SPRING
Environmental, Inc.
1011 N. Cedar Street
Spokane, Washington 99201
(509) 328-7500
Toll Free: 1-877-44SPRNG

May 11, 2012

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DEQ-Coeur d'Alene
Regional Office

VIA HAND DELIVERYTO COEUR D'ALENE OFFICE

Mr. Bill Rogers
Air Quality Program – Application Processing
Idaho Dept. of Environmental Quality
1410 N. Hilton
Boise, ID 83706-1255

RE: Permit Application for Stimson Lumber St. Maries Sawmill

Dear Bill:

Please see enclosed application and $1,000 application fee (check # 352085) for modification to Stimson Lumber St. Maries Sawmill's air permit P-2009.0070 to increase permitted kiln production to 110 million-board-feet per year (mmbf/year). This will affect seven residual waste management sources. Please note that this modification may be completed in a phases, and we would provide further details to support this approach if elected. Two options are proposed for the kiln modification in order to meet National Ambient Air Quality Standards (NAAQS):

- Option 1 is to install paired exhaust stacks (of which only one would vent at a time) on each kiln to capture combined emissions from the kiln roof vents; or
- Option 2 is to install individual stacks on each of the kilns' roof vents.

Stimson Lumber is also voluntarily controlling emissions from the Planer Chips Cyclone and the Sawmill Chipper Cyclone by routing the emissions to particulate control equipment.

An electronic copy of this application will also be submitted directly to the agency under separate cover. We would appreciate the opportunity to review the draft permit prior to issuance, as requested in Form GI of the attached application. Please let us know if you have any questions.

Sincerely,

Beth Fifield Hodgson

Beth Fifield Hodgson
President

c: Steven Petrin, Stimson Lumber Company
Brian Patterson, Golder Associates

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

Please see instructions on page 2 before filling out the form.

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	Stimson Lumber Company		
2. Facility Name	St. Maries Sawmill	3. Facility ID No.	009-00004
4. Brief Project Description - One sentence or less	Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box.		

PERMIT APPLICATION TYPE

5. ☐ New Source ☐ New Source at Existing Facility ☐ PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
☐ Unpermitted Existing Source ☐ Facility Emissions Cap ☒ Modify Existing Source: Permit No.: P-2009.0070 Date Issued: May 21, 2010
☐ Required by Enforcement Action: Case No.:____

6. ☐ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms		DEQ Verify
☒	☐	Form CSPTC – Cover Sheet		☐
☒	☐	Form GI – Facility Information		☐
☒	☐	Form EU0 – Emissions Units General		☐
☐	☒	Form EU1– Industrial Engine Information	Please specify number of EU1s attached: ____	☐
☐	☒	Form EU2– Nonmetallic Mineral Processing Plants	Please specify number of EU2s attached: ____	☐
☐	☒	Form EU3– Spray Paint Booth Information	Please specify number of EU3s attached: ____	☐
☐	☒	Form EU4– Cooling Tower Information	Please specify number of EU3s attached: ____	☐
☐	☒	Form EU5 – Boiler Information	Please specify number of EU4s attached: ____	☐
☐	☒	Form CBP– Concrete Batch Plant	Please specify number of CBPs attached: ____	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant	Please specify number of HMAPs attached: ____	☐
☐	☒	PERF – Portable Equipment Relocation Form		☐
☐	☒	Form AO – Afterburner/Oxidizer		☐
☐	☒	Form CA – Carbon Adsorber		☐
☐	☒	Form CYS – Cyclone Separator		☐
☐	☒	Form ESP – Electrostatic Precipitator		☐
☒	☐	Form BCE– Baghouses Control Equipment		☐
☐	☒	Form SCE– Scrubbers Control Equipment		☐
☐	☒	Form VSCE – Venturi Scrubber Control Equipment		☐
☐	☒	Form CAM – Compliance Assurance Monitoring		☐
☒	☐	Forms EI— Emissions Inventory Attachment #1		☐
☒	☐	PP – Plot Plan Attachment #2		☐
☒	☐	Forms MI1 – MI4 – Modeling Attachment #2	(Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability		☐

