayne.kooy@drax.com
Cc: brennen.beard@drax.com; Jeff.Crawford@drax.com; Mcilwain, Annie; Krystal Rudolph; Ivelina Pilgrim; Michelle Clark; Geoffrey Martin; Tyler Hardy; Laura James; Kenny Pilgrim
Subject: Requirement for Additional Information (Amite BioEnergy)
Attachments: Requirement for Air Toxics Modeling and Additional Information Letter.pdf

Mr. Kooy,

Attached please find for your review a copy of the letter that formally requires Amite BioEnergy, LLC – Wood Pellet Manufacturing Facility (Air Ref. No. 0080-00031) to complete and submit additional information (including an impact analysis for air toxics) in relation to the application received March 28, 2022 and the revised Case-By-Case MACT Determination received November 11, 2022.

I ask that you please confirm receipt of the letter with a reply. If you have any questions or concerns, please do not hesitate to contact either me or Ms. Krystal Rudolph [601-961-5096; krudolph@mdeq.ms.gov].

Best Regards,

Jaricus Whitlock, P.E.
Chief, Air Division
Office of Pollution Control
Mississippi Dept. of Environmental Quality
P.O. Box 2261
Jackson, MS 39225

Office: (601) 961-5303

Jaricus Whitlock

From: Wayne Kooy <Wayne.Kooy@drax.com>
Sent: Tuesday, January 9, 2024 3:16 PM
To: Jaricus Whitlock
Cc: Kenny Pilgrim; Mitchell Mobley; Laura James; Mcilwain, Annie; Keith W. Turner; Amber Bouska
Subject: ABE MACT, CAM, SSMP and Air Modeling Report - Permit No_ 0080-00031
Attachments: Requirement for Air Toxics Modeling and Additional Information Letter.pdf; Amite MACT Analysis_01-09-24-Final.pdf; Compliance Assurance Monitoring (CAM) Plan.pdf; Amite BioEnergy - Air Toxics Report.pdf; Startup Shutdown and Malfunction Plan - ABE.pdf

Good day Jaricus,

As requested in your October 13, 2023 letter (attached), ABE have completed and attached the maximum achievable control technology (MACT) analysis, compliance assurance monitoring (CAM) plan, the startup shutdown and malfunction plan (SSMP), and air modeling report. Please see attached and let me know if you have any questions.

Best regards,

Wayne Kooy
Director of Environment, NA
c: 403 813 1712

From: Jaricus Whitlock <jwhitlock@mdeq.ms.gov>
Sent: Friday, December 22, 2023 10:54 AM
To: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Cc: Kenny Pilgrim <KPILGRIM@mdeq.ms.gov>; Mitchell Mobley <rick.plummer@PPMCo.com>; Volentine, Holden <holden.volentine@ppmco.com>; Wayne Kooy <Wayne.Kooy@drax.com>; Josh Jones <Josh.Jones@drax.com>; Laura James <LJAMES@mdeq.ms.gov>
Subject: RE: ABE MACT, CAM, SSMP , and Air Analysis Modeling Deadline Extension

Hello Annie,

After discussing this matter internally, we have no issue with the requested deadline extension. As such, the new deadline for submitting the indicated documentation is now January 9, 2024. If you have any questions or concerns, please do not hesitate to contact me.

Best Regards,

Jaricus Whitlock, P.E.
Chief, Air Division
Office of Pollution Control
Mississippi Dept. of Environmental Quality

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From: Mcilwain, Annie <annie.mcilwain@ppmco.com>
Sent: Thursday, December 21, 2023 4:59 PM
To: Jaricus Whitlock <jwhitlock@mdeq.ms.gov>
Cc: Kenny Pilgrim <KPILGRIM@mdeq.ms.gov>; Plummer, Rick <rick.plummer@PPMCo.com>; Volentine, Holden <holden.volentine@ppmco.com>; Wayne Kooy <Wayne.Kooy@drax.com>; Josh Jones <Josh.Jones@drax.com>
Subject: ABE MACT, CAM, SSMP , and Air Analysis Modeling Deadline Extension

Jaricus,

Due to staffing issues through the holidays (and current deadline of 12/26/23), Amite BioEnergy would like to request a two-week extension for the submittal of the revised case-by-case MACT analysis, the CAM plan, the SSMP plan, and the air analysis modeling. This extension would allow sufficient time after the holidays to properly revise these drafted documents.

Let me know if you need any further information.

Thank you,

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the sender and may not necessarily reflect the view of Drax Power Limited, its parent, subsidiaries or associates.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT) ANALYSIS
AMITE BIOENERGY, LLC
GLOSTER, MS.

National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAP) regulate hazardous air pollutant (HAP) emissions and are applicable to certain major and area sources of HAPs. NESHAP is found in 40 CFR Part 63 and has been incorporated by reference in 11 Miss. Admin. Code Pt. 2, Ch.1, R.1.8.A. The Amite BioEnergy, LLC (ABE) facility is a major source of HAP emissions because total HAP emissions are greater than 25 tpy and an individual HAP's emissions are greater than 10 tpy.

40 CFR 63 Subpart A – General Provisions

Sources subject to a NESHAP are subject to the general requirements in Subpart A unless excluded by the source-specific subpart. Subpart A includes requirements for notifications, emission testing, recordkeeping, monitoring, and reporting. ABE is subject to Subparts B and ZZZZ of Part 63 and as such, Subpart A is applicable to these sources.

40 CFR 63 Subpart B – Requirements for Control Technology Determinations for Major Sources – Clean Air Act Section 112(g)

Clean Air Act (CAA) Section 112 (g)(2)(B) requires that new or reconstructed major stationary source that does not belong to a regulated source category for which a NESHAP has been promulgated must control emissions to levels that meet maximum achievable control technology (MACT). ABE is an existing major source of HAP emissions. Wood pellet manufacturing facilities are not applicable to a stationary source category found in 40 CFR Part 63. Therefore, ABE is subject to 112(g) and must prepare a case-by-case MACT analysis required by 40 CFR Part 63 Subpart B.

