FC&E Engineering, LLC
Water ▪ Soils ▪ Air ▪ Compliance

October 30, 2019

Ms. Jaricus Whitlock, P.E.
Air II Branch Manager
Mississippi Department of Environmental Quality
P.O. Box 2261
Jackson, MS 39225-2261

Dear Mr. Whitlock:

Re: PSD Air Construction Application 2780-00004
Response to Comments
Vicksburg Forest Products LLC (AI #1536)
Warren County, MS

Please find enclosed revisions to the permit application submitted on July 24, 2020. These revisions are submitted to address the comments in your August 10, 2020 email, and subsequent discussion by phone on August 11, 2020. The items discussed are addressed in the revision as follows:

- A permit limit in tons/year was originally requested to address the tracking of emissions pursuant to 40 CFR 52.21(r)(6). As indicated during our phone conversation, a limit is not necessary to satisfy the tracking requirements. We have revised the application to remove the limit. The applicant would like to establish agreed upon conditions to evaluate the future actual emissions increase.

- In the initial application, the 2014 performance test was used to determine the operating rate of the boiler and calculate the accommodated emissions during the baseline period. Testing required by permit was conducted at levels that were representative of the actual operating conditions at the time. This testing should be adequate to establish the operating rate and emissions the unit could have accommodated at that time. Concerns were raised that the duration of the performance test was not indicative of the ability of the boiler to operate at that rate for extended periods of time. Historical steam use for the period 2013 to 2014 was obtained from the Title V Semi-annual reports submitted to MDEQ for the boiler. This data is summarized by months in the attachments. The maximum monthly steam production was annualized to determine the steam production rate the facility could have accommodated during the baseline period for extended periods of time. It was determined the facility could have accommodated a steam production rate of 43.35 Mlb-steam/hr during the baseline period. In considering the boiler efficiency of 0.61 Mlb-steam/MMBtu (the boiler is rated at 60 Mlb-steam per hour and 98.4 MMBtu/hr), an average heating rate of 71.07 MMBtu/hr could have been accommodated by the boiler. This supports the boiler test rate of 70.9 MMBtu/hr as being representative of anticipated operating conditions during the baseline period and the boiler could operate at this level without exceeding any permit conditions or regulatory requirements. The baseline emissions were revised using the steam production reported in the years 2013 and 2014. The accommodated emissions were determined based on an average heating rate of 71.07 MMBtu/hr less the actual baseline emissions.

- The loadout operations were revised to indicate a drop of "dry" material for the planer shavings.
- ***P. 1 of 10: It does not appear that that the emissions calculations (in tons per year) do not coincide with the potential throughput for each new kiln (when applying the provided emission factors).***

  The notes on the calculation sheet were revised to indicate the capacity of each kiln as 82.057 MMBF/yr. The annual emissions were revised to indicate the emission on a per kiln basis. The corresponding Section B application forms were corrected and are attached.

- ***It appears that a uniform potential throughput of each new kilns is not being used to calculate emissions for applicable equipment (in one section, the potential throughput is stated as 80,000 MBF / year; in another section, the potential throughput is stated as 82.06 MBF / year).***

  As noted in the previous comment the note to P.1 of 10 in the emissions calculations was revised to indicate the capacity of 82.057 MMBF/yr.

- ***P. 3 of 10: What is the basis for the residual generation rate of 0.2 BDT/MBF for the Planer shavings system with cyclone (AA-001)?***

  The residual generation rated was obtained from the design engineer. The factor provided was 0.2015 BDT/MBF. The factor is based on the amount of rough lumber that is planed off, the trimming of the end of the lumber, and rejects.

- ***P. 5 of 10: The projected yearly boiler capacity of 788,937 MMBTU/yr is not consistent with an hourly capacity of 98.4 MMBTU/hr and 8760 hr/year of operation. Please revise the table and footnotes.***

  The footnotes have been revised to remove the request for a permit limit and the emissions are based on the capacity of the boiler at continuous operation. The actual operation will, however, be maintained below a level that would exceed the PSD significant emission rate and will be tracked pursuant to 40 CFR 52.21(r)(6).

- ***P. 5 of 10: The PM/PM10/PM2.5 emission factors used to calculate the PAE are based on the average of stack testing 2016-2020. Why isn't the stack test from 2014 included in calculating the average emission factors?***

  These tests represent the most current performance of the boiler. Stack testing has been proposed to ensure that the emissions that will be tracked are representative of the current actual conditions.