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1410 N. Hilton, Boise, ID 83706
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General Information **Form GI**
Revision 7
2/18/10

ase see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION

1. Company Name	2. Facility Name:
Stimson Lumber Company	St. Maries Sawmill

3. Brief Project Description:	Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box.

FACILITY INFORMATION

4. Primary Facility Permit Contact Person/Title	Steven Petrin		Corporate Environmental Manager
5. Telephone Number and Email Address	503-359-8338		spetrin@stimsonlumber.com
6. Alternate Facility Contact Person/Title	Scott Sheppard		Plant Manager
7. Telephone Number and Email Address	208-245-6502		ssheppard@stimsonlumber.com
8. Address to Which the Permit Should be Sent	520 SW Yamhilll		
9. City/County/State/Zip Code	Portland	OR	97204
10. Equipment Location Address (if different than the mailing address above)	500 Milltown Road		
11. City/County/State/Zip Code	St. Maries	ID	83861
12. Is the Equipment Portable?	☐ Yes ☒ No		
13. SIC Code(s) and NAICS Code	Primary SIC: 2421	Secondary SIC:	NAICS: 321113
14. Brief Business Description and Principal Product	Sawmill and planing mill		
15. Indentify any adjacent or contiguous facility that this company owns and/or operates	None		
16. Specify the reason for the application	☒ Permit to Construct (PTC) For Tier I permitted facilities only: If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit. ☐ Incorporate the PTC at the time of the Tier I renewal ☐ Co-process the Tier I modification and PTC ☐ Administratively amend the Tier I permit to incorporate the PTC upon your request (IDAPA 58.01.01.209.05.a, b, or c) ☐ Tier I Permit ☐ Tier II Permit ☐ Tier II/Permit to Construct		

CERTIFICATION

In accordance with **IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I** certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

17. Responsible Official's Name/Title	Jeff Weber		Vice-President of Manufacturing
18. Responsible Official Address	320 SW Yamhill, Portland, OR 97204		
19. Responsible Official Telephone Number	503-222-1676		
20. Responsible Official Email Address	jwebber@stimsonlumber.com		
21. Responsible Official's Signature		Date:	5/10/12

22. ☒ Check here to indicate that you would like to review the draft permit prior to final issuance.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
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Air Permit Hotline – 1-877-5PERMIT

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	KILNS #3, 4, 5 (DENOTED AS #1, 2, 3 IN MODEL RPT)
6.	EU ID Number:	NOT DEFINED
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.070 Date Issued: May 21,2010
8.	Manufacturer:	STIMSON LUMBER
9.	Model:	N/A
10..	Maximum Capacity:	N/A
11.	Date of Construction:	N/A
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

19. Is operating schedule different than emission units(s) involved? ☐ Yes ☐ No

20. Does the manufacturer guarantee the control efficiency of the control equipment? ☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	24 HRS/DAY, 365 DAYS/YEAR
23.	Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	FUEL SILO TARGET BOX
6.	EU ID Number:	S-6
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8.	Manufacturer:	N/A
9.	Model:	N/A
10..	Maximum Capacity:	N/A
11.	Date of Construction:	N/A
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:

5. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

19. Is operating schedule different than emission units(s) involved? ☐ Yes ☐ No

20. Does the manufacturer guarantee the control efficiency of the control equipment? ☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23.	Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

DEQ AIR QUALITY PROGRAM
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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	HOG FUEL TARGET BOX
6.	EU ID Number:	S-7A
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8.	Manufacturer:	N/A
9.	Model:	N/A
10..	Maximum Capacity:	N/A
11.	Date of Construction:	N/A
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

19. Is operating schedule different than emission units(s) involved? ☐ Yes ☐ No

20. Does the manufacturer guarantee the control efficiency of the control equipment? ☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23.	Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PLANER CHIPS CYCLONE
6.	EU ID Number:	S-1
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8.	Manufacturer:	N/A
9.	Model:	N/A
10..	Maximum Capacity:	N/A
11.	Date of Construction:	PRE-1998
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Planer Baghouse
5. Date of Installation:	N/A 16. Date of Modification (if any):
17. Manufacturer and Model Number:	Clarke Sheet Metal Model 6020
18. ID(s) of Emission Unit Controlled:	Planer Shavings Cyclone, Planer Trimmer Dust Cyclone, Large Planer, Planer Chips Cyclone
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	99	99				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23.	Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

DEQ AIR QUALITY PROGRAM
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Baghouse Control Equipment **Form BCE**
Revision 6
2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name
Stimson Lumber Company	St. Maries Sawmill

3. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box.