This analysis addresses case-by-case MACT for the Wood Chip Rotary Dryer, Primary Dry Hammermills, Secondary Dry Hammermills, and Pellet Mill/Coolers since ABE did not include these sources of HAPs in the initial construction permitting procedures. Subpart ZZZZ will not be included in this report as there will be no revision to the Department's MACT review of the Emergency Engines.

As discussed in 40 CFR 63.43(d), ABE proposes to specify a control technology that will meet a MACT emission limitation that is as stringent as the emission control which is achieved in practice

by the best controlled similar source, and achieve the maximum degree of reduction in HAP emissions which can be achieved by utilizing control technologies that can be identified from the available information.

There is no proposed MACT or presumptive MACT established for Wood Pellet Manufacturing Facilities; hence, this analysis relies solely on a review of control technologies installed and effectively operating in a category with similar sources in the wood pellet industry. This analysis proposes to base its approach to recommended emission limitations on similar sources in the source category of Subpart DDDD – National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products in 40 CFR Part 63.2230 – 63.2292. Table 1B to Subpart DDDD presents add-on Control Systems Compliance Options for "green rotary dryers" that is identical to the green wood chip rotary dryers used in the pellet manufacturing industry. Compliance with one of the following six compliance options by using an emissions control system is required:

(1) Reduce emissions of total HAP, measured as THC (as carbon)[a], by 90 percent; or
(2) Limit emissions of total HAP, measured as THC (as carbon)[a], to 20 ppmvd; or
(3) Reduce methanol emissions by 90 percent; or
(4) Limit methanol emissions to less than or equal to 1 ppmvd if uncontrolled methanol emissions entering the control device are greater than or equal to 10 ppmvd; or
(5) Reduce formaldehyde emissions by 90 percent; or
(6) Limit formaldehyde emissions to less than or equal to 1 ppmvd if uncontrolled formaldehyde emissions entering the control device are greater than or equal to 10 ppmvd.

[a] subtract methane from THC as carbon measurements

It is widely understood that the green (wood chip) rotary dryers in the Wood Pellet Manufacturing Industry is the predominate emissions creating source. Post green wood chip rotary dryer emissions are in part controlled by a WESP/RTO, and remaining emissions from the green wood chip rotary dryer and dried wood chips are controlled by an RCO as they are fed through the pellet manufacturing process. The wood pellet manufacturing process at ABE is discussed later in this document. ABE is meeting Option 1 for its green wood chip rotary dryer.

The following sources of HAP emissions are included in this analysis: Wood Chip Rotary Dryer, Primary Dry Hammermills, Secondary Dry Hammermills, and Pellet Mills/Coolers. Additional sources that have not been emission tested at ABE but may emit HAPs in small amounts based on emission test data from a similar facility include:

- Furnace Bypass Stack
- Wood Chip Rotary Dryer Bypass Stack

- Dry Shavings Truck Dump/Baghouse
- Screened Materials Return System
- Pellet Loading System Pneumatic System Filter

40 CFR 63 Subpart DDDD - NESHAP for Plywood and Composite Wood Products

Subpart DDDD regulates HAP emissions from plywood and composite wood products. (PCWP) manufacturing facilities located at major sources of HAPs. A PCWP manufacturing facility is defined in §63.2292 as one that manufactures plywood and/or composite wood products by bonding wood material or agricultural fiber to form a panel, engineered wood product, or other product defined in §63.2292. Further, an engineered wood product is defined as a product made with wood elements that are bound together with resin, such as laminated strand lumber and glue-laminated beams. The wood pellets that are manufactured at the ABE do not meet the definition of any of the PCWP products defined as subject to Subpart DDDD. The wood pellets are not an engineered wood product, as they will not be bound together with resin or another chemical agent. As such, this regulation is not applicable.

Process Description

Amite BioEnergy, LLC (ABE) is an existing wood pellet manufacturing facility located at 1763 S. Georgia Pacific Road #2 in the town of Gloster in Amite County, Mississippi. The primary raw materials used by the facility are softwood pine logs that are debarked and chipped (green wood chips) onsite and purchased softwood dry wood shavings from surrounding wood products facilities. Green wood chips are fed into a wood chip rotary dryer that is heated with combustion gases that are direct-fired from a 165 MMBTU/hour wood-fired furnace. The dryer reduces the moisture content of the green wood chips from approximately 50 percent to 10 percent. As the wood chips exit the dryer, cyclones are used to separate the dried material from the exhaust gas flow and its fine particles.

The fine dust entrained in rotary dryer exhaust gas leaves the cyclones and enters the Wet Electrostatic Precipitator (WESP) and Regenerative Thermal Oxidizer (RTO). The WESP removes 95 percent of the particulate matter (PM) emissions from the dryer exhaust gas. The RTO removes 95 percent of volatile organic compound (VOC) emissions in the exhaust gas from the WESP before being discharged into the atmosphere.

The wood chips exiting the dryer are conveyed into the primary hammermill feed silo via a vented inclined conveyor. The inclined conveyor is vented due to exposure to significant condensation because chips are still warm and still contain remaining moisture while the conveyor housing is cold especially the colder months of the year.

There are two (2) bin vent filters mounted at the primary hammermill feed silo. A bin vent filter is mounted directly on the roof of primary hammermill feed silo, and another is mounted on top of

the conveyor at the roof inlet of the primary hammermill feed silo. The bin vent filters were originally installed to displace air from the silo roof top entrance as the dried wood chips fall off the enclosed conveyor into the silo. The bin vent filters prevent dusting (particulate matter emissions) as the silo is filled. However, both bin vents are inoperable and will be removed from service due to the bin vents filter's lack of operational reliability. The location of the bin vents will be sealed appropriately.

There are also five (5) elbow-styled vents and one (1) round mushroom-styled vent on the roof of the silo. The elbow-styled ventilation helps ensure free air movement throughout the silo. The round mushroom-styled vent provides air circulation no matter which way the wind is blowing. Ventilation of silos is necessary in order to avoid over-pressurization.

The dry wood chips in the primary hammermill feed silo are fed via three (3) inclined conveyors (designed similarly to the inlet conveyor described above) into six (6) primary dry hammermills. The primary dry hammermills resize the wood chips; then, the resized wood chips are sent via an enclosed conveyer to the Dry Fiber Silos No.1 and No. 2. The bin vents on each dry fiber silo are also inoperable and will be removed from service due to the bin vents filters lack of operational reliability . The location of the bin vent will be sealed appropriately. There are six (6) Primary Dry Hammermill Pneumatic Systems where each system is equipped with a baghouse filter to control particulate matter emissions, and emissions from these baghouse filters are routed to the Regenerative Catalytic Oxidizer (RCO) to control VOC/HAP emissions.

Dry shavings are received at the dry shavings truck dump and placed into a dry shavings storage bin. Dry shavings from the storage bin are conveyed to Dry Fiber Silos No.1 and No. 2. Dry fiber is conveyed from the dry fiber silos into three (3) screens; then, for resizing in three (3) Secondary Dry Hammermills. Each Secondary Dry Hammermill is equipped with a baghouse filter to control particulate matter emissions, and emissions from these baghouse filters are routed to the RCO to control VOC/HAP emissions.

Dry fiber from the secondary dry hammermills is sent via an enclosed conveyor to the six (6) Pellet Mill/Cooler Pneumatic Systems A-F [each system comprised of two (2) pellet mills and one (1) pellet cooler; each system equipped with a baghouse filter to control particulate matter emissions; emission from these sources are routed to the RCO)]. The starch silo and starch system add starch as a binder to the wood fiber just before the pellet mill. The wood fiber is pressed through holes in a die. A cutter on other side of the die cuts the exposed pellet from the die. The cut pellets are air cooled before being conveyed into **two (2) Pellet Storage Silos.**

When wood pellets are conveyed from the two (2) pellet storage silos and loaded onto trucks for transport, the wood pellets are screened to separate wood dust, and particulate generated in the

system after screening is controlled by a baghouse. The screened material is returned to the dry fiber silos with a pneumatic conveyor system.

The total production of wood pellets at ABE is limited to 624,700 oven-dried tons (ODT) per year based on a rolling 12-month total. An “oven-dried ton” equates to a ton of wood at zero percent (0%) moisture. Ultimately the finished wood pellets are used in boilers adapted to combust wood pellets to generate electricity in the United Kingdom.

ABE Sources of Hazardous Air Pollutants

The primary sources emitting hazardous air pollutants at ABE as presented in the previous section are:

- One (1) Wood Chip Rotary Dryer
- Six (6) Primary Dry Hammermills
- Three (3) Secondary Dry Hammermills
- Six (6) Pellet Mill/Cooler Pneumatic Systems A-F

The HAP emissions from all of the primary sources described above are controlled before discharging to the atmosphere. The HAP emissions from the one (1) wood chip rotary dryer are controlled by a WESP and RTO. An RCO controls HAP emissions from the six (6) Dry Hammermills, three (3) Secondary Dry Hammermills and six (6) Pellet Mill/Cooler Pneumatic Systems A-F.

Additional sources that have not been emission tested at ABE but may emit hazardous air pollutants in negligible amounts includes:

- Furnace Bypass Stack
- Wood Chip Rotary Dryer Bypass Stack
- Dry Shavings Truck Dump/Baghouse
- Screened Materials Return System
- Pellet Loading System Pneumatic System Filter

ABE Hazardous Air Pollution Emissions

VOCs which have been designated as hazardous air pollutants are emitted from two primary sources at ABE, the RTO and RCO. The RTO controls VOC/HAP emissions from the wood chip rotary dryer. The RCO controls VOC/HAP emissions from the six (6) Primary Dry Hammermills, three (3) Secondary Dry Hammermills and six (6) Pellet Mill/Cooler Pneumatic Systems A-F.

In an effort to align hazardous air pollutants emitted at ABE with the source category of Subpart DDDD, 40 CFR 63.2292 defines t*otal hazardous air pollutant emissions* as, the sum of the emissions of the following six compounds: **acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde.** The table below presents the estimated emission rate for each HAP emitted from the RTO and RCO.

Pollutants	ABE							
	RTO (1,676 °F)				RCO (750°F)			
	lb/hr	ODT/hr	lb/ODT	tons/year	lb/hr	ODT/hr	lb/ODT	tons/year
VOC, Total	10.30	52.75	0.195	45.114	7.80	68.80	0.113	34.164
Acetaldehyde	0.350	52.75	6.64E-03	1.533	0.240	68.80	3.49E-03	1.0512
Acrolein	0.150	52.75	2.84E-03	0.657	0.090	68.80	1.31E-03	0.3942
Formaldehyde	0.880	52.75	1.67E-02	3.8544	0.230	68.80	3.34E-03	1.0074
Methanol	1.580	52.75	3.00E-02	6.9204	2.660	68.80	3.87E-02	11.6508
Phenol	0.680	52.75	1.29E-02	2.9784	1.440	68.80	2.09E-02	6.3072
Propionaldehyde	0.100	52.75	1.90E-03	0.438	0.220	68.80	3.20E-03	0.9636