- ***P. 8 of 10: What is the basis for assuming the ring debarker emits 10% of the PM from a drum debarker?***

  Drum debarkers have large open ends, by comparison a ring debarker is enclosed. The EPA Region 10 guidance on sawmills allows for engineering judgement for enclosures. Based on applications for similar facilities, basing emissions for a ring debarker at 10% of a drum debarker is typical.

Table 2 which summarizes the emissions changes was revised to reflect the changes discussed above. Changes to the summary table include the following:

- The removal of the end coating and dip operations was not included in the summary. The removal of these sources has no significant impact on the applicability analysis and the sources are emitters of VOC and not PM. Additionally, decreases are not required to be in the analysis.

- The baseline period was adjusted to the years 2013 and 2014 to address the accommodated emissions as discussed above. The baseline emissions were developed using information from the Title V semi-annual reports.

Sincerely,

Bruce Ferguson
FC&E Engineering

Enclosures

Table 2 - Emissions Increase by Emissions Unit

Emissions Unit	Pollutant	Value	Units	Reference	Projected Actual Emissions	Accomodated Emissions	Adjusted Projected Actual	Baseline Emissions 2013	Baseline Emissions 2014	Baseline Emissions 2-yr Avg	Emissions Increase
				Production Rate (MBF/yr)=====>>	164114		164114	0	0	0	164114
New 2-Steam CDKs	PM	0.022	lb/MBF	North Carolina Emissions Estimation Spreadsheet Woodwork (Lumber Kilns) PM10 and PM2.5 assumed equal to PM	1.81		1.81				1.81
	PM_{10}	0.022	lb/MBF		1.81		1.81				1.81
	$PM_{2.5}$	0.022	lb/MBF		1.81		1.81				1.81
	VOC	4.43	lb/MBF	BACT for T R Miller	363.51		363.51				363.51
				Heat Input (MMBtu/yr)=====>>	781,804	193,638	588,166	466,549	391,782	429,166	159,000
				Steam Input (Mlb/yr)====>>	476,709	118,072	358,638	284,481	238,891	261,686	96,951
AA-002 Boiler	PM	0.275	lb/MMBtu	Average of Boiler Tests 2016, 2018 & 2020	107.37	31.85	75.51	76.75	64.45	70.60	4.92
	PM_{10}	0.267	lb/MMBtu	91% of PM + 0.017 lb-CPM/MMBtu	104.35	30.63	73.72	73.81	61.98	67.89	5.83
	$PM_{2.5}$	0.165	lb/MMBtu	54% of PM + 0.017 lb-CPM/MMBtu	64.62	18.85	45.78	45.41	38.13	41.77	4.01
	VOC	0.010	lb/MMBtu	Average of Boiler Tests 2016, 2018 & 2020	4.05	0.33	3.72	0.70	0.67	0.68	3.04
	SO2	0.004	lb/MMBtu		1.73	0.22	1.51	0.40	0.45	0.42	1.09
	Nox	0.197	lb/MMBtu		77.14	21.32	55.82	43.86	43.14	43.50	12.32
	CO	0.203	lb/MMBtu		79.48	5.46	74.02	54.12	11.05	32.58	41.44
	Lead	4.80E-05	lb/MMBtu	AP-42	0.02	0.00	0.01	0.01	0.01	0.01	0.00
				Production Rate (MBF)=====>>	187,500		187,500	29,680	35,793	32,736	154,764
AA-001 Woodwaste Handling System with 1 Baghouse and Cyclone	PM	0.001	lb/BDT	Source to be removed.	0.00		0.00	0.08	0.14	0.11	-0.11
	PM_{10}	0.000995	lb/BDT		0.00		0.00	0.08	0.14	0.11	-0.11
	$PM_{2.5}$	0.00099	lb/BDT		0.00		0.00	0.08	0.14	0.11	-0.11
	VOC	0.12	lb/BDT		0.00		0.00	0.00	0.00	0.00	0.00
New Woodwaste Handling High Efficiency Cyclone	PM	0.2	lb/BDT	EPA Memo "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" for high efficiency cyclone.	3.78		3.78				3.78
	PM_{10}	0.19	lb/BDT		3.59		3.59				3.59
	$PM_{2.5}$	0.16	lb/BDT		3.02		3.02				3.02
	VOC	0.12	lb/BDT	Weyerhaeuser Philadelphia Application	2.27		2.27				2.27
AA-006 Sawing Operations including log debarking, sawing, hogging, chipping, and grinding.	PM			Calculations Tab	2.91		2.91	0.60	0.72	0.66	2.24
	PM_{10}				1.45		1.45	0.30	0.36	0.33	1.12
	$PM_{2.5}$				0.71		0.71	0.15	0.18	0.16	0.55
AA-007 Roads	PM			Calculations Tab	5.84	0.97	4.87	1.11	1.34	1.23	3.65
	PM_{10}				1.36	0.20	1.16	0.26	0.32	0.29	0.87
	$PM_{2.5}$				0.18	0.04	0.14	0.03	0.04	0.04	0.10
				Production Rate (BDT)====>>	204,875		204,875	24,168	29,146	26,657	178,218
AA-013 Truck Loadout	PM	0.00075	lb/BDT	EPA Memo "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" drop of wet material. See Calculations Sheet for projected actual calculations.	0.14		0.14	0.00	0.01	0.00	0.13
	PM_{10}	0.00035	lb/BDT		0.06		0.06	0.00	0.00	0.00	0.06
	$PM_{2.5}$	0.00005	lb/BDT		0.01		0.01	0.00	0.00	0.00	0.01
Totals				PM	121.84	32.82	89.02	78.54	66.66	72.60	16.42
				PM_{10}	112.62	30.83	81.78	74.45	62.80	68.62	13.16
				$PM_{2.5}$	70.36	18.89	51.47	45.67	38.49	42.08	9.39
				VOC	369.83	0.33	369.50	0.70	0.67	0.68	368.82
				SO2	1.73	0.22	1.51	0.40	0.45	0.42	1.09
				Nox	77.14	21.32	55.82	43.86	43.14	43.50	12.32
				CO	79.48	5.46	74.02	54.12	11.05	32.58	41.44
				Lead	0.02	0.00	0.01	0.01	0.01	0.01	0.00

Baseline Steam Use

Month	2013 Steam Use by Month (lb-steam)	Annualized Steam Use by Month (Mlb-steam)	2014 Steam Use by Month (lb/month)	Annualized Steam Use by Month (Mlb/year)
1	30,242,200	362,906	29,081,000	***348,972***
2	27,940,000	335,280	21,949,000	263,388
3	31,646,500	***379,758***	25,708,000	308,496
4	24,122,000	289,464	24,990,000	299,880
5	26,118,000	313,416	24,482,000	293,784
6	26,551,000	318,612	25,687,479	308,250
7	24,330,500	291,966	17,636,000	211,632
8	17,645,000	211,740	17,713,000	212,556
9	20,027,000	240,324	14,510,000	174,120
10	19,340,000	232,080	-	-
11	15,409,004	184,908	17,062,000	204,744
12	21,110,000	253,320	20,073,000	240,876
Max Month	***31,646,500***	***379,758***	***29,081,000***	***348,972***
Annual Use	***284,481,204***		***238,891,479***	

Baseline Steam Use = (284481.204Mlb/yr + 238891.479 Mlb/yr) / 2
= 261,686.34 Mlb/yr

Accomodated Steam Use = (Maximum Monthy Use Annualized) - (Average Annual Use During the Baseline)
= (379758 - 261686.3415)
= 118,071.66 Mlb/yr

Boiler Efficiency = 0.6097561 Mlb-steam/MMBtu
The boiler is rated for 60,000 lb-steam/hr and 98.4 MMBtu/hr

Accomodated Fuel Use = (118071.6585 Mlb-steam/yr) / (0.6097561 Mlb-steam/MMBtu)
= 193,637.52 MMBtu/yr

Baseline Fuel Use = (261686.3415 Mlb-steam/yr) / (0.6097561 Mlb-steam/MMBtu)
= 429,165.60 MMBtu/yr

Baseline and Accommodated Emission

Pollutant	2014 Test Results (lb/MMBtu)	Baseline Fuel Use (MMBtu/yr)	Baseline Emissions (TPY)	Accommodated Fuel Use (MMBtu/yr)	Accommodated Emissions (TPY)
PM	0.3290		70.60		31.85
PM10	0.3164		67.89		30.63
PM2.5	0.1947		41.77		18.85
VOC	0.0034	429,165.6	0.73	193,637.5	0.33
SO2	0.0023		0.49		0.22
Nox	0.2202		47.25		21.32
CO	0.0564		12.10		5.46

Note: PM10 and PM2.5 estimated as 91% and 54% of filterable PM plus condensable of 0.017 lb/MMBtu

2013 Baseline AA-006 Sawing Operations including log debarking, sawing, hogging, chipping, and grinding.

	TPY	Reference
Logs	171,601	Log Use Based on recovery of 5.78 tons-logs/MBF
Green tons chips	48,820	Recovery Analysis Based on Chip Yield, Chips 28.45%, sawdust 9% and bark 10% by weight.
Green Sawdust	15,444	
Green Bark	17,160	
BDT chips	24,410	Assume 50% m.c. wet basis
BDT Sawdust	7,722	
BDT Bark	8,580	

	Thruput	Emission Factors				PM	PM_{10}	$PM_{2.5}$
	TPY	PM	PM_{10}	$PM_{2.5}$	Units	TPY	TPY	TPY
Debarking	171,601	0.0024	0.0012	0.0006	lb/ton-log	0.21	0.10	0.05
Bucking	171,601	0.035	0.0175	0.00875	lb/ton-log	0.30	0.15	0.08
Hog/Chipping	65,980	0.0024	0.0012	0.0006	lb/green ton	0.08	0.04	0.02
Conveying (Avg 5 drops)								
Sawdust	7,722	0.00075	0.00035	0.00005	BDT	0.00	0.00	0.00
Chips	24,410	0.00075	0.00035	0.00005	BDT	0.01	0.00	0.00
Bark	8,580	0.00075	0.00035	0.00005	BDT	0.00	0.00	0.00
					Total	0.60	0.30	0.15
Emmission Factors from May 8, 2014, EPA Memo "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country"								
Hog/Chipping factor assumed equal to debarking, weight = bark + chips. Sawmill emissions reduced to zero due to being indoors.								

Debarking assumes ring debarker factor is 90% of the drum debarker factor

Log bucking assumes 90% control as the merchandiser typically includes partial enclosure.

2013 Baseline AA-007 Road Emissions

Offsite Sales 24,168 green tons/yr

Log Use 171,601 tons/yr

Type of Truck	Paved/ Unpaved	Miles traveled per truck	Empty Truck Weight (tons)	Loaded Truck Weight (tons)	Average Truck Weight (tons)	No Trucks/yr	VMT/hr	VMT/yr	PM		PM10		PM2.5	
									lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Log Truck	Unpaved	0.15	13	39	26	6600	0.11	990	0.29	0.88	0.07	0.21	0.01	0.02
	Paved	0.2					0.14	1,188	0.05	0.18	0.01	0.04	0.00	0.01
Residual Truck	Paved	0.4				929.53	0.04	335	0.01	0.05	0.00	0.01	0.00	0.00
							Total		0.34	1.11	0.08	0.26	0.01	0.03

0.383712121

Unpaved Emission Factor — Control Efficiencies — Emission Factor

Pollutant	k (lb/VMT)	a	b	Surface Material Silt Content, s (%)	Mean Vehicle Weight, W (tons)	Controls (%)		# days 0.01 "rain	Hourly (lb/VMT)	Annual (lb/VMT)
TSP	4.9	0.7	0.45	3.9	26.0	Max Speed ≤ 15 mph		110	2.54	1.77
PM_{10}	1.5	0.9	0.45	3.9	26.0		57.0	110	0.62	0.43
$PM_{2.5}$	0.15	0.9	0.45	3.9	26.0			110	0.06	0.04

Paved Emission Factor — Emission Factor

Pollutant	k (lb/VMT)	Surface Material Silt Content, s (%)	Mean Vehicle Weight, W (tons)	# days 0.01 "rain	Hourly (lb/VMT)	Annual (lb/VMT)
TSP	0.011	1.1	26.0	110	0.33	0.31
PM_{10}	0.0022	1.1	26.0	110	0.07	0.06
$PM_{2.5}$	0.00054	1.1	26.0	110	0.02	0.02

2014 Baseline AA-006 Sawing Operations including log debarking, sawing, hogging, chipping, and grinding.

	TPY	Reference
Logs	206,948	Log Use Reported in 2014 AERF
Green tons chips	58,877	Recovery Analysis Based on Chip Yield, Chips 28.45%, sawdust 9% and bark 10% by weight.
Green Sawdust	18,625	
Green Bark	20,695	
BDT chips	29,438	Assume 50% m.c. wet basis
BDT Sawdust	9,313	
BDT Bark	10,347	

	Thruput	Emission Factors				PM	PM_{10}	$PM_{2.5}$
	TPY	PM	PM_{10}	$PM_{2.5}$	Units	TPY	TPY	TPY
Debarking	206,948	0.0024	0.0012	0.0006	lb/ton-log	0.25	0.12	0.06
Bucking	206,948	0.035	0.0175	0.00875	lb/ton-log	0.36	0.18	0.09
Hog/Chipping	79,572	0.0024	0.0012	0.0006	lb/green ton	0.10	0.05	0.02
Conveying (Avg 5 drops)								
Sawdust	9,313	0.00075	0.00035	0.00005	BDT	0.00	0.00	0.00
Chips	29,438	0.00075	0.00035	0.00005	BDT	0.01	0.01	0.00
Bark	10,347	0.00075	0.00035	0.00005	BDT	0.00	0.00	0.00
					Total	0.72	0.36	0.18
Emmission Factors from May 8, 2014, EPA Memo "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country"								
Hog/Chipping factor assumed equal to debarking, weight = bark + chips. Sawmill emissions reduced to zero due to being indoors.								

Debarking assumes ring debarker factor is 90% of the drum debarker factor

Log bucking assumes 90% control as the merchandiser typically includes partial enclosure.

2014 Baseline AA-007 Road Emissions

Offsite Sales 29,146 green tons/yr

Log Use 206,948 tons/yr

Type of Truck	Paved/ Unpaved	Miles traveled per truck	Empty Truck Weight (tons)	Loaded Truck Weight (tons)	Average Truck Weight (tons)	No Trucks/yr	VMT/hr	VMT/yr	PM		PM10		PM2.5	
									lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Log Truck	Unpaved	0.15	13	39	26	7960	0.14	1,194	0.35	1.06	0.08	0.26	0.01	0.03
	Paved	0.2					0.16	1,433	0.05	0.22	0.01	0.04	0.00	0.01
Residual Truck	Paved	0.4				1,121.00	0.05	404	0.02	0.06	0.00	0.01	0.00	0.00
							Total		0.42	1.34	0.10	0.32	0.01	0.04

0.383712121

Unpaved Emission Factor — Control Efficiencies — Emission Factor

Pollutant	k (lb/VMT)	a	b	Surface Material Silt Content, s (%)	Mean Vehicle Weight, W (tons)	Controls (%)		# days 0.01 "rain	Hourly (lb/VMT)	Annual (lb/VMT)
TSP	4.9	0.7	0.45	3.9	26.0	Max Speed ≤ 15 mph		110	2.54	1.77
PM_{10}	1.5	0.9	0.45	3.9	26.0		57.0	110	0.62	0.43
$PM_{2.5}$	0.15	0.9	0.45	3.9	26.0			110	0.06	0.04

Paved Emission Factor — Emission Factor

Pollutant	k (lb/VMT)	Surface Material Silt Content, s (%)	Mean Vehicle Weight, W (tons)	# days 0.01 "rain	Hourly (lb/VMT)	Annual (lb/VMT)
TSP	0.011	1.1	26.0	110	0.33	0.31
PM_{10}	0.0022	1.1	26.0	110	0.07	0.06
$PM_{2.5}$	0.00054	1.1	26.0	110	0.02	0.02

AA-001 Baseline

Hours of Operation

Month	2013	2014
Jan	173.8	187.00
Feb	192.5	201.25
Mar	193	190.00
Apr	185.8	220.00
May	170.1	194.80
June	146.6	145.75
July	178	367.00
Aug	16.9	295.00
Sep	157.4	336.00
Oct	169.9	351.00
Nov	135.8	315.00
Dec	130.4	312.00
Total	1850.20	3114.80
TPY	0.08	0.14

Emission based on 2002 stack test of 0.09 lb/hr.
PM=PM10=PM2.5

Baseline Emissions AA-013

Fuel Diverted to Truck Loadout

	2013	2014	
Jan	433	693	
Feb	1564	2032	
Mar	1394	2620	
Apr	1661	3158	
May	806	3430	
June	631	1588	
July		2374	
Aug		2748	
Sep		3204	
Oct		3216	
Nov		2206	
Dec		1877	Avg
Total	24168	29146	26657

Pollutant	Emission Factor		Avg Rate	Moisture	TPY
PM	0.00075	lb/BDT	26657	50%	0.005
PM_{10}	0.00035	lb/BDT			0.002
$PM_{2.5}$	0.00005	lb/BDT			0.000

Note: The 2013 Semi-annual reports included fuel diverted for January to June for both the 1st half report and 2nd half report. Fuel diverted in 2013 was based on the ratio of the production for 2013 & 2014 and the amount of fuel diverted in 2014. Baseline emissions were conservatively estimated using a drop of "wet" material.

DPK-1 and DPK-2 Emissions Calculations per Kiln

Pollutant	EF	Units	Ref	Throughput MBF/hr	Potential Emissions lb/hr	Potential Emissions TPY
PM	0.022	lb/MBF	1	10.07	0.22	0.90
PM_{10}	0.022				0.22	0.90
$PM_{2.5}$	0.022				0.22	0.90
VOC	4.43		2		44.61	181.76
HAPs						
Acetaldehyde	0.04	lb/MBF	3		0.40	1.64
Acrolein	0.004				0.04	0.16
Formaldehyde	0.016				0.16	0.66
Methanol	0.18				1.81	7.39
Phenol	0.01				0.10	0.41
Propionaldehyde	0.004				0.04	0.16

References

North Carolina Dept. of Environmental Quality Emission Estimation Spreadsheets *Lumber_Kilns-Documentation (1).xls references* *https://files.nc.gov/ncdeq/Air%20Quality/permits/files/Lumber_Kilns-Documentation.xls*
Selected BACT
EPA Memo "Development of a Provisional Emissions Calculations Tool for Inclusion in the Final PCWP ICR". *Lumber Kiln: Indirectheated: Softwood: Pine Species*

Calculation Methodology

lb/hr = EF x Throughput

TPY = EF X 82,057 MBF/yr X ton/2000 lb

Notes

Throughput based on 82,057 MBF/yr for each kiln

AA-002 Wood Fired Boiler

Pollutant	EF	Units	Ref	Capacity MMBtu/hr	Potential Emissions lb/hr	Potential Emissions TPY
PM	0.275	lb/MMBtu	1	98.4	27.03	118.38
PM_{10}	0.267	lb/MMBtu	2		26.27	115.05
$PM_{2.5}$	0.165	lb/MMBtu			16.27	71.25
VOC	0.010	lb/MMBtu	1		1.02	4.47
SO2	0.004	lb/MMBtu			0.44	1.91
Nox	0.197	lb/MMBtu			19.42	85.05
CO	0.203	lb/MMBtu			20.01	87.64
Lead	4.80E-05	lb/MMBtu	3		0.00	0.02

Reference

1	*Average of past three stack tests. 2016, 2018 and 2020*
2	*Average of PM test data adjusted by AP 42 Table 1.6-5 Cumulative Particle Size Distribution plus AP-42 Table 1.6-1. CPM factor of 0.017 lb/MMBtu.*
3	*AP-42 Factor from Table 1.6-4.*

Calculation Methodology

lb/hr = Capacity x EF

TPY = lb/hr x 8760 hrs/yr x ton/2000 lb

AA-013 - Truck Loadout Operation, 20 TPH capacity.

	Capacity (BDT)		Emission Factors				PM		PM_{10}		$PM_{2.5}$	
Loadout	**TPH**	**TPY**	**PM**	**PM_{10}**	**$PM_{2.5}$**	**Units**	**lb/hr**	**TPY**	**lb/hr**	**TPY**	**lb/hr**	**TPY**
Green Residuals	20.0	167,094	0.00075	0.00035	0.00005	lb/BDT	0.02	0.09	0.01	0.04	0.00	0.01
Planer Shavings	20.0	37,781	0.0015	0.0007	0.0001	lb/BDT	0.05	0.04	0.02	0.02	0.00	0.00
						Total	0.07	0.14	0.03	0.06	0.00	0.01

Emmission Factors from May 8, 2014, EPA Memo "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country"

Loadout at 20 TPH.

Assume average of three drops of green material during loadout and green residuals are 50% moisture.Emission factor for drop of wet material was used.

Assume one drop for dry planer shavings Emission factor for drop of dry material was used.

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 otherwise approved by the Department. List Hazardous Air Pollutants (HAP) in Section B.3 and GHGs in Section B.4. 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 TPY must be included. Please do not change the column widths on this table.

Emission	PM		PM10		PM2.5		SO_2		NOx		CO		VOC		TRS[2]		Lead		Total HAPs	
Point ID	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
CDK-1	0.22	0.90	0.22	0.90	0.22	0.90	-	-	-	-	-	-	44.61	182	-	-	-	-	2.5578	10.4212
CDK-2	0.22	0.90	0.22	0.90	0.22	0.90	-	-	-	-	-	-	44.61	182	-	-	-	-	2.5578	10.4212
AK-1 to 28	0.10	0.46	0.10	0.46	0.10	0.46	-	-	-	-	-	-	20.98	91.91	-	-	-	-	1.2031	5.2697
AA-001	0.86	3.78	0.82	3.59	0.69	3.02	-	-	-	-	-	-	0.52	2.27	-	-	-	-	-	-
AA-002	27.03	118.38	26.27	115.05	16.27	71.25	0.44	1.91	19.42	85.05	20.01	87.64	1.02	4.47	-	-	0.00	0.02	2.30843	10.1109
AA-006	0.66	2.91	0.33	1.45	0.16	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-007	1.78	5.84	0.42	1.36	0.05	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AA-013	0.07	0.14	0.03	0.06	0.00	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	30.95	133.30	28.42	123.77	17.73	77.44	0.44	1.91	19.42	85.05	20.01	87.64	111.74	462.16	0.00	0.00	0.00	0.02	8.62711	36.2231

[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. Additional columns may be added if there are regulated pollutants (other than HAPs and GHGs) emitted at the facility.

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
CDK-1	0.22	0.90	0.22	0.90	0.22	0.90	-	-	-	-	-	-	44.61	181.76	-	-	-	-
CDK-2	0.22	0.90	0.22	0.90	0.22	0.90	-	-	-	-	-	-	44.61	181.76	-	-	-	-
AK-1 to 28	0.10	0.46	0.10	0.46	0.10	0.46	-	-	-	-	-	-	20.98	91.91	-	-	-	-
AA-001	0.86	3.78	0.82	3.59	0.69	3.02	-	-	-	-	-	-	0.52	2.27	-	-	-	-
AA-002	27.03	118.38	26.27	115.05	16.27	71.25	0.44	1.91	19.42	85.05	20.01	87.64	1.02	4.47	-	-	0.0047	0.0207
AA-006	0.66	2.91	0.33	1.45	0.16	0.71	-	-	-	-	-	-	-	-	-	-	-	-
AA-007	1.78	5.84	0.42	1.36	0.05	0.18	-	-	-	-	-	-	-	-	-	-	-	-
AA-013	0.07	0.14	0.03	0.06	0.00	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Totals	30.95	133.30	28.42	123.77	17.73	77.44	0.44	1.91	19.42	85.05	20.01	87.64	111.74	462.16			0.0047	0.0207

[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)

In the table below, report the Proposed Allowable Emissions (Potential to Emit) for each HAP from each regulated emission unit if the HAP > 0.0001 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources. Use the HAP nomenclature as it appears in the Instructions. 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. For each HAP listed, 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 the pollutant is emitted in a quantity less than the threshold amounts described above. Additional columns may be added as necessary to address each HAP.

Emission Point ID	Total HAPs		Acetaldehyde		Acrolein		Formaldehyde		Methanol		Phenol		Propionaldehyde		Provide Pollutant Name Here		Provide Pollutant Name Here	
	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
CDK-1	2.55778	10.4212	0.4028	1.6411	0.0403	0.1641	0.1611	0.6565	1.8126	7.3851	0.1007	0.4103	0.0403	0.1641				
CDK-2	2.55778	10.4212	0.4028	1.6411	0.0403	0.1641	0.1611	0.6565	1.8126	7.3851	0.1007	0.4103	0.0403	0.1641				
AK-1 to 28	1.20313	5.2697	0.1895	0.8299	0.0189	0.0830	0.0758	0.3319	0.8526	3.7344	0.0474	0.2075	0.0189	0.0830				
AA-002	2.30843	10.1109	0.0817	0.3577	0.3936	1.7240	0.4330	1.8964	0.0000	0.0000	0.0050	0.0220	0.0060	0.0263				
Totals:																		