

Curle, Mary Beth

From: Alyse Cardell [ACardell@TrinityConsultants.com]
Sent: Tuesday, September 25, 2012 9:52 AM
To: Sarasua, Armando
Cc: Curle, Mary Beth; Prusa, Rick
Subject: Re: GA Pacific Hosford 0770010-014-AC emissions increase sig figs
Attachments: PSD Applicability Analysis Table (2012 0925).xlsx

Hello Armando,

Attached is an excel spreadsheet which has all the values from Table 4-5. PSD Applicability Analysis, defined to two decimal places. Hopefully this clears up any of your questions on the values.
Please feel free to reach out with any questions and let me know if you need any additional information.

Thanks so much,

Alyse Cardell
Trinity Consultants
919 Lake Baldwin Lane, Ste. B
Orlando, FL 32814
Office: (407) 982-2891

acardell@trinityconsultants.com

From: "Sarasua, Armando" <Armando.Sarasua@dep.state.fl.us>
To: "acardell@trinityconsultants.com" <acardell@trinityconsultants.com>
Cc: "Curle, Mary Beth" <Mary.Beth.Curle@dep.state.fl.us>, "Prusa, Rick" <Rick.Prusa@dep.state.fl.us>
Date: 09/25/2012 09:39 AM
Subject: GA Pacific Hosford 0770010-014-AC emissions increase sig figs

Alyse Cardell
Trinity Consultants
919 Lake Baldwin Lane, Ste. B
Orlando, FL 32814
Office: (407) 982-2891 x-103
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Pollutant (TPY)	Potential Emissions ¹	Baseline Actual Emissions (BAE) ²	Projected Actual Emissions (PAE) ²	Demand Growth Exclusion (DGE) ²	Emissions Increase ³	Significant Emissions Rate	Subject to PSD
CO	250.20	91.80	150.00	45.90	12.30	100	No
NO _x	428.76	191.00	217.00	7.89	18.11	40	No

PM	351.13	134.00	157.00	11.40	11.60	25	No
PM₁₀	329.80	120.00	142.00	11.20	10.80	15	No
PM_{2.5}	300.58	105.00	126.00	10.80	10.20	10	Yes
SO₂	23.05	16.40	18.00	0.35	1.25	40	No
VOC	594.40	136.00	182.00	31.00	15.00	40	No
CO_{2e}	174646	23509	51157	23065	4583	75,000	No

- 1 Facility Potential to Emit, table on page 1 of 11, construction permit application report dated 6/2012.
- 2 BAE, PAE and DGE from Table 4-5, PSD Applicability Analysis, updated calculations dated 7/24/2012
- 3 Emissions Increase = PAE – BAE – DGE

Regards,
Armando I. Sarasua, P.E.
Permitting Supervisor, Air Program, Northwest District
Florida Department of Environmental Protection
160 Governmental Center, Suite 308 Pensacola, Florida 32502-5794
850 595 0639, vox 850 595 8096 fax Armando.Sarasua@dep.state.fl.us

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Georgia-Pacific Wood Products, LLC
Hosford OSB Facility

PSD Applicability Analysis

EUID	Emission Unit	Projected Actual Emissions Summary							
		CO (tpy)	NO _x (tpy)	PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	VOC (tpy)	SO ₂ (tpy)	CO _{2e} (tpy)
EU001/EU011	Dryers, Thermal Oil Heater	130.58	211.61	100.25	100.25	86.31	40.46	18.35	44,984.91
EU002	Panel Press	19.64	5.39	17.51	17.51	17.51	27.75	0.03	6,172.34
EU003-005, EU007-009	Baghouses	-	-	10.38	10.38	10.38	58.40	-	-
EU010	Blender, Debarker and Roads	-	-	22.58	7.12	4.84	35.94	-	-
EU014	Misc. Coatings	-	-	6.57	6.57	6.57	19.70	-	-
Projected Actual Emissions (PAE)		150.22	216.99	157.29	141.84	125.62	182.25	18.38	51,157
Baseline Actual Emissions (BAE)		91.81	191.06	133.61	119.68	105.29	135.94	16.40	-
Difference (Total PAE-BAE)		58.42	25.93	23.68	22.16	20.34	46.31	1.98	-
Demand Growth Exclusion		45.91	7.89	11.43	11.23	10.77	31.03	0.35	-
Increase Associated with Project		12.51	18.04	12.25	10.93	9.57	15.28	1.64	4,583
Significant Emission Rate (SER)		100	40	25	15	10	40	40	-
PSD Applicability (Y/N)?		N	N	N	N	N	N	N	N

Prusa, Rick

From: Sarasua, Armando
Sent: Wednesday, August 29, 2012 11:28 AM
To: Sheplak, Scott
Cc: Prusa, Rick; Arif, Syed
Subject: RE: Ga Pac Hosford 0770010-014-AC Panel Press System Upgrade

Scott,

I do not understand why a facility that is permitted to emit a specified amount of pollutants with given production and emissions limits needs a construction permit if the physical changes they are contemplating do not result in the facility reaching or exceeding the production or emissions limits in a valid previously issued permit. The facility has not exceeded, does not plan to exceed, and is not seeking a change in the existing permitted operating rates or pollutant lbs/hr limits.

Using VOC as an example, the facility has an effective limit at the dryers as a result of a BACT determination of 349 T VOC/yr at permitted limits of 693,272 ODT wood flakes per 12 month period and 79.7 lb VOC/hr.

VOC testing reveals an emissions rate of 0.11 lb VOC/ODT and 5.5 lbs VOC/hr. This is much less than the BACT-based emissions rate of 1.007 lb VOC/ODT and the limit of 79.7 lbs VOC/hr. The dryers have been operating at a rate of 452,395 ODT/yr and the emissions associated with this operating rate are 24.04 T VOC/yr. They wish to operate the dryers at a rate of 461,947 ODT/yr and the emissions associated with this operating rate are 25.5 T VOC/yr.

Again using VOC as an example, the facility has an effective limit at the panel press as a result of a BACT determination of 55.3 T VOC/yr at permitted limits of 600 MMSF 3/8" basis panels per 12 month period and 12.6 lb VOC/hr.

VOC testing reveals an emissions rate of 15.15 lb VOC/MMSF and 4.2 lbs VOC/hr. This is much less than the BACT-based emissions rate of 184.33 lb VOC/MMSF, and the limit of 12.6 lbs VOC/hr. The panel press has been operating at a rate of 503.1 MMSF/yr and the emissions associated with this operating rate are 3.85 T VOC/yr. The physical changes to the press motive components and controls will allow them to operate approximately 13.5 % faster. Since they will be able to produce more panels per unit hour they expect hourly emissions to increase accordingly, from 4.2 to 4.8 lbs VOC/hr. This new hourly emissions rate is well below the BACT-based VOC limit of 12.6 lbs VOC/hr.

VOC PTE BACT dryers is 349.1 T VOC/yr @ 693,272 ODT & 79.7 lb VOC/hr:

VOC emissions per ODT are = $((349.1 * 2000) / 693272) = 1.007$ lb VOC/ODT

VOC BAE dryers based on test data of 0.11 lb VOC/ODT \equiv 24.04 TPY @ 452,395 ODT/yr

VOC PAE dryers @ 461,947 ODT/yr:

$(0.11 \text{ lb VOC/ODT} * 461,947 \text{ ODT/yr}) / (2000 \text{ lb VOC} / \text{T VOC}) = 25.4 \text{ T VOC/yr}$

VOC PTE dryers @ 693,272 ODT/yr & 0.11 lb VOC/ODT:

$(0.11 \text{ lb VOC/ODT} * 693,272 \text{ ODT/yr}) / (2000 \text{ lb VOC} / \text{T VOC}) = 38.1 \text{ T VOC/yr}$

VOC PTE BACT panel press is 55.3 T VOC/yr @ 600MMSF/yr & 12.6 lb VOC/hr

VOC emissions per MMSF are = $((55.3*2000)/600 = 184.33 \text{ lb VOC/MMSF}$

VOC BAE panel press 3.81 T VOC/yr @ 503.1 MMSF/yr

$((3.81*2000)/600 = 15.15 \text{ lb VOC/MMSF} = 0.01515 \text{ lb VOC/kSF} \cong 0.02 \text{ lb VOC/kSF}$

VOC PAE panel press @ 508.327 MMSF/yr

$((15.15 \text{ lb VOC/MMSF} * 508.327 \text{ MMSF/yr}) / (2000 \text{ lb VOC} / \text{T VOC}) = 3.85 \text{ T VOC/yr}$

VOC PTE panel press @ 600 MMSF/yr:

$((15.15 \text{ lb VOC/MMSF} * 600 \text{ MMSF/yr}) / (2000 \text{ lb VOC} / \text{T VOC}) = 4.54 \text{ T VOC/yr}$

62-210.200 (11) "Actual Emissions" – The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:

- (a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department shall allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.
- (b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that such unit-specific allowable emissions limits are federally enforceable.
- (c) For any emissions unit that has not begun normal operations on a particular date, actual emissions shall equal the potential emissions of the emissions unit on that date.

62-210.200 (205) "Modification" – Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.

(a) A physical change or change in the method of operation shall not include:

1. Routine maintenance, repair, or replacement of component parts of an emissions unit; or
2. A change in ownership of an emissions unit or facility.

(b) For any pollutant that is specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975.

(c) For any pollutant that is not specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would exceed any restriction on hours of operation or production rate included in any applicable Department air construction or air operation permit.

From: Sheplak, Scott

Sent: Tuesday, August 28, 2012 2:19 PM

To: Sarasua, Armando

Cc: Prusa, Rick; Arif, Syed

Subject: RE: Ga Pac Hosford 0770010-014-AC Panel Press System Upgrade

Armando,

I left a voice mail message for you yesterday. This is a follow up to your e-mail of below. Each of your questions are restated followed by my response.

“The first question is; if they have been operating well below the PTE established by permit 0770010-002-AC PSD-FL-282A, and, the projected actual emissions after they make the panel press system upgrades are still less than the PTE established by 002-AC, do they even need a construction permit?”

Response: We have reviewed the minor source AC permit application submittal you provided and are of the opinion that they do need a minor source AC permit for the same reasons the applicant (company) had indicated. Basically, the applicant (company) is proposing to make physical changes which result in actual emission increases of air pollutants or new air pollutants (in other words a “modification” under Florida SIP rules.)

“The second question is; if they do need an AC did they do their PSD analysis correctly?”

Response: Their PSD analysis appears to have been done correctly. While I readily admit to not being an expert PSD person, their write up seems to follow our rules regarding a PSD analysis. If you have any questions specifically on this, I will have to get back to you.

I hope this helps. Feel free to call me or Syed if you would like to discuss.

Scott

From: Sarasua, Armando
Sent: Friday, August 24, 2012 9:46 AM
To: Arif, Syed; Sheplak, Scott
Cc: Curle, Mary Beth; Prusa, Rick; Pennington, Jim; Bradburn, Rick
Subject: Ga Pac Hosford 0770010-014-AC Panel Press System Upgrade

Georgia-Pacific, Hosford OSB Plant, Liberty County
0770010-014-AC Panel Press System Upgrade

Gentlemen,

I do not think this project needs a construction permit and would like your opinion.

I believe they applied for an AC because they have emissions increases from baseline actual emissions to projected actual emissions. However, it appears that they have been operating well below the PTE established by permit 0770010-002-AC PSD-FL-282A, and, the projected actual emissions after they make the panel press system upgrades are still less than the PTE established by 002-AC. Please note that their estimate of the Post-Project facility potential to emit is derived by multiplying the permit lbs/hr emissions limits time 8760 hrs/yr of operation and does not take into account the emissions limiting effects of the ODT/yr or the MMSF/yr limits of PSD-FL-282A. (BTW, Jim Pennington was lightly involved at the end of PSD-FL-282A)

This project upgrades the panel press system (EU 002) hydraulic system, which provides the motive force to open and close the panel press during OSB production. A more sophisticated control system, variable frequency drives, and updated valves will allow for faster and smoother press openings and closings, and reduce wear on the press components. The panel press system upgrades reduce the overall press cycle time by an estimated 13.5 seconds. This increases potential short-term emissions, lbs/hr, due to the ability to process more material per hour.

The Five Flake Dryers (EU 001) have a processing rate limit of 693,272 ODT/12 month rolling average and the Panel Press System (EU 001) production limit of 600 million square feet on a 3/8-inch basis oriented strandboard per consecutive 12-month period. Both emissions units have BACT/MACT determination lb/hr limits for PM/PM₁₀, NO_x, CO and VOC.

The material processing rate and BACT/MACT determination hourly emissions limits in the current operating permit 0770010-012-AV for the dryers and the panel press were originally set in permit 0770010-002-AC PSD-FL-282A. Construction permit 0770010-014-AC does not request any changes in the dryers' or panel press' process rates or the hourly emissions limits in permit 0770010-012-AV.

Emissions tests on the dryers and the panel press show actual emissions lbs/hr to be less than emissions limits lbs/hr in the PSD permit.

Georgia-Pacific Hosford OSB Plant 0770010-014-AC Emissions, TPY						
Pollutant	Potential to Emit ¹ , PSD-FL-282A	Baseline Actual ²	Projected Actual ²	Demand Growth Exclusion	Project Increase	Post - Project Facility Potential to Emit ³
	693272 ODT/yr	452395 ODT/yr	461947 ODT/yr			
	600 MMSF/yr 3/8" basis	501.3 MMSF/yr 3/8" basis	508.327 MMSF/yr 3/8" basis			
CO	395.9	91.8	151	46.5	12.6	250.20
NOx	449.6	191	217	7.9	18.1	428.76
PM	296.8	133	158	11.1	12.2	351.13
PM10	296.8	119	142	10.9	10.9	329.80
PM2.5	-	105	126	10.5	9.56	300.58
VOC	413.0	131	182	27.8	14.5	594.40
SO2	33.6	16.4	18	0.3	1.64	23.05

- 1 Potentials to Emit from PSD-FL-282A are based on permit limits of 693272 ODT/yr of flaked wood through the dryers and 600 MMSF/YR of OSB on a 3/8" basis from the panel press
- 2 Baseline and Projected Actual Estimates base on actual stack test lbs/hr data times 8760 hrs/yr
- 3 Facility Post Project Potentials to Emit based on BACT limits times 8760 hrs/yr. No consideration given to the ODT/yr or the MMSF/yr limits of PSD-FL-282A.

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The second question is; if they do need an AC did they do their PSD analysis correctly?

Regards,

Armando I. Sarasua, P.E.

Permitting Supervisor, Air Program, Northwest District

Florida Department of Environmental Protection

160 Governmental Center, Suite 308 Pensacola, Florida 32502-5794

850 595 0639, vox 850 595 8096 fax Armando.Sarasua@dep.state.fl.us

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Attachments: GaPacHosford 0770010 002 AC PSD FL 282A.pdf; Ga Pac Hosford 0770010 014 AC Attachment 2012 0612.pdf

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PM2.5	-	105	126	10.5	9.56	300.58
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Florida Department of Environmental Protection

160 Governmental Center, Suite 308 Pensacola, Florida 32502-5794

850 595 0639, vox 850 595 8096 fax Armando.Sarasua@dep.state.fl.us

Please note: Florida has a very broad public records law. Most written communications to or from state officials are public records and may be made available to the public or media upon request. This e-mail communication, your reply, and future e-mails to my attention may therefore be subject to public disclosure.

Curle, Mary Beth

From: Prusa, Rick
Sent: Thursday, August 23, 2012 1:14 PM
To: Sarasua, Armando
Cc: Curle, Mary Beth
Subject: FW: Georgia Pacific permit application 0770010-014-AC Updates
Attachments: FDEP response letter.pdf; Press Emission Calculations.xlsx

From: Alyse Cardell [<mailto:ACardell@TrinityConsultants.com>]
Sent: Wednesday, August 22, 2012 4:22 PM
To: Prusa, Rick
Subject: Re: Georgia Pacific permit application 0770010-014-AC Updates

Rick,

Sorry for the delay, but I have put together a letter to address your questions on the GP Hosford Press permit application.

I will wait to hear from you about our call today regarding the need for a permit, but I wanted to still follow up regarding your previous questions.

Please let me know if you have any questions or if there is anything else I can do to help.

Thanks so much,

Alyse Cardell
Trinity Consultants
919 Lake Baldwin Lane, Ste. B
Orlando, FL 32814
Office: (407) 982-2891

acardell@trinityconsultants.com

From: Alyse Cardell/Trinity Consultants
To: "Prusa, Rick" <Rick.Prusa@dep.state.fl.us>
Date: 08/06/2012 04:26 PM
Subject: Re: Georgia Pacific permit application 0770010-014-AC Updates

Hi Rick,

I wanted to follow up on our call this morning about the GP Hosford Permit application. I am waiting on some testing documentation from GP and I will be unable to finish responding to your questions without the additional information. I will hopefully be able to get back to you with responses later this week, but I will be in touch if it will be further delayed. Sorry for the delay and any inconvenience but I will do my best to respond to your questions as soon as possible

Thanks so much,

Alyse Cardell
Trinity Consultants
919 Lake Baldwin Lane, Ste. B
Orlando, FL 32814
Office: (407) 982-2891

acardell@trinityconsultants.com

From: Alyse Cardell/Trinity Consultants
To: "Prusa, Rick" <Rick.Prusa@dep.state.fl.us>
Date: 08/01/2012 08:49 AM
Subject: Georgia Pacific permit application 0770010-014-AC Updates

Hi Rick,

I wanted to pass along an electronic version of the updates to be made to the permit application for Georgia Pacific's Hosford Facility. We had spoken about the updates a while ago and there has been a slight internal delay by Georgia Pacific to ensure that everything we are submitting is the most accurate as possible

You should receive a hard copy version of the application updates as well, which will include the appropriate PE Seal and RO Signature - Please let me know if you do not.

Do not hesitate to follow up with me if you have any questions.

Thanks so much,

Alyse Cardell
Trinity Consultants
919 Lake Baldwin Lane, Ste. B
Orlando, FL 32814
Office: (407) 982-2891

acardell@trinityconsultants.com

[attachment "Press Project Updates Cover Letter 2012 0724 1501.pdf" deleted by Alyse Cardell/Trinity Consultants]

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trinityconsultants.com

Trinity
Consultants

VIA E-MAIL: Rick.Prusa@dep.state.fl.us

August 22, 2012

Mr. Rick Prusa
DEP Northwest District Office
Air Program
160 W. Government Street, Suite 308
Pensacola, FL 32502-5740

RE: *Emission Calculations Methodology Questions on Construction Permit Application
Georgia-Pacific Wood Products LLC – Hosford Facility
Permit No. 0770010-014-AC*

Dear Mr. Prusa:

This letter summarizes the responses to your questions concerning the emission calculations methodology from our phone call on August 6, 2012 with regard to the pending construction permit application for the Georgia-Pacific Wood Products LLC -Hosford facility (GP). The questions and responses are summarized below.

Baseline Actual Emissions Production Rates

The first question requested clarification of the source of the production rate presented in the determination of baseline actual emissions. The baseline actual emissions for the Hosford Press project were determined using the 2007 and 2008 calendar years, which represent the chosen consecutive 24-month period within the 10-year period immediately preceding the press project construction permit application. The actual production rate – utilized in the calculation of baseline actual emissions - is the actual production rate from the 2007 and 2008 calendar years, averaged. For consistency, the baseline actual emissions presented in the permit application are the same consecutive years that were used in determining the baseline actual emissions for a previous construction permit submitted by GP to the Florida Department of Environmental Protection (DEP) Northwest District Office in September 2011 for the low density forming project (not associated with the proposed panel press system modifications). The low density forming project was incorporated into Permit No. 0770010-013-AC issued on December 21 2011. The values presented in the low density forming project (LDI) were rounded to fewer significant digits than the values presented in the Annual Operating Reports (AOR) for 2007 and 2008. For consistency, the Press project construction permit application used the same values as presented in the approved and permitted LDI project.

Table 1 below presents the production rates from the AORs and LDI project application.

Table 1. Production Rate - Baseline Actual Emissions

Year	MSF ¹ Production	Source
2007	508,327	2007 AOR
2008	494,283	2008 AOR
2007	508,300	Low Density Forming Project Application
2008	494,300	Low Density Forming Project Application
BAE	501,300	Average of 2007 and 2008 Production Rates

¹ MSF = thousand square feet (3/8" Basis)

Facility Excludable Emissions Production Rates

The second question requested clarification of the source of the oven dried tons (ODT) and MSF production rates presented in the facility excludable emissions. The production rates for the excludable emissions from the Hosford Press project are based on the maximum past annual production from 2005-2011 that represent the emissions that could have been accommodated during the baseline period and that are also unrelated to the Press project.

Table 2. Production Rate - Excludable Emissions

Year	ODT Production	Source	MSF Production	Source
2007	461,947	Process Data	508,327	2007 AOR

The production rates used in the facility excludable emissions were based on using the maximum past actual operation on an annual basis. The maximum past actual operation occurred in the 2007 calendar year. The MSF of oriented strand board was based on actual production data and was reported in the 2007 Annual Operating Report (AOR). The total ODT of wood processed was also based on actual production data but is inconsistent with the data previously reported in the AOR. These AOR inconsistencies are described below.

It was discovered in preparing the Press project construction permit application that some of the values previously submitted in AORs were not consistent with mill production reports, such as the ODT value submitted in the 2007 AOR. GP is currently in the process of updating the inaccuracies with DEP. The ODT is a measure of the total amount of material which exits the dryers. To determine this value for the baseline period used in the Press project, GP used actual weight measurements from the Thayer Scales which measures the total amount of material that is fed into the blenders from the dryers. This value, however, does not account for material that was dried but is not fed into the blenders (and therefore not weighed) since it is screened out prior to the blenders to be used as fuel in the thermal oil heaters and dryer suspension burners. Based on prior measurements, GP estimates that 20% of the total wood dried is screened out and used as fuel in the thermal oil heaters and dryers – such that the Thayer Scales are only measuring 80% of the total oven dried wood. Therefore to calculate the total dryer output, the values from the Thayer scales are adjusted to account for the 20% which is diverted prior to the measurement.

Monthly values from the Thayer Scales are included in Table 1 of the attached spreadsheet to show the basis for the ODT from 2007.

Excludable Emissions Controlled and Uncontrolled Press Calculations

The third question requested clarification of the calculation methodology used for both the controlled and uncontrolled portion of the press emissions. The emissions for CO and VOC are calculated using the methodologies shown below.

Controlled

$$\text{Emissions (tpy)} = \text{Emission Factor} \left(\frac{\text{lb}}{\text{MSF}} \right) * \text{Production Rate} \left(\frac{\text{MSF}}{\text{yr}} \right) * [\text{Capture Efficiency (\%)}] \div 2,000 \frac{\text{lb}}{\text{ton}}$$

Uncontrolled

$$\text{Emissions (tpy)} = \text{Emission Factor} \left(\frac{\text{lb}}{\text{MSF}} \right) * \text{Production Rate} \left(\frac{\text{MSF}}{\text{yr}} \right) * [1 - \text{Capture Efficiency (\%)}] \div 2,000 \frac{\text{lb}}{\text{ton}}$$

