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Received

FEB 17 2020

Air Permits Section

William D. Willets, PE
Chief, Permitting Section, Division of Air Quality
North Carolina Department of Environment Quality
1641 Mail Service Center
Raleigh, North Carolina 27699-1641

Re: Permit Modification for Enviva Pellets Sampson, LLC
Faison, North Carolina
Sampson County
Permit No.: 10386R4
Facility ID: 8200152

Dear Mr. Willets:

Date February 14, 2020

On behalf of Enviva Pellets Sampson, LLC (Enviva), Ramboll US Corporation (Ramboll) is submitting this application for a permit modification to correct the PM_{2.5} Best Available Control Technology (BACT) limit for the Dry Hammermills (ID Nos. ES-HM-1 to ES-HM-8) and PM₁₀ BACT limit for the Pellet Presses and Coolers (ID Nos. ES-CLR-1 to ES-CLR-6) included in Condition 2.2 A.1.b of Air Permit No. 10386R04, issued on October 2, 2019. Enviva submitted a request for an Administrative Permit Amendment to address the Dry Hammermill PM_{2.5} BACT limit on November 22, 2019 based on initial discussions with the Division of Air Quality (DAQ). However, after further consideration, on November 27, 2019, DAQ requested that Enviva submit an application to modify the permit that includes a more detailed discussion of the reasons for the incorrect limit that is currently in the permit along with data supporting a new BACT limit. Since this time, it has come to Enviva's attention that an update is also required for the PM₁₀ BACT limit for the Pellet Presses and Pellet Coolers, as described in detail below.

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This permit modification application was prepared in accordance with 15A North Carolina Administrative Code (NCAC) 02Q .0516. Additional information regarding this request is provided below. Potential emissions calculations are provided as Attachment A and application forms are provided as Attachment B. The application forms only address those sources impacted by this modification (i.e., ID Nos. ES-HM-1 to ES-HM-8 and ES-CLR-1 to ES-CLR-6).

As required by 15A NCAC 02Q .0305(b)(3), three (3) copies of the permit application are enclosed. The application processing fee of \$988 will be paid electronically through the North Carolina Division of Environmental Quality (DEQ) ePayment system.¹

Dry Hammermills - PM_{2.5} BACT LIMIT

The Dry Hammermill PM_{2.5} BACT limit included in Air Permit No. 10386R04 is 0.000014 grains per standard cubic feet (gr/scf), which is cleaner than ambient air and would require a sampling run of over 100 hours to quantify. Enviva submits that compliance with this limit is not achievable, quantification of emissions at this level is likely impossible, and the limit is inconsistent with the intent and definition of BACT at 40 CFR 52.21(b)(12). Enviva believes that this incorrect emission limit resulted from the fraction of particulate matter (PM) emissions that would be PM_{2.5} being incorrectly quantified at 0.35% in the Prevention of Significant Deterioration (PSD) permit application submitted in August 2014. Enviva has not been able to find any documentation to support a value of 0.35% and, given that this results in a concentration that is cleaner than ambient air, Enviva believes this value was used in error.

PM emissions from each Dry Hammermill are controlled by a dedicated baghouse (CD-HM-BH1 through CD-HM-BH8). Typical baghouse control efficiencies range between 99% and 99.9% for particulates (PM/PM₁₀/PM_{2.5}), with a typical exit grain loading rate of 1 to 100 gr/scf.² Given that the control efficiency achieved by a baghouse is upwards of 99%, baghouses were determined to be BACT for the Dry Hammermills. In order to determine an appropriate PM_{2.5} BACT limit for the Dry Hammermills, Enviva reviewed National Council for Air and Stream Improvement, Inc. (NCASI) particle size distribution data for similar baghouses used in the wood products industry. Based on this review, Enviva has determined that the correct fraction of PM that is PM_{2.5} is 40%. Therefore, Enviva is requesting that the PM_{2.5} BACT limit for the Dry Hammermills be corrected to 0.0016 gr/scf (filterable only) in Condition 2.2 A.1.b of Air Permit No. 10386R04. Given that a baghouse is a widely accepted, and the most effective, particulate control option, this revised limit meets the definition of BACT under 40 CFR 52.21(b)(12). No changes are requested for the Dry Hammermill PM or PM₁₀ BACT limits.

Pellet Press and Pellet Coolers - PM₁₀ BACT LIMIT

As part of the Softwood Expansion Project, the particulate matter (PM) exit grain loading rate for the Pellet Cooler cyclones was updated from 0.022 gr/scf to 0.04 gr/scf. In both the original PSD permit application and the permit application for the Softwood Expansion Project, PM₁₀ and PM_{2.5} emissions were calculated as a fraction of PM based on speciation data from stack testing at another Enviva plant (26.1% and 3.2%, respectively). While the PM BACT limit was updated in Condition 2.2 A.1.b of Air Permit No. 10386R04 as issued to reflect 0.04 gr/scf, the PM₁₀ and PM_{2.5} BACT limits were not updated, despite the fact that these limits are directly dependent on the PM limit. Enviva requests that the PM₁₀ BACT limit for the Pellet Cooler cyclones be corrected

¹ 15A NCAC 02Q .0200

² EPA, *Air Pollution Control Technology Fact Sheet, Fabric Filter – Pulse-Jet Cleaned Type (also referred to as Baghouses)*, EPA-452/F-03-025. <https://www3.epa.gov/ttn/catc/dir1/ff-pulse.pdf>



to 0.01 gr/scf (filterable only) in Condition 2.2 A.1.b of Air Permit No. 10386R04. Stack testing completed for the Pellet Cooler cyclones in December 2019 and submitted to DAQ in January 2020 supports the requested value. Although the currently permitted PM_{2.5} BACT limit is lower than the emissions reflected in the application for the Softwood Expansion Project, no change is requested for the PM_{2.5} BACT limit because the current permit value is greater than the December 2019 stack test results.

The revised PM₁₀ limit for the Pellet Presses and Coolers meets the definition of BACT under 40 CFR 52.21(b)(12). As documented in the March 2018 permit application for the Softwood Expansion Project, the incremental cost effectiveness associated with the addition of baghouses is high (in excess of \$10,000/ton) due to the relatively low PM emissions from the Pellet Presses and Coolers and the relatively high initial capital and annual operating costs associated with the installation and operation of baghouses. As such, use of baghouses was deemed not representative of BACT.

CLOSING

Thank you for your prompt attention to this matter. If you have any questions regarding this application for a significant modification, please contact me at (225) 408-2691 or Kai Simonsen, Air Permit Engineer at Enviva, at (984) 789-3628.

Yours sincerely,

Michael Carbon
Managing Principal

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Enclosures: Potential Emissions Calculations
Forms

cc: Kai Simonsen (Enviva)
Yana Kravtsova (Enviva)