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: Clarke Sheet Metal	5. Baghouse Model: 6020	6. Baghouse Equipment ID: N/A

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	_____ gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	____ % _____ gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	_____ dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	99 % PM control 99 % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PLANER SHAVINGS CYCLONE
6.	EU ID Number:	S-2
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8.	Manufacturer:	N/A
9.	Model:	N/A
10..	Maximum Capacity:	N/A
11.	Date of Construction:	N/A
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Planer Baghouse
15. Date of Installation:	N/A 16. Date of Modification (if any):
17. Manufacturer and Model Number:	Clarke Sheet Metal Model 6020
18. ID(s) of Emission Unit Controlled:	Planer Shavings Cyclone, Planer Trimmer Dust Cyclone, Large Planer, Planer Chips Cyclone
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	99	99				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23.	Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

DEQ AIR QUALITY PROGRAM
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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	SAWMILL CHIPPER CYCLONE BOX
6. EU ID Number:	S-8
7. EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8. Manufacturer:	N/A
9. Model:	N/A
10.. Maximum Capacity:	N/A
11. Date of Construction:	2010
12. Date of Modification (if any):	N/A
13. Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Sawmill Chipper Cyclone Box Particulate Control		
.5. Date of Installation:	TBD	16. Date of Modification (if any):	
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	TBD		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	99	99				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22. Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23. Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24. Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
☐ Operation Hour Limit(s):	
☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
☐ Other:	
25. Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

DEQ AIR QUALITY PROGRAM
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For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Baghouse Control Equipment **Form BCE**
Revision 6
2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Stimson Lumber Company	St. Maries Sawmill

3. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box.

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: TBD	5. Baghouse Model: TBD	6. Baghouse Equipment ID: TBD

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	_____ gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	____ % _____ gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	_____ dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	99 % PM control 99 % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
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Air Permit Hotline – 1-877-5PERMIT

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	SHAVINGS TARGET BOX
6.	EU ID Number:	S-7B
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8.	Manufacturer:	N/A
9.	Model:	N/A
10..	Maximum Capacity:	N/A
11.	Date of Construction:	N/A
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

19. Is operating schedule different than emission units(s) involved? ☐ Yes ☐ No

20. Does the manufacturer guarantee the control efficiency of the control equipment? ☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23.	Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Stimson Lumber Company	St. Maries Sawmill	009-00004

4. Brief Project Description: Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5. Emissions Unit (EU) Name:	PLANER TRIMMER DUST CYCLONE
6. EU ID Number:	S-2
7. EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0070 Date Issued: May 21, 2010
8. Manufacturer:	N/A
9. Model:	N/A
10.. Maximum Capacity:	N/A
11. Date of Construction:	N/A
12. Date of Modification (if any):	N/A
13. Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Planer Baghouse
5. Date of Installation:	N/A 16. Date of Modification (if any):
17. Manufacturer and Model Number:	Clarke Sheet Metal Model 6020
18. ID(s) of Emission Unit Controlled:	Planer Shavings Cyclone, Planer Trimmer Dust Cyclone, Large Planer, Planer Chips Cyclone
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	99	99				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22. Actual Operation:	16 HRS/DAY, 240 DAYS/YEAR
23. Maximum Operation:	24 HRS/DAY, 365 DAYS/YEAR

REQUESTED LIMITS

24. Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
☐ Operation Hour Limit(s):	
☒ Production Limit(s):	110 MMBF/YEAR KILN PRODUCTION
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
☐ Other:	
25. Rationale for Requesting the Limit(s):	PROJECTED THROUGHPUT

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Air Permit Hotline – 1-877-5PERMIT

AIR PERMIT APPLICATION

Revision 6
10/7/09

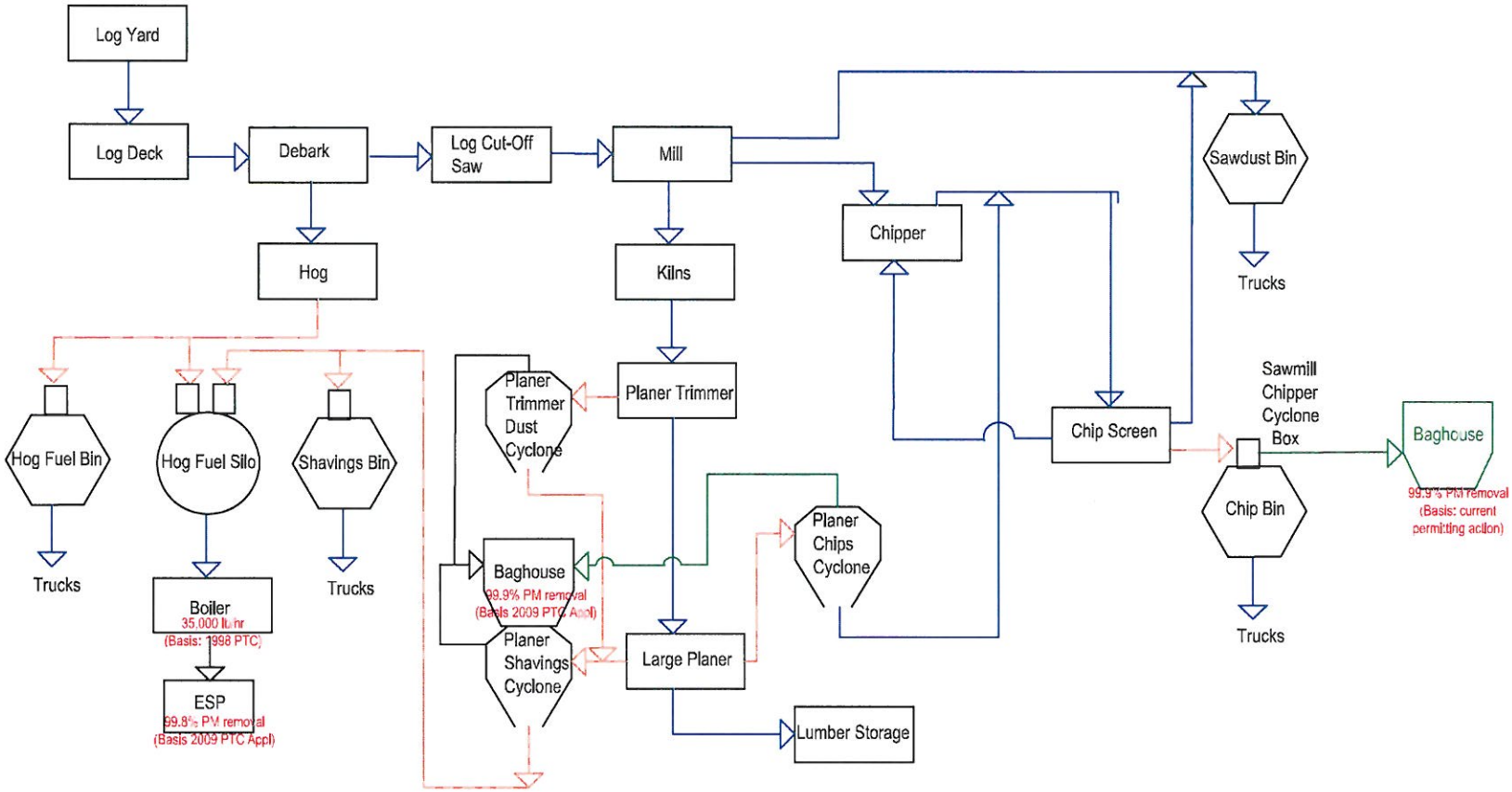
For each box in the table below, CTRL+click on the blue underlined text for instructions and information.

IDENTIFICATION	
1. Company Name:	2. Facility Name:
Stimson Lumber Company	St. Maries Sawmill
3. Brief Project Description:	Increase permitted kiln production and install particulate controls on Planer Chipper Cyclone and Sawmill Chipper Cyclone Box.

APPLICABILITY DETERMINATION	
4. List applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60). Examples of NSPS affected emissions units include internal combustion engines, boilers, turbines, etc. The applicant must thoroughly review the list of affected emissions units.	List of applicable subpart(s): ☑ Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAP) found in 40 CFR part 61 and 40 CFR part 63. Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. EPA has a web page dedicated to NESHAP that should be useful to applicants.	List of applicable subpart(s): ☑ Not Applicable
6. For each subpart identified above, conduct a complete a regulatory analysis using the instructions and referencing the example provided on the following pages. **Note** - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation applies. Regulatory reviews that are submitted with insufficient detail will be determined incomplete.	☐ A detailed regulatory review is provided (Follow instructions and example). ☑ DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date. Refer to P-2009.0070 and Statement of Basis.

IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT

It is emphasized that it is the applicant's responsibility to satisfy all technical and regulatory requirements, and that DEQ will help the applicant understand what those requirements are prior to the application being submitted but that DEQ will not perform the required technical or regulatory analysis on the applicant's behalf.



Mechanical Transfer

Pressurized Transfer

Bin Vent

Target Box

Current Proposed Modification

Process Flow Diagram

Stimson Lumber Company
St. Maries Facility
500 Milltown Road
St. Maries, Idaho

SPRING Environmental, Inc.

Prepared by: N. Savko/B. Hodgson

Drawing Number: STI-016 R0

Revision Number: 