Uncontrolled HAP emissions using the calculated removal efficiency based on test data for the RTO and RCO are presented in the table below:

Pollutant	ABE RTO & RCO Removal Efficiency	RTO Uncontrolled Using Efficiency (lb/hr)	RTO Uncontrolled Using Efficiency (tons/yr)	RCO Uncontrolled Using Efficiency (lb/hr)	RCO Uncontrolled Using Efficiency (tons/yr)
VOC, Total	95.9%	253.502	1110.34	191.972	840.84
Acetaldehyde	91.5%	4.113	18.02	2.821	12.35
Acrolein	92.1%	1.895	8.30	1.137	4.98
Formaldehyd	89.3%	8.194	35.89	2.142	9.38
Methanol	73.1%	5.872	25.72	9.885	43.30
Phenol	54.5%	1.496	6.55	3.168	13.87
Propionaldeh	85.8%	0.703	3.08	1.547	6.77

MACT Emission Limits at Other Wood Pellet Mills

The Department recommended presenting information relative to recent permit limits at other wood pellet mills. Sites owned by Drax Biomass, Enviva Biomass, and others are detailed below.

Drax Biomass, Inc.

Drax Biomass, Inc. (Drax) operates wood pellet mills in Bastrop, Louisiana and Urania, Louisiana. These facilities have not undergone HAP emissions testing to establish permit limits; therefore, a MACT analysis has not been performed. Drax also recently purchased and operates wood pellet mills in Aliceville, Alabama and Demopolis, Alabama. The pellet production capacity of these mills is such that these facilities do not exceed the MACT threshold for total HAP emissions or an individual HAP.

Enviva Inc.

Enviva Inc. operates ten manufacturing plants in six U.S. states (listed alphabetically):

*Ashoskie, NC – 410,000 mt/yr	*Lucedale, MS – 750,000 mt/yr
*Amory, MS – 115,000 mt/yr	*Northhampton County, NC – 750,000 mt/yr
Cottondale, FL – 780,000 mt/yr	*Sampson County, NC – 600,000 mt/yr
Greenwood, SC – 500,000 mt/yr	Southhampton County, VA – 760,000 mt/yr
*Hamlet, NC – 600,000 mt/yr	Waycross, GA – 800,000 mt/yr
* Facilities discussed in this analysis; mt/yr – metric tons/year	

Information for the facilities discussed below was found by online data management systems.

Overall, a review of the air permits and HAP emissions test data for the Enviva North Carolina facilities showed that these facilities were able to avoid Case-by-Case MACT until controls were installed and emissions testing performed that demonstrated emissions were less than the MACT threshold for total HAPs and any individual HAP. North Carolina offers a MACT avoidance regulation, which applied to Enviva and allowed them to avoid preparing a Case-by Case MACT analysis. The Lucedale, Mississippi facility is the only facility that could be identified for this analysis that has completed a case-by-case MACT analysis. However, it appears that the MDEQ has not issued a final permit decision on the most recent application for Lucedale.

The September 13, 2022, test data for Enviva's Hamlet, NC facility indicates that the facility is not a major source of HAPs. Additionally, North Carolina offers a MACT avoidance regulation at (15A NCAC 02Q.0317 avoidance of 15A NCA 02D.1112). In short, emission sources at Hamlet which are similar to ABE are also controlled with a WESP, RTO and RCO. However, a key difference between ABE and the North Carolina facilities of Enviva is the wood species. ABE uses 80% southern yellow pine, while Enviva uses 80% hardwood. Fewer VOC emissions; thus; fewer HAP emissions occur from drying of hardwood.

The May 5, 2022, test data for Enviva's Northampton, NC facility indicates that the facility is not a major source of HAPs. The emission sources at Northampton, which are similar to ABE, are also

controlled with a WESP, RTO, and RCO. However, a key difference between ABE and the North Carolina facilities of Enviva is the wood species. ABE uses 80% southern yellow pine, while Enviva uses 80% hardwood. Fewer VOC emissions; thus; fewer HAP emissions occur from drying of hardwood.

Unlike Hamlet and Northampton facilities, the Sampson facility is a PSD Major facility. The Sampson facility operates with 80% softwood, which is similar to ABE. However, recent test data (test date of May 24, 2022) for Sampson is not available online at the time of the writing of this analysis. The emission sources at Sampson, which are similar to ABE, are also controlled with a WESP, RTO, and RCO.

The Ashoskie facility is not a major source of HAPs. A recent NCEQ inspection report dated July 26, 2022, showed the highest individual HAP emitted was 8.95 tons in 2020. Additionally, the air permit shows that unit operations and pellet production is such that the VOC emissions are not controlled. A WESP, cyclones, and fabric filters are control devices for a wood fired dryer, two (2) dry hammermills and two (2) pellet coolers.

The Amory facility is believed to be a minor source of HAP due to pellet production level.

The Cottondale facility uses white wood while ABE uses 80% southern yellow pine. Emissions data for drying white wood is not available to ABE. However, the Cottondale facility controls dryer emissions with a WESP/RTO, and controls dry hammermill and pellet mill emissions with a wet scrubber and RTO/RCO.

The Waycross, GA facility is a major source of HAPs. A recent air permit application shows the facility controlling dryer (Dryers 1 and 2) emissions with a WESP/RTO, hammermills (10) with baghouses and a dedicated RCO (RCO1), and pellet coolers (5) with baghouses and a dedicated RCO (RCO2). The facility adds its dry wood shavings delivered by truck to its dry hammermill feed silo (known as the "Dry Chip Storage Silo") before the hammermills and subsequent pelletizing. Emissions from the dry chip storage silo are controlled by a baghouse and the RCO1 discussed above.

The Lucedale facility prepared a case-by-case MACT analysis for its dry hammermills, pellet mills and pellet coolers in an air permit application of March 2021 for the construction of a new facility. These sources are ultimately controlled with WESP/RTO/RCO systems similar to sources at ABE. The March 2021 air permit application described the Dry Hammer Mill Feed Silo (AA-301):

"Emissions from the Dry Hammer Mill Feed Silo (AA-301) are proposed to be ducted to the Pelletizing Line 1 RTO-4 (AA-306). Emissions from the silo will be negligible. Dry Shavings will

be transferred from the Dry Shavings Silo to the Dry Hammermill Feed Silo where they will be combined with dried wood chips". Dried wood from the dryer material recovery cyclones will be transferred to the Dry Hammermill Feed Silo (AA-301) via enclosed conveyors. The temperature of the dried chips will still be elevated as they exit the dryer material recovery cyclones, potentially resulting in emissions of VOC and HAP. The post-dryer conveyors and the Dry Hammermill Feed Silo will be sealed and aspirated to a quench duct and then to the Pelletizing Line 1 RTO-4 (AA-306) for control of VOC and organic HAP emissions. The purpose of the quench duct is to protect the RTO by reducing the risk of fire. The quench ducts will be installed to protect the oxidizers and are not considered emission control devices."

The MDEQ issued the most recent air permit for the Lucedale Facility in February 2022.

MACT Analysis and Recommended Emissions Limitations

Wood Chip Rotary Dryer

Green wood chips are fed into a wood chip rotary dryer that is heated with combustion gases that are direct-fired from a 165 MMBTU/hour wood-fired furnace. The dryer reduces the moisture content of the green wood chips from approximately 50 percent to 10 percent. The temperature of the dried chips will still be elevated as they exit the rotary dryer material multi-clones resulting in emissions of VOC and HAPs.

The following technologies were identified for use on rotary dryers:

- RTO
- Good Combustion Practices
- RCO
- Thermal Catalytic Oxidizer (TCO)
- Biofiltration Systems

ABE considers these technologies to be available for a rotary dryer.

ABE understands that the use of a biofiltration system has not been demonstrated in practice at a wood pellet manufacturing facility for VOC control. Additionally, the operation of catalyst control downstream of drying operations utilizing WESPs for particulate control at a wood pellet manufacturing facility, which is used at this facility, have not been demonstrated for VOC control. Moreover, an RCO and TCO are prone to major corrosion and catalyst fouling due to deposition of entrained salts and high operating temperatures. Therefore, the RCO, TCO, and biofiltration systems are not technically feasible.

Good combustion practices, as a control technology, are always available and are a technically feasible option for VOC emissions. However, the RTO maintains a 95% to 99% efficiency for VOC emissions, so it is a technically feasible option for VOC control.

The existing RTO at ABE controls wood rotary dryer emissions and achieves a 95% reduction in HAP emissions (measured as VOC). Based a review of several air permits issued to wood pellet facilities in Louisiana and North Carolina, an RTO is commonly used to control VOC emissions from wood chip rotary dryers. For comparison, 40 CFR 63 Subpart DDDD, NESHAP for Plywood and Composite Wood Products, which regulates facilities that manufacture plywood and/or composite wood products by bonding wood materials or agricultural fiber, generally with resin, only requires a HAP reduction of 90%.

Considering the above, ABE proposes use of an RTO achieving at least 90% reduction in HAP emissions (measured as VOC) as MACT for wood chip rotary dryer.

Operating the RTO for continuous compliance may involve:

- Combustion Chamber Outlet Temperature monitored by temperature monitoring device continuously. Temperature monitored by CMS at the outlet of the combustion chamber using thermocouples. [40 CFR 64.6(c)(1)]
- Maintain RTO temperature in both chambers at or above 1,650°F. An excursion is defined as a temperature reading below 1,650°F (three operating hour rolling average) at the outlet of the combustion chamber to maintain a destruction efficiency sufficient to meet the emission limits for CO and VOC. [40 CFR 64.6(c)(2)]
- Maintain the monitoring required under 40 CFR 64 at all times, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment. [40 CFR 64.7(b)]
- Combustion Chamber Outlet Temperature recordkeeping by electronic or hard copy continuously. The combustion chamber outlet temperature data shall be stored in the data acquisition system.

Primary Dry Hammermills, Secondary Dry Hammermills, and Pellet Mill/Coolers

As previously described, ABE operates six (6) Primary Dry Hammermills, three (3) Secondary Dry Hammermills, and six (6) Pellet Mill/Cooler Pneumatic Systems A-F. The primary dry hammermills receive dried wood chips from the primary dry hammermill feed silo. The temperature of the dried chips will remain elevated as they exit the rotary dryer and conveyed from the primary dry hammermill feed silo into the primary dry hammermills resulting in emissions of VOC and HAPs. The hammering action on the wood fiber is also believed to result in emissions of VOC and HAPs from both the primary dry hammermills and the secondary dry hammermills.

VOC and HAP emissions are also entrained in the pneumatic air that transfers the wood fiber from the two (2) dry fiber silos into the pellet mill/coolers process units.

The following technologies were identified for use on the hammermills like those at Drax's facility:

- RTO
- RCO
- TCO
- Bio-oxidation / Biofiltration
- Scrubber

ABE considers these technologies to be available for the milling process units described above. ABE understands that neither the use of a TCO, bio-oxidation, biofiltration, nor wet scrubbers have been demonstrated in practice at a wood pellet manufacturing facility for VOC control; accordingly, these are assumed to be technically infeasible options. The RCO and RTO both maintain a control efficiency of up to 99% and are technically feasible options for VOC control.
As researched, the RTO and RCO both provide the highest control efficiency for VOC control. However, ABE demonstrated that using operating specifications and emissions calculations in its recent PSD permit application, installation of an RCO for the milling operations is more cost effective than an RTO.