Attachment A Potential Emissions Calculations

Table 2 (Revised)
Summary of Facility-wide Potential Emissions
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Emission Unit ID	Source Description	Control Device ID	Control Device Description	CO (tpy)	NO _x (tpy)	PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	SO ₂ (tpy)	VOC (tpy)	CO ₂ e (tpy)
IES-CHIP-1	Log Chipping	--	--	--	--	--	--	--	--	1.64	--
IES-BARKHOG	Bark Hog	--	--	--	--	0.24	0.13	0.13	--	0.30	--
ES-DRYER	250.4 MMBtu/hr wood-fired direct heat drying system	CD-WESP CD-RTO	WESP; RTO	219	219	33.3	33.3	33.3	27.4	50.6	256,230
ES-GHM-1 through 3	Three (3) Green Wood Hammermills	CD-WESP CD-RTO	WESP; RTO								
ES-HM-1 through 8	Eight (8) Dry Hammermills	CD-HM-BH1 through 8	Eight (8) baghouses	--	--	18.0	18.0	7.21	--	168	--
ES-HMC	Hammermill Conveying System	CD-HMC-BH	One (1) baghouse	--	--	0.23	0.23	0.23	--	--	--
ES-HMA	Hammermill Area	CD-PCLP-BH	One (1) baghouse	--	--	0.47	0.47	0.47	--	--	--
ES-PCLP	Pellet Cooler LP Fines Relay System										
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	One (1) baghouse	--	--	0.37	0.37	0.37	--	--	--
ES-CLR-1 through 6	Six (6) Pellet Coolers	CD-CLR-1 through 6	Six (6) simple cyclones (one on each cooler)	--	--	151	39.4	2.66	--	572	--
ES-PCHP	Pellet Cooler HP Fines Relay System	CD-PCHP-BH	One (1) baghouse	--	--	0.15	0.15	0.15	--	--	--
ES-PSTB	Pellet Sampling Transfer Bin	CD-PSTB-BH	One (1) baghouse	--	--	0.15	0.15	0.15	--	--	--
ES-FPH	Finished Product Handling	CD-FPH-BH	One (1) baghouse	--	--	1.28	1.16	0.022	--	--	--
ES-PB-1 through 4	Four (4) Pellet Loadout Bins										
ES-PL-1 and 2	Two (2) Pellet Mill Loadouts										
ES-DWH	Dried wood handling operations	CD-DWH-BH-1 through -2	Two (2) baghouses	--	--	0.30	0.30	0.30	--	40.8	--
ES-ADD	Additive Handling and Storage	CD-ADD-BH	One (1) baghouse	--	--	0.15	0.15	0.15	--	--	--
IES-GWH	Green wood handling operations	--	--	--	--	0.081	0.038	0.0058	--	--	--
IES-TK-1	2,500 gal diesel storage tank	--	--	--	--	--	--	--	--	5.85E-04	--
IES-TK-2	500 gal diesel storage tank	--	--	--	--	--	--	--	--	1.60E-04	--
IES-TK-3	3,000 gal diesel storage tank	--	--	--	--	--	--	--	--	0.0022	--
IES-GWSP-1 through 4	Green wood storage piles	--	--	--	--	15.4	7.68	1.15	--	6.87	--
IES-BFSP-1 and 2	Bark fuel storage piles	--	--	--	--	0.64	0.32	0.048	--	0.29	--
IES-DRYSHAVE	Dry shavings material handling	--	--	--	--	0.054	0.025	0.0039	--	--	--
IES-DEBARK-1	Debarker	--	--	--	--	1.13	0.62	0.62	--	--	--
IES-BFB ¹	Bark fuel bin	--	--	--	--	--	--	--	--	--	--
IES-EG	689 hp diesel-fired emergency generator	--	--	0.18	1.51	0.019	0.019	0.019	0.0019	0.019	195
IES-FWP	131 hp diesel-fired fire water pump	--	--	0.07	0.18	0.0092	0.0092	0.0092	4.79E-04	0.0081	50.4
--	Paved Roads	--	--	--	--	16.4	3.27	0.80	--	--	--
Total Emissions:				219	221	239	106	47.8	27.4	840	256,475
Total Excluding Fugitives²:				219	221	205	93.4	44.7	27.4	831	256,475

Notes:

- ¹ Bark fuel is transferred by walking floor to covered conveyors to fully enclosed bark fuel bin to pusher(s) into furnace. Therefore, there are no emissions expected from the bin.
- ² Fugitive emissions are not included in comparison against the major source threshold because the facility is not on the list of 28 source categories in 40 CFR 52.21.

Abbreviations:

ES - Emission Sources
 IES - Insignificant Emission Source
 CO - carbon monoxide
 CO₂e - carbon dioxide equivalent
 NO_x - nitrogen oxides
 PM - particulate matter

PM₁₀ - particulate matter with an aerodynamic diameter less than 10 microns
 PM_{2.5} - particulate matter with an aerodynamic diameter of 2.5 microns or less
 SO₂ - sulfur dioxide
 tpy - tons per year
 VOC - volatile organic compounds

Table 3
Summary of Facility-wide HAP Emissions
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Pollutant	RTO ¹ (tpy)	ES-HM-1 through 8 (tpy)	ES-CLR-1 through 6 (tpy)	IES-EG (tpy)	IES-FWP (tpy)	ES-DWH (tpy)	IES-CHIP-1 (tpy)	IES- BARKHOG (tpy)	Total HAP (tpy)
Acetaldehyde	1.9	2.55	2.76	9.2E-04	1.8E-04	--	--	--	7.19
Acetophenone	1.8E-07	--	--	--	--	--	--	--	1.8E-07
Acrolein	1.1	3.02	16.6	1.1E-04	2.1E-05	--	--	--	20.6
Antimony & Compounds	6.3E-04	--	--	--	--	--	--	--	6.3E-04
Arsenic & Compounds	0.0018	--	--	--	--	--	--	--	0.0018
Benzo(a)pyrene	1.4E-04	--	--	2.3E-07	4.3E-08	--	--	--	1.4E-04
Benzene	0.33	--	--	0.0011	2.1E-04	--	--	--	0.33
Beryllium metal	8.9E-05	--	--	--	--	--	--	--	8.9E-05
Butadiene, 1,3-	--	--	--	4.7E-05	9.0E-06	--	--	--	5.6E-05
Cadmium Metal	4.8E-04	--	--	--	--	--	--	--	4.8E-04
Carbon tetrachloride	0.0025	--	--	--	--	--	--	--	0.0025
Chlorine	0.87	--	--	--	--	--	--	--	0.87
Chlorobenzene	0.0018	--	--	--	--	--	--	--	0.0018
Chloroform	0.0015	--	--	--	--	--	--	--	0.0015
Chromium VI	2.8E-04	--	--	--	--	--	--	--	2.8E-04
Chromium-Other compds	0.0016	--	--	--	--	--	--	--	0.0016
Cobalt compounds	5.3E-04	--	--	--	--	--	--	--	5.3E-04
Dichlorobenzene	1.6E-04	--	--	--	--	--	--	--	1.6E-04
Dichloroethane, 1,2-	0.0016	--	--	--	--	--	--	--	0.0016
Dichloropropane, 1,2-	0.0018	--	--	--	--	--	--	--	0.0018
Dinitrophenol, 2,4-	9.9E-06	--	--	--	--	--	--	--	9.9E-06
Di(2-ethylhexyl)phthalate	2.6E-06	--	--	--	--	--	--	--	2.6E-06
Ethyl benzene	0.0017	--	--	--	--	--	--	--	0.0017
Formaldehyde	1.2	2.24	10.2	0.0014	2.7E-04	0.28	--	--	14.0
Hexane	0.25	--	--	--	--	--	--	--	0.25
Hydrochloric acid	2.1	--	--	--	--	--	--	--	2.08
Lead and Lead Compounds	0.0039	--	--	--	--	--	--	--	0.0039
Manganese & Compounds	0.13	--	--	--	--	--	--	--	0.13
Mercury, vapor	3.1E-04	--	--	--	--	--	--	--	3.1E-04
Methanol	2.2	1.44	78.8	--	--	0.64	0.33	0.060	83.5
Methyl bromide	8.2E-04	--	--	--	--	--	--	--	8.2E-04
Methyl chloride	0.0013	--	--	--	--	--	--	--	0.0013
Methylene chloride	0.016	--	--	--	--	--	--	--	0.016
Naphthalene	0.0054	--	--	1.0E-04	1.9E-05	--	--	--	0.0055
Nickel metal	0.0029	--	--	--	--	--	--	--	0.0029
Nitrophenol, 4-	6.0E-06	--	--	--	--	--	--	--	6.0E-06
Pentachlorophenol	5.6E-05	--	--	--	--	--	--	--	5.6E-05
Perchloroethylene	0.042	--	--	--	--	--	--	--	0.042
Phenol	1.3	1.14	8.28	--	--	--	--	--	10.8
Phosphorus Metal, Yellow or White	0.0021	--	--	--	--	--	--	--	0.0021
Polychlorinated Biphenyls	4.5E-07	--	--	--	--	--	--	--	4.5E-07
Propionaldehyde	0.48	5.26	3.55	--	--	--	--	--	9.28
Selenium Compounds	2.3E-04	--	--	--	--	--	--	--	2.3E-04
Styrene	0.10	--	--	--	--	--	--	--	0.10
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	4.7E-10	--	--	--	--	--	--	--	4.7E-10
Toluene	0.0021	--	--	4.9E-04	9.4E-05	--	--	--	0.0027
Total PAH (POM)	0.14	--	--	2.0E-04	3.9E-05	--	--	--	0.14
Trichloroethane, 1,1,1-	0.034	--	--	--	--	--	--	--	0.034
Trichloroethylene	0.0016	--	--	--	--	--	--	--	0.0016
Trichlorophenol, 2,4,6-	1.2E-06	--	--	--	--	--	--	--	1.2E-06
Vinyl Chloride	9.9E-04	--	--	--	--	--	--	--	9.9E-04
Xylene	0.0014	--	--	3.4E-04	6.5E-05	--	--	--	0.0018
Total HAP Emissions² (tpy)	12.1	15.6	120	0.0047	8.9E-04	0.92	0.33	0.060	149
Maximum Individual HAP (tpy)	Methanol	Propionaldehyde	Methanol	Formaldehyde	Formaldehyde	Methanol	Methanol	Methanol	Methanol
Maximum Individual HAP Emissions (tpy)	2.16	5.26	78.8	0.0014	2.7E-04	0.64	0.33	0.060	83.5

Notes:

- Includes emissions at outlet of RTO stack as well as the maximum HAP combustion emissions resulting from either propane or NG by the RTO burners. The RTO controls emissions from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3).
- Because benzo(a)pyrene and naphthalene emissions were presented individually and as components of total PAH emissions, the total HAP emissions presented here do not match the sum of all pollutant emissions to avoid double counting benzo(a)pyrene and naphthalene emissions.