CO and VOC emission calculations for both the controlled and uncontrolled portion of the press emissions are included in Table 2 and 3 of the attached spreadsheet.

~~~~~

If you have any questions or comments about the information presented in this letter, please do not hesitate to call me at (407) 982-2891.

Sincerely,

TRINITY CONSULTANTS

Alyse Cardell  
Consultant

Attachments

cc: Madison McNealey, GP  
Brad James, Trinity Consultants

**ATTACHMENT 1**

**Spreadsheet Containing Press Emission Calculations and Raw Thayer Scale  
Data**

**Table 1 - Monthly Thayer Scale Values**

| <b>ODT 2007</b>                      |                          |                     |              |
|--------------------------------------|--------------------------|---------------------|--------------|
| <b>Adding back the 20% which was</b> |                          |                     |              |
| <b>Month/Year</b>                    | <b>Thayer Scales Tag</b> | <b>screened out</b> | <b>Units</b> |
| Jan-07                               | 13,775                   | 17,219              | ODT          |
| Feb-07                               | 27,334                   | 34,168              | ODT          |
| Mar-07                               | 33,261                   | 41,577              | ODT          |
| Apr-07                               | 31,020                   | 38,776              | ODT          |
| May-07                               | 34,931                   | 43,663              | ODT          |
| Jun-07                               | 32,623                   | 40,778              | ODT          |
| Jul-07                               | 36,903                   | 46,129              | ODT          |
| Aug-07                               | 33,117                   | 41,397              | ODT          |
| Sep-07                               | 30,974                   | 38,717              | ODT          |
| Oct-07                               | 31,256                   | 39,071              | ODT          |
| Nov-07                               | 32,324                   | 40,405              | ODT          |
| Dec-07                               | 32,039                   | 40,049              | ODT          |
|                                      | <b>Total:</b>            | <b>461,947</b>      | <b>ODT</b>   |

**Table 2 - Controlled Press Emissions**

**EU002 - Panel Press - Controlled Facility Excludable Emissions**

Annual Production Rate      508,327 MSF/yr (3/8" basis)  
Capture Efficiency<sup>1</sup>              97%

| Pollutant  | Emission Factor |           | Notes | Emissions (tpy) |
|------------|-----------------|-----------|-------|-----------------|
|            | (lb/MSF)        | (lb/MMCF) |       |                 |
| CO         | 0.07            | -         | 3     | 17.96           |
| VOC (as C) | 0.07            | -         | 3     | 16.39           |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.

3. CO and VOC emission factors based on maximum emission factor found in past stack testing completed 2005-2011. VOC emission factor takes into account control efficiency of the RTO.

**Table 3 - Uncontrolled Press Emissions**

**EU002 - Panel Press - Uncontrolled Facility Excludable Emissions**

Annual Production Rate                      508,327 MSF/yr (3/8" basis)  
Capture Efficiency<sup>1</sup>                              97%

| <b>Pollutant</b> | <b>Emission Factor<br/>(lb/MSF)</b> | <b>Notes</b> | <b>Emissions<br/>(tpy)</b> |
|------------------|-------------------------------------|--------------|----------------------------|
| CO               | 2.60E-03                            | 2            | 2.11E-02                   |
| VOC              | 1.11                                | 3            | 9.03                       |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
2. CO emission factors from AP-42 Section 10.6.1 - Waferboard/Oriented Strand Board Manufacturing, Tables 10.6.1-4,5,6, for Uncontrolled Hot Press, PF resin (powder).
3. VOC emission factor based on maximum VOC inlet data (before control device) taken from stack testing results completed from 2007 to 2011.

## Curle, Mary Beth

---

**From:** Prusa, Rick  
**Sent:** Wednesday, August 22, 2012 10:37 AM  
**To:** Sarasua, Armando  
**Cc:** Curle, Mary Beth  
**Subject:** FW: Georgia Pacific permit application 0770010-014-AC Updates  
**Attachments:** Press Project Updates Cover Letter 2012 0724 1501.pdf

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**From:** Alyse Cardell [<mailto:ACardell@TrinityConsultants.com>]  
**Sent:** Wednesday, August 01, 2012 7:49 AM  
**To:** Prusa, Rick  
**Subject:** Georgia Pacific permit application 0770010-014-AC Updates

Hi Rick,

I wanted to pass along an electronic version of the updates to be made to the permit application for Georgia Pacific's Hosford Facility. We had spoken about the updates a while ago and there has been a slight internal delay by Georgia Pacific to ensure that everything we are submitting is the most accurate as possible

You should receive a hard copy version of the application updates as well, which will include the appropriate PE Seal and RO Signature - Please let me know if you do not.

Do not hesitate to follow up with me if you have any questions.

Thanks so much,

Alyse Cardell  
Trinity Consultants  
919 Lake Baldwin Lane, Ste. B  
Orlando, FL 32814  
Office: (407) 982-2891

[acardell@trinityconsultants.com](mailto:acardell@trinityconsultants.com)

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## Georgia-Pacific Wood Products LLC

Georgia-Pacific Hosford OSB  
12995 Highway 65 North  
Hosford, FL 32334  
Telephone 850-379-4000

VIA E-MAIL: [Rick.Prusa@dep.state.fl.us](mailto:Rick.Prusa@dep.state.fl.us)

July 24, 2012

Mr. Rick Prusa  
DEP Northwest District Office  
Air Program  
160 W. Government Street, Suite 308  
Pensacola, FL 32502-5740

RE: *Construction Permit Application Updates  
Georgia-Pacific Wood Products LLC – Hosford Facility  
Permit No. 0770010-014-AC*

Dear Mr. Prusa:

Georgia-Pacific Wood Products, LLC (GP) previously submitted a construction permit application on June 12, 2012, for updates to the hydraulic system on the panel press system (EU002) at the Hosford facility. The emission calculations associated with the PSD applicability analysis for the proposed project assumed that all exhaust from the panel press was captured and routed directly to the RCO. However, since the panel press enclosure at the Hosford facility does not meet all of the required criteria to be considered a "Wood Products Enclosure" under the Plywood and Composite Wood Panels (PCWP) MACT, where 100% capture can be assumed, the emission calculations should have included the capture efficiency of the enclosure.

Based on the PCWP MACT compliance testing, the capture efficiency for the enclosure was determined to be 97%. The emission calculations have been updated to account for the uncontrolled portion (uncaptured exhaust) of the panel press exhaust. The small increase in baseline actual emissions (BAE) and projected actual emissions (PAE) for the project do not change any of the initial permit application conclusions regarding the PSD applicability, as the total project associated emission increases are still below the respective Significant Emission Rate (SER) for each PSD pollutant.

Included as attachments to this letter are the updated emission calculations and PSD applicability analysis for the permit application. Specific pages and sections from the initial construction permit application that were updated are listed below.

- New Source Review Regulatory Applicability; Pages 4-1 through 4-9
- Appendix C – BAE Calculations
- Appendix D – PAE Calculations
- Appendix E – Demand Growth Exclusion Calculations

**RECEIVED**  
JUL 30 2012  
NORTHWEST FLORIDA  
DEP

If you have any questions or comments about the information presented in this letter for the updated construction permit application, please do not hesitate to call me at (850) 379-4022.

Sincerely,

A handwritten signature in black ink, appearing to read "Johnnie Temples". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Johnnie Temples  
Plant Manager  
Georgia-Pacific Wood Products LLC

Attachments

cc: Madison McNealey, GP  
Alyse Cardell, Trinity Consultants  
Brad James, Trinity Consultants

**ATTACHMENT 1**

**Updated Section 4 - Construction Permit Application**

## 4. REGULATORY APPLICABILITY

---

The Hosford facility is subject to certain air quality regulations. This section summarizes the air permitting requirements and key air quality regulations that apply to the panel press system at the Hosford facility. Federal and state air regulations are addressed.

### 4.1 FEDERAL AIR QUALITY REGULATIONS

#### 4.1.1 NEW SOURCE REVIEW

In short, the proposed changes to the panel press system will not constitute a major modification under New Source Review (NSR) primarily because the decrease in cycle time realized by the project will not cause a PSD pollutant emissions increase to exceed the respective Significant Emission Rate. The following section discusses this conclusion in more detail.

NSR requires that construction of new emission sources or modifications to existing emission sources be evaluated to determine if significant net emissions increases result. Two distinct NSR permitting programs apply depending on whether the facility is located in an attainment or nonattainment area for a particular pollutant; nonattainment NSR (NNSR) permitting is required for facilities located in nonattainment areas, while PSD permitting is required for facilities located in attainment areas.

The Hosford facility is located in Liberty County, which is designated by the EPA as “attainment” or “unclassifiable” with the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.<sup>1</sup> Therefore, the facility is not subject to NNSR permitting requirements for any criteria pollutants. The facility is potentially subject to PSD permitting requirements.

Under PSD permitting rules, the major source threshold is 250 tpy unless the facility is listed specifically in Rule 62-210.200(194), F.A.C., as having a lower 100 tpy major source threshold. OSB production is not included on the list of 28 source categories with a lower major source threshold of 100 tpy. The Hosford facility is presently a major source for the purposes of PSD permitting requirements as potential emissions of PSD pollutants exceed the applicable major source threshold (250 tpy). The fugitive emissions are excluded because the OSB production operation is not on the list of 28 categories, which requires subject source categories to include fugitive emissions for PSD permitting applicability analyses.

Therefore, any modification to the facility that has the potential to increase emissions of any PSD pollutant must be evaluated to determine if the change(s) is subject to PSD review. Rule 62-210.200(205), F.A.C., defines a “modification” as:

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<sup>1</sup> 40 CFR §81.310 and Rule 62-204.340, F.A.C.

*Any physical change in, or change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.*

The proposed updates to the panel press may qualify as a “physical change” under the modification definition if the proposed project “increases the actual emissions of any air pollutant”. The proposed updates to the panel press will result in a decrease in the overall press cycle time, thus increasing the potential short-term actual emissions. Since the proposed project will result in a potential increase in actual emissions, the panel press updates are considered a modification to the exiting emission unit. The cycle time decrease will debottleneck other emissions units at the facility. The following table defines which emission units are affected by the proposed project.

**TABLE 4-1. AFFECTED EMISSION UNITS**

| <b>EUID</b> | <b>Emission Unit</b>             |
|-------------|----------------------------------|
| 001         | Dryers                           |
| 002         | Panel Press                      |
| 003         | Screen Fines Baghouse            |
| 004         | Saw Trim/Finishing Baghouse      |
| 005         | Mat Reject Baghouse              |
| 007         | Fuel System Baghouse             |
| 008         | Forming Bins Baghouse            |
| 009         | Hammermill Baghouse              |
| 011         | Thermal Oil System               |
| 014         | Miscellaneous Coating Operations |

The amount of the emissions increase from the panel press system and other affected emission units at the facility determines whether the change is considered to be a “major modification” under PSD permitting program. Rule 62-210.200(191), F.A.C., defines a “major modification”:

*“Any physical change in, or change in the method of operation of a major stationary source that would result in a significant emissions increase of a PSD pollutant and a significant net emissions increase of that pollutant from the major stationary source.”*

If a significant emissions increase results from the proposed project, then PSD permitting is required. A significant net emissions increase is defined as a net emissions increase resulting from a physical change or change in the method of operation at a major source that exceeds

the established significant emission rate (SER) for that pollutant.<sup>2</sup> Table 4-2 lists the SER for several PSD pollutants.

**TABLE 4-2. PSD SIGNIFICANT EMISSION RATES**

| <b>Pollutant</b>  | <b>SER (tpy)</b> |
|-------------------|------------------|
| PM                | 25               |
| PM <sub>10</sub>  | 15               |
| PM <sub>2.5</sub> | 10               |
| SO <sub>2</sub>   | 40               |
| VOC               | 40               |
| NO <sub>x</sub>   | 40               |
| CO                | 100              |

Per Rule 62-210.200(282)(b), F.A.C., the SER also means:

*...for the pollutants listed above in paragraph (a), any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 µg/m<sup>3</sup>, 24-hour average.*

The Hosford facility is not located within 10 kilometers of a Class I area. The nearest Class I area is the St. Marks Wilderness Area, with the closest point approximately 75 kilometers from the facility.

In accordance with these definitions, the following two evaluations are presented in this analysis to determine whether the proposed project will be subject to PSD permitting: (i) identify the change in annual emissions of the aforementioned PSD pollutants that is projected to occur as a result of the project; and (ii) determine if the change in annual emissions results in both a significant emissions increase and a significant net emissions increase. If the project does not satisfy this criteria of a “major modification,” then PSD permitting requirements do not apply per Rule 62-212.400(2), F.A.C., – Applicability, which specifies the following:

*The requirements of subsections 62-212.400(4) through (12), F.A.C., apply to the construction of any new major stationary source or the major modification of any existing major stationary source.<sup>3</sup>*

Rule 62-212.400(2)(a)1., F.A.C., requires that the PSD applicability analysis be conducted using the Baseline Actual-to-Projected Actual Applicability Test for Modifications at Existing Emissions Units to determine whether the proposed project will be considered a “major modification.” If the difference between the Projected Actual Emissions (PAE) and

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<sup>2</sup> Rule 62-210.200(282), F.A.C.

<sup>3</sup> These regulatory citations include the requirements to conduct air dispersion modeling and a best available control technology analysis, should the project be considered a “major modification”.

the Baseline Actual Emissions (BAE) equals or exceeds the SER for that pollutant, then the emissions change is considered to be significant. Rule 62-210.200(36), F.A.C., defines BAE for the purposes of this analysis as follows:

*The rate of emissions, in tons per year, of a PSD pollutant, as follows:*

*(b) For an existing emissions unit (other than an electric utility steam generating unit), baseline actual emissions means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding the date a complete permit application is received by the Department, except that the 10-year period shall not include any period earlier than November 15, 1990.*

## **BAE CALCULATION**

The BAE represent the average annual rate (tpy) emitted of each listed PSD pollutant during a consecutive 24-month period within the 10-year period immediately prior to the proposed project. The Hosford facility experienced its maximum OSB production period in the 2007-2008 periods. Therefore, due to the maximum production rates and available operations data, GP evaluated actual emissions from that consecutive 24-month period (January 2007 – December 2008). This same consecutive 24-month period was used as the baseline actual emissions for a previous construction permit submitted by GP to the DEP Northwest District Office in September 2011 for the low density forming project (not associated with the proposed panel press system modifications).

The potential cycle time decrease of the panel press system modifications potentially affects multiple existing emission units at the Hosford facility due to the associated short-term OSB production increase. The only emission units at the facility not expected to be affected include the Emergency Engines (EU012), Bark Pile (EU010 – Fugitives), Specialty Saw/Sander Baghouse (EU006), and Overlay Process (EU013). The Specialty Saw/Sander Baghouse and Overlay Process are auxiliary operations and not part of the main OSB production operations.

The thermal oil heater (EU011) can be exhausted either through of the two (2) RTO units, which control the dryers, or exhaust through an abort stack. The proposed panel press project will not cause the thermal oil heater emissions to be directed through the abort stack at an increased frequency compared to historical operation. Therefore, baseline actual emissions for the thermal oil heater are estimated for the exhaust controlled by the RTOs. In order to account for both combustion sources, the total fuel usage (wood residuals and natural gas) from both the dryers and thermal oil heater is combined.

Historical production amounts and testing results are utilized for the January 2007 – December 2008 period (consecutive 24-months). Actual emissions are calculated using the annual average production (501,300 MSF/yr on a 3/8" basis) from this consecutive 24-month period. The baseline actual emissions are determined using NCASI emission factors, AP-42

emission factors, and testing data obtained at the Hosford facility. The baseline actual emission calculation methodologies are included in Appendix C.

The data presented in Table 4-3 is consistent with the baseline actual emissions for each potentially effected emission unit.

**TABLE 4-3. HOSFORD FACILITY BAE**

| EUID                   | Emission Unit                | Baseline Actual Emissions |              |             |                           |                            |              |                          |                           |
|------------------------|------------------------------|---------------------------|--------------|-------------|---------------------------|----------------------------|--------------|--------------------------|---------------------------|
|                        |                              | CO<br>(tpy)               | NOx<br>(tpy) | PM<br>(tpy) | PM <sub>10</sub><br>(tpy) | PM <sub>2.5</sub><br>(tpy) | VOC<br>(tpy) | SO <sub>2</sub><br>(tpy) | CO <sub>2e</sub><br>(tpy) |
| EU001/EU011            | Dryers, Thermal Oil Heater   | 91.6                      | 187          | 88.6        | 88.6                      | 76.3                       | 24.0         | 16.4                     | 18,969                    |
| EU002                  | Panel Press                  | 0.23                      | 3.66         | 8.74        | 8.74                      | 8.74                       | 9.10         | 2.28E-02                 | 4,540                     |
| EU003-005, EU007-009   | Baghouses                    | -                         | -            | 10.00       | 10.00                     | 10.00                      | 52.74        | -                        | -                         |
| EU010                  | Blender, Debarker, and Roads | -                         | -            | 20.3        | 6.40                      | 4.33                       | 32.3         | -                        | -                         |
| EU014                  | Misc. Coatings               | -                         | -            | 5.95        | 5.95                      | 5.95                       | 17.8         | -                        | -                         |
| <b>Total Emissions</b> |                              | <b>91.8</b>               | <b>191</b>   | <b>134</b>  | <b>120</b>                | <b>105</b>                 | <b>136</b>   | <b>16.4</b>              | <b>23,509</b>             |

### PAE CALCULATION

With the BAE determined, the next step is to calculate the Projected Actual Emissions in accordance with Rule 62-210.200(252), F.A.C. Since the proposed updates to the panel press could result in the debottlenecking of OSB production at the facility, GP evaluated the potential change in projected actual emissions with associated emission units.

Projected actual emissions are calculated using the past actual emissions rates and maximum throughputs/production rates for the dryers, panel press, and miscellaneous coating operations. Projected actual emissions estimated using annual hours of operation, such as the raw material, fuel, and mat processes controlled by baghouses, are calculated using the maximum past annual operation and exit grain loading factors obtained from compliance testing. For the dryers and controlled portion of the panel press exhaust, emission factors used for PM, CO, VOC, and NO<sub>x</sub> are the maximum past actual emission rates from 2005-2011 period. Capture efficiency testing conducted on the panel press enclosure at the Hosford facility determined that 97% of the exhaust from the panel press is routed to and controlled by the RCO. The remaining 4% of exhaust from the panel press partial enclosure is released into the process building. Uncontrolled (due to partial enclosure) panel press emissions are estimated using AP-42, Section 10.6 emission factors for filterable PM, NO<sub>x</sub>, and CO. VOC emissions are estimated using the maximum inlet testing results (before the RCO control device) for the panel press from compliance testing completed during the 2007-2011 period. Condensable uncontrolled PM emissions are estimated using NCASI factors for uncontrolled panel press operations. Since the uncontrolled panel press emissions exhaust into the process building, a control efficiency of 70% was applied for PM emissions to account for the process building enclosure. For the dryers, PM<sub>2.5</sub> is further speciated from PM<sub>10</sub> using internal testing completed by GP at the Skippers, VA OSB facility. Emission factors used for SO<sub>2</sub> and lead are from AP-42, Sections 1.4 and 1.6.

Due to the thermal oil heater exhaust controlled by the dryer RTOs as part of the affected emissions scenario for the proposed project, the projected actual emissions are estimated by combining the fuel usage of the thermal oil heater and the dryers. The maximum fuel usage from the 2005-2011 period was used.

Projected actual PM emissions from the coating operations are calculated using the maximum past throughput from 2010-2011, the percent solid content of the coatings, and a transfer efficiency assumed based on application. VOC emissions are estimated using the VOC contents of the coatings used.

As discussed in Section 2.2 of the permit application, the proposed changes to the panel press may result in a decrease in the cycle time of the panel press and enable the Hosford facility to manufacture more OSB on a short-term (MSF/hr) period. Based on vendor quotes and a 50% safety factor, an estimated 13.5 seconds could potentially be the reduced duration between panel press cycles. The potential decrease in time between cycles could enable the facility to produce more OSB in a short-term period. To examine this potential debottlenecking for the OSB production operations, the maximum annual potential production increase is estimated based on the reduced time between panel press cycles. This maximum annual increase is used as the basis for the actual emissions increase that could be attributed to the proposed project. A sample calculation for 1/4" product is included below.

Potential Annual Maximum Board Production (1/4" Product scaled to 3/8"):

Potential Annual Maximum Board Production for 1/4" product

$$= \left( \frac{86,400 \text{ sec}}{\text{day}} \div \left[ \text{Current Cycle Time} \left( \frac{\text{sec}}{\text{cycle}} \right) - \text{Cycle time Decrease} \left( \frac{\text{sec}}{\text{cycle}} \right) \right] \right) \times \text{MSF Board produced per cycle}$$

$$\times \frac{\text{Maximum Past Actual Operation (hr)}}{24 \frac{\text{hr}}{\text{day}}} \times \text{Scaling Factor to 3/8"}$$

Potential Annual Maximum Board Production for 1/4" product

$$= \left( \frac{86,400 \text{ sec}}{1 \text{ day}} \div (185 - 13.5) \frac{\text{sec}}{\text{cycle}} \right) \times 3.072 \frac{\text{MSF}}{\text{cycle}} \times \frac{7,871 \text{ hr}}{24 \frac{\text{hr}}{\text{day}}} \times \frac{1/4"}{3/8"} = 338,375 \frac{\text{MSF}}{\text{yr}}$$

Potential annual OSB production after the proposed project implementation was calculated for all product lines at the mill and then scaled to 3/8" product basis for comparison. All products must be scaled to 3/8" in order to compare to limits in the current Title V permit (No. 0770010-012-AV). The potential production rates after the proposed project implementation were compared to current production capabilities based on the cycle times. The maximum production rate increase was determined using the difference between the post project maximum production and the current maximum production. The analysis determined

that the mill could potentially produce 46,822 MSF in additional OSB product per year based on the decrease in panel press cycle time.

In order to relate the potential MSF/yr increases to the dryer system processing rate, GP utilized historical operation data that compared the amount of dried wood flakes (ODT) included in each OSB product (MSF). GP determined that there is approximately 0.89 ODT included in each MSF of OSB. Using this throughput/production factor, the potential annual dryer production rate increase is 41,877 ODT.

The annual OSB production rate increase and the annual dryers production rate increase provide the basis to conservatively estimate the PAE increases associated with the proposed project implementation for each affected emission source. Potential throughput and production based projected actual emissions, such as the dryers and controlled panel press PAE, are calculated based on past compliance testing results and published emissions factors. For the dryers and controlled portion of the panel press exhaust, emission factors used for PM, CO, VOC, and NO<sub>x</sub> emissions are the maximum past actual emission rates from 2005-2011 period. Uncontrolled (due to partial enclosure) panel press emissions are estimated using AP-42, Section 10.6 emission factors for filterable PM, NO<sub>x</sub>, and CO. VOC emissions are estimated using the maximum inlet testing results (before the RCO control device) for the panel press from compliance testing completed during the 2007-2011 period. Condensable uncontrolled PM emissions are estimated using NCASI factors for uncontrolled panel press operations. Since the uncontrolled panel press emissions exhaust into the process building, a conservative control efficiency of 70% was applied for PM emissions to account for the process building enclosure. For the dryers, PM<sub>2.5</sub> is further speciated from PM<sub>10</sub> using internal testing completed by GP at the Skippers, VA OSB facility. Emission factors used for SO<sub>2</sub> and lead are from AP-42, Sections 1.4 and 1.6. The emission factors are used with the annual board and dryer production rate increases to capture the projected actual emissions increase from the proposed project implementation.

The thermal oil heater project emissions increases are calculated by adding the potential fuel usage increases for the thermal oil heaters to the dryer fuel usage. These potential fuel usage increases are calculated using scaled ratios of fuel burned to the amount of OSB produced. Operation data from 2005-2011 periods is used to determine the maximum ratio of fuel used and total OSB production. This ratio is multiplied by the annual board production rate increase associated with the proposed project to quantify the amount of additional fuel required to produce the project associated OSB production increase.

Operating period based emissions, such as the baghouses, are calculated using the potential increased annual hours of operation from the panel press cycle time decrease and exit grain loading factors obtained from compliance testing. The additional potential hours of operations are calculated using the maximum time savings achieved from the cycle time decrease. GP determined that the panel press could potentially operate an additional 63.6 hours per year from the change in cycle time. For baghouses where condensable factors from NCASI are applicable, condensable portions are added to the historical testing results.

Coating operations emissions are calculated using scaled ratios of coating used and total OSB produced from 2005-2011 period and known coating VOC contents.

The projected actual emission calculation methodologies are included in Appendix D.

**DEMAND GROWTH EXCLUSION**

As discussed previously, Rule 62-210.200(252)(c), F.A.C., identifies that the calculation of PAE:

*Shall exclude that portion of the unit's emissions following the project than an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project including any increased utilization due to product demand growth.*

Clause (c), or the demand growth exclusion, is subtracted from the overall emissions increase calculation. Based on the definition, projected emissions increases are exempted when (1) a unit could have accommodated the emissions during the baseline 24-month period, and (2) the increases are unrelated to the particular project (such as product demand growth).

In defining demand growth that could have been accommodated, all PAE could have potentially been accommodated, because the PAE are less than permit limits. The PAE are based on past actual operation, using maximum historical production operation rates demonstrated at the Hosford facility.

In defining the component of PAE unrelated to the proposed panel press project, a conservative assessment of the emissions increase that could potentially be related to the project was completed. To define the maximum emissions increase that could be related to the project and not qualify for the demand growth exclusion, GP annualized the OSB production increase associated with the cycle time decrease that may occur. The project associated emissions increases are included in Table 4-4. Project Associated Emissions Increases. The remaining PAE, qualified as not associated with the emissions increases resulting from the project, qualifies for the demand growth exclusion.

**TABLE 4-4. PROJECT ASSOCIATED EMISSIONS INCREASES**

| EUID                   | Emission Unit                | Projected Associated Emissions Increase (Actual Emissions) |                          |             |                           |                            |              |                          | CO <sub>2e</sub><br>(tpy) |
|------------------------|------------------------------|------------------------------------------------------------|--------------------------|-------------|---------------------------|----------------------------|--------------|--------------------------|---------------------------|
|                        |                              | CO<br>(tpy)                                                | NO <sub>x</sub><br>(tpy) | PM<br>(tpy) | PM <sub>10</sub><br>(tpy) | PM <sub>2.5</sub><br>(tpy) | VOC<br>(tpy) | SO <sub>2</sub><br>(tpy) |                           |
| EU001/EU011            | Dryers, Thermal Oil Heater   | 10.9                                                       | 17.6                     | 8.33        | 8.33                      | 7.17                       | 3.36         | 1.63                     | 4,021                     |
| EU002                  | Panel Press                  | 1.66                                                       | 0.45                     | 1.27        | 1.27                      | 1.27                       | 2.34         | 2.83E-03                 | 562                       |
| EU003-005, EU007-009   | Baghouses                    | -                                                          | -                        | 0.15        | 0.15                      | 0.15                       | 4.93         | -                        | -                         |
| EU010                  | Blender, Debarker, and Roads | -                                                          | -                        | 1.95        | 0.62                      | 0.42                       | 2.99         | -                        | -                         |
| EU014                  | Misc. Coatings               | -                                                          | -                        | 0.55        | 0.55                      | 0.55                       | 1.66         | -                        | -                         |
| <b>Total Emissions</b> |                              | <b>12.5</b>                                                | <b>18.0</b>              | <b>12.3</b> | <b>10.9</b>               | <b>9.57</b>                | <b>15.3</b>  | <b>1.64</b>              | <b>4,583</b>              |

GP concludes that all PAE estimated by the aforementioned methodologies could have been accommodated during the baseline period, with the exception of the emissions increases associated with the project. Any additional increase in OSB production, above the 46,822 MSF/yr identified for the proposed project, will be due to demand growth and not from the cycle time decrease of the panel press. The proposed project will not increase production above the permitted limits of 600,000 MSF/12-month consecutive period and 693,272 ODT/12-month consecutive period. The demand growth exclusion calculations are included in Appendix E.

## PSD ANALYSIS SUMMARY

Applying this determination of the emissions that could have been accommodated and are unrelated to the project, the PSD applicability analysis can be completed. A summary of the results of the PSD applicability analysis is presented in Table 4-5.

**TABLE 4-5. PSD APPLICABILITY ANALYSIS**

| EUID                                    | Emission Unit               | Projected Actual Emissions Summary |              |             |                           |                            |              |                          |                           |
|-----------------------------------------|-----------------------------|------------------------------------|--------------|-------------|---------------------------|----------------------------|--------------|--------------------------|---------------------------|
|                                         |                             | CO<br>(tpy)                        | NOx<br>(tpy) | PM<br>(tpy) | PM <sub>10</sub><br>(tpy) | PM <sub>2.5</sub><br>(tpy) | VOC<br>(tpy) | SO <sub>2</sub><br>(tpy) | CO <sub>2e</sub><br>(tpy) |
| EU001/EU011                             | Dryers, Thermal Oil Heater  | 131                                | 212          | 100         | 100                       | 86                         | 40           | 18                       | 44,985                    |
| EU002                                   | Panel Press                 | 20                                 | 5            | 18          | 18                        | 18                         | 28           | 0.03                     | 6,172                     |
| EU003-005, EU007-009                    | Baghouses                   | -                                  | -            | 10          | 10                        | 10                         | 58           | -                        | -                         |
| EU010                                   | Blender, Debarker and Roads | -                                  | -            | 23          | 7                         | 5                          | 36           | -                        | -                         |
| EU014                                   | Misc. Coatings              | -                                  | -            | 7           | 7                         | 7                          | 20           | -                        | -                         |
| <b>Projected Actual Emissions (PAE)</b> |                             | <b>150</b>                         | <b>217</b>   | <b>157</b>  | <b>142</b>                | <b>126</b>                 | <b>182</b>   | <b>18</b>                | <b>51,157</b>             |
| <b>Baseline Actual Emissions (BAE)</b>  |                             | <b>91.8</b>                        | <b>191</b>   | <b>134</b>  | <b>120</b>                | <b>105</b>                 | <b>136</b>   | <b>16.4</b>              | <b>-</b>                  |
| <b>Difference (Total PAE-BAE)</b>       |                             | <b>58.4</b>                        | <b>25.9</b>  | <b>23.7</b> | <b>22.2</b>               | <b>20.3</b>                | <b>46.3</b>  | <b>1.98</b>              | <b>-</b>                  |
| <b>Demand Growth Exclusion</b>          |                             | <b>45.9</b>                        | <b>7.89</b>  | <b>11.4</b> | <b>11.2</b>               | <b>10.8</b>                | <b>31.0</b>  | <b>0.35</b>              | <b>-</b>                  |
| <b>Increase Associated with Project</b> |                             | <b>12.5</b>                        | <b>18.0</b>  | <b>12.3</b> | <b>10.9</b>               | <b>9.57</b>                | <b>15.3</b>  | <b>1.64</b>              | <b>4,583</b>              |
| <b>Significant Emission Rate (SER)</b>  |                             | <b>100</b>                         | <b>40</b>    | <b>25</b>   | <b>15</b>                 | <b>10</b>                  | <b>40</b>    | <b>40</b>                | <b>-</b>                  |
| <b>PSD Applicability (Y/N)?</b>         |                             | <b>N</b>                           | <b>N</b>     | <b>N</b>    | <b>N</b>                  | <b>N</b>                   | <b>N</b>     | <b>N</b>                 | <b>N</b>                  |

The proposed modifications to the panel press do not result in an emissions increase greater than the SER for any pollutant.

### 4.1.2 GHG TAILORING RULE APPLICABILITY

On May 13, 2010, the EPA finalized the Tailoring Rule (published at 75 FR 31514 on June 3, 2010) which establishes an approach to addressing GHG emissions from stationary sources under the Clean Air Act (CAA) permitting programs (PSD and Title V). GHGs became subject to regulation under the CAA on January 2, 2011 when EPA's Light Duty Vehicle Rule took effect. Recognizing that the existing major source thresholds established under the CAA (100 and 250 tpy) and in the federal PSD program under 40 CFR §52.21, while appropriate for criteria pollutants, are not feasible for GHGs which are emitted in much higher amounts, the EPA is phasing in the CAA permitting of GHG sources via this rule. The rule establishes a schedule for the phase in of CAA permitting requirements for GHGs via

**ATTACHMENT 2**

**Updated Appendix C - Construction Permit Application**

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**Baseline Actual Emissions Summary**

| EUID                   | Emission Uni                 | Baseline Actual Emissions |                          |             |                           |                            |              |                          |                            |
|------------------------|------------------------------|---------------------------|--------------------------|-------------|---------------------------|----------------------------|--------------|--------------------------|----------------------------|
|                        |                              | CO<br>(tpy)               | NO <sub>x</sub><br>(tpy) | PM<br>(tpy) | PM <sub>10</sub><br>(tpy) | PM <sub>2.5</sub><br>(tpy) | VOC<br>(tpy) | SO <sub>2</sub><br>(tpy) | CO <sub>2</sub> e<br>(tpy) |
| EU001/EU011            | Dryers, Thermal Oil Heater   | 91.6                      | 187                      | 88.6        | 88.6                      | 76.3                       | 24.0         | 16.4                     | 18,969                     |
| EU002                  | Panel Press                  | 0.23                      | 3.66                     | 8.74        | 8.74                      | 8.74                       | 9.10         | 2.28E-02                 | 4,540                      |
| EU003-005, EU007-009   | Baghouses                    | -                         | -                        | 10.00       | 10.00                     | 10.00                      | 52.74        | -                        | -                          |
| EU010                  | Blender, Debarker, and Roads | -                         | -                        | 20.3        | 6.40                      | 4.33                       | 32.3         | -                        | -                          |
| EU014                  | Misc. Coatings               | -                         | -                        | 5.95        | 5.95                      | 5.95                       | 17.8         | -                        | -                          |
| <b>Total Emissions</b> |                              | <b>91.8</b>               | <b>191</b>               | <b>134</b>  | <b>120</b>                | <b>105</b>                 | <b>136</b>   | <b>16.4</b>              | <b>23,509</b>              |

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU001/EU011 - Dryers/Thermal Oil Heater - Baseline Actual Emission Calculations**

|                                                      |                  |
|------------------------------------------------------|------------------|
| 2007-2008 Average Facility Throughput                | 452,395 ODT/yr   |
| 2007-2008 Average Natural Gas Usage <sup>11</sup>    | 270 MMscf        |
| 2007-2008 Average Dry Wood Residuals <sup>1,11</sup> | 78,259 tpy       |
| Heating Value of Wood                                | 16.66 MMBtu/ton  |
| Heating Value of Natural Gas                         | 1,020 MMBtu/MMcf |

| Pollutant                        | Emission Factor |            |           | Notes | Emissions (tpy) |
|----------------------------------|-----------------|------------|-----------|-------|-----------------|
|                                  | (lb/ODT)        | (lb/MMBtu) | (lb/MMCF) |       |                 |
| PM/PM <sub>10</sub> (Filterable) | 0.31            | -          | -         | 2     | 70.95           |
| PM (Total)                       | 0.39            | -          | -         | 3     | 88.59           |
| PM <sub>10</sub>                 | 0.39            | -          | -         | 3     | 88.59           |
| PM <sub>2.5</sub>                | 0.34            | -          | -         | 3,10  | 76.28           |
| CO                               | 0.40            | -          | -         | 2     | 91.58           |
| VOC (as C)                       | 0.11            | -          | -         | 2     | 24.04           |
| SO <sub>2</sub>                  | -               | 0.025      | 0.60      | 4     | 16.38           |
| NO <sub>x</sub>                  | 0.83            | -          | -         | 2     | 187.40          |
| Lead                             | -               | 4.85E-05   | -         | 5     | 3.16E-02        |
| <b>GHG Emissions</b>             |                 |            |           |       |                 |
| Fossil Fuel Combustion           |                 |            |           |       |                 |
| CO <sub>2</sub> <sup>10</sup>    | -               | 116.9      | -         | 6     | 16,116          |
| Methane                          | -               | 2.21E-03   | -         | 6     | 0.30            |
| N <sub>2</sub> O                 | -               | 2.21E-04   | -         | 6     | 0.03            |
| Biomass Combustion <sup>8</sup>  |                 |            |           |       |                 |
| Methane                          | -               | 7.06E-02   | -         | 9     | 45.99           |
| N <sub>2</sub> O                 | -               | 9.26E-03   | -         | 9     | 6.04            |
| CO <sub>2</sub> e                | -               | -          | -         | 7     | 18,969          |

1. Maximum potential wood heat input based on maximum past ratios of tons of wood burned and oven dry tons produced and the maximum annual production increase of oven dry tons.
2. PM (filterable), CO, VOC and NO<sub>x</sub> emission factors based on average emission factor found in past stack testing completed in 2007 and 2008.
3. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> include PM (filterable content) plus condensable content of 0.078 lb/ODT from NCASI Wood Products Database February 2010 median value (controlled for organics).
4. SO<sub>2</sub> emission factor per AP-42 Section 1.6 (September 2003), Table 1.6-2 for wood combustion and AP-42 Section 1.4 (July 1998), Table 1.4-2 for natural gas combustion.
5. Lead emission factor per AP-42 Section 1.6 (September 2003), Table 1.6-4 for wood combustion.
6. Emission factors from EPA's GHG Mandatory Reporting Rule for natural gas combustion, Tables C-1 and C-2 contained in 40 CFR 98, Subpart C.
7. CO<sub>2</sub>e emissions are the sum of CO<sub>2</sub> emissions plus methane and N<sub>2</sub>O multiplied by their respective Global Warming Potential (GWP) of 21 and 310, respectively.
8. CO<sub>2</sub> emissions from biomass combustion is included in Biomass Deferral for GHG Tailoring Rule, therefore only CO<sub>2</sub> emissions associated with natural gas usage are quantified.
9. Emission factors taken from EPA's GHG Mandatory Reporting Rule for biomass combustion, Table C-1 and C-2 contained in 40 CFR 98, Subpart C.
10. PM<sub>2.5</sub> assumed to be 86.1% of PM<sub>10</sub>, per internal testing completed by GP at the Skippers, VA OSB facility.
11. Wood fuel and natural gas consumed is for the dryers and thermal oil heaters which exhaust to the RTOs.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Controlled Baseline Actual Emission Calculations**

|                                                  |                             |
|--------------------------------------------------|-----------------------------|
| 2007-2008 Average Facility Throughput            | 501,300 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup>                  | 97%                         |
| 2007-2008 Average Natural Gas Usage <sup>2</sup> | 76.06 MMscf/yr              |
| Natural Gas Heating Value                        | 1,020 MMBtu/MMscf           |

| Pollutant                           | Emission Factor   |           | Notes | Emissions (tpy) |
|-------------------------------------|-------------------|-----------|-------|-----------------|
|                                     | (lb/MSF)          | (lb/MMCF) |       |                 |
| PM/PM <sub>10</sub> (Filterable)    | 0.0129            | -         | 3     | 3.13            |
| PM (Total)                          | 0.034             | -         | 4     | 8.27            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.034             | -         | 4     | 8.27            |
| CO                                  | 0.0009            | -         | 3     | 0.21            |
| VOC (as C)                          | 0.0115            | -         | 3     | 2.79            |
| SO <sub>2</sub>                     | -                 | 0.60      | 5,9   | 0.02            |
| NO <sub>x</sub>                     | 0.0151            | -         | 3     | 3.65            |
| Lead                                | -                 | 5.00E-04  | 6,9   | 1.9E-05         |
| <b>GHG Emissions<sup>10</sup></b>   | <b>(lb/MMBtu)</b> |           |       |                 |
| CO <sub>2</sub>                     | 116.9             | -         | 7     | 4,535           |
| Methane                             | 2.21E-03          | -         | 7     | 8.6E-02         |
| N <sub>2</sub> O                    | 2.21E-04          | -         | 7     | 8.6E-03         |
| CO <sub>2</sub> e                   | -                 | -         | 8     | 4,540           |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
2. Natural gas consumed is for the dryers (EU001) and thermal oil heaters (EU011) which exhaust to the RTOs.
3. PM (filterable), CO, VOC and NO<sub>x</sub> emission factors based on average emission factor found in past stack testing completed in 2007 and 2008.
4. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> include PM (filterable) plus condensable emissions of 0.0212 lb/MSF (3/8" Basis) from NCASI Wood Products Database February 2010 median (controlled for organics).
5. SO<sub>2</sub> emission factor per AP-42 Section 1.4 (July 1998), Table 1.4-2 for natural gas combustion.
6. Emission factor per AP-42, Section 1.4, Natural Gas Combustion.
7. Emission factors from EPA's GHG Mandatory Reporting Rule for natural gas combustion, Tables C-1 and C-2 contained in 40 CFR 98, Subpart C.
8. CO<sub>2</sub>e emissions are the sum of CO<sub>2</sub> emissions plus methane and N<sub>2</sub>O multiplied by their respective Global Warming Potential (GWP) of 21 and 310, respectively.
9. Emission estimates for SO<sub>2</sub> and Lead are based on RCO fuel usage and do not include a capture efficiency.
10. GHG emission estimates do not include a capture efficiency since CO<sub>2</sub>e is not controlled.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Uncontrolled Baseline Actual Emission Calculations**

|                                                    |                             |
|----------------------------------------------------|-----------------------------|
| 2007-2008 Average Facility Throughput              | 501,300 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup>                    | 97%                         |
| Building Enclosure Control Efficiency <sup>2</sup> | 70%                         |

| Pollutant                              | Emission Factor<br>(lb/MSF) | Notes | Emissions<br>(tpy) |
|----------------------------------------|-----------------------------|-------|--------------------|
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.06                        | 3,4   | 0.47               |
| NO <sub>x</sub>                        | 1.40E-03                    | 3     | 0.01               |
| CO                                     | 2.60E-03                    | 3     | 0.02               |
| VOC                                    | 0.79                        | 5     | 6.32               |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
2. For the uncontrolled portion of panel press exhaust released inside the process building, GP assumes a conservative PM control efficiency of 70% for a partial building enclosure per Air Pollution Engineering Manual, 2nd Ed, AWMA, c2000 Ch15 p. 694.
3. PM (filterable), NO<sub>x</sub>, and CO emission factors from AP-42 Section 10.6.1 - Waferboard/Oriented Strand Board Manufacturing, Tables 10.6.1-4,5,6. for Uncontrolled Hot Press, PF resin (powder).
4. Uncontrolled PM emission factor includes PM (filterable) plus calculated condensable content based on 0.0837 lb/MSF (3/8" Basis) from NCASI Wood Products Database February 2010 median (uncontrolled). Total PM emission factor is also multiplied by the building enclosure capture efficiency (70%).
5. VOC emission factor based on VOC inlet data (before control device) taken from average stack testing results completed in 2007 and 2008.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU003-005, EU007-009 - Baghouses - Baseline Actual Emission Calculations**

2007-2008 Average Facility Throughput 501,300 MSF/yr (3/8" basis)  
 2007-2008 Average Facility Throughput 452,395 ODT/yr  
 2007-2008 Average Facility Operating Time 7,620 hr/yr

| EUID         | Emission Unit | VOC Emissions            |       |                     | PM Emissions           |                                                  |                                                                     |              | PM Emission Rates |              | PM <sub>10</sub> Emission Rates |              | PM <sub>2.5</sub> Emission Rates |  |
|--------------|---------------|--------------------------|-------|---------------------|------------------------|--------------------------------------------------|---------------------------------------------------------------------|--------------|-------------------|--------------|---------------------------------|--------------|----------------------------------|--|
|              |               | Emission Factor (lb/MSF) | Notes | Emission Rate (tpy) | Exhaust Airflow (acfm) | Exit Grain Loading Exhaust <sup>1</sup> (gr/acf) | PM Condensable Fraction (lb/MSF) <sup>6</sup> (lb.ODT) <sup>7</sup> | (lb/hr)      | (tpy)             | (lb/hr)      | (tpy)                           | (lb/hr)      | (tpy)                            |  |
| EU003        | Screen Fines  | -                        | -     | -                   | 19,000                 | 0.0030                                           | -                                                                   | 0.48         | 1.84              | 0.48         | 1.84                            | 0.48         | 1.84                             |  |
| EU004        | Saw Trim      | 0.050                    | 2     | 12.46               | 41,500                 | 0.0008                                           | 0.0016                                                              | 0.38         | 1.45              | 0.38         | 1.45                            | 0.38         | 1.45                             |  |
| EU005        | Mat Reject    | 0.044                    | 3     | 10.95               | 66,000                 | 0.0014                                           | -                                                                   | 0.77         | 2.95              | 0.77         | 2.95                            | 0.77         | 2.95                             |  |
| EU007        | Fuel System   | 0.060                    | 4     | 15.04               | 650                    | 0.0046                                           | -                                                                   | 0.03         | 0.10              | 0.03         | 0.10                            | 0.03         | 0.10                             |  |
| EU008        | Forming Bins  | 0.057                    | 5     | 14.29               | 20,700                 | 0.0035                                           | 0.0015                                                              | 0.72         | 2.73              | 0.72         | 2.73                            | 0.72         | 2.73                             |  |
| EU009        | Hammermill    | -                        | -     | -                   | 18,700                 | 0.0015                                           | -                                                                   | 0.25         | 0.94              | 0.25         | 0.94                            | 0.25         | 0.94                             |  |
| <b>Total</b> |               |                          |       | <b>52.74</b>        |                        |                                                  |                                                                     | <b>10.00</b> |                   | <b>10.00</b> |                                 | <b>10.00</b> |                                  |  |

1. PM emission rates based on testing results obtained at Hosford facility in 2005.
2. VOC emission factor per NCASI Wood Products Database February 2010, for dry wood material handling (misc. unit) median value.
3. VOC emission factor per NCASI Wood Products Database February 2010, for miscellaneous wood handling (misc. unit) median value.
4. VOC emission factor from AP-42, March 2002, Table 10.6.1-7 for raw fuel bin.
5. Emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.
6. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.00164 lb/MSF condensable emission factor per NCASI Wood Products Database February 2010, for saw (misc. unit) median value.
7. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0015 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

**EU010 - Fugitive - Blender, Debarker - Baseline Actual Emission Calculations**

|                                       |                             |
|---------------------------------------|-----------------------------|
| 2007-2008 Average Facility Throughput | 501,300 MSF/yr (3/8" basis) |
| 2007-2008 Average Facility Throughput | 452,395 ODT/yr              |
| Operating Hours                       | 7,620 hr/yr                 |
| VOC Control Efficiency                | 90%                         |

**Blender**

| Pollutant                           | Emission Factor (lb/ODT) | Emission Factor (lb/MSF) | Notes | Emission Rates (tpy) |
|-------------------------------------|--------------------------|--------------------------|-------|----------------------|
| PM/PM <sub>10</sub> (Filterable)    | 0.0023                   | -                        | 1     | 0.52                 |
| PM (Total)                          | 0.0044                   | -                        | 2     | 1.00                 |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.0044                   | -                        | 2     | 1.00                 |
| VOC (as C)                          | 0.128                    | -                        | 1     | 32.3                 |
| Formaldehyde                        | -                        | 0.00355                  | 1     | 0.89                 |
| Methanol                            | -                        | 0.06272                  | 1     | 15.72                |
| Total HAP                           |                          |                          |       | 16.61                |

1. Emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value; used historically in Hosford Annual Operating Reports.
2. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0021 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

|                               |             |
|-------------------------------|-------------|
| 2007-2008 Debarker Throughput | 952,470 tpy |
| 2007-2008 Bark Hog Throughput | 95,247 tpy  |

**Bark Handling**

| Emission Unit           | Throughput <sup>1</sup> (tph) | Throughput <sup>1</sup> (tpy) | Control Efficiency <sup>5</sup> | PM Emission Rates (tpy) | PM <sub>10</sub> Emission Rates (tpy) | PM <sub>2.5</sub> Emission Rates <sup>5</sup> (tpy) |
|-------------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------|---------------------------------------|-----------------------------------------------------|
| Debarker <sup>3,4</sup> | 96                            | 952,470                       | 50%                             | 5.71                    | 2.6                                   | 2.6                                                 |
| Bark Hog <sup>3,4</sup> | 10                            | 95,247                        | 90%                             | 0.11                    | 0.052                                 | 0.052                                               |
| Bark Pile <sup>5</sup>  | 10                            | 95,247                        | --                              | 0.04                    | 2.09E-02                              | 3.16E-03                                            |

1. Maximum throughput reported in recording years 2010 and 2011.
2. Although not all hogged fuel goes through the bark hog, as a conservative estimate it is all assumed to.
3. Emission factor per FIRE database, SCC Code 3-07-008-01, Log Debarking.
 

|                  |       |                          |
|------------------|-------|--------------------------|
| PM               | 0.024 | lb/ton of logs processed |
| PM <sub>10</sub> | 0.011 | lb/ton of logs processed |
4. No factor available for PM<sub>2.5</sub> for debarker and Bark Hog PM<sub>2.5</sub> assumed equal to PM<sub>10</sub>.
5. 50% control efficiency applied for partial enclosure of the Debarker, 90% control efficiency applied for enclosure of Bark Hog.
6. Emission factor per AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, drop equation.

where:

k: Particle size multiplier

|       |                   |
|-------|-------------------|
| 0.74  | PM                |
| 0.35  | PM <sub>10</sub>  |
| 0.053 | PM <sub>2.5</sub> |

$$E \text{ (lb/ton)} = k \times 0.0032 \times \left(\frac{U}{5}\right)^{1.3} \times \left(\frac{M}{2}\right)^{1.4}$$

U: Mean wind speed 6.24 mph  
M: Moisture Content 4.8 %

Mean wind speed (U) for Tallahassee, FL per EPA TANKS meteorological database.  
Moisture content (M) for emission factor equation set equal to the maximum value for which the equation is appropriate.  
Actual moisture content is higher.

**Bark Pile Emissions**

| Storage Pile | Silt Content <sup>1</sup> (s) | No. Dry Days per Year <sup>2</sup> (d) | % time winds >12 mph <sup>3</sup> (f) | Emission Factor <sup>4</sup> (lb/day/acre) |                  |                  | Emissions   |                        |                           |                         |
|--------------|-------------------------------|----------------------------------------|---------------------------------------|--------------------------------------------|------------------|------------------|-------------|------------------------|---------------------------|-------------------------|
|              |                               |                                        |                                       | PM                                         | PM <sub>10</sub> | Pile Area (acre) | PM (lb/day) | PM <sub>10</sub> (tpy) | PM <sub>10</sub> (lb/day) | PM <sub>2.5</sub> (tpy) |
| Fuel Pile    | 7.5                           | 110                                    | 10                                    | 2.65                                       | 2.65             | 0.058            | 1.53E-01    | 2.79E-02               | 1.53E-01                  | 2.79E-02                |

1. Silt content per AP-42, Section 13.2.4, *Aggregate Handling and Storage Piles*, Table 13.2.4-1, silt value for overburden.
2. Number of days in a year with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.2, *Unpaved Roads*, Figure 13.2.2-1.
3. Percent of time wind speed greater than 12 mph estimated based on wind rose plots for Tallahassee, FL.

$$EF \text{ (lb/day/acre)} = 1.7 \times \left(\frac{s}{1.5}\right) \times \left(\frac{d}{235}\right) \times \left(\frac{f}{15}\right)$$

4. Pile area assumed based on conical shape of 20 ft high by 50 feet in diameter.

**Total Emissions for Blender and Bark Handling<sup>1</sup>**

| Pollutant                           | Emissions (tpy) |
|-------------------------------------|-----------------|
| PM                                  | 6.90            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 3.72            |
| PM <sub>2.5</sub>                   | 3.67            |
| VOC (as C)                          | 32.27           |
| Formaldehyde                        | 0.89            |
| Methanol                            | 15.72           |
| Total HAP                           | 16.61           |

1. Emissions from the Bark Pile are also included in EU010; however the area of the bark pile is not expected to increase as a result of the press cycle time change.

Georgia-Pacific Wood Products LLC  
Hosford OSB

**EU010 - Roads - Baseline Actual Emissions**

Paved Road Segment A Length           0.6 miles  
Paved Road Segment B Length           0.2 miles

**Truck Traffic Details**

| Truck           | Truck Weight <sup>1</sup><br>(tons) |        | Average<br>Truck<br>Weight<br>(tons) | Number of<br>Trucks <sup>2</sup> | Routes Traveled |   |
|-----------------|-------------------------------------|--------|--------------------------------------|----------------------------------|-----------------|---|
|                 | Unloaded                            | Loaded |                                      |                                  | A               | B |
| Logs            | 15                                  | 40     | 27.5                                 | 38,099                           | 2               |   |
| Resin/Residuals | 15                                  | 40     | 27.5                                 | 4,061                            | 2               |   |
| OSB             | 15                                  | 40     | 27.5                                 | 26,068                           |                 | 2 |

1. Truck weight based on engineering estimates.
2. Number of log, resin, and OSB trucks based on the baseline and projected production rates divided by the average truck weight.

**Emission Calculations**

| Segment      | Fleet Mean<br>Weight<br>(tons) | Emission Factor <sup>1</sup> |                  |                   | BAE<br>VMT | Emissions <sup>2</sup> |                         |                          |
|--------------|--------------------------------|------------------------------|------------------|-------------------|------------|------------------------|-------------------------|--------------------------|
|              |                                | PM                           | PM <sub>10</sub> | PM <sub>2.5</sub> |            | PM<br>BAE              | PM <sub>10</sub><br>BAE | PM <sub>2.5</sub><br>BAE |
|              |                                | (lb/VMT)                     | (lb/VMT)         | (lb/VMT)          |            | (tpy)                  | (tpy)                   | (tpy)                    |
| A            | 27.5                           | 0.47                         | 0.093            | 0.023             | 52,278     | 11.3                   | 2.3                     | 0.55                     |
| B            | 27.5                           | 0.47                         | 0.093            | 0.023             | 9,906      | 2.1                    | 0.43                    | 0.11                     |
| <b>Total</b> |                                |                              |                  |                   |            | 13.4                   | 2.7                     | 0.66                     |

1. Long term average paved route emission factor is based on Equation 2 of AP-42 Section 13.2.1 (January 2011):

$$E = \left[ k \times (sL)^{0.91} \times (W)^{1.02} \right] \times \left( 1 - \frac{P}{4N} \right)$$

- E = size specific emission factor (lb/VMT)
- k = 0.011 (PM) particle size multiplier for particle size range and units of interest, AP-42, Section 13.2.1, Table 13.2.1-1.  
0.0022 (PM10)  
0.00054 (PM2.5)
- sL = 1.5 road surface silt loading (g/m<sup>2</sup>), based on AP-42 data for public roads.
- W = mean vehicle weight (tons)
- P = 110 number of days in averaging period with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.1, Figure 13.2.1-2.
- N = 365 number of days in the averaging period (e.g., 365 for annual)

Note that rain correction factor (1-P/4N) only applies to annual, not hourly emissions.

2. Emissions calculated from emission factor times VMT per route. Hourly emissions assume 8,760 hours of operation.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU014 - Misc. Coatings - Baseline Actual Emission Calculations**

**Paint Booth Production**

|                        |                |
|------------------------|----------------|
| Annual Production Rate | 501,300 MSF/yr |
| Hourly Rate            | 64 MSF/hr      |
| Coating VOC Content    | 0.31 lb/gal    |
| Coating Density        | 8.8 lb/gal     |
| HAP Content            | 0.088 lb/gal   |

*Edge Seal Application in Paint Booth*

|                                          |               |
|------------------------------------------|---------------|
| Coating % Solids                         | 53%           |
| Maximum Annual Usage Rate                | 98,048 gal/yr |
| Coating Application Rate <sup>1</sup>    | 1.72 lb/MSF   |
| Transfer Efficiency                      | 70%           |
| Control Efficiency of Paint Booth Filter | 98%           |
| VOC Content                              | 31%           |
| Coating Application Rate <sup>1</sup>    | 20% gal/MSF   |

*Stencil/Nail Lines/Gradestamp Application Outside Paint Booth*

|                                |                |
|--------------------------------|----------------|
| Maximum Annual Production Rate | 13,535 gal/yr  |
| Hourly Rate                    | 1.7 gal/hr     |
| Coating VOC Content            | 0.31 lb/gal    |
| Coating Density                | 8.8 lb/gal     |
| Coating % Solids               | 64%            |
| Coating Application Rate       | 0.24 lb/MSF    |
| Coating Application Rate       | 0.0270 gal/MSF |
| Transfer Efficiency            | 60%            |
| Building Enclosure Efficiency  | 75%            |

**Emission Calculations**

| Pollutant                              | Emission Factors   |                                           |       | Edge Seal (tpy) | Stencil/ Nail Lines (tpy) | Total Emissions (tpy) |
|----------------------------------------|--------------------|-------------------------------------------|-------|-----------------|---------------------------|-----------------------|
|                                        | Edge Seal (lb/MSF) | Stencil/ Nail Lines <sup>5</sup> (lb/MSF) | Notes |                 |                           |                       |
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.274              | 0.0730                                    | 2     | 1.37            | 4.57                      | 5.95                  |
| VOC                                    | 0.063              | 0.0084                                    | 3     | 15.70           | 2.10                      | 17.79                 |
| Total HAP                              | 0.017              | 0.0024                                    | 4     | 4.31            | 0.60                      | 4.91                  |

1. Coating application rate is calculated from maximum production rate, maximum annual paint usage per paint line and coating density.
2. PM emissions is based on past maximum annual production and usage rates with:
  - a transfer efficiency of 70% with a control efficiency of 98% for the paint booth filters, and
  - a transfer efficiency of 60% with a control efficiency of 75% for building enclosure.
3. Emission factor based on past maximum annual production and coating VOC content (0.31 lb/gal and application rate of 0.20 gal/MSF).
4. Total HAPs assumed to be 1% as allowed under PCWP MACT miscellaneous coatings.
5. PM emissions from Stencil/Nail Lines include a 20% safety factor, due to outside paint booth.

**ATTACHMENT 3**

**Updated Appendix D - Construction Permit Application**

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Uncontrolled Facility Excludable Emissions**

|                                                    |                             |
|----------------------------------------------------|-----------------------------|
| Annual Production Rate                             | 508,327 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup>                    | 97%                         |
| Building Enclosure Control Efficiency <sup>2</sup> | 70%                         |

| Pollutant                              | Emission Factor<br>(lb/MSF) | Notes | Emissions<br>(tpy) |
|----------------------------------------|-----------------------------|-------|--------------------|
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.06                        | 3,4   | 0.47               |
| NO <sub>x</sub>                        | 1.40E-03                    | 3     | 1.14E-02           |
| CO                                     | 2.60E-03                    | 3     | 2.11E-02           |
| VOC                                    | 1.11                        | 5     | 9.03               |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
2. For the uncontrolled portion of panel press exhaust released inside the process building, GP assumes a conservative PM control efficiency of 70% for a partial building enclosure per Air Pollution Engineering Manual, 2nd Ed, AWMA, c2000 Ch15 p. 694.
3. PM (filterable), NO<sub>x</sub>, and CO emission factors from AP-42 Section 10.6.1 - Waferboard/Oriented Strand Board Manufacturing, Tables 10.6.1-4,5,6. for Uncontrolled Hot Press, PF resin (powder).
4. Uncontrolled PM emission factor includes PM (filterable) plus calculated condensable content based on 0.0837 lb/MSF (3/8" Basis) from NCASI Wood Products Database February 2010 median (uncontrolled). Total PM emission factor is also multiplied by the building enclosure capture efficiency (70%).
5. VOC emission factor based on maximum VOC inlet data (before control device) taken from stack testing results completed from 2007 to 2011.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

EU003-005, EU007-EU009 - Baghouses - Facility Excludable Emissions

Annual Production Rate 508,327 MSF/yr (3/8" basis)  
 Hourly Production Rate 79.06 MSF/hr  
 Annual Production Rate 461,947 OSB/yr  
 VOC Control Efficiency 94%

| EUID         | Emission Unit     | Historical Maximum Operation <sup>2</sup> (hr/yr) | VOC Emissions                |       |                                  |              | PM Emissions           |                                          |                                                                  |        | PM Emission Rates |       | PM <sub>10</sub> Emission Rates |       | PM <sub>2.5</sub> Emission Rates |       |
|--------------|-------------------|---------------------------------------------------|------------------------------|-------|----------------------------------|--------------|------------------------|------------------------------------------|------------------------------------------------------------------|--------|-------------------|-------|---------------------------------|-------|----------------------------------|-------|
|              |                   |                                                   | VOC Emission Factor (lb/MSF) | Notes | VOC Emission Rates (lb/hr) (tpy) |              | Exhaust Airflow (acfm) | Exit Grain Loading <sup>1</sup> (gr/acf) | Condensable Fraction (lb/MSF) <sup>7</sup> (lb/ODT) <sup>8</sup> |        | (lb/hr)           | (tpy) | (lb/hr)                         | (tpy) | (lb/hr)                          | (tpy) |
| EU003        | Screen Fines      | 7,487                                             | -                            | -     |                                  |              | 19,000                 | 0.0030                                   | -                                                                | -      | 0.48              | 1.81  | 0.48                            | 1.81  | 0.48                             | 1.81  |
| EU004        | Saw Trim Baghouse | 7,881                                             | 0.050                        | 3     | 3.93                             | 12.63        | 41,500                 | 0.0008                                   | 0.0016                                                           | -      | 0.38              | 1.49  | 0.38                            | 1.49  | 0.38                             | 1.49  |
| EU005        | Mat Reject        | 7,884                                             | 0.044                        | 4     | 3.46                             | 11.11        | 66,000                 | 0.0014                                   | -                                                                | -      | 0.77              | 3.05  | 0.77                            | 3.05  | 0.77                             | 3.05  |
| EU007        | Fuel System       | 7,881                                             | 0.060                        | 5     | 4.74                             | 15.25        | 650                    | 0.0046                                   | -                                                                | -      | 0.03              | 0.10  | 0.03                            | 0.10  | 0.03                             | 0.10  |
| EU008        | Forming Bins      | 7,884                                             | 0.057                        | 6     | 4.51                             | 14.49        | 20,700                 | 0.0035                                   | -                                                                | 0.0015 | 0.71              | 2.82  | 0.71                            | 2.82  | 0.71                             | 2.82  |
| EU009        | Hammermill        | 7,881                                             | -                            | -     |                                  |              | 18,700                 | 0.0015                                   | -                                                                | -      | 0.25              | 0.97  | 0.25                            | 0.97  | 0.25                             | 0.97  |
| <b>Total</b> |                   |                                                   |                              |       |                                  | <b>53.48</b> |                        |                                          |                                                                  |        | <b>10.24</b>      |       | <b>10.24</b>                    |       | <b>10.24</b>                     |       |

1. PM emission rates based on testing results obtained at Hosford facility in 2005.
2. Past maximum annual operation (hr/yr) from 2005-2011 for each operation.
3. VOC emission factor per NCASI Wood Products Database February 2010, for dry wood material handling (misc. unit) median value.
4. VOC emission factor per NCASI Wood Products Database February 2010, for miscellaneous wood handling (misc. unit) median value.
5. VOC emission factor from AP-42, March 2002, Table 10.6.1-7 for raw fuel bin.
6. VOC emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.
7. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.00164 lb/MSF condensable emission factor per NCASI Wood Products Database February 2010, for saw (misc. unit) median value.
8. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0015 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

**EU010 - Blender, Debarker, Bark Pile - Facility Excludable Emissions**

Annual Production Rate 508,327 MSF/yr (3/8" basis)  
Annual Production Rate 461,947 ODT/yr  
Operating Hours 8,760 hr/yr  
VOC Control Efficiency 90%

**Blender**

| Pollutant                           | Emission Factor |          | Notes | Emissions (tpy) |
|-------------------------------------|-----------------|----------|-------|-----------------|
|                                     | (lb/ODT)        | (lb/MSF) |       |                 |
| PM/PM <sub>10</sub> (Filterable)    | 0.0023          | -        | 1     | 0.53            |
| PM (Total)                          | 0.004           | -        | 2     | 1.02            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.004           | -        | 2     | 1.02            |
| VOC (as C)                          | 0.128           | -        | 1     | 33.0            |
| Formaldehyde                        | -               | 0.00355  | 1     | 0.90            |
| Methanol                            | -               | 0.06272  | 1     | 15.94           |
| Total HAP                           |                 |          |       | 16.84           |

- Emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.
- PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0021 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

**Bark Handling**

| Emission Unit           | Throughput <sup>1</sup> (tph) | Throughput <sup>1</sup> (tpy) | Control Efficiency <sup>5</sup> | PM Emission Rates (tpy) | PM <sub>10</sub> Emission Rates (tpy) | PM <sub>2.5</sub> Emission Rates <sup>4</sup> (tpy) |
|-------------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------|---------------------------------------|-----------------------------------------------------|
| Debarker <sup>3</sup>   | 96                            | 965,770                       | 50%                             | 5.79                    | 2.66                                  | 2.66                                                |
| Bark Hog <sup>2,3</sup> | 10                            | 96,577                        | 90%                             | 0.12                    | 0.05                                  | 0.05                                                |
| Fuel Pile <sup>6</sup>  | 10                            | 96,577                        | --                              | 0.04                    | 0.02                                  | 3.32E-07                                            |

- Maximum throughput reported in reporting years 2010 and 2011.
- Although not all hogged fuel goes through the bark hog, as a conservative estimate it is all assumed to.
- Emission factor per FIRE database, SCC Code 3-07-008-01, Log Debarking.  
PM 0.024 lb/ton of logs processed  
PM<sub>10</sub> 0.011 lb/ton of logs processed
- No factor available for PM<sub>2.5</sub> for debarker and Bark Hog PM<sub>2.5</sub> assumed equal to PM<sub>10</sub>.
- 50% control efficiency applied for partial enclosure of the Debarker. 90% control efficiency applied for enclosure of Bark Hog
- Emission factor per AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, drop equation.

where:

$$E \text{ (lb/ton)} = k \times 0.0032 \times \left(\frac{U}{5}\right)^{1.3} \times \left(\frac{M}{2}\right)^{1.4}$$

k: Particle size multiplier  
 0.74 PM  
 0.35 PM<sub>10</sub>  
 0.053 PM<sub>2.5</sub>

U: Mean wind speed 6.24 mph  
M: Moisture Content 4.8 %

Mean wind speed (U) for Tallahassee, FL per EPA TANKS meteorological database.

Moisture content (M) for emission factor equation set equal to the maximum value for which the equation is appropriate. Actual moisture content is higher.

**Bark Pile Emissions**

| Storage Pile | Silt Content <sup>1</sup> (s) | No. Dry Days per Year <sup>2</sup> (d) | winds >12 mph <sup>3</sup> (f) | Emission Factor <sup>4</sup> (lb/day/acre) |                  | Pile Area (acre) | Emissions   |                                           |                        |                         |
|--------------|-------------------------------|----------------------------------------|--------------------------------|--------------------------------------------|------------------|------------------|-------------|-------------------------------------------|------------------------|-------------------------|
|              |                               |                                        |                                | PM                                         | PM <sub>10</sub> |                  | PM (lb/day) | PM <sub>10</sub> /PM <sub>2.5</sub> (tpy) | PM <sub>10</sub> (tpy) | PM <sub>2.5</sub> (tpy) |
| Fuel Pile    | 7.5                           | 110                                    | 10                             | 2.65                                       | 2.65             | 0.058            | 1.53E-01    | 2.79E-02                                  | 1.53E-01               | 2.79E-02                |

- Silt content per AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, Table 13.2.4-1, silt value for overburden.
- Number of days in a year with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.2, Unpaved Roads, Figure 13.2.2-1
- Percent of time wind speed greater than 12 mph estimated based on wind rose plots for Tallahassee.

$$EF \text{ (lb/day/acre)} = 1.7 \times \left(\frac{s}{1.5}\right) \times \left(\frac{d}{235}\right) \times \left(\frac{f}{15}\right)$$

- Pile area assumed based on conical shape of 20 ft high by 50 feet in diameter.

**Total Emissions for Blender, Bark Handling, and Bark Pile**

| Pollutant                           | Emissions (tpy) |
|-------------------------------------|-----------------|
| PM                                  | 7.00            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 3.77            |
| PM <sub>2.5</sub>                   | 3.75            |
| VOC (as C)                          | 32.95           |
| Formaldehyde                        | 0.90            |
| Methanol                            | 15.94           |
| Total HAP                           | 16.84           |

Georgia-Pacific Wood Products LLC  
Hosford OSB

**EU010 - Roads - Facility Excludable Emissions**

Paved Road Segment A Length           0.6 miles  
Paved Road Segment B Length           0.2 miles

**Truck Traffic Details**

| Truck           | Truck Weight <sup>1</sup><br>(tons) |        | Average<br>Truck<br>Weight<br>(tons) | Number of<br>Trucks <sup>2</sup> | Routes Traveled |   |
|-----------------|-------------------------------------|--------|--------------------------------------|----------------------------------|-----------------|---|
|                 | Unloaded                            | Loaded |                                      |                                  | A               | B |
| Logs            | 15                                  | 40     | 27.5                                 | 38,631                           | 2               |   |
| Resin/Residuals | 15                                  | 40     | 27.5                                 | 4,117                            | 2               |   |
| OSB             | 15                                  | 40     | 27.5                                 | 26,433                           |                 | 2 |

1. Truck weight based on engineering estimates.
2. Number of log, resin, and OSB trucks based on the baseline and projected production rates divided by the average truck weight.

**Emission Calculations**

| Segment      | Fleet Mean<br>Weight<br>(tons) | Emission Factor <sup>1</sup> |                              |                               | PAE<br>VMT | Emissions <sup>2</sup> |                                  |                                   |
|--------------|--------------------------------|------------------------------|------------------------------|-------------------------------|------------|------------------------|----------------------------------|-----------------------------------|
|              |                                | PM<br>(lb/VMT)               | PM <sub>10</sub><br>(lb/VMT) | PM <sub>2.5</sub><br>(lb/VMT) |            | PM<br>PAE<br>(tpy)     | PM <sub>10</sub><br>PAE<br>(tpy) | PM <sub>2.5</sub><br>PAE<br>(tpy) |
| A            | 27.5                           | 0.47                         | 0.093                        | 0.023                         | 53,008     | 11.5                   | 2.3                              | 0.56                              |
| B            | 27.5                           | 0.47                         | 0.093                        | 0.023                         | 10,045     | 2.2                    | 0.43                             | 0.11                              |
| <b>Total</b> |                                |                              |                              |                               |            | 13.6                   | 2.7                              | 0.67                              |

1. Long term average paved route emission factor is based on Equation 2 of AP-42 Section 13.2.1 (January 2011):

$$E = \left[ k \times (sL)^{0.91} \times (W)^{1.02} \right] \times \left( 1 - \frac{P}{4N} \right)$$

- E = size specific emission factor (lb/VMT)  
k = 0.011 (PM) particle size multiplier for particle size range and units of interest, AP-42, Section 13.2.1, Table 13.2.1-1.  
0.0022 (PM10)  
0.00054 (PM2.5)  
sL = 1.5 road surface silt loading (g/m<sup>2</sup>), based on AP-42 data for public roads.  
W = mean vehicle weight (tons)  
P = 110 number of days in averaging period with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.1, Figure 13.2.1-2.  
N = 365 number of days in the averaging period (e.g., 365 for annual)

Note that rain correction factor (1-P/4N) only applies to annual, not hourly emissions.

2. Emissions calculated from emission factor times VMT per route. Hourly emissions assume 8,760 hours of operation.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU014 - Misc. Coatings - Facility Excludable Emissions**

**Paint Booth Production**

|                        |                |
|------------------------|----------------|
| Annual Production Rate | 508,300 MSF/yr |
| Annual Usage Rate      | 98,777 gal/yr  |
| Hourly Rate            | 64 MSF/hr      |
| Coating VOC Content    | 0.31 lb/gal    |
| Coating Density        | 8.8 lb/gal     |
| HAP Content            | 0.088 lb/gal   |

*Edge Seal Application in Paint Booth*

|                                          |             |
|------------------------------------------|-------------|
| Coating % Solids                         | 53%         |
| Coating Application Rate                 | 1.71 lb/MSF |
| Transfer Efficiency                      | 70%         |
| Control Efficiency of Paint Booth Filter | 98%         |

*Stencil/Nail Lines/Gradestamp Application Outside Paint Booth*

|                               |               |
|-------------------------------|---------------|
| Annual Production Rate        | 13,724 gal/yr |
| Hourly Rate                   | 1.7 gal/hr    |
| Coating VOC Content           | 0.31 lb/gal   |
| Coating Density               | 8.8 lb/gal    |
| Coating % Solids              | 64%           |
| Coating Application Rate      | 0.027 lb/MSF  |
| Transfer Efficiency           | 60%           |
| Building Enclosure Efficiency | 75%           |

**Emission Calculations**

| Pollutant                              | Emission Factors      |                                                 |       | Edge Seal<br>(tpy) | Stencil/ Nail<br>Lines<br>(tpy) | Total<br>Emissions<br>(tpy) |
|----------------------------------------|-----------------------|-------------------------------------------------|-------|--------------------|---------------------------------|-----------------------------|
|                                        | Edge Seal<br>(lb/MSF) | Stencil/ Nail<br>Lines <sup>4</sup><br>(lb/MSF) | Notes |                    |                                 |                             |
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.272                 | 0.0730                                          | 1     | 1.38               | 4.64                            | 6.02                        |
| VOC                                    | 0.063                 | 0.0084                                          | 2     | 15.91              | 2.13                            | 18.04                       |
| Total HAP                              | 0.017                 | 0.0024                                          | 3     | 4.35               | 0.60                            | 4.95                        |

1. PM emissions is based on past maximum annual production and usage rates with:  
 a transfer efficiency of 70% with a control efficiency of 98% for the paint booth filters, and  
 a transfer efficiency of 60% with a control efficiency of 75% for building enclosure.
2. Emission factor based on past maximum annual production and coating VOC content (0.31 lb/gal and application rate of 0.20 gal/MSF).
3. Total HAPs assumed to be 1% as allowed under PCWP MACT miscellaneous coatings.
4. PM emissions from Stencil/Nail Lines include a 20% safety factor, due to outside paint booth.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**Cycle Time Decrease Affect on Potential Production**

Cycle Time Decrease<sup>1</sup>                    13.5      sec/cycle  
Board Produced Each Press Cycle      3,072      SF/cycle  
Operating Hours<sup>2</sup>                        7,871      hr/yr

| Product<br>(inches) | Current Button<br>to Button<br>Times <sup>3</sup><br>(sec) | Post-Project                                       |                                                              |                                            |                                            |                                                                    | Pre-Project                                           |                                                       |                                                     | Difference<br>Maximum<br>Production<br>Increase<br>(MSF/yr) |
|---------------------|------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------|
|                     |                                                            | Post Project<br>Button to<br>Button Times<br>(sec) | Potential Daily<br>Press Cycles <sup>4</sup><br>(cycles/day) | Potential Daily<br>Production<br>(MSF/day) | Potential Yearly<br>Production<br>(MSF/yr) | Potential<br>Production<br>Scaled to 3/8" <sup>5</sup><br>(MSF/yr) | Current<br>Potential Daily<br>Production<br>(MSF/day) | Current<br>Potential Yearly<br>Production<br>(MSF/yr) | Current<br>Production<br>Scaled to 3/8"<br>(MSF/yr) |                                                             |
| 1/4"                | 185                                                        | 171.5                                              | 504                                                          | 1,548                                      | 507,562                                    | 338,375                                                            | 1,435                                                 | 470,524                                               | 313,683                                             | 24,692                                                      |
| 3/8"                | 185                                                        | 171.5                                              | 504                                                          | 1,548                                      | 507,562                                    | 507,562                                                            | 1,435                                                 | 470,524                                               | 470,524                                             | 37,038                                                      |
| 7/16"               | 178                                                        | 164.5                                              | 525                                                          | 1,614                                      | 529,161                                    | 617,354                                                            | 1,491                                                 | 489,028                                               | 570,533                                             | 46,822                                                      |
| 15/32"              | 218                                                        | 204.5                                              | 422                                                          | 1,298                                      | 425,658                                    | 532,072                                                            | 1,218                                                 | 399,298                                               | 499,122                                             | 32,949                                                      |
| 1/2"                | 200                                                        | 186.5                                              | 463                                                          | 1,423                                      | 466,740                                    | 622,320                                                            | 1,327                                                 | 435,235                                               | 580,313                                             | 42,007                                                      |
| 19/32"              | 284                                                        | 270.5                                              | 319                                                          | 981                                        | 321,800                                    | 509,517                                                            | 935                                                   | 306,503                                               | 485,297                                             | 24,220                                                      |
| 23/32"              | 300                                                        | 286.5                                              | 302                                                          | 926                                        | 303,829                                    | 582,339                                                            | 885                                                   | 290,157                                               | 556,133                                             | 26,205                                                      |
|                     |                                                            |                                                    |                                                              |                                            |                                            |                                                                    |                                                       |                                                       |                                                     | <b>46,822</b>                                               |

1. Cycle time decrease based on vendor quotes with a 50% safety factor.
2. Maximum historical operating hours of panel press (EU002) from 2006-2011.
3. Values taken from average of historical data.
4. Assumed maximum potential operation of 8,760 hr/yr.
5. Scaled using ratio of product thickness to 3/8". Specific Condition B.2 limits OSB production to 600,000 MSF/yr (scaled to 3/8" basis), and the post-project potential production (scaled to 3/8" basis) is identified for determining the maximum production increase associated with the project only. GP will not exceed the existing OSB production limit defined in the Title V permit.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU001/EU011 - Dryers/Thermal Oil Heater - Project Associated Emissions Increase**

|                                                                     |                  |
|---------------------------------------------------------------------|------------------|
| Maximum Annual Dryer Production Rate Increase <sup>1</sup>          | 41,877 ODT/yr    |
| Maximum Potential NG Fuel Usage Increase (RTO/Dryers) <sup>12</sup> | 67 MMscf         |
| Maximum Potential Wood Heat Input Increase <sup>2,12</sup>          | 7,745 tpy        |
| Heating Value of Wood                                               | 16.66 MMBtu/ton  |
| Heating Value of Natural Gas                                        | 1,020 MMBtu/MMcf |

| Pollutant                        | Emission Factor |            |           | Notes | Emissions (tpy) |
|----------------------------------|-----------------|------------|-----------|-------|-----------------|
|                                  | (lb/ODT)        | (lb/MMBtu) | (lb/MMCF) |       |                 |
| PM/PM <sub>10</sub> (Filterable) | 0.32            | -          | -         | 3     | 6.70            |
| PM (Total)                       | 0.40            | -          | -         | 4     | 8.33            |
| PM <sub>10</sub>                 | 0.40            | -          | -         | 4     | 8.33            |
| PM <sub>2.5</sub>                | 0.34            | -          | -         | 4,11  | 7.17            |
| CO                               | 0.52            | -          | -         | 7     | 10.85           |
| VOC (as C)                       | 0.16            | -          | -         | 7     | 3.36            |
| SO <sub>2</sub>                  | -               | 0.025      | 0.60      | 5     | 1.63            |
| NO <sub>x</sub>                  | 0.84            | -          | -         | 7     | 17.59           |
| Lead                             | -               | 4.85E-05   | -         | 6     | 3.13E-03        |
| <b>GHG Emissions</b>             |                 |            |           |       |                 |
| CO <sub>2</sub> <sup>10</sup>    | -               | 116.9      | -         | 8     | 4,009           |
| Methane                          | -               | 2.21E-03   | -         | 8     | 2.18E-01        |
| N <sub>2</sub> O                 | -               | 2.21E-04   | -         | 9     | 2.18E-02        |
| CO <sub>2</sub> e                | -               | -          | -         | 9     | 4,021           |

1. Maximum annual production rate increase is based on the maximum production increase of MSF and factors from GP relating the amount of dried wood for board.
2. Maximum potential wood heat input based on maximum past ratios of tons of wood burned and oven dry tons produced and the maximum annual production increase of oven dry tons.
3. PM (filterable content) emission factors based on average stack test results from Hosford in 2005-2011.
4. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> include PM (filterable content) plus condensable content of 0.078 lb/ODT from NCASI Wood Products Database February 2010 median value (controlled for organics).
5. SO<sub>2</sub> emission factor per AP-42 Section 1.6 (September 2003), Table 1.6-2 for wood combustion and AP-42 Section 1.4 (July 1998), Table 1.4-2 for natural gas combustion.
6. Lead emission factor per AP-42 Section 1.6 (September 2003), Table 1.6-4 for wood combustion.
7. CO, VOC and NO<sub>x</sub> emission factors based on maximum emission factor found in past stack testing completed 2005-2011. VOC emission factor takes into account control efficiency of the RTO.
8. Emission factors from EPA's GHG Mandatory Reporting Rule for natural gas combustion, Tables C-1 and C-2 contained in 40 CFR 98, Subpart C.
9. CO<sub>2</sub>e emissions are the sum of CO<sub>2</sub> emissions plus methane and N<sub>2</sub>O multiplied by their respective Global Warming Potential (GWP) of 21 and 310, respectively.
10. CO<sub>2</sub> emissions from biomass combustion is included in Biomass Deferral for GHG Tailoring Rule, therefore only CO<sub>2</sub> emissions associated with natural gas usage are quantified.
11. PM<sub>2.5</sub> assumed to be 86.1% of PM<sub>10</sub>, per internal testing completed by GP at the Skippers, VA OSB facility.
12. Wood fuel and natural gas consumed is for the dryers and thermal oil heaters which exhaust to the RTOs.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Controlled Project Associated Emissions Increase**

|                                                     |                            |
|-----------------------------------------------------|----------------------------|
| Maximum Annual OSB Production Rate Increase         | 46,822 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup>                     | 97%                        |
| Operating Hours                                     | 8,760 hr/yr                |
| Maximum Annual RCO Fuel Usage Increase <sup>2</sup> | 9.42 MMscf/yr              |
| Natural Gas Heating Value                           | 1,020 MMBtu/MMscf          |

| Pollutant                           | Emission Factor   |           | Notes | Emissions (tpy) |
|-------------------------------------|-------------------|-----------|-------|-----------------|
|                                     | (lb/MSF)          | (lb/MMCF) |       |                 |
| PM/PM <sub>10</sub> (Filterable)    | 0.03              | -         | 3     | 0.75            |
| PM (Total)                          | 0.05              | -         | 4     | 1.23            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.05              | -         | 4     | 1.23            |
| CO                                  | 0.07              | -         | 5     | 1.65            |
| VOC (as C)                          | 0.07              | -         | 5     | 1.51            |
| SO <sub>2</sub>                     | -                 | 0.60      | 6,10  | 2.83E-03        |
| NO <sub>x</sub>                     | 0.02              | -         | 5     | 0.45            |
| Lead                                | -                 | 5.00E-04  | 7,10  | 2.4E-06         |
| <b>GHG Emissions<sup>11</sup></b>   | <b>(lb/MMBtu)</b> |           |       |                 |
| CO <sub>2</sub>                     | 116.9             | -         | 8     | 561.7           |
| Methane                             | 2.21E-03          | -         | 8     | 1.1E-02         |
| N <sub>2</sub> O                    | 2.21E-04          | -         | 8     | 1.1E-03         |
| CO <sub>2</sub> e                   | -                 | -         | 9     | 562.2           |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
2. Annual RCO fuel usage increase based on maximum past ratios of MMscf of natural gas burned and MSF of board produced and the maximum annual production increase of board feet.
3. PM (filterable content) emission factors based on average stack test results from Hosford in 2005-2011.
4. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> include PM (Filterable) plus condensable emissions of 0.0212 lb/MSF (3/8" Basis) from NCASI Wood Products Database February 2010 median (controlled for organics).
5. CO, VOC and NO<sub>x</sub> emission factors based on maximum emission factor found in past stack testing completed 2005-2011. VOC emission factor takes into account control efficiency of the RTO.
6. SO<sub>2</sub> emission factor per AP-42 Section 1.4 (July 1998), Table 1.4-2 for natural gas combustion.
7. Emission factor per AP-42, Section 1.4, Natural Gas Combustion.
8. Emission factors from EPA's GHG Mandatory Reporting Rule for natural gas combustion, Tables C-1 and C-2 contained in 40 CFR 98, Subpart C.
9. CO<sub>2</sub>e emissions are the sum of CO<sub>2</sub> emissions plus methane and N<sub>2</sub>O multiplied by their respective Global Warming Potential (GWP) of 21 and 310, respectively.
10. Emission estimates for SO<sub>2</sub> and Lead are based on RCO fuel usage and do not include a capture efficiency.
11. GHG emission estimates do not include a capture efficiency since CO<sub>2</sub>e is not controlled.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Uncontrolled Project Associated Emissions Increase**

|                                                    |                            |
|----------------------------------------------------|----------------------------|
| Maximum Annual OSB Production Rate Increase        | 46,822 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup>                    | 97%                        |
| Building Enclosure Control Efficiency <sup>2</sup> | 70%                        |

| Pollutant                              | Emission Factor<br>(lb/MSF) | Notes | Emissions<br>(tpy) |
|----------------------------------------|-----------------------------|-------|--------------------|
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.06                        | 3,4   | 0.04               |
| NO <sub>x</sub>                        | 1.40E-03                    | 3     | 1.05E-03           |
| CO                                     | 2.60E-03                    | 3     | 1.95E-03           |
| VOC                                    | 1.11                        | 5     | 0.83               |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.

2. For the uncontrolled portion of panel press exhaust released inside the process building, GP assumes a conservative PM control efficiency of 70% for a partial building enclosure per Air Pollution Engineering Manual, 2nd Ed, AWMA, c2000 Ch15 p. 694.

3. PM (filterable), NO<sub>x</sub>, and CO emission factors from AP-42 Section 10.6.1 - Waferboard/Oriented Strand Board Manufacturing, Tables 10.6.1-4,5,6. for Uncontrolled Hot Press, PF resin (powder).

4. Uncontrolled PM emission factor includes PM (filterable) plus calculated condensable content based on 0.0837 lb/MSF (3/8" Basis) from NCASI Wood Products Database February 2010 median (uncontrolled). Total PM emission factor is also multiplied by the building enclosure capture efficiency (70%).

5. VOC emission factor based on maximum VOC inlet data (before control device) taken from stack testing results completed from 2007 to 2011.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU003-005, EU007-009 - Baghouses - Project Associated Emissions Increase**

Maximum Annual Board Production Rate Increase      46,822 MSF/yr (3/8" basis)  
 Maximum Annual Dryer Production Rate Increase      41,877 ODT/yr  
 Maximum Potential Hours Increase per Year<sup>1</sup>      63.6 hr/yr

| EUID         | Emission Unit | VOC Emissions                |       |                         | PM Emissions           |                                          |                                                                  |        | PM Emission Rates |          | PM <sub>10</sub> Emission Rates |          | PM <sub>2.5</sub> Emission Rates |          |
|--------------|---------------|------------------------------|-------|-------------------------|------------------------|------------------------------------------|------------------------------------------------------------------|--------|-------------------|----------|---------------------------------|----------|----------------------------------|----------|
|              |               | VOC Emission Factor (lb/MSF) | Notes | VOC Emission Rate (tpy) | Exhaust Airflow (acfm) | Exit Grain Loading <sup>2</sup> (gr/acf) | Condensable Fraction (lb/MSF) <sup>7</sup> (lb/ODT) <sup>8</sup> |        | (lb/hr)           | (tpy)    | (lb/hr)                         | (tpy)    | (lb/hr)                          | (tpy)    |
| EU003        | Screen Fines  | -                            | -     | -                       | 19,000                 | 0.0030                                   | -                                                                | -      | 0.48              | 1.54E-02 | 0.48                            | 1.54E-02 | 0.48                             | 1.54E-02 |
| EU004        | Saw Trim      | 0.050                        | 3     | 1.16                    | 41,500                 | 0.0008                                   | 0.0016                                                           | -      | 1.48              | 4.71E-02 | 1.48                            | 4.71E-02 | 1.48                             | 4.71E-02 |
| EU005        | Mat Reject    | 0.044                        | 4     | 1.02                    | 66,000                 | 0.0014                                   | -                                                                | -      | 0.77              | 2.46E-02 | 0.77                            | 2.46E-02 | 0.77                             | 2.46E-02 |
| EU007        | Fuel System   | 0.060                        | 5     | 1.40                    | 650                    | 0.0046                                   | -                                                                | -      | 0.03              | 8.15E-04 | 0.03                            | 8.15E-04 | 0.03                             | 8.15E-04 |
| EU008        | Forming Bins  | 0.057                        | 6     | 1.33                    | 20,700                 | 0.0035                                   | -                                                                | 0.0015 | 1.61              | 5.13E-02 | 1.61                            | 5.13E-02 | 1.61                             | 5.13E-02 |
| EU009        | Hammermill    | -                            | -     | -                       | 18,700                 | 0.0015                                   | -                                                                | -      | 0.25              | 7.82E-03 | 0.25                            | 7.82E-03 | 0.25                             | 7.82E-03 |
| <b>Total</b> |               |                              |       | <b>4.93</b>             |                        |                                          |                                                                  |        | <b>0.15</b>       |          | <b>0.15</b>                     |          | <b>0.15</b>                      |          |

1. Maximum potential hours increase per year based on potential cycle time decreases realized by the press. Value represents the maximum potential hours of operation increase from the proposed project.
2. PM emission rates based on testing results obtained at Hosford facility in 2005.
3. VOC emission factor per NCASI Wood Products Database February 2010, for dry wood material handling (misc. unit) median value.
4. VOC emission factor per NCASI Wood Products Database February 2010, for miscellaneous wood handling (misc. unit) median value.
5. VOC emission factor from AP-42, March 2002, Table 10.6.1-7 for raw fuel bin.
6. VOC emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.
7. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.00164 lb/MSF condensable emission factor per NCASI Wood Products Database February 2010, for saw (misc. unit) median value.
8. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0015 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

**EU010 - Fugitive - Blender, Debarker - Project Associated Emissions Increase**

|                                          |                            |
|------------------------------------------|----------------------------|
| Annual Maximum Board Production Increase | 46,822 MSF/yr (3/8" basis) |
| Annual Maximum Dryer Production Increase | 41,877 ODT/yr              |
| Operating Hours                          | 8,760 hr/yr                |
| VOC Control Efficiency                   | 90%                        |

**Blender**

| Pollutant                           | Emission Factor |          | Notes | Emission Rates (tpy) |
|-------------------------------------|-----------------|----------|-------|----------------------|
|                                     | (lb/ODT)        | (lb/MSF) |       |                      |
| PM/PM <sub>10</sub> (Filterable)    | 0.002           | -        | 1     | 0.05                 |
| PM (Total)                          | 0.004           | -        | 2     | 0.09                 |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.004           | -        | 2     | 0.09                 |
| VOC (as C)                          | 0.128           | -        | 1     | 2.99                 |
| Formaldehyde                        | -               | 0.00355  | 1     | 0.08                 |
| Methanol                            | -               | 0.06272  | 1     | 1.47                 |
| Total HAP                           |                 |          |       | 1.55                 |

1. Emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value; used historically in Hosford Annual Operating Reports
2. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0021 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

|                                                   |            |
|---------------------------------------------------|------------|
| Maximum Debarker Throughput Increase <sup>1</sup> | 94,363 tpy |
| Maximum Bark Hog Throughput Increase <sup>1</sup> | 9,383 tpy  |

**Bark Handling**

| Emission Unit           | Throughput <sup>2</sup> |        | Control Efficiency <sup>6</sup> | PM Emission Rates (tpy) | PM <sub>10</sub> Emission Rates (tpy) | PM <sub>2.5</sub> Emission Rates <sup>5</sup> (tpy) |
|-------------------------|-------------------------|--------|---------------------------------|-------------------------|---------------------------------------|-----------------------------------------------------|
|                         | (tph)                   | (tpy)  |                                 |                         |                                       |                                                     |
| Debarker <sup>4</sup>   | 96                      | 94,363 | 50%                             | 0.57                    | 0.26                                  | 0.26                                                |
| Bark Hog <sup>3,4</sup> | 10                      | 9,383  | 90%                             | 0.01                    | 0.01                                  | 0.01                                                |
| Fuel Pile <sup>7</sup>  | 10                      | 9,383  | --                              | 4.35E-03                | 2.06E-03                              | 3.32E-07                                            |

1. Maximum Debarker and Bark Hog Throughput Increase based on maximum past ratios of recorded throughput and ODT of wood produced and the maximum annual production increase of ODT.
2. Maximum throughput reported in recording years 2010 and 2011.
3. Although not all hogged fuel goes through the bark hog, as a conservative estimate it is all assumed to.
4. Emission factor per FIRE database, SCC Code 3-07-008-01, Log Debarking.
 

|                  |       |                          |
|------------------|-------|--------------------------|
| PM               | 0.024 | lb/ton of logs processed |
| PM <sub>10</sub> | 0.011 | lb/ton of logs processed |
5. No factor available for PM<sub>2.5</sub> for debarker and Bark Hog PM<sub>2.5</sub> assumed equal to PM<sub>10</sub>.
6. 50% control efficiency applied for partial enclosure of the Debarker. 90% control efficiency applied for enclosure of Bark Hog
7. Emission factor per AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, drop equation.

where:

|                             |                         |                                                                                                                    |
|-----------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------|
| k: Particle size multiplier | 0.74 PM                 | $E \text{ (lb/ton)} = k \times 0.0032 \times \left(\frac{U}{5}\right)^{1.3} \times \left(\frac{M}{2}\right)^{1.4}$ |
|                             | 0.35 PM <sub>10</sub>   |                                                                                                                    |
|                             | 0.053 PM <sub>2.5</sub> |                                                                                                                    |
| U: Mean wind speed          | 6.24 mph                |                                                                                                                    |
| M: Moisture Content         | 4.8 %                   |                                                                                                                    |

Mean wind speed (U) for Tallahassee, FL per EPA TANKS meteorological database.  
Moisture content (M) for emission factor equation; set equal to the maximum value for which the equation is appropriate. Actual moisture content is higher.

**Total Emissions for Blender and Bark Handling<sup>1</sup>**

| Pollutant                           | Emissions (tpy) |
|-------------------------------------|-----------------|
| PM                                  | 0.63            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.36            |
| PM <sub>2.5</sub>                   | 0.36            |
| VOC (as C)                          | 2.99            |
| Formaldehyde                        | 0.08            |
| Methanol                            | 1.47            |
| Total HAP                           | 1.55            |

1. Emissions from the Bark Pile are also included in EU010; however the area of the bark pile is not expected to increase as a result of the press cycle time change.

Georgia-Pacific Wood Products LLC  
Hosford OSB

**EU010 - Roads - Project Associated Emissions Increase**

Paved Road Segment A Length      0.6 miles  
Paved Road Segment B Length      0.2 miles

**Truck Traffic Details**

| Truck           | Truck Weight <sup>1</sup><br>(tons) |        | Average<br>Truck<br>Weight<br>(tons) | Number of<br>Trucks <sup>2</sup> | Routes Traveled |   |
|-----------------|-------------------------------------|--------|--------------------------------------|----------------------------------|-----------------|---|
|                 | Unloaded                            | Loaded |                                      |                                  | A               | B |
| Logs            | 15                                  | 40     | 27.5                                 | 3,775                            | 2               |   |
| Resin/Residuals | 15                                  | 40     | 27.5                                 | 399                              | 2               |   |
| OSB             | 15                                  | 40     | 27.5                                 | 2,435                            |                 | 2 |

1. Truck weight based on engineering estimates.
2. Number of log, resin, and OSB trucks based on the baseline and projected production rates divided by the average truck weight.

**Emission Calculations**

| Segment      | Mean<br>Weight<br>(tons) | Emission Factor <sup>1</sup> |                              |                               | PAE<br>VMT | Emissions <sup>2</sup> |                                  |                                   |
|--------------|--------------------------|------------------------------|------------------------------|-------------------------------|------------|------------------------|----------------------------------|-----------------------------------|
|              |                          | PM<br>(lb/VMT)               | PM <sub>10</sub><br>(lb/VMT) | PM <sub>2.5</sub><br>(lb/VMT) |            | PM<br>PAE<br>(tpy)     | PM <sub>10</sub><br>PAE<br>(tpy) | PM <sub>2.5</sub><br>PAE<br>(tpy) |
| A            | 27.5                     | 0.47                         | 0.093                        | 0.023                         | 5,175      | 1.1                    | 0.2                              | 0.05                              |
| B            | 27.5                     | 0.47                         | 0.093                        | 0.023                         | 925        | 0.2                    | 0.04                             | 0.01                              |
| <b>Total</b> |                          |                              |                              |                               |            | 1.3                    | 0.3                              | 0.06                              |

1. Long term average paved route emission factor is based on Equation 2 of AP-42 Section 13.2.1 (January 2011):

$$E = \left[ k \times (sL)^{0.91} \times (W)^{1.02} \right] \times \left( 1 - \frac{P}{4N} \right)$$

- E = size specific emission factor (lb/VMT)
- k = 0.011 (PM) particle size multiplier for particle size range and units of interest, AP-42, Section 13.2.1, Table 13.2.1-1.
- 0.0022 (PM10)
- 0.00054 (PM2.5)
- sL = 1.5 road surface silt loading (g/m<sup>2</sup>), based on AP-42 data for public roads.
- W = mean vehicle weight (tons)
- P = 110 number of days in averaging period with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.1, Figure 13.2
- N = 365 number of days in the averaging period (e.g., 365 for annual)

Note that rain correction factor (1-P/4N) only applies to annual, not hourly emissions.

2. Emissions calculated from emission factor times VMT per route. Hourly emissions assume 8,760 hours of operation.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU014 - Misc. Coatings - Project Associated Emissions Increase**

**Paint Booth Production**

|                                       |               |
|---------------------------------------|---------------|
| Annual Board Production Rate Increase | 46,822 MSF/yr |
| Hourly Rate                           | 64 MSF/hr     |
| Coating VOC Content                   | 0.31 lb/gal   |
| Coating Density                       | 8.8 lb/gal    |
| HAP Content                           | 0.088 lb/gal  |

*Edge Seal Application in Paint Booth*

|                                          |               |
|------------------------------------------|---------------|
| Coating % Solids                         | 53%           |
| Maximum Annual Usage Rate                | 88,438 gal/yr |
| Coating Application Rate <sup>1</sup>    | 1.57 lb/MSF   |
| Transfer Efficiency                      | 70%           |
| Control Efficiency of Paint Booth Filter | 98%           |

*Stencil/Nail Lines/Gradestamp Application Outside Paint Booth*

|                                |               |
|--------------------------------|---------------|
| Maximum Annual Production Rate | 10,433 gal/yr |
| Hourly Rate                    | 1.7 gal/hr    |
| Coating VOC Content            | 0.31 lb/gal   |
| Coating Density                | 8.8 lb/gal    |
| Coating % Solids               | 64%           |
| Coating Application Rate       | 0.19 lb/MSF   |
| Transfer Efficiency            | 60%           |
| Building Enclosure Efficiency  | 75%           |

**Emission Calculations**

| Pollutant                              | Emission Factors   |                                           |       | Edge Seal (tpy) | Stencil/ Nail Lines (tpy) | Total Emissions (tpy) |
|----------------------------------------|--------------------|-------------------------------------------|-------|-----------------|---------------------------|-----------------------|
|                                        | Edge Seal (lb/MSF) | Stencil/ Nail Lines <sup>5</sup> (lb/MSF) | Notes |                 |                           |                       |
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.272              | 0.073                                     | 2     | 0.13            | 0.43                      | 0.55                  |
| VOC                                    | 0.063              | 0.008                                     | 3     | 1.47            | 0.20                      | 1.66                  |
| Total HAP                              | 0.017              | 0.002                                     | 4     | 0.40            | 0.06                      | 0.46                  |

1. Coating application rate is calculated from maximum production rate, maximum annual paint usage per paint line and coating density.
2. PM emissions is based on past maximum annual production and usage rates with:
  - a transfer efficiency of 70% with a control efficiency of 98% for the paint booth filters, and
  - a transfer efficiency of 60% with a control efficiency of 75% for building enclosure.
3. Emission factor based on past maximum annual production and coating VOC content (0.31 lb/gal and application rate of 0.20 gal/MSF).
4. Total HAPs assumed to be 1% as allowed under PCWP MACT miscellaneous coatings.
5. PM emissions from Stencil/Nail Lines include a 20% safety factor, due to outside paint booth.

**ATTACHMENT 4**

**Updated Appendix E - Construction Permit Application**

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**PSD Applicability Analysis**

| EUID                                    | Emission Unit               | Projected Actual Emissions Summary |                       |             |                        |                         |             |                       |                        |
|-----------------------------------------|-----------------------------|------------------------------------|-----------------------|-------------|------------------------|-------------------------|-------------|-----------------------|------------------------|
|                                         |                             | CO (tpy)                           | NO <sub>x</sub> (tpy) | PM (tpy)    | PM <sub>10</sub> (tpy) | PM <sub>2.5</sub> (tpy) | VOC (tpy)   | SO <sub>2</sub> (tpy) | CO <sub>2e</sub> (tpy) |
| EU001/EU011                             | Dryers, Thermal Oil Heater  | 131                                | 212                   | 100         | 100                    | 86                      | 40          | 18                    | 44,985                 |
| EU002                                   | Panel Press                 | 20                                 | 5                     | 18          | 18                     | 18                      | 28          | 0.03                  | 6,172                  |
| EU003-005, EU007-009                    | Baghouses                   | -                                  | -                     | 10          | 10                     | 10                      | 58          | -                     | -                      |
| EU010                                   | Blender, Debarker and Roads | -                                  | -                     | 23          | 7                      | 5                       | 36          | -                     | -                      |
| EU014                                   | Misc. Coatings              | -                                  | -                     | 7           | 7                      | 7                       | 20          | -                     | -                      |
| <b>Projected Actual Emissions (PAE)</b> |                             | <b>150</b>                         | <b>217</b>            | <b>157</b>  | <b>142</b>             | <b>126</b>              | <b>182</b>  | <b>18</b>             | <b>51,157</b>          |
| <b>Baseline Actual Emissions (BAE)</b>  |                             | <b>91.8</b>                        | <b>191</b>            | <b>134</b>  | <b>120</b>             | <b>105</b>              | <b>136</b>  | <b>16.4</b>           | <b>-</b>               |
| <b>Difference (Total PAE-BAE)</b>       |                             | <b>58.4</b>                        | <b>25.9</b>           | <b>23.7</b> | <b>22.2</b>            | <b>20.3</b>             | <b>46.3</b> | <b>1.98</b>           | <b>-</b>               |
| <b>Demand Growth Exclusion</b>          |                             | <b>45.9</b>                        | <b>7.89</b>           | <b>11.4</b> | <b>11.2</b>            | <b>10.8</b>             | <b>31.0</b> | <b>0.35</b>           | <b>-</b>               |
| <b>Increase Associated with Project</b> |                             | <b>12.5</b>                        | <b>18.0</b>           | <b>12.3</b> | <b>10.9</b>            | <b>9.57</b>             | <b>15.3</b> | <b>1.64</b>           | <b>4,583</b>           |
| <b>Significant Emission Rate (SER)</b>  |                             | <b>100</b>                         | <b>40</b>             | <b>25</b>   | <b>15</b>              | <b>10</b>               | <b>40</b>   | <b>40</b>             | <b>-</b>               |
| <b>PSD Applicability (Y/N)?</b>         |                             | <b>N</b>                           | <b>N</b>              | <b>N</b>    | <b>N</b>               | <b>N</b>                | <b>N</b>    | <b>N</b>              | <b>N</b>               |



Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU001/EU011 - Dryers/Thermal Oil Heater - Facility Excludable Emissions**

|                                                 |                  |
|-------------------------------------------------|------------------|
| Annual Production Rate                          | 461,947 ODT/yr   |
| Maximum Hourly Production Rate                  | 75 ODT/hr        |
| VOC Control Efficiency                          | 98%              |
| NG Fuel Usage (RTO/Dryers/TOH) <sup>10</sup>    | 685 MMscf        |
| Maximum Wood Fired for Dryers/TOH <sup>10</sup> | 79,293 tpy       |
| Wood Heat Input                                 | 16.66 MMBtu/ton  |
| Heating Value of Natural Gas                    | 1,020 MMBtu/MMcf |

| Pollutant                        | Emission Factor |            |           | Notes | Emissions (tpy) |
|----------------------------------|-----------------|------------|-----------|-------|-----------------|
|                                  | (lb/ODT)        | (lb/MMBtu) | (lb/MMCF) |       |                 |
| PM/PM <sub>10</sub> (Filterable) | 0.32            | -          | -         | 1     | 73.90           |
| PM (Total)                       | 0.40            | -          | -         | 2     | 91.91           |
| PM <sub>10</sub>                 | 0.40            | -          | -         | 2     | 91.91           |
| PM <sub>2.5</sub>                | 0.34            | -          | -         | 2,9   | 79.14           |
| CO                               | 0.52            | -          | -         | 5     | 119.73          |
| VOC (as C)                       | 0.16            | -          | -         | 5     | 37.09           |
| SO <sub>2</sub>                  | -               | 0.025      | 0.60      | 3     | 16.72           |
| NO <sub>x</sub>                  | 0.84            | -          | -         | 5     | 194.02          |
| Lead                             | -               | 4.85E-05   | -         | 4     | 0.03            |
| <b>GHG Emissions</b>             |                 |            |           |       |                 |
| CO <sub>2</sub> <sup>8</sup>     | -               | 1.17E+02   | -         | 6     | 40,848          |
| Methane                          | -               | 2.21E-03   | -         | 6     | 2.23            |
| N <sub>2</sub> O                 | -               | 2.21E-04   | -         | 6     | 2.23E-01        |
| CO <sub>2</sub> e                | -               | -          | -         | 7     | 40,964          |

1. PM (filterable content) emission factors based on average stack test results from Hosford in 2005-2011.
2. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> include PM (filterable content) plus condensable content of 0.078 lb/ODT from NCASI Wood Products Database February 2010 median value (controlled for organics).
3. SO<sub>2</sub> emission factor per AP-42 Section 1.6 (September 2003), Table 1.6-2 for wood combustion and AP-42 Section 1.4 (July 1998), Table 1.4-2 for natural gas combustion.
4. Lead emission factor per AP-42 Section 1.6 (September 2003), Table 1.6-4 for wood combustion.
5. CO, VOC and NO<sub>x</sub> emission factors based on maximum emission factor found in past stack testing completed 2005-2011. VOC emission factor takes into account control efficiency of the RTO.
6. Emission factors from EPA's GHG Mandatory Reporting Rule for natural gas combustion, Tables C-1 and C-2 contained in 40 CFR 98, Subpart C.
7. CO<sub>2</sub>e emissions are the sum of CO<sub>2</sub> emissions plus methane and N<sub>2</sub>O multiplied by their respective Global Warming Potential (GWP) of 21 and 310, respectively.
8. CO<sub>2</sub> emissions from biomass combustion is included in Biomass Deferral for GHG Tailoring Rule, therefore only CO<sub>2</sub> emissions associated with natural gas usage are quantified.
9. PM<sub>2.5</sub> assumed to be 86.1% of PM<sub>10</sub>, per internal testing completed by GP at the Skippers, VA OSB facility.
10. Wood fuel and natural gas consumed is for the dryers and thermal oil heaters which exhaust to the RTOs.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Controlled Facility Excludable Emissions**

|                                 |                             |
|---------------------------------|-----------------------------|
| Annual Production Rate          | 508,327 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup> | 97%                         |
| Hourly Production Rate          | 79.06 MSF/hr                |
| VOC Control Efficiency          | 94%                         |
| Annual RCO Fuel Usage           | 94 MMscf/yr                 |
| Heating Value of Natural Gas    | 1,020 MMBtu/MMcf            |

| Pollutant                           | Emission Factor   |           | Notes | Emissions (tpy) |
|-------------------------------------|-------------------|-----------|-------|-----------------|
|                                     | (lb/MSF)          | (lb/MMCF) |       |                 |
| PM (Total)                          | -                 | -         | 2     | 15.77           |
| PM <sub>10</sub> /PM <sub>2.5</sub> | -                 | -         | 2     | 15.77           |
| CO                                  | 0.07              | -         | 3     | 17.96           |
| VOC (as C)                          | 0.07              | -         | 3     | 16.39           |
| SO <sub>2</sub>                     | -                 | 0.60      | 4,8   | 0.03            |
| NO <sub>x</sub>                     | 0.02              | -         | 3     | 4.92            |
| Lead                                | -                 | 6.00E-04  | 5,8   | 2.8E-05         |
| <b>GHG Emissions<sup>9</sup></b>    | <b>(lb/MMBtu)</b> |           |       |                 |
| CO <sub>2</sub>                     | 116.9             | -         | 6     | 5,605           |
| Methane                             | 2.21E-03          | -         | 6     | 1.1E-01         |
| N <sub>2</sub> O                    | 2.21E-04          | -         | 6     | 1.1E-02         |
| CO <sub>2</sub> e                   | -                 | -         | 7     | 5,610           |

- Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
- Projected actual emissions are based on hourly BACT limits in current Title V Permit.
- CO, VOC, and NO<sub>x</sub> emission factors based on maximum emission factor found in past stack testing completed 2005-2011. VOC emission factor takes into account control efficiency of the RTO.
- SO<sub>2</sub> emission factor per AP-42 Section 1.4 (July 1998), Table 1.4-2 for natural gas combustion.
- Emission factor per AP-42, Section 1.4, Natural Gas Combustion.
- Emission factors from EPA's GHG Mandatory Reporting Rule for natural gas combustion, Tables C-1 and C-2 contained in 40 CFR 98, Subpart C.
- CO<sub>2</sub>e emissions are the sum of CO<sub>2</sub> emissions plus methane and N<sub>2</sub>O multiplied by their respective Global Warming Potential (GWP) of 21 and 310, respectively.
- Emission estimates for SO<sub>2</sub> and Lead are based on RCO fuel usage and do not include a capture efficiency.
- GHG emission estimates do not include a capture efficiency since CO<sub>2</sub>e is not controlled.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU002 - Panel Press - Uncontrolled Facility Excludable Emissions**

|                                                    |                             |
|----------------------------------------------------|-----------------------------|
| Annual Production Rate                             | 508,327 MSF/yr (3/8" basis) |
| Capture Efficiency <sup>1</sup>                    | 97%                         |
| Building Enclosure Control Efficiency <sup>2</sup> | 70%                         |

| Pollutant                              | Emission Factor<br>(lb/MSF) | Notes | Emissions<br>(tpy) |
|----------------------------------------|-----------------------------|-------|--------------------|
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.06                        | 3,4   | 0.47               |
| NO <sub>x</sub>                        | 1.40E-03                    | 3     | 1.14E-02           |
| CO                                     | 2.60E-03                    | 3     | 2.11E-02           |
| VOC                                    | 1.11                        | 5     | 9.03               |

1. Capture efficiency based on testing completed at the Hosford facility, represents percentage of emissions that are routed to the RCO and controlled.
2. For the uncontrolled portion of panel press exhaust released inside the process building, GP assumes a conservative PM control efficiency of 70% for a partial building enclosure per Air Pollution Engineering Manual, 2nd Ed, AWMA, c2000 Ch15 p. 694.
3. PM (filterable), NO<sub>x</sub>, and CO emission factors from AP-42 Section 10.6.1 - Waferboard/Oriented Strand Board Manufacturing, Tables 10.6.1-4,5,6. for Uncontrolled Hot Press, PF resin (powder).
4. Uncontrolled PM emission factor includes PM (filterable) plus calculated condensable content based on 0.0837 lb/MSF (3/8" Basis) from NCASI Wood Products Database February 2010 median (uncontrolled). Total PM emission factor is also multiplied by the building enclosure capture efficiency (70%).
5. VOC emission factor based on maximum VOC inlet data (before control device) taken from stack testing results completed from 2007 to 2011.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU003-005, EU007-EU009 - Baghouses -Facility Excludable Emissions**

Annual Production Rate      508,327 MSF/yr (3/8" basis)  
 Hourly Production Rate      79.06 MSF/hr  
 Annual Production Rate      461,947 OSB/yr  
 VOC Control Efficiency      94%

| EUID         | Emission Unit     | Historical Maximum Operation <sup>2</sup><br>(hr/yr) | VOC Emissions                   |       |                                     |       | PM Emissions              |                                             |                                                                     |        | PM Emission Rates |       | PM <sub>10</sub> Emission Rates |       | PM <sub>2.5</sub> Emission Rates |       |
|--------------|-------------------|------------------------------------------------------|---------------------------------|-------|-------------------------------------|-------|---------------------------|---------------------------------------------|---------------------------------------------------------------------|--------|-------------------|-------|---------------------------------|-------|----------------------------------|-------|
|              |                   |                                                      | VOC Emission Factor<br>(lb/MSF) | Notes | VOC Emission Rates<br>(lb/hr) (tpy) |       | Exhaust Airflow<br>(acfm) | Exit Grain Loading <sup>1</sup><br>(gr/acf) | Condensable Fraction<br>(lb/MSF) <sup>7</sup> (lb/ODT) <sup>8</sup> |        | (lb/hr)           | (tpy) | (lb/hr)                         | (tpy) | (lb/hr)                          | (tpy) |
| EU003        | Screen Fines      | 7,487                                                | -                               | -     |                                     |       | 19,000                    | 0.0030                                      | -                                                                   | -      | 0.48              | 1.81  | 0.48                            | 1.81  | 0.48                             | 1.81  |
| EU004        | Saw Trim Baghouse | 7,881                                                | 0.050                           | 3     | 3.93                                | 12.63 | 41,500                    | 0.0008                                      | 0.0016                                                              | -      | 0.38              | 1.49  | 0.38                            | 1.49  | 0.38                             | 1.49  |
| EU005        | Mat Reject        | 7,884                                                | 0.044                           | 4     | 3.46                                | 11.11 | 66,000                    | 0.0014                                      | -                                                                   | -      | 0.77              | 3.05  | 0.77                            | 3.05  | 0.77                             | 3.05  |
| EU007        | Fuel System       | 7,881                                                | 0.060                           | 5     | 4.74                                | 15.25 | 650                       | 0.0046                                      | -                                                                   | -      | 0.03              | 0.10  | 0.03                            | 0.10  | 0.03                             | 0.10  |
| EU008        | Forming Bins      | 7,884                                                | 0.057                           | 6     | 4.51                                | 14.49 | 20,700                    | 0.0035                                      | -                                                                   | 0.0015 | 0.71              | 2.82  | 0.71                            | 2.82  | 0.71                             | 2.82  |
| EU009        | Hammermill        | 7,881                                                | -                               | -     |                                     |       | 18,700                    | 0.0015                                      | -                                                                   | -      | 0.25              | 0.97  | 0.25                            | 0.97  | 0.25                             | 0.97  |
| <b>Total</b> |                   |                                                      |                                 |       | <b>53.48</b>                        |       |                           |                                             |                                                                     |        | <b>10.24</b>      |       | <b>10.24</b>                    |       | <b>10.24</b>                     |       |

1. PM emission rates based on testing results obtained at Hosford facility in 2005.
2. Past maximum annual operation (hr/yr) from 2005-2011 for each operation.
3. VOC emission factor per NCASI Wood Products Database February 2010, for dry wood material handling (misc. unit) median value.
4. VOC emission factor per NCASI Wood Products Database February 2010, for miscellaneous wood handling (misc. unit) median value.
5. VOC emission factor from AP-42, March 2002, Table 10.6.1-7 for raw fuel bin.
6. VOC emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.
7. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.00164 lb/MSF condensable emission factor per NCASI Wood Products Database February 2010, for saw (misc. unit) median value.
8. PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0015 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

EU010 - Blender, Debarker, Bark Pile - Facility Excludable Emissions

|                        |                             |
|------------------------|-----------------------------|
| Annual Production Rate | 508,327 MSF/yr (3/8" basis) |
| Annual Production Rate | 461,947 ODT/yr              |
| Operating Hours        | 8,760 hr/yr                 |
| VOC Control Efficiency | 90%                         |

Blender

| Pollutant                           | Emission Factor |          | Notes | Emissions (tpy) |
|-------------------------------------|-----------------|----------|-------|-----------------|
|                                     | (lb/ODT)        | (lb/MSF) |       |                 |
| PM/PM <sub>10</sub> (Filterable)    | 0.0023          | -        | 1     | 0.53            |
| PM (Total)                          | 0.004           | -        | 2     | 1.02            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 0.004           | -        | 2     | 1.02            |
| VOC (as C)                          | 0.128           | -        | 1     | 33.0            |
| Formaldehyde                        | -               | 0.00355  | 1     | 0.90            |
| Methanol                            | -               | 0.06272  | 1     | 15.94           |
| Total HAP                           |                 |          |       | 16.84           |

- Emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.
- PM (Total), PM<sub>10</sub> and PM<sub>2.5</sub> emissions based on the filterable value plus 0.0021 lb/ODT condensable emission factor per NCASI Wood Products Database February 2010, for former (misc. unit) median value.

Bark Handling

| Emission Unit           | Throughput <sup>1</sup> |         | Control Efficiency <sup>3</sup> | PM Emission Rates (tpy) | PM <sub>10</sub> Emission Rates (tpy) | PM <sub>2.5</sub> Emission Rates <sup>4</sup> (tpy) |
|-------------------------|-------------------------|---------|---------------------------------|-------------------------|---------------------------------------|-----------------------------------------------------|
|                         | (tph)                   | (tpy)   |                                 |                         |                                       |                                                     |
| Debarker <sup>3</sup>   | 96                      | 965,770 | 50%                             | 5.79                    | 2.66                                  | 2.66                                                |
| Bark Hog <sup>2,3</sup> | 10                      | 96,577  | 90%                             | 0.12                    | 0.05                                  | 0.05                                                |
| Fuel Pile <sup>6</sup>  | 10                      | 96,577  | --                              | 0.04                    | 0.02                                  | 3.32E-07                                            |

- Maximum throughput reported in reporting years 2010 and 2011.
- Although not all hogged fuel goes through the bark hog, as a conservative estimate is it all assumed to.
- Emission factor per FIRE database, SCC Code 3-07-008-01, Log Debarking.
 

|                  |       |                          |
|------------------|-------|--------------------------|
| PM               | 0.024 | lb/ton of logs processed |
| PM <sub>10</sub> | 0.011 | lb/ton of logs processed |
- No factor available for PM<sub>2.5</sub> for debarker and Bark Hog PM<sub>2.5</sub> assumed equal to PM<sub>10</sub>.
- 50% control efficiency applied for partial enclosure of the Debarker. 90% control efficiency applied for enclosure of Bark Hog
- Emission factor per AP-42, Section 13.2.4, Aggregate Handling and Storage Piles, drop equation.

where:

$$E \text{ (lb/ton)} = k \times 0.0032 \times \left( \frac{U}{5} \right)^{1.3} \times \left( \frac{M}{2} \right)^{1.4}$$

k: Particle size multiplier  
 0.74 PM  
 0.35 PM<sub>10</sub>  
 0.053 PM<sub>2.5</sub>

U: Mean wind speed 6.24 mph  
 M: Moisture Content 4.8 %

Mean wind speed (U) for Tallahassee, FL per EPA TANKS meteorological database.

Moisture content (M) for emission factor equation set equal to the maximum value for which the equation is appropriate. Actual moisture content is higher.

Bark Pile Emissions

| Storage Pile | Silt Content <sup>1</sup> (s) | No. Dry Days per Year <sup>2</sup> (d) | winds >12 mph <sup>3</sup> (f) | Emission Factor <sup>4</sup> (lb/day/acre) |                  | Pile Area (acre) | Emissions   |                        |                                             |                         |
|--------------|-------------------------------|----------------------------------------|--------------------------------|--------------------------------------------|------------------|------------------|-------------|------------------------|---------------------------------------------|-------------------------|
|              |                               |                                        |                                | PM                                         | PM <sub>10</sub> |                  | PM (lb/day) | PM <sub>10</sub> (tpy) | PM <sub>10</sub> PM <sub>2.5</sub> (lb/day) | PM <sub>2.5</sub> (tpy) |
| Fuel Pile    | 7.5                           | 110                                    | 10                             | 2.65                                       | 2.65             | 0.058            | 1.53E-01    | 2.79E-02               | 1.53E-01                                    | 2.79E-02                |

- Silt content per AP-42, Section 13.2.4, *Aggregate Handling and Storage Piles*, Table 13.2.4-1, silt value for overburden.
- Number of days in a year with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.2, *Unpaved Roads*, Figure 13.2.2-1
- Percent of time wind speed greater than 12 mph estimated based on wind rose plots for Tallahassee.

$$EF \text{ (lb/day/acre)} = 1.7 \times \left( \frac{s}{1.5} \right) \times \left( \frac{d}{235} \right) \times \left( \frac{f}{15} \right)$$

- Pile area assumed based on conical shape of 20 ft high by 50 feet in diameter.

Total Emissions for Blender, Bark Handling, and Bark Pile

| Pollutant                           | Emissions (tpy) |
|-------------------------------------|-----------------|
| PM                                  | 7.00            |
| PM <sub>10</sub> /PM <sub>2.5</sub> | 3.77            |
| PM <sub>2.5</sub>                   | 3.75            |
| VOC (as C)                          | 32.95           |
| Formaldehyde                        | 0.90            |
| Methanol                            | 15.94           |
| Total HAP                           | 16.84           |

Georgia-Pacific Wood Products LLC  
Hosford OSB

**EU010 - Roads - Facility Excludable Emissions**

Paved Road Segment A Length           0.6 miles  
Paved Road Segment B Length         0.2 miles

**Truck Traffic Details**

| Truck           | Truck Weight <sup>1</sup><br>(tons) |        | Average<br>Truck<br>Weight<br>(tons) | Number of<br>Trucks <sup>2</sup> | Routes Traveled |   |
|-----------------|-------------------------------------|--------|--------------------------------------|----------------------------------|-----------------|---|
|                 | Unloaded                            | Loaded |                                      |                                  | A               | B |
| Logs            | 15                                  | 40     | 27.5                                 | 38,631                           | 2               |   |
| Resin/Residuals | 15                                  | 40     | 27.5                                 | 4,117                            | 2               |   |
| OSB             | 15                                  | 40     | 27.5                                 | 26,433                           |                 | 2 |

1. Truck weight based on engineering estimates.
2. Number of log, resin, and OSB trucks based on the baseline and projected production rates divided by the average truck weight.

**Emission Calculations**

| Segment      | Fleet Mean<br>Weight<br>(tons) | Emission Factor <sup>1</sup> |                              |                               | PAE<br>VMT | Emissions <sup>2</sup> |                                  |                                   |
|--------------|--------------------------------|------------------------------|------------------------------|-------------------------------|------------|------------------------|----------------------------------|-----------------------------------|
|              |                                | PM<br>(lb/VMT)               | PM <sub>10</sub><br>(lb/VMT) | PM <sub>2.5</sub><br>(lb/VMT) |            | PM<br>PAE<br>(tpy)     | PM <sub>10</sub><br>PAE<br>(tpy) | PM <sub>2.5</sub><br>PAE<br>(tpy) |
| A            | 27.5                           | 0.47                         | 0.093                        | 0.023                         | 53,008     | 11.5                   | 2.3                              | 0.56                              |
| B            | 27.5                           | 0.47                         | 0.093                        | 0.023                         | 10,045     | 2.2                    | 0.43                             | 0.11                              |
| <b>Total</b> |                                |                              |                              |                               |            | 13.6                   | 2.7                              | 0.67                              |

1. Long term average paved route emission factor is based on Equation 2 of AP-42 Section 13.2.1 (January 2011):

$$E = \left[ k \times (sL)^{0.91} \times (W)^{1.02} \right] \times \left( 1 - \frac{P}{4N} \right)$$

- E = size specific emission factor (lb/VMT)  
k = 0.011 (PM) particle size multiplier for particle size range and units of interest, AP-42, Section 13.2.1, Table 13.2.1-1.  
0.0022 (PM10)  
0.00054 (PM2.5)  
sL = 1.5 road surface silt loading (g/m<sup>2</sup>), based on AP-42 data for public roads.  
W = mean vehicle weight (tons)  
P = 110 number of days in averaging period with at least 0.254 mm (0.01 in) of precipitation, AP-42 Section 13.2.1, Figure 13.2.1-2.  
N = 365 number of days in the averaging period (e.g., 365 for annual)

Note that rain correction factor (1-P/4N) only applies to annual, not hourly emissions.

2. Emissions calculated from emission factor times VMT per route. Hourly emissions assume 8,760 hours of operation.

Georgia-Pacific Wood Products, LLC  
Hosford OSB Facility

**EU014 - Misc. Coatings - Facility Excludable Emissions**

**Paint Booth Production**

|                        |                |
|------------------------|----------------|
| Annual Production Rate | 508,300 MSF/yr |
| Annual Usage Rate      | 98,777 gal/yr  |
| Hourly Rate            | 64 MSF/hr      |
| Coating VOC Content    | 0.31 lb/gal    |
| Coating Density        | 8.8 lb/gal     |
| HAP Content            | 0.088 lb/gal   |

*Edge Seal Application in Paint Booth*

|                                          |             |
|------------------------------------------|-------------|
| Coating % Solids                         | 53%         |
| Coating Application Rate                 | 1.71 lb/MSF |
| Transfer Efficiency                      | 70%         |
| Control Efficiency of Paint Booth Filter | 98%         |

*Stencil/Nail Lines/Gradestamp Application Outside Paint Booth*

|                               |               |
|-------------------------------|---------------|
| Annual Production Rate        | 13,724 gal/yr |
| Hourly Rate                   | 1.7 gal/hr    |
| Coating VOC Content           | 0.31 lb/gal   |
| Coating Density               | 8.8 lb/gal    |
| Coating % Solids              | 64%           |
| Coating Application Rate      | 0.027 lb/MSF  |
| Transfer Efficiency           | 60%           |
| Building Enclosure Efficiency | 75%           |

**Emission Calculations**

| Pollutant                              | Emission Factors      |                                                 |       | Edge Seal<br>(tpy) | Stencil/ Nail<br>Lines<br>(tpy) | Total<br>Emissions<br>(tpy) |
|----------------------------------------|-----------------------|-------------------------------------------------|-------|--------------------|---------------------------------|-----------------------------|
|                                        | Edge Seal<br>(lb/MSF) | Stencil/ Nail<br>Lines <sup>4</sup><br>(lb/MSF) | Notes |                    |                                 |                             |
| PM/PM <sub>10</sub> /PM <sub>2.5</sub> | 0.272                 | 0.0730                                          | 1     | 1.38               | 4.64                            | 6.02                        |
| VOC                                    | 0.063                 | 0.0084                                          | 2     | 15.91              | 2.13                            | 18.04                       |
| Total HAP                              | 0.017                 | 0.0024                                          | 3     | 4.35               | 0.60                            | 4.95                        |

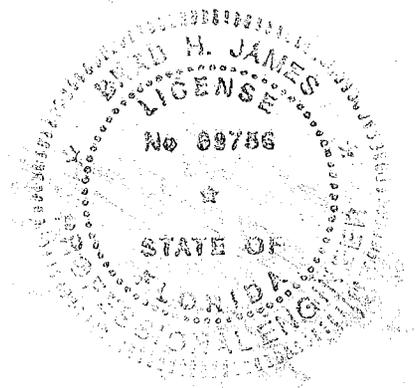
1. PM emissions is based on past maximum annual production and usage rates with:
  - a transfer efficiency of 70% with a control efficiency of 98% for the paint booth filters, and
  - a transfer efficiency of 60% with a control efficiency of 75% for building enclosure.
2. Emission factor based on past maximum annual production and coating VOC content (0.31 lb/gal and application rate of 0.20 gal/MSF).
3. Total HAPs assumed to be 1% as allowed under PCWP MACT miscellaneous coatings.
4. PM emissions from Stencil/Nail Lines include a 20% safety factor, due to outside paint booth.

**ATTACHMENT 5**  
**P.E. Certification**

The updated construction permit application was generated by me or under my "responsible charge and is accurate and complete to the best of my knowledge."

 7/5/12

Brad James, P.E.  
Registration Number: 69756  
919 Lake Baldwin Lane, Ste. B  
Orlando, Florida 32814



**Curle, Mary Beth**

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**From:** Prusa, Rick  
**Sent:** Tuesday, July 03, 2012 10:53 AM  
**To:** [acardell@trinityconsultants.com](mailto:acardell@trinityconsultants.com)  
**Cc:** Sarasua, Armando; Curle, Mary Beth  
**Subject:** Georgia Pacific permit application 0770010-014-AC Updates

Ms. Cardell,

I appreciate the opportunity to speak with you yesterday regarding the construction permit application 0770010-014-AC at Georgia Pacific's Hosford facility. You indicated that some calculations in the EPSAP application (3229-1) needed to be revised and would be submitted next week (7/9 - 7/13). I stated that the submittal needed a PE seal and RO signature, and could be done through email with a hardcopy follow-up. We agreed with this approach. Accordingly, the Department awaits the revised calculations. If you have any further questions or comments, please contact me by telephone or email.

Sincerely,

Rick Prusa  
FDEP  
NWD Air Permitting  
850/595-0634

Please note: Florida has a very broad public records law. Most written communications to or from state officials are public records and may be made available to the public or media upon request. This e-mail communication, your reply, and future e-mails to my attention may therefore be subject to public disclosure.

*Please take a few minutes to share your comments on the service you received from the department by clicking on this link. [DEP Customer Survey](#).*

## 40 CFR 98 Subpart C

Table C-1 to 40 CFR 98 Subpart C - Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel

| Fuel type                     | Default high heat value | Default CO <sub>2</sub> emission factor |
|-------------------------------|-------------------------|-----------------------------------------|
| <b>Coal and coke</b>          | <b>mmBtu/short ton</b>  | <b>kg CO<sub>2</sub>/mmBtu</b>          |
| Anthracite                    | 25.09                   | 103.54                                  |
| Bituminous                    | 24.93                   | 93.40                                   |
| Subbituminous                 | 17.25                   | 97.02                                   |
| Lignite                       | 14.21                   | 96.36                                   |
| Coke                          | 24.80                   | 102.04                                  |
| Mixed (Commercial sector)     | 21.39                   | 95.26                                   |
| Mixed (Industrial coking)     | 26.28                   | 93.65                                   |
| Mixed (Industrial sector)     | 22.35                   | 93.91                                   |
| Mixed (Electric Power sector) | 19.73                   | 94.38                                   |
| <b>Natural gas</b>            | <b>mmBtu/scf</b>        | <b>kg CO<sub>2</sub>/mmBtu</b>          |
| (Weighted U.S. Average)       | $1.028 \times 10^{-3}$  | 53.02                                   |
| <b>Petroleum products</b>     | <b>mmBtu/gallon</b>     | <b>kg CO<sub>2</sub>/mmBtu</b>          |
| Distillate Fuel Oil No. 1     | 0.139                   | 73.25                                   |
| Distillate Fuel Oil No. 2     | 0.138                   | 73.96                                   |
| Distillate Fuel Oil No. 4     | 0.146                   | 75.04                                   |
| Residual Fuel Oil No. 5       | 0.140                   | 72.93                                   |
| Residual Fuel Oil No. 6       | 0.150                   | 75.10                                   |

|                                 |       |        |
|---------------------------------|-------|--------|
| Used Oil                        | 0.135 | 74.00  |
| Kerosene                        | 0.135 | 75.20  |
| Liquefied petroleum gases (LPG) | 0.092 | 62.98  |
| Propane                         | 0.091 | 61.46  |
| Propylene                       | 0.091 | 65.95  |
| Ethane                          | 0.069 | 62.64  |
| Ethanol                         | 0.084 | 68.44  |
| Ethylene                        | 0.100 | 67.43  |
| Isobutane                       | 0.097 | 64.91  |
| Isobutylene                     | 0.103 | 67.74  |
| Butane                          | 0.101 | 65.15  |
| Butylene                        | 0.103 | 67.73  |
| Naphtha (<401 deg F)            | 0.125 | 68.02  |
| Natural Gasoline                | 0.110 | 66.83  |
| Other Oil (>401 deg F)          | 0.139 | 76.22  |
| Pentanes Plus                   | 0.110 | 70.02  |
| Petrochemical Feedstocks        | 0.129 | 70.97  |
| Petroleum Coke                  | 0.143 | 102.41 |
| Special Naphtha                 | 0.125 | 72.34  |
| Unfinished Oils                 | 0.139 | 74.49  |
| Heavy Gas Oils                  | 0.148 | 74.92  |
| Lubricants                      | 0.144 | 74.27  |
| Motor Gasoline                  | 0.125 | 70.22  |
| Aviation Gasoline               | 0.120 | 69.25  |
| Kerosene-Type Jet Fuel          | 0.135 | 72.22  |

|                                |                        |                                |
|--------------------------------|------------------------|--------------------------------|
| Asphalt and Road Oil           | 0.158                  | 75.36                          |
| Crude Oil                      | 0.138                  | 74.49                          |
| <b>Other fuels-solid</b>       | <b>mmBtu/short ton</b> | <b>kg CO<sub>2</sub>/mmBtu</b> |
| Municipal Solid Waste          | 9.95 <sup>1</sup>      | 90.7                           |
| Tires                          | 26.87                  | 85.97                          |
| Plastics                       | 38.00                  | 75.00                          |
| Petroleum Coke                 | 30.00                  | 102.41                         |
| <b>Other fuels - gaseous</b>   | <b>mmBtu/scf</b>       | <b>kg CO<sub>2</sub>/mmBtu</b> |
| Blast Furnace Gas              | $0.092 \times 10^{-3}$ | 274.32                         |
| Coke Oven Gas                  | $0.599 \times 10^{-3}$ | 46.85                          |
| Propane Gas                    | $2.516 \times 10^{-3}$ | 61.46                          |
| Fuel Gas <sup>2</sup>          | $1.388 \times 10^{-3}$ | 59.00                          |
| <b>Biomass fuels - solid</b>   | <b>mmBtu/short ton</b> | <b>kg CO<sub>2</sub>/mmBtu</b> |
| Wood and Wood Residuals        | 15.38                  | 93.80                          |
| Agricultural Byproducts        | 8.25                   | 118.17                         |
| Peat                           | 8.00                   | 111.84                         |
| Solid Byproducts               | 25.83                  | 105.51                         |
| <b>Biomass fuels - gaseous</b> | <b>mmBtu/scf</b>       | <b>kg CO<sub>2</sub>/mmBtu</b> |
| Biogas (Captured methane)      | $0.841 \times 10^{-3}$ | 52.07                          |
| <b>Biomass Fuels - Liquid</b>  | <b>mmBtu/gallon</b>    | <b>kg CO<sub>2</sub>/mmBtu</b> |
| Ethanol                        | 0.084                  | 68.44                          |
| Biodiesel                      | 0.128                  | 73.84                          |
| Biodiesel (100%)               | 0.128                  | 73.84                          |
| Rendered Animal Fat            | 0.125                  | 71.06                          |
| Vegetable Oil                  | 0.120                  | 81.55                          |

<sup>1</sup>Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

<sup>2</sup>Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO<sub>2</sub> emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010]

**Table C-2 to 40 CFR 98 Subpart C - Default CH & ihe4; and N & ihe2;O Emission Factors for Various Types of Fuel**

| Fuel type                                          | Default CH & ihe4; emission factor (kg CH & ihe4;/mmBtu) | Default N & ihe2;O emission factor (kg N & ihe2;O/mmBtu) |
|----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| Coal and Coke (All fuel types in Table C-1)        | $1.1 \times 10^{-02}$                                    | $1.6 \times 10^{-03}$                                    |
| Natural Gas                                        | $1.0 \times 10^{-03}$                                    | $1.0 \times 10^{-04}$                                    |
| Petroleum (All fuel types in Table C-1)            | $3.0 \times 10^{-03}$                                    | $6.0 \times 10^{-04}$                                    |
| Municipal Solid Waste                              | $3.2 \times 10^{-02}$                                    | $4.2 \times 10^{-03}$                                    |
| Tires                                              | $3.2 \times 10^{-02}$                                    | $4.2 \times 10^{-03}$                                    |
| Blast Furnace Gas                                  | $2.2 \times 10^{-05}$                                    | $1.0 \times 10^{-04}$                                    |
| Coke Oven Gas                                      | $4.8 \times 10^{-04}$                                    | $1.0 \times 10^{-04}$                                    |
| Biomass Fuels-Solid (All fuel types in Table C-1)  | $3.2 \times 10^{-02}$                                    | $4.2 \times 10^{-03}$                                    |
| Biogas                                             | $3.2 \times 10^{-03}$                                    | $6.3 \times 10^{-04}$                                    |
| Biomass Fuels-Liquid (All fuel types in Table C-1) | $1.1 \times 10^{-03}$                                    | $1.1 \times 10^{-04}$                                    |

**Note:**Those employing this table are assumed to fall under the IPCC definitions of the "Energy Industry" or "Manufacturing Industries and Construction". In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC "Energy Industry" category may employ a value of 1g of CH&ihe4;/mmBtu.