Considering the above, ABE proposes use of an RCO achieving at least 90% reduction in HAP emissions (measured as VOC) as MACT for the Primary Dry Hammermills, Dry Shavings Hammermills, and Pellet Mill/Coolers.

Operating the RCO for continuous compliance may involve:

- Outlet Temperature monitored by temperature monitoring device continuously. Temperature monitored by CMS at the outlet of the combustion chamber using thermocouples.
- Maintain the RCO to meet temperature requirements. An excursion is defined as a temperature reading outside of the range between a minimum temperature and maximum temperature (three operating hour rolling average) at the outlet to maintain a destruction efficiency sufficient to meet the emission limits for VOC.
- Outlet Temperature recordkeeping by electronic or hard copy continuously. The combustion chamber outlet temperature data shall be stored in the data acquisition system. [40 CFR 64.9(b)]

- Maintain the monitoring required under 40 CFR 64 at all times, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment.
- Specific QA/QC Procedures: Calibrate, operate, and maintain instrumentation using procedures that take into account manufacturer's specifications. For Combustion Chamber Outlet Temperature: Annual calibration or replacement per manufacturer's specifications.
- Annually, ship the catalyst to the vendor to verify catalyst condition. The catalyst shall be replaced upon recommendation. [40 CFR 64.6(c)(1)]

Primary Dry Hammermill Feed Silo

As previously described, ABE operates six (6) Primary Dry Hammermills which are fed dry wood chips from the Primary Dry Hammermill Feed Silo. The wood chips exiting the dryer are conveyed into the primary hammermill feed silo via a vented inclined conveyor. The inclined conveyor is vented due to exposure to significant condensation because chips are still warm and still contain remaining moisture while the conveyor housing is cold especially the colder months of the year.

There are two (2) bin vent filters mounted at the primary hammermill feed silo. A bin vent filter is mounted directly on the roof of primary hammermill feed silo, and another is mounted on top of the conveyor at the roof inlet of the primary hammermill feed silo. The bin vent filters were originally installed to displace air from the silo roof top entrance as the dried wood chips fall off the enclosed conveyor into the silo. The bin vent filters prevent dusting (particulate matter emissions) as the silo is filled. However, both bin vents are inoperable and will be removed from service due to the bin vents filter's lack of operational reliability. The location of the bin vents will be sealed appropriately.

There are also five (5) elbow-styled vents and one (1) round mushroom-styled vent on the roof of the silo. The elbow-styled ventilation helps ensure free air movement throughout the silo. The round mushroom-styled vent provides air circulation no matter which way the wind is blowing. Ventilation of silos is necessary in order to avoid over-pressurization.

ABE researched the dry hammermill feed silo system at the newly constructed Enviva-Lucedale facility as described above in the section, ***MACT Emission Limits at Other Wood Pellet Mills***. In short, the Lucedale facility controls emission from its Dry Hammermill Feed Silo, (AA-301). However, the Lucedale facility does not describe a "bin vent" at its dry hammermill feed silo, (AA-301), but aspirates VOC and HAP emissions in some manner from the enclosed post-dryer conveyors and the dry hammermill feed silo. Aspirated emissions are sent to a quench duct before entering the Pelletizing Line 1 RTO-4 (AA-306) for control of VOC and organic HAP emissions.

The configuration of the dry hammermill feed silo is a key difference between the Lucedale facility and ABE:

- Lucedale operates three dryer lines and feeds dry shavings received offsite into its dry hammermill feed silo. Therefore the amount of displacement air for feed and silo level change is much higher vs. ABE with its one dryer line.
- The Lucedale facility is permitted for nearly 1.5 times more production than ABE.

ABE recommends the following MACT emission limitation and MACT requirements for dry hammermill feed silos (DHFS) with a bin vent filter: ABE could not identify a dry hammermill feed silo system with a an add-on control technology after the bin filter vent. Although ABE considers the emissions from the system to be negligible, both bin vents are inoperable and will be removed from service due to the bin vents filter's lack of operational reliability. The location of the bin vents will be sealed appropriately.

ABE recommends that a MACT requirement be consistent with understanding the work practices and design of the dry hammermill feed silo and the conveyance system for the dry hammermill feed silo as described. The overall technologies that ABE employs to reduce VOC and HAP emissions, a WESP, RTO, and RCO effectively reduce VOC and HAP emissions.

Furthermore, as previously discussed in section, ***40 CFR 63 Subpart B – Requirements for Control Technology Determinations for Major Sources – Clean Air Act Section 112(g)***, post green rotary dryer emissions are in part controlled by a WESP/RTO but also proceed through the dry hammermill feed silo into the hammermills and pellet mills which are controlled by an RCO. The combination of the WESP/RTO and RCO on post dryer emissions at ABE meets Option 1 in Table 1B to Subpart DDDD of 40 CFR 63. Add-on emission controls for negligible emissions from the dry hammermill feed silo system at ABE would yield a gain of trivial value especially when ABE is already controlling more than 90% of post dryer emissions.

Additional Probable Sources of Hazardous Air Pollutants

The following is a list of additional sources that have not been emission tested at ABE but may emit small amounts of hazardous air pollutants:

- Furnace Bypass Stack
- Wood Chip Rotary Dryer Bypass Stack
- Dry Shavings Truck Dump/Baghouse
- Screened Materials Return System
- Pellet Loading System Pneumatic System Filter

Testing at other facilities and using a 25% safety factor, the HAPs from pellet finishing operations are rather low as shown in the following table:

EQT	Description	VOC, Total	Acetaldehyde	Acrolein	Formaldehyde	Methanol	Phenol	Propionaldehyde	Total HAPs
	Units	**(tpy)**	**(tpy)**	**(tpy)**	**(tpy)**	**(tpy)**	**(tpy)**	**(tpy)**	**(tpy)**
AA-203b	Furnace By-Pass Start/Stop	0.01	0.001	0.003	0.004	0.000	0.000	0.000	0.008
AA-203c	Furnace By-Pass Idle	0.07	0.003	0.017	0.018	0.000	0.000	0.000	0.039
AA-204b	Dryer By-Pass Start/Stop	2.72	0.043	0.013	0.081	0.064	0.016	0.008	0.225
AA-304	Dry Shavings Truck Dump/Baghouse	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AA-401C	Screened Materials Return System	0.97	0.049	0.000	0.093	0.049	0.000	0.000	0.191
AA-401D	Pellet Loading System Pneumatic System Filter	9.69	0.485	0.000	0.920	0.485	0.000	0.000	1.889
	Total Proposed Emissions	**13.46**	**0.58**	**0.03**	**1.12**	**0.60**	**0.02**	**0.01**	**2.35**

The furnace bypass stack and wood chip rotary dryer bypass stack is approved for operating when upset conditions occur at the WESP and RTO. VOC/HAP emissions are accounted for in the air permit but are not controlled.

Dry Shavings Truck Dump receives dry shavings from other wood products facilities. The wood shavings are conveyed to a storage bin after being dumped from the truck. A baghouse is installed to collect fugitive wood dust when the shavings are dumped from the truck. No VOC/HAP emissions are expected from the baghouse filter.

When wood pellets are conveyed from the two (2) pellet storage silos and loaded onto trucks for transport, the wood pellets are screened to separate wood dust, and particulate generated in the system after screening is controlled by a baghouse. The screened material is returned to the dry fiber silos with a pneumatic conveyor system. Any potential VOC/HAP emissions are negligible in the storage or loading pellets due to the prior pellet cooling process after the actual pelletizing of the fiber. There appears to be no wood pellet manufacturing facilities that have used add on controls for VOC/HAP emissions from pellet storage silos. Given the negligible amount of total potential HAP emission from pellet storage silos, it has been determined that the addition of controls for the silos may not be cost effective and may result in additional impacts due to increased fuel combustion from the control device such as an RCO.

Due to the fact that VOC/HAP emissions from the sources related to the silos which are controlled by an RCO, the estimated low level of emissions specifically from the silos, and such silos have not been controlled at other permitted wood pellet manufacturing facilities, ABE proposes no control or work practices as MACT for the silos and pellet loadout system.

COMPLIANCE ASSURANCE MONITORING (CAM) PLANS
Amite BioEnergy, LLC
Gloster, Mississippi

Regenerative Thermal Oxidizer (RTO) – Volatile Organic Compounds (VOC)	
Parameter	**Description**
Indicator	Combustion Chamber Outlet Temperature
Monitoring Approach	Hourly recording of combustion chamber outlet temperature using a thermocouple. Temperature data will be recorded continuously.
Indicator Range	Minimum: Target range: 1500°F, but will be determined during compliance testing, and with an approved emissions testing protocol. The temperature will be optimized to minimize natural gas usage in the RTO while maintaining the desired destruction efficiency.
Response to Indicators Action Level Range	A combustion chamber outlet that is below the applicable minimum threshold temperature during normal operating conditions value will trigger an audible and/or visible alarm in the control room. Amite BioEnergy will take the following immediate corrective actions: * If the temperature cannot be raised to satisfy the applicable minimum threshold within 60 minutes from the start of the excursion, the furnace/dryer will be shutdown. The cause of the excursion must be corrected and documented prior to re-starting the furnace/dryer. The Rotary Dryer is equipped with a bypass stack for WESP and RTO malfunctions.
Quality Improvement Plan Threshold	Six excursions in a six-month reporting period.
Performance Criteria Data Representativeness	Maintenance of adequate combustion chamber temperature assures proper destruction of both CO and VOCs; control efficiency is a function of temperature.
Averaging Period	Three-hour average.
Recordkeeping	Combustion chamber temperature is monitoring continuously. The temperature data will be stored in a data acquisition system.
QA/QC Practices and Criteria	Annual calibration or replacement per manufacturer's specifications.

RTO – VOC and Carbon Dioxide (CO)	
Indicator	Annual inspections of burner assemblies, blowers, fans, dampers, refractory lining, oxidizer shell, fuel lines, and ductwork.
Monitoring Approach	Inspections of burner assemblies, blowers, fans, dampers, refractory lining, oxidizer shell, fuel lines, and ductwork will be conducted annually.
Indicator Range	N/A
Response to Indicators Action Level Range	N/A
Quality Improvement Plan Threshold	N/A
Performance Criteria Data Representativeness	Inspections will ensure proper operation of the burner and RTO.
Averaging Period	Annually.
Recordkeeping	Manual logs of inspections.
QA/QC Practices and Criteria	Logs for these inspections will be reviewed promptly after the annual inspection is performed to ensure that repairs are made or replacement parts are installed in a timely manner.
Wet Electrostatic Precipitator (WESP) – Particulate Matter (PM_{10} and $_{PM2.5}$)	
Indicator	Continuous monitoring of Power (each field) in kW.
Monitoring Approach	Continuously monitor power after each of the three transformer/rectifier sets.
Indicator Range	Change in power (initial proposed ranges for each 3 fields of 20.38 kW); range will be determined during verification of operational status. Power will be optimized during facility compliance testing. A power that is below the applicable minimum threshold value during normal operating conditions will trigger an audible and/or visible alarm in the control room.
Response to Indicators Action Level Range	If the ammeter indicates a change in power, Amite BioEnergy will take the following immediate corrective actions: • Review power levels for irregularities; • Assess the cause of the change in power; • If the power cannot be raised to satisfy the applicable

	minimum threshold within 60 minutes from the start of the excursion, the furnace/dryer will be shutdown. The cause of the excursion must be corrected and documented prior to re-starting the furnace/dryer. • If review of the other parameters indicates a malfunction, furnace/dryer and WESP will be shutdown. The furnace is equipped with a bypass stack for rotary dryer, WESP, and RTO malfunctions.
Quality Improvement Plan Threshold	Six excursions in a six-month reporting period.
Performance Criteria Data Representativeness	Power affects the collection efficiency and is typically low and constant. An increase or drop in power indicates a malfunction.
Averaging Period	The power will be averaged over a 3-hour period.
Recordkeeping	Power is recorded continuously in a data acquisition system.
QA/QC Practices and Criteria	Annual calibration or replacement per manufacturer's recommendations.
Regenerative Catalytic Oxidizer (RCO) – VOCs	
Indicator	Combustion Chamber Outlet Temperature
Monitoring Approach	Hourly recording of combustion chamber outlet temperature using a thermocouple. Temperature data will be recorded continuously.
Indicator Range	Minimum: Target range: 650°F (requested range from manufacturer), but will be determined during compliance testing and with an approved emission testing protocol. The temperature will be optimized to minimize natural gas usage in the RCO while maintaining the desired destruction efficiency.
Response to Indicators Action Level Range	A combustion chamber outlet that is below the applicable minimum threshold temperature during normal operating conditions value will trigger an audible and/or visible alarm in the control room. Amite BioEnergy will take the following immediate corrective actions: * If the temperature cannot be raised to satisfy the applicable minimum threshold within 60 minutes from the start of the excursion, half of the hammermills and pellet coolers will be shut down

	because the RCO has 2 parallel sides. The current design capacity of each chamber is 130,000 SCFM for a total of 260,000 SCFM for two chambers. After the start of the excursion, the blower flow rate shall be reduced to 130,000 SCFM. The cause of the excursion must be corrected and documented prior to re-starting the hammermills and pellet coolers.
Quality Improvement Plan Threshold	Six excursions in a six-month reporting period.
Performance Criteria Data Representativeness	Maintenance of adequate combustion chamber temperature assures proper destruction of VOCs; control efficiency is a function of temperature.
Averaging Period	Three-hour average.
Recordkeeping	Combustion chamber temperature is monitoring continuously. The temperature data will be stored in a data acquisition system.
QA/QC Practices and Criteria	Annual calibration or replacement per manufacturer's specifications.
Hammermill Pneumatic System Filters (Baghouse) – PM_{10} and $PM_{2.5}$	
Indicator	Continuous pressure drop across filters
Monitoring Approach	Differential pressure gauge
Indicator Range	Pressure drop range of 0.25" to 8" H_2O. The cleaning cycle is on a timer.
Response to Indicators Action Level Range	If a change in pressure drop outside the indicator range is observed, Amite BioEnergy will take the following immediate corrective actions: • Conduct visual observation of Hammermill cyclones; • Inspect filters for any tears, leaks or plugging; • Inspect hammermill filters; and • Determine if there is an excursion of visual observations. Differential pressure will be optimized during inspections or maintenance activities.
Quality Improvement Plan Threshold	Six excursions in a six-month reporting period.
Performance Criteria Data Representativeness	Indication of performance degradation by increase or decrease in pressure drop outside the operational ranges.
Averaging Period	Three-hour average

Recordkeeping	All pressure drop measurements will be recorded in an electronic database.
QA/QC Practices and Criteria	Calibration of differential pressure gauge per manufacturer's specifications and annual inspection of hammermill filters.
Pellet Cooler Pneumatic System Filters (Baghouse) – PM_{10} and $PM_{2.5}$	
Indicator	Continuous pressure drop across filters
Monitoring Approach	Differential pressure gauge
Indicator Range	Pressure drop range of 0.25" to 8" H_2O. The cleaning cycle is on a timer.
Response to Indicators Action Level Range	If a change in pressure drop outside the indicator range is observed, Amite BioEnergy will take the following immediate corrective actions: • Conduct visual observation of Hammermill cyclones; • Inspect filters for any tears, leaks or plugging; • Inspect hammermill filters; and • Determine if there is an excursion of visual observations. Differential pressure will be optimized during inspections or maintenance activities.
Quality Improvement Plan Threshold	Six excursions in a six-month reporting period.
Performance Criteria Data Representativeness	Indication of performance degradation by increase or decrease in pressure drop outside the operational ranges.
Averaging Period	Three-hour average
Recordkeeping	All pressure drop measurements will be recorded in an electronic database.
QA/QC Practices and Criteria	Calibration of differential pressure gauge per manufacturer's specifications and annual inspection of hammermill filters.
Regenerative Catalytic Oxidizer (RCO) – VOCs	
Indicator	Annual inspections of burner/combustion chamber to ensure that all refractory modules are in good shape and that the ceramic media shows no sign of degradation. Remove the main fan access hatch and examine the wheel for signs of particulate deposition or corrosion. Examine the main fan coupling to ensure proper alignment is being maintained. Examine the combustion burner internals. Verify instrumentation calibration.

Monitoring Approach	Inspections for burner assemblies, blowers, fans, dampers, refractory lining, oxidizer shell, fuel lines, and ductwork will be conducted annually.
Indicator Range	N/A
Response to Indicators Action Level Range	N/A
Quality Improvement Plan Threshold	N/A
Performance Criteria Data Representativeness	Inspections will ensure proper operation of the burners and RCO.
Averaging Period	Annually
Recordkeeping	Manual logs of inspections
QA/QC Practices and Criteria	Logs for these inspections will be reviewed promptly after the annual inspection is performed to ensure that repairs are made or replacement parts are installed in a timely manner.