Abbreviations:

HAP - hazardous air pollutant
 tpy - tons per year

Table 5 (Revised)
Summary of Baghouse and Cyclone Potential Emissions
Enviva Pellets Sampson, LLC
Falson, Sampson County, North Carolina

Emission Unit ID	Source Description	Control Device ID	Control Device Description	Exhaust Flow Rate (cfm)	Exit Grain Loading			Potential Emissions					
					PM (gr/cf)	PM ₁₀ (gr/cf)	PM _{2.5} (gr/cf)	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
ES-HM-1	Dry Hammermill	CD-HM-BH1	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-2	Dry Hammermill	CD-HM-BH2	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-3	Dry Hammermill	CD-HM-BH3	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-4	Dry Hammermill	CD-HM-BH4	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-5	Dry Hammermill	CD-HM-BH5	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-6	Dry Hammermill	CD-HM-BH6	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-7	Dry Hammermill	CD-HM-BH7	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HM-8	Dry Hammermill	CD-HM-BH8	Baghouse ^{1,2,3}	15,000	0.004	0.004	0.0016	0.51	2.25	0.51	2.25	0.21	0.90
ES-HMC	Hammermill Conveying System	CD-HMC-BH	Baghouse ^{2,4,5}	1,500	0.004	0.004	0.0016	0.051	0.23	0.051	0.23	0.051	0.23
ES-HMA	Hammermill Area												
ES-PCHP	Pellet Cooler HP Fines Relay System	CD-PCHP-BH	Baghouse ^{1,2,4}	3,102	0.004	0.004	0.004	0.11	0.47	0.11	0.47	0.11	0.47
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	Baghouse ^{1,2,4}	2,444	0.004	0.004	0.004	0.084	0.37	0.084	0.37	0.084	0.37
ES-CLR-1	Pellet Cooler	CD-CLR-1	Simple cyclone ⁶	16,746	0.04	0.010	0.0007	5.74	25.1	1.50	6.56	0.10	0.44
ES-CLR-2	Pellet Cooler	CD-CLR-2	Simple cyclone ⁶	16,746	0.04	0.010	0.0007	5.74	25.1	1.50	6.56	0.10	0.44
ES-CLR-3	Pellet Cooler	CD-CLR-3	Simple cyclone ⁶	16,746	0.04	0.010	0.0007	5.74	25.1	1.50	6.56	0.10	0.44
ES-CLR-4	Pellet Cooler	CD-CLR-4	Simple cyclone ⁶	16,746	0.04	0.010	0.0007	5.74	25.1	1.50	6.56	0.10	0.44
ES-CLR-5	Pellet Cooler	CD-CLR-5	Simple cyclone ⁶	16,746	0.04	0.010	0.0007	5.74	25.1	1.50	6.56	0.10	0.44
ES-CLR-6	Pellet Cooler	CD-CLR-6	Simple cyclone ⁶	16,746	0.04	0.010	0.0007	5.74	25.1	1.50	6.56	0.10	0.44
ES-PCLP	Pellet Cooler LP Fines Relay System	CD-PCLP-BH	Baghouse ^{1,2,4}	1,000	0.004	0.004	0.004	0.034	0.15	0.034	0.15	0.034	0.15
ES-PSTB	Pellet Sampling Transfer Bin	CD-PSTB-BH	Baghouse ^{1,2,4}	1,000	0.004	0.004	0.004	0.034	0.15	0.034	0.15	0.034	0.15
ES-FPH	Finished Product Handling												
ES-PL-1 through 4	Four (4) Pellet Loadout Bins	CD-FPH-BH	Baghouse ^{1,7,8}	8,500	0.004	0.004	0.000014	0.29	1.28	0.27	1.16	0.0010	0.004
ES-PL-1 and 2	Two (2) Pellet Mill Loadouts												
ES-DWH	Dried Wood Handling Operations (conveyors)	CD-DWH-BH-1	Baghouse ^{1,2,4}	1,000	0.004	0.004	0.004	0.034	0.15	0.034	0.15	0.034	0.15
ES-ADD	Additive Handling and Storage	CD-DWH-BH-2	Baghouse ^{1,2,4}	1,000	0.004	0.004	0.004	0.034	0.15	0.034	0.15	0.034	0.15
ES-ADD	Additive Handling and Storage	CD-ADD-BH	Baghouse ^{2,4}	1,000	0.004	0.004	0.004	0.034	0.15	0.034	0.15	0.034	0.15

Notes:

- Control device flow rate (cfm) provided by design engineering firm (Mid-South Engineering Co.).
- No specification data is available for PM₁₀. Therefore, it is conservatively assumed to be equal to total PM.
- Dry Hammermill PM_{2.5} specification (40% of total PM) based on a review of NCAST particle size distribution data for similar baghouses used in the wood products industry.
- No specification data is available for PM_{2.5}. Therefore, it is conservatively assumed to be equal to total PM.
- Exhaust flow rate provided by the vendor (WPI).
- Exit grain loading rate (gr/cf) for total PM based on June 21, 2017 conference call and March 27, 2017 stack test parameters. Exhaust flow rate provided by Enviva (16,500 dcfm at 4.89% moisture). PM₁₀ specification (26.1% of total PM) based on specification data from testing at another Enviva facility. PM_{2.5} exit grain loading rate is equal to the current BACT limit in Condition 2.2 A.1.b of Air Permit No. 10386RD4.
- Finished product handling PM₁₀ specification (91% of total PM) based on emission factors for wet wood combustion controlled by a mechanical separator from AP-42, Section 1.6 - Wood Residue Combustion in Boilers, 09/03. Because the particle size of particulate matter from finished product handling is anticipated to be larger than flyash, this factor is believed to be a conservative indicator of specification.
- PM_{2.5} exit grain loading rate is equal to the current BACT limit in Condition 2.2 A.1.b of Air Permit No. 10386RD4.

Abbreviations:

- cf - cubic feet
- cfm - cubic feet per minute
- dcfm - dry cubic feet per minute
- ES - Emission Sources
- IES - Insignificant Emission Source
- gr - grain
- hr - hour
- lb - pound
- NCAST - National Council for Air and Stream Improvement, Inc.
- PM - particulate matter
- PM₁₀ - particulate matter with an aerodynamic diameter less than 10 microns
- PM_{2.5} - particulate matter with an aerodynamic diameter of 2.5 microns or less
- tpy - tons per year

Table 6
Dry Hammermill Potential VOC and HAP Emissions
ES-HM-1 through -8
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Calculation Basis

Hourly Throughput	102 ODT/hr
Annual Throughput	558,450 ODT/yr
Hours of Operation	8,760 hr/yr

Potential VOC and HAP Emissions

Pollutant	CAS No.	NC TAP	VOC	Emission Factor ¹	Potential Emissions	
				(lb/ODT)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Y	0.0091	0.93	2.55
Acrolein	107-02-8	Y	Y	0.011	1.10	3.02
Formaldehyde	50-00-0	Y	Y	0.0080	0.82	2.24
Methanol	67-56-1	N	Y	0.0052	0.53	1.44
Phenol	108-95-2	Y	Y	0.0041	0.42	1.14
Propionaldehyde	123-38-6	N	Y	0.019	1.92	5.26
Total HAP Emissions					5.72	15.6
Total VOC	--	--	Y	0.60	61.2	168

Notes:

¹ Emission factors are based on stack testing data from comparable Enviva facilities.

Abbreviations:

CAS - chemical abstract service
HAP - hazardous air pollutant
hr - hour
lb - pound
NC - North Carolina

ODT - oven dried tons
TAP - toxic air pollutant
tpy - tons per year
VOC - volatile organic compound
yr - year

Table 7
Pellet Cooler and Pellet Mill Potential VOC and HAP Emissions
ES-CLR-1 through 6
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Calculation Basis

Hourly Throughput	120 ODT/hr
Annual Throughput	657,000 ODT/yr
Hours of Operation	8,760 hr/yr

Potential VOC and HAP Emissions

Pollutant	CAS No.	NC TAP	VOC	Emission Factor ¹	Potential Emissions	
				(lb/ODT)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Y	0.0084	1.01	2.76
Acrolein	107-02-8	Y	Y	0.050	6.05	16.6
Formaldehyde	50-00-0	Y	Y	0.031	3.74	10.2
Methanol	67-56-1	N	Y	0.24	28.8	78.8
Phenol	108-95-2	Y	Y	0.025	3.02	8.28
Propionaldehyde	123-38-6	N	Y	0.011	1.30	3.55
Total HAP Emissions					43.9	120
Total VOC	--	--	Y	1.74	209	572

Notes:

¹ Emission factors were derived based on stack testing data from comparable Enviva facilities.

Abbreviations:

CAS - chemical abstract service	ODT - oven dried tons
HAP - hazardous air pollutant	TAP - toxic air pollutant
hr - hour	tpy - tons per year
lb - pound	VOC - volatile organic compound
NC - North Carolina	yr - year



Attachment B Application Forms

FORM A
GENERAL FACILITY INFORMATION

Air Permits Section

A

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

<input type="checkbox"/> Local Zoning Consistency Determination (new or modification only)	<input type="checkbox"/> Appropriate Number of Copies of Application	Application Fee (please check one option below) <input type="checkbox"/> Not Required <input checked="" type="checkbox"/> ePayment <input type="checkbox"/> Check Enclosed
<input checked="" type="checkbox"/> Responsible Official/Authorized Contact Signature	<input checked="" type="checkbox"/> P.E. Seal (if required)	

GENERAL INFORMATION

Legal Corporate/Owner Name: Enviva PelletsSampson, LLC

Site Name: Enviva PelletsSampson, LLC

Site Address (911 Address) Line 1: 5 Connector Road

Site Address Line 2:

City: Faison **State:** North Carolina

Zip Code: 28341 **County:** Sampson

CONTACT INFORMATION

Responsible Official/Authorized Contact:	Invoice Contact:
Name/Title: Jason Ansley, Plant Manager	Name/Title: William Simon, EHS Manager
Mailing Address Line 1: 5 Connector Road, US 117	Mailing Address Line 1: 5 Connector Road, US 117
Mailing Address Line 2:	Mailing Address Line 2:
City: Faison State: NC Zip Code: 28341	City: Faison State: NC Zip Code: 28341
Primary Phone No.: 757-556-3454 Fax No.:	Primary Phone No.: 910-375-6305 Fax No.:
Secondary Phone No.:	Secondary Phone No.:
Email Address: jason.ansley@envivabiomnass.com	Email Address: William.Simon@envivabiomass.com
Facility/Inspection Contact:	Permit/Technical Contact:
Name/Title: William Simon, EHS Manager	Name/Title: Kai Simonsen, Air Permit Engineer
Mailing Address Line 1: 5 Connector Road, US 117	Mailing Address Line 1: 4242 Six Forks Rd., Suite 1050
Mailing Address Line 2:	Mailing Address Line 2:
City: Faison State: NC Zip Code: 28341	City: Raleigh State: NC Zip Code: 27609
Primary Phone No.: 910-375-6305 Fax No.:	Primary Phone No.: 984-789-3628 Fax No.:
Secondary Phone No.:	Secondary Phone No.:
Email Address: William.Simon@envivabiomass.com	Email Address: Kai.Simonsen@envivabiomass.com

APPLICATION IS BEING MADE FOR

New Non-permitted Facility/Greenfield Modification of Facility (permitted) Renewal Title V Renewal Non-Title V

Name Change Ownership Change Administrative Amendment Renewal with Modification

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

General Small Prohibitory Small Synthetic Minor Title V

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s):

Primary SIC/NAICS Code: 2499 (Wood Products, not elsewhere classified) **Facility ID No. 8200152**

Facility Coordinates: Latitude: 35 degrees, 7 minutes, 19.8 seconds **Current/Previous Air Permit No. 10386R04 Expiration Date: 9/30/2027**

Longitude: 78 degrees, 10 minutes, 59.7 seconds


Does this application contain confidential data? YES NO *****If yes, please contact the DAQ Regional Office prior to submitting this application.*** (See Instructions)**

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name: Michael Carbon	Firm Name: Ramboll US Corporation
Mailing Address Line 1: 8235 YMCA Plaza Drive, Suite 300	Mailing Address Line 2:
City: Baton Rouge State: Louisiana	Zip Code: 70810 County:
Phone No.: (225) 408-2691 Fax No.:	Email Address: mcarbon@ramboll.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Jason Ansley **Title:** Plant Manager

X Signature (Blue Ink):  **Date:** 2/13/20

Attach Additional Sheets As Necessary

FORM A (continued, page 2 of 2)

GENERAL FACILITY INFORMATION

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

A

SECTION AA1 - APPLICATION FOR NON-TITLE V PERMIT RENEWAL

_____ (Company Name) hereby formally requests renewal of Air Permit No. _____

There have been no modifications to the originally permitted facility or the operations therein that would require an air permit since the last permit was issued.

Is your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Clean Air Act? YES NO

If yes, have you already submitted a Risk Management Plan (RMP) to EPA? YES NO Date Submitted: _____

Did you attach a current emissions inventory? YES NO

If no, did you submit the inventory via AERO or by mail? Via AERO Mailed Date Mailed: _____

SECTION AA2- APPLICATION FOR TITLE V PERMIT RENEWAL

In accordance with the provisions of Title 15A 2Q .0513, the responsible official of _____ (Company Name) hereby formally requests renewal of Air Permit No. _____ (Air Permit No.) and further certifies that:

- (1) The current air quality permit identifies and describes all emissions units at the above subject facility, except where such units are exempted under the North Carolina Title V regulations at 15A NCAC 2Q .0500;
- (2) The current air quality permit cites all applicable requirements and provides the method or methods for determining compliance with the applicable requirements;
- (3) The facility is currently in compliance, and shall continue to comply, with all applicable requirements. (Note: As provided under 15A NCAC 2Q .0512 compliance with the conditions of the permit shall be deemed compliance with the applicable requirements specifically identified in the permit);
- (4) For applicable requirements that become effective during the term of the renewed permit that the facility shall comply on a timely basis;
- (5) The facility shall fulfill applicable enhanced monitoring requirements and submit a compliance certification as required by 40 CFR Part 64.

The responsible official (signature on page 1) certifies under the penalty of law that all information and statements provided above, based on information and belief formed after reasonable inquiry, are true, accurate, and complete.

SECTION AA3- APPLICATION FOR NAME CHANGE

New Facility Name: _____

Former Facility Name: _____

An official facility name change is requested as described above for the air permit mentioned on page 1 of this form. Complete the other sections if there have been modifications to the originally permitted facility that would require an air quality permit since the last permit was issued and if there has been an ownership change associated with this name change.

SECTION AA4- APPLICATION FOR AN OWNERSHIP CHANGE

By this application we hereby request transfer of Air Quality Permit No. _____ from the former owner to the new owner as described below.

The transfer of permit responsibility, coverage and liability shall be effective _____ (immediately or insert date.) The legal ownership of the facility described on page 1 of this form has been or will be transferred on _____ (date). There have been no modifications to the originally permitted facility that would require an air quality permit since the last permit was issued.

Signature of New (Buyer) Responsible Official/Authorized Contact (as typed on page 1):

X Signature (Blue Ink): _____

Date: _____

New Facility Name: _____

Former Facility Name: _____

Signature of Former (Seller) Responsible Official/Authorized Contact:

Name (typed or print): _____

Title: _____

X Signature (Blue Ink): _____

Date: _____

Former Legal Corporate/Owner Name: _____

In lieu of the seller's signature on this form, a letter may be submitted with the seller's signature indicating the ownership change

SECTION AA5- APPLICATION FOR ADMINISTRATIVE AMENDMENT

Describe the requested administrative amendment here (attach additional documents as necessary):

Attach Additional Sheets As Necessary

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

A2

EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted			
EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
Existing Permitted Equipment To Be MODIFIED By This Application			
ES-HM-1 through 8	Eight (8) Dry Hammermills	CD-HM-BH-1	Baghouse
		CD-HM-BH-2	Baghouse
		CD-HM-BH-3	Baghouse
		CD-HM-BH-4	Baghouse
		CD-HM-BH-5	Baghouse
		CD-HM-BH-6	Baghouse
		CD-HM-BH-7	Baghouse
		CD-HM-BH-8	Baghouse
ES-CLR-1 through 6	Six (6) Pellet Coolers	CD-CLR-1	Simple cyclone
		CD-CLR-2	Simple cyclone
		CD-CLR-3	Simple cyclone
		CD-CLR-4	Simple cyclone
		CD-CLR-5	Simple cyclone
		CD-CLR-6	Simple cyclone
Equipment To Be DELETED By This Application			

112(r) APPLICABILITY INFORMATION		
Is your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Federal Clean Air Act?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If No, please specify in detail how your facility avoided applicability: respective threshold quantities, as determined under §68.115.		The Sampson plant does not store any regulated substances in excess of the
If your facility is Subject to 112(r), please complete the following:		
A. Have you already submitted a Risk Management Plan (RMP) to EPA Pursuant to 40 CFR Part 68.10 or Part 68.150? <input type="checkbox"/> Yes <input type="checkbox"/> No Specify required RMP submittal date: _____ If submitted, RMP submittal date: _____		
B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please specify: _____		
C. List the processes subject to 112(r) at your facility:		
PROCESS DESCRIPTION	PROCESS LEVEL (1, 2, or 3)	HAZARDOUS CHEMICAL MAXIMUM INTENDED INVENTORY (LBS)

A3

Attach Additional Sheets As Necessary

FORM D1

FACILITY-WIDE EMISSIONS SUMMARY

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

D1

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr
AIR POLLUTANT EMITTED			
PARTICULATE MATTER (PM)	See Emission Calculations in Attachment A		
PARTICULATE MATTER < 10 MICRONS (PM ₁₀)			
PARTICULATE MATTER < 2.5 MICRONS (PM _{2.5})			
SULFUR DIOXIDE (SO ₂)			
NITROGEN OXIDES (NO _x)			
CARBON MONOXIDE (CO)			
VOLATILE ORGANIC COMPOUNDS (VOC)			
LEAD			
GREENHOUSE GASES (GHG) (SHORT TONS)			
OTHER			

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

	CAS NO.	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr
HAZARDOUS AIR POLLUTANT EMITTED				
		See Emission Calculations in Attachment A		

TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

INDICATE REQUESTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS. EMISSIONS ABOVE THE TOXIC PERMIT EMISSION RATE (TPER) IN 15A NCAC 2Q .0711 MAY REQUIRE AIR DISPERSION MODELING. USE NETTING FORM D2 IF NECESSARY.

TOXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Modeling Required ?	
					Yes	No
		See Emission Calculations in Attachment A				

COMMENTS:

Attach Additional Sheets As Necessary

FORM D5

TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

D5

PROVIDE DETAILED TECHNICAL CALCULATIONS TO SUPPORT ALL EMISSION, CONTROL, AND REGULATORY DEMONSTRATIONS MADE IN THIS APPLICATION. INCLUDE A COMPREHENSIVE PROCESS FLOW DIAGRAM AS NECESSARY TO SUPPORT AND CLARIFY CALCULATIONS AND ASSUMPTIONS. ADDRESS THE FOLLOWING SPECIFIC ISSUES ON SEPARATE PAGES:

- A SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B and B1 through B9)** - SHOW CALCULATIONS USED, INCLUDING EMISSION FACTORS, MATERIAL BALANCES, AND/OR OTHER METHODS FROM WHICH THE POLLUTANT EMISSION RATES IN THIS APPLICATION WERE DERIVED. INCLUDE CALCULATION OF POTENTIAL BEFORE AND, WHERE APPLICABLE, AFTER CONTROLS. CLEARLY STATE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFERENCES AS NEEDED TO SUPPORT MATERIAL BALANCE CALCULATIONS.
- B SPECIFIC EMISSION SOURCE (REGULATORY INFORMATION)(FORM E2 - TITLE V ONLY)** - PROVIDE AN ANALYSIS OF ANY REGULATIONS APPLICABLE TO INDIVIDUAL SOURCES AND THE FACILITY AS A WHOLE. INCLUDE A DISCUSSION OUTING METHODS (e.g. FOR TESTING AND/OR MONITORING REQUIREMENTS) FOR COMPLYING WITH APPLICABLE REGULATIONS, PARTICULARLY THOSE REGULATIONS LIMITING EMISSIONS BASED ON PROCESS RATES OR OTHER OPERATIONAL PARAMETERS. PROVIDE JUSTIFICATION FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (PREVENTION OF SIGNIFICANT DETERIORATION (PSD), NEW SOURCE PERFORMANCE STANDARDS (NSPS), NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), TITLE V), INCLUDING EXEMPTIONS FROM THE FEDERAL REGULATIONS WHICH WOULD OTHERWISE BE APPLICABLE TO THIS FACILITY. SUBMIT ANY REQUIRED INFORMATION TO DOCUMENT COMPLIANCE WITH ANY REGULATIONS. INCLUDE EMISSION RATES CALCULATED IN ITEM "A" ABOVE, DATES OF MANUFACTURE, CONTROL EQUIPMENT, ETC. TO SUPPORT THESE CALCULATIONS.
- C CONTROL DEVICE ANALYSIS (FORM C and C1 through C9)** - PROVIDE A TECHNICAL EVALUATION WITH SUPPORTING REFERENCES FOR ANY CONTROL EFFICIENCIES LISTED ON SECTION C FORMS, OR USED TO REDUCE EMISSION RATES IN CALCULATIONS UNDER ITEM "A" ABOVE. INCLUDE PERTINENT OPERATING PARAMETERS (e.g. OPERATING CONDITIONS, MANUFACTURING RECOMMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS APPLICATION) CRITICAL TO ENSURING PROPER PERFORMANCE OF THE CONTROL DEVICES). INCLUDE AND LIMITATIONS OR MALFUNCTION POTENTIAL FOR THE PARTICULAR CONTROL DEVICES AS EMPLOYED AT THIS FACILITY. DETAIL PROCEDURES FOR ASSURING PROPER OPERATION OF THE CONTROL DEVICE INCLUDING MONITORING SYSTEMS AND MAINTENANCE TO BE PERFORMED.
- D PROCESS AND OPERATIONAL COMPLIANCE ANALYSIS - (FORM E3 - TITLE V ONLY)** - SHOWING HOW COMPLIANCE WILL BE ACHIEVED WHEN USING PROCESS, OPERATIONAL, OR OTHER DATA TO DEMONSTRATE COMPLIANCE. REFER TO COMPLIANCE REQUIREMENTS IN THE REGULATORY ANALYSIS IN ITEM "B" WHERE APPROPRIATE. LIST ANY CONDITIONS OR PARAMETERS THAT CAN BE MONITORED AND REPORTED TO DEMONSTRATE COMPLIANCE WITH THE APPLICABLE REGULATIONS.

E PROFESSIONAL ENGINEERING SEAL - PURSUANT TO 15A NCAC 2Q .0112 "APPLICATION REQUIRING A PROFESSIONAL ENGINEERING SEAL," A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA SHALL BE REQUIRED TO SEAL TECHNICAL PORTIONS OF THIS APPLICATION FOR NEW SOURCES AND MODIFICATIONS OF EXISTING SOURCES. (SEE INSTRUCTIONS FOR FURTHER APPLICABILITY).


I, Russell Kemp attest that this application for Enviva Pellets Sampson, LLC has been reviewed by me and is accurate, complete and consistent with the information supplied in the engineering plans, calculations, and all other supporting documentation to the best of my knowledge. I further attest that to the best of my knowledge the proposed design has been prepared in accordance with the applicable regulations. Although certain portions of this submittal package may have been developed by other professionals, inclusion of these materials under my seal signifies that I have reviewed this material and have judged it to be consistent with the proposed design. Note: In accordance with NC General Statutes 143-215.6A and 143-215.6B, any person who knowingly makes any false statement, representation, or certification in any application shall be guilty of a Class 2 misdemeanor which may include a fine not to exceed \$10,000 as well as civil penalties up to \$25,000 per violation.

Received

FEB 17 2020

Air Permits Section

(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)

NAME: Russell Kemp, MS, PE
 DATE: 29 JANUARY 2020
 COMPANY: REUS Engineers, P.C.
 ADDRESS: 1600 Parkwood Circle, Suite 310, Atlanta, GA 30339
 TELEPHONE: 678-388-1654
 SIGNATURE: 
 PAGES CERTIFIED: Forms B, B9, C1
Potential emission calculations (Attachment A)
Cover letter

PLACE NORTH CAROLINA SEAL HERE



(IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT THAT IS BEING CERTIFIED BY THIS SEAL)

Attach Additional Sheets As Necessary

FORM E1

TITLE V GENERAL INFORMATION

REVISED 06/01/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

E1

IF YOUR FACILITY IS CLASSIFIED AS "MAJOR" FOR TITLE V YOU MUST COMPLETE THIS FORM AND ALL OTHER REQUIRED "E" FORMS (E2 THROUGH E5 AS APPLICABLE)

Indicate here if your facility is subject to Title V by: EMISSIONS OTHER

If subject to Title V by "OTHER", specify why: NSPS NESHAP (MACT) TITLE IV
 OTHER (speci _____)

If you are or will be subject to any maximum achievable control technology standards (MACT) issued pursuant to section 112(d) of the Clean Air Act, specify below:

<i>EMISSION SOURCE ID</i>	<i>EMISSION SOURCE DESCRIPTION</i>	<i>MACT</i>
IES-EG, IES-FWP	Emergency Generator and Fire Water Pump Engine	40 CFR 63 Subpart ZZZZ
ES-DRYER	Green Wood Direct-Fired Dryer System	40 CFR 63 Subpart B [112(g)]
ES-GHM-1 through 3	Three (3) Green Wood Hammermills	40 CFR 63 Subpart B [112(g)]
ES-HM-1 through 8	Eight (8) Dry Hammermills	40 CFR 63 Subpart B [112(g)]
ES-DWH	Dried Wood Handling Operations	40 CFR 63 Subpart B [112(g)]
ES-CLR-1 through 6	Twelve (12) Wood Pellet Presses and Six (6) Pellet Coolers	40 CFR 63 Subpart B [112(g)]

List any additional regulation which are requested to be included in the shield and provide a detailed explanation as to why the shield should be granted:

<i>REGULATION</i>	<i>EMISSION SOURCE (Include ID)</i>	<i>EXPLANATION</i>
40 CFR 63 Subpart DDDD as incorporated in 15A NCAC 2D 0.1111	All sources at site	Wood pellet manufacturing does not meet the definition of a plywood and composite wood products (PCWP) manufacturing facility as defined in §63.2292. Thus this regulations is not applicable to the Sampson plant.

Comments:

Attach Additional Sheets As Necessary

FORM E2

EMISSION SOURCE APPLICABLE REGULATION LISTING

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

E2

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	OPERATING SCENARIO INDICATE PRIMARY (P) OR ALTERNATIVE (A)	POLLUTANT	APPLICABLE REGULATION
See attached table following Form E3 for a summary of regulatory requirements and associated compliance requirements for the Dry Hammermills and Pellet Presses and Coolers.				

Attach Additional Sheets As Necessary

FORM E3

EMISSION SOURCE COMPLIANCE METHOD

REVISED 09/22/16

NCDEQ/Division Of Air Quality - Application for Air Permit to Construct/Operate

E3

Emission Source ID NO. See attached table following Form E3 for a summary of regulatory requirements and associated compliance requirements for the Dry Hammermills and Pellet Presses and Coolers.

Regulated Pollutant

Applicable Regulation

Alternative Operating Scenario (AOS) NO:

ATTACH A SEPARATE PAGE TO EXPAND ON ANY OF THE BELOW COMMENTS

MONITORING REQUIREMENTS

Is Compliance Assurance Monitoring (CAM) 40 CFR Part 64 Applicable?
 If yes, is CAM Plan Attached (if applicable, CAM plan must be attached)?

YES
 YES

NO
 NO

Note - CAM plans are not required to be submitted until the first Title V permit renewal.

Describe Monitoring Device Type:

Describe Monitoring Location:

Other Monitoring Methods (Describe In Detail):

Describe the frequency and duration of monitoring and how the data will be recorded (i.e., every 15 minutes, 1 minute instantaneous readings taken to produce an hourly average):

RECORDKEEPING REQUIREMENTS

Data (Parameter) being recording:

Frequency of recordkeeping (How often is data recorded?):

REPORTING REQUIREMENTS

Generally describe what is being reported:

Frequency:

MONTHLY

QUARTERLY

EVERY 6 MONTHS

OTHER (DESCRIBE):

TESTING

Specify proposed reference test method:

Specify reference test method rule and citation:

Specify testing frequency:

**NOTE - Proposed test method subject to approval and possible change during the test protocol process
 Attach Additional Sheets As Necessary**

Summary of Regulatory Requirements and Associated Compliance Requirements
Enviva Pellets Sampson, LLC

Emission Source Description	ID No.	Pollutant	Regulation	Final Control Device	Monitoring Method/Frequency/Duration	Recordkeeping	Reporting
Dry Hammermills	ES-HM-1 to - 8	PM/PM ₁₀ /PM _{2.5}	15A NCAC 02D .0515	Baghouses	Initial stack testing. Inspections and maintenance as recommended by the manufacturer as well as monthly visual inspections of the system ductwork and material collection units for leaks, annual internal inspection of baghouse structural integrity.	Written or electronic log of date/time/result of inspection and maintenance, results of each inspection, results of maintenance on control devices, any variance from manufacturers' recommendations, if any, and corrections made.	Submit written report of test results not later than 30 days after sample collection. Submit results of any maintenance performed on the baghouse within 30 days of a written request by DAQ. Submit summary report of monitoring and recordkeeping activities semi-annually (on or before Jan 30th and July 30th). Identify all instances of deviations from permit requirements.
		VOC and PM/PM ₁₀ /PM _{2.5}	15A NCAC 02D .0530		Initial and periodic stack testing (at least annually). Limit throughput to 558,450 ODT through the Dry Hammermills per consecutive 12 month period.	Written or electronic log of monthly throughput.	Submit written report of test results not later than 30 days after sample collection. Submit results of any maintenance performed on the baghouses within 30 days of a written request by DAQ. Submit summary report of monitoring and recordkeeping activities semi-annually (on or before Jan 30th and July 30th). Identify all instances of deviations from permit requirements.
		HAP	Section 112(g) Case-by-Case MACT		Installation of an RCO/RTO or implementation of an engineering solution that will result in equivalent emissions reductions no later than June 1, 2021 (or within 12 months of permit issuance authorizing the control project). Initial and periodic stack testing (at least annually).	N/A	Submit written report of test results not later than 30 days after sample collection.
		Opacity	15A NCAC 02D .0521		Monthly visible observation for "normal". If above normal, correct action or Method 9 observation required.	Written or electronic log of date/time/result of each observation, results of each non-compliant observation and actions taken to correct, and results of corrective action.	Submit summary report of monitoring and recordkeeping activities semi-annually (on or before Jan 30th and July 30th). Identify all instances of deviations from permit requirements.
Pellet Presses & Coolers	ES-CLR-1 to -6	PM/PM ₁₀ /PM _{2.5}	15A NCAC 02D .0515	Cyclones	Initial stack testing. Inspections and maintenance as recommended by the manufacturer as well as monthly visual inspections of the system ductwork and material collection units for leaks, annual internal inspection of baghouse structural integrity.	Written or electronic log of date/time/result of inspection and maintenance, results of each inspection, results of maintenance on control devices, any variance from manufacturers' recommendations, if any, and corrections made.	Submit written report of test results not later than 30 days after sample collection. Submit results of any maintenance performed on the baghouse within 30 days of a written request by DAQ. Submit summary report of monitoring and recordkeeping activities semi-annually (on or before Jan 30th and July 30th). Identify all instances of deviations from permit requirements.
		VOC and PM/PM ₁₀ /PM _{2.5}	15A NCAC 02D .0530		Initial and periodic stack testing (at least annually). Limit pellet production to 657,000 ODT per consecutive 12-month period.	Written or electronic log of monthly production.	Submit written report of test results not later than 30 days after sample collection. Submit results of any maintenance performed on the cyclones within 30 days of a written request by DAQ. Submit summary report of monitoring and recordkeeping activities semi-annually (on or before Jan 30th and July 30th). Identify all instances of deviations from permit requirements.
		HAP	Section 112(g) Case-by-Case MACT		Installation of an RCO/RTO no later than June 1, 2021 (or within 12 months of permit issuance authorizing the control project). Initial and periodic stack testing (at least annually).	N/A	Submit written report of test results not later than 30 days after sample collection.
		Opacity	15A NCAC 02D .0521		Monthly visible observation for "normal". If above normal, correct action or Method 9 observation required.	Written or electronic log of date/time/result of each observation, results of each non-compliant observation and actions taken to correct, and results of corrective action.	Submit summary report of monitoring and recordkeeping activities semi-annually (on or before Jan 30th and July 30th). Identify all instances of deviations from permit requirements.

FORM E4

EMISSION SOURCE COMPLIANCE SCHEDULE

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

E4

COMPLIANCE STATUS WITH RESPECT TO ALL APPLICABLE REQUIREMENTS

Will each emission source at your facility be in compliance with all applicable requirements at the time of permit issuance and continue to comply with these requirements?

YES NO

If NO, complete A through F below for each requirement for which compliance is not achieved.

Will your facility be in compliance with all applicable requirements taking effect during the term of the permit and meet such requirements on a timely basis?

YES NO

If NO, complete A through F below for each requirement for which compliance is not achieved.

If this application is for a modification of existing emissions source(s), is each emission source currently in compliance with all applicable requirements?

YES NO

If NO, complete A through F below for each requirement for which compliance is not achieved.

A. Emission Source Description (Include ID NO.)

ES-HM-1 through ES-HM-8

B. Identify applicable requirement for which compliance is not achieved:

Condition 2.2 A.1.b of Air Permit No. 10386R04 - PM_{2.5} BACT limit

C. Narrative description of how compliance will be achieved with this applicable requirements:

Compliance will be achieved upon issuance of a revised permit that incorporates the corrected BACT limits requested in this application.

D. Detailed Schedule of Compliance:

Step(s)

Date Expected

Issuance of revised permit by DAQ

TBD

Completion of PM compliance testing for the Dry Hammermills

TBD

E. Frequency for submittal of progress reports (6 month minimum):

6 months

F. Starting date of submittal of progress reports:

TBD

Attach Additional Sheets As Necessary

FORM E4

EMISSION SOURCE COMPLIANCE SCHEDULE

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

E4

COMPLIANCE STATUS WITH RESPECT TO ALL APPLICABLE REQUIREMENTS

Will each emission source at your facility be in compliance with all applicable requirements at the time of permit issuance and continue to comply with these requirements?

YES NO

If NO, complete A through F below for each requirement for which compliance is not achieved.

Will your facility be in compliance with all applicable requirements taking effect during the term of the permit and meet such requirements on a timely basis?

YES NO

If NO, complete A through F below for each requirement for which compliance is not achieved.

If this application is for a modification of existing emissions source(s), is each emission source currently in compliance with all applicable requirements?

YES NO

If NO, complete A through F below for each requirement for which compliance is not achieved.

A. Emission Source Description (Include ID NO.) ES-CLR-1 through ES-CLR-6

B. Identify applicable requirement for which compliance is not achieved:
Condition 2.2 A.1.b of Air Permit No. 10386R04 - PM₁₀ BACT limit

C. Narrative description of how compliance will be achieved with this applicable requirements:
Compliance will be achieved upon issuance of a revised permit that incorporates the corrected BACT limit requested in this application.

D. Detailed Schedule of Compliance:

<u>Step(s)</u>	<u>Date Expected</u>
<u>Issuance of revised permit by DAQ</u>	<u>TBD</u>
<u>Completion of PM compliance testing for the Pellet Presses and Coolers</u>	<u>TBD</u>
_____	_____
_____	_____

E. Frequency for submittal of progress reports (6 month minimum):
6 months

F. Starting date of submittal of progress reports: TBD

Attach Additional Sheets As Necessary

FORM E5

TITLE V COMPLIANCE CERTIFICATION (Required)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

E5

In accordance with the provisions of Title 15A NCAC 2Q .0520 and .0515(b)(4) the responsible company official of:

SITE NAME: Enviva Pellets Sampson, LLC

Received

SITE ADDRESS: 5 Connector Road

FEB 17 2020

CITY, NC : Faison, NC

Air Permits Section

COUNTY: Sampson

PERMIT NUMBER : _____

CERTIFIES THAT (Check the appropriate statement(s):

- The facility is in compliance with all applicable requirements
- In accordance with the provisions of Title 15A NCAC 2Q .0515(b)(4) the responsible company official certifies that the proposed minor modification meets the criteria for using the procedures set out in 2Q .0515 and requests that these procedures be used to process the permit application.
- The facility is not currently in compliance with all applicable requirements
If this box is checked, you must also complete Form E4 "Emission Source Compliance Schedule"

The undersigned certifies under the penalty of law, that all information and statements provided in the application, based on information and belief formed after reasonable inquiry, are true, accurate, and complete.



Signature of responsible company official (REQUIRED, USE BLUE INK)

Date: _____

2/13/20

Jason Ansley, Plant Manager

Name, Title of responsible company official (Type or print)

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

B

EMISSION SOURCE DESCRIPTION: Eight (8) Dry Hammermills	EMISSION SOURCE ID NO: ES-HM-1 through 8
OPERATING SCENARIO <u>1</u> OF <u>1</u>	CONTROL DEVICE ID NO(S): CD-HM-BH-1 through 8
EMISSION POINT (STACK) ID NO(S): EP-2 through 5	

DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Dried materials are reduced to the appropriate size needed for pelletization using eight hammermills.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

<input type="checkbox"/> Coal, wood, oil, gas, other burner (Form B1)	<input type="checkbox"/> Woodworking (Form B4)	<input type="checkbox"/> Manuf. of chemicals/coatings/inks (Form B7)
<input type="checkbox"/> Int. combustion engine/generator (Form B2)	<input type="checkbox"/> Coating/finishing/printing (Form B5)	<input type="checkbox"/> Incineration (Form B8)
<input type="checkbox"/> Liquid storage tanks (Form B3)	<input type="checkbox"/> Storage silos/bins (Form B6)	<input checked="" type="checkbox"/> Other (Form B9)

START CONSTRUCTION DATE: 2016	DATE MANUFACTURED:
MANUFACTURER / MODEL NO.: West Salem Machinery Model #4460S	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPARTS?):	<input checked="" type="checkbox"/> NESHAP (SUBPART Subpart B, Section 112(g))
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 25%	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL		POTENTIAL EMISSIONS			
		(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)							
PARTICULATE MATTER <10 MICRONS (PM ₁₀)							
PARTICULATE MATTER <2.5 MICRONS (PM _{2.5})							
SULFUR DIOXIDE (SO ₂)							
NITROGEN OXIDES (NO _x)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

See Emission Calculations in Attachment A

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL		POTENTIAL EMISSIONS			
			(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr

See Emission Calculations in Attachment A

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS		
			lb/hr	lb/day	lb/yr

See Emission Calculations in Attachment A

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

B9

EMISSION SOURCE DESCRIPTION:
Eight (8) Dry Hammermills

EMISSION SOURCE ID NO: **ES-HM-1 thru 8**

OPERATING SCENARIO: 1 OF 1

CONTROL DEVICE ID NO(S): **CD-HM-BH-1 through 8**

EMISSION POINT (STACK) ID NO(S): **EP-2 through 5**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Dried materials are reduced to the appropriate size needed for pelletization using eight hammermills.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION(UNIT/HR)
TYPE	UNITS		
Dried Wood	ODT	102	

MATERIALS ENTERING PROCESS - BATCH OPERATION		MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)
TYPE	UNITS		

MAXIMUM DESIGN (BATCHES / HOUR):

REQUESTED LIMITATION (BATCHES / HOUR):

(BATCHES/YR):

FUEL USED: **N/A**

TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**

MAX. CAPACITY HOURLY FUEL USE: **N/A**

REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1 CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

C1

CONTROL DEVICE ID NO: CD-HM-BH-1 through 8		CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HM-1 through 8																									
EMISSION POINT (STACK) ID NO(S): EP-2 through 5		POSITION IN SERIES OF CONTROLS NO. 2 OF 2 UNITS																									
OPERATING SCENARIO:																											
1 OF _1_		P.E. SEAL REQUIRED (PER 2q .0112)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO																									
DESCRIBE CONTROL SYSTEM: Eight (8) baghouses are utilized for emission control on the eight dry hammermill cyclones. Two baghouses share a common stack, so there are 4 dry hammermill baghouse stacks. All 4 stacks are identical.																											
POLLUTANTS COLLECTED: PM <u> </u> PM₁₀ <u> </u> PM_{2.5} <u> </u>																											
BEFORE CONTROL EMISSION RATE (LB/HR): _____																											
CAPTURE EFFICIENCY: _____ % _____ % _____ % _____ %																											
CONTROL DEVICE EFFICIENCY: ~99.9 % ~99.9 % ~99.9 % _____ %																											
CORRESPONDING OVERALL EFFICIENCY: _____ % _____ % _____ % _____ %																											
EFFICIENCY DETERMINATION CODE: _____																											
TOTAL AFTER CONTROL EMISSION RATE (LB/HR): See calculations in Attachment A																											
PRESSURE DROP (IN H ₂ O): MIN: _____ MAX: 6"		GAUGE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO																									
BULK PARTICLE DENSITY (LB/FT ³): 1.43E-05		INLET TEMPERATURE (°F): 120																									
POLLUTANT LOADING RATE: 0.1 gr/cf in <input type="checkbox"/> LB/HR <input checked="" type="checkbox"/> GR/FT ³		OUTLET TEMPERATURE (°F): 100																									
INLET AIR FLOW RATE (ACFM): 15,000		FILTER OPERATING TEMP (°F): N/A																									
NO. OF COMPARTMENTS: 1	NO. OF BAGS PER COMPARTMENT: 164	LENGTH OF BAG (IN.): 120																									
NO. OF CARTRIDGES: _____	FILTER SURFACE AREA PER CARTRIDGE (FT ²): _____	DIAMETER OF BAG (IN.): 5.75																									
TOTAL FILTER SURFACE AREA (FT ²): 2,168		AIR TO CLOTH RATIO: 6.90																									
DRAFT TYPE: <input type="checkbox"/> INDUCED/NEGATIVE <input checked="" type="checkbox"/> FORCED/POSITIVE		FILTER MATERIAL: <input type="checkbox"/> WOVEN <input checked="" type="checkbox"/> FELTED																									
DESCRIBE CLEANING PROCEDURES:		PARTICLE SIZE DISTRIBUTION																									
<input checked="" type="checkbox"/> AIR PULSE <input type="checkbox"/> SONIC <input type="checkbox"/> REVERSE FLOW <input type="checkbox"/> SIMPLE BAG COLLAPSE <input type="checkbox"/> MECHANICAL/SHAKER <input type="checkbox"/> RING BAG COLLAPSE <input type="checkbox"/> OTHER: _____		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">SIZE (MICRONS)</th> <th style="width: 25%;">WEIGHT % OF TOTAL</th> <th style="width: 50%;">CUMULATIVE %</th> </tr> </thead> <tbody> <tr> <td>0-1</td> <td colspan="2" style="text-align: center;">Unknown</td> </tr> <tr> <td>1-10</td> <td></td> <td></td> </tr> <tr> <td>10-25</td> <td></td> <td></td> </tr> <tr> <td>25-50</td> <td></td> <td></td> </tr> <tr> <td>50-100</td> <td></td> <td></td> </tr> <tr> <td>>100</td> <td></td> <td></td> </tr> <tr> <td colspan="3" style="text-align: center;">TOTAL = 100</td> </tr> </tbody> </table>		SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %	0-1	Unknown		1-10			10-25			25-50			50-100			>100			TOTAL = 100		
SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %																									
0-1	Unknown																										
1-10																											
10-25																											
25-50																											
50-100																											
>100																											
TOTAL = 100																											
DESCRIBE INCOMING AIR STREAM: The air stream contains wood dust particles. Larger particles are removed by the upstream cyclone for product recovery.																											
ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):																											
COMMENTS:																											

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

B

EMISSION SOURCE DESCRIPTION: Pellet Coolers	EMISSION SOURCE ID NO: ES-CLR1 through 6
OPERATING SCENARIO <u>1</u> OF <u>1</u>	CONTROL DEVICE ID NO(S): CD-CLR-1 through 6
EMISSION POINT (STACK) ID NO(S): EP-7 through 12	

DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

<input type="checkbox"/> Coal, wood, oil, gas, other burner (Form B1)	<input type="checkbox"/> Woodworking (Form B4)	<input type="checkbox"/> Manuf. of chemicals/coatings/inks (Form B7)
<input type="checkbox"/> Int. combustion engine/generator (Form B2)	<input type="checkbox"/> Coating/finishing/printing (Form B5)	<input type="checkbox"/> Incineration (Form B8)
<input type="checkbox"/> Liquid storage tanks (Form B3)	<input type="checkbox"/> Storage silos/bins (Form B6)	<input checked="" type="checkbox"/> Other (Form B9)

START CONSTRUCTION DATE: 2016	DATE MANUFACTURED:
MANUFACTURER / MODEL NO: Bliss 14-393-6A Cooler	EXPECTED OP. SCHEDULE: <u>24</u> HR/DAY <u>7</u> DAY/WK <u>52</u> WK/YR
IS THIS SOURCE SUBJECT TO? <input type="checkbox"/> NSPS (SUBPARTS?):	<input checked="" type="checkbox"/> NESHAP (SUBPARTS): Subpart B, Section 112(g)
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 25%	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL		POTENTIAL EMISSIONS			
		(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)		See Emission Calculations in Attachment A					
PARTICULATE MATTER <10 MICRONS (PM ₁₀)							
PARTICULATE MATTER <2.5 MICRONS (PM _{2.5})							
SULFUR DIOXIDE (SO ₂)							
NITROGEN OXIDES (NO _x)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL		POTENTIAL EMISSIONS			
			(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)		(AFTER CONTROLS / LIMITS)	
			lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
			See Emission Calculations in Attachment A					

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS		
			lb/hr	lb/day	lb/yr
			See Emission Calculations in Attachment A		

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE
Attach Additional Sheets As Necessary

FORM B9 EMISSION SOURCE (OTHER)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

B9

EMISSION SOURCE DESCRIPTION:

Pellet Coolers

EMISSION SOURCE ID NO: **ES-CLR1 through 6**

CONTROL DEVICE ID NO(S): **CD-CLR-1 through 6**

OPERATING SCENARIO: 1 OF 1

EMISSION POINT (STACK) ID NO(S): **EP-7 through 12**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS

TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION(UNIT/HR)
Dried Wood	ODT	120	

MATERIALS ENTERING PROCESS - BATCH OPERATION

TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)

MAXIMUM DESIGN (BATCHES / HOUR):

REQUESTED LIMITATION (BATCHES / HOUR):

(BATCHES/YR):

FUEL USED: **N/A**

TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**

MAX. CAPACITY HOURLY FUEL USE: **N/A**

REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISED 09/22/16

NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate

C4

CONTROL DEVICE ID NO: CD-CLR-1 through 6		CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-CLR 1 through 6	
EMISSION POINT (STACK) ID NO(S): EP-7 through 12		POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS	
OPERATING SCENARIO:			
1 OF 1		P.E. SEAL REQUIRED (PER 2Q .0112)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
DESCRIBE CONTROL SYSTEM: Six (6) identical high efficiency cyclones are used to capture bulk PM emissions from six (6) pellet coolers. Each cooler vents to one dedicated cyclone. The cyclones operate under negative pressure.			
POLLUTANT(S) COLLECTED: <u>PM</u> <u>PM₁₀</u> <u>PM_{2.5}</u>			
BEFORE CONTROL EMISSION RATE (LB/HR): _____			
CAPTURE EFFICIENCY: _____ % _____ % _____ % _____ %			
CONTROL DEVICE EFFICIENCY: 90+ % 90+ % 90+ % _____ %			
CORRESPONDING OVERALL EFFICIENCY: _____ % _____ % _____ % _____ %			
EFFICIENCY DETERMINATION CODE: _____			
TOTAL AFTER CONTROL EMISSION RATE (LB/HR): See Emissions Calculations in Attachment A.			
PRESSURE DROP (IN. H ₂ O): MIN 6.0" MAX			
INLET TEMPERATURE (°F): MIN _____ MAX Ambient		OUTLET TEMPERATURE (°F): MIN _____ MAX Ambient	
INLET AIR FLOW RATE (ACFM): 16,746 each		BULK PARTICLE DENSITY (LB/FT ³): 2.86E-05	
POLLUTANT LOADING RATE (GR/FT ³): 0.2			
SETTLING CHAMBER	CYCLONE		MULTICYCLONE
LENGTH (INCHES):	INLET VELOCITY (FT/SEC): 94.75	<input type="checkbox"/> CIRCULAR <input type="checkbox"/> RECTANGLE	NO. TUBES:
WIDTH (INCHES):	DIMENSIONS (INCHES) See instructions IF WET SPRAY UTILIZED		DIAMETER OF TUBES:
HEIGHT (INCHES):	H: 38 Dd: 22	LIQUID USED:	HOPPER ASPIRATION SYSTEM?
VELOCITY (FT/SEC.):	W: 25 Lb: 74.25	FLOW RATE (GPM):	<input type="checkbox"/> YES <input type="checkbox"/> NO
NO. TRAYS:	De: 32 Lc: 84.5	MAKE UP RATE (GPM):	LOUVERS?
NO. BAFFLES:	D: 54 S: 44.38		<input type="checkbox"/> YES <input type="checkbox"/> NO
TYPE OF CYCLONE <input type="checkbox"/> CONVENTIONAL <input checked="" type="checkbox"/> HIGH EFFICIENCY <input type="checkbox"/> OTHER			
DESCRIBE MAINTENANCE PROCEDURES: Periodic inspection of mechanical integrity during plant outages as specified by manufacturer.		PARTICLE SIZE DISTRIBUTION	
DESCRIBE INCOMING AIR STREAM: The cyclones are used to capture particulates from the pellet presses and coolers. Each cyclone is ducted to a discharge stack.		SIZE (MICRONS)	WEIGHT % OF TOTAL
		0-1	Unknown
		1-10	
		10-25	
		25-50	
		50-100	
		>100	
		TOTAL = 100	
DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC: None			

ON A SEPARATE PAGE, ATTACH A DIAGRAM OF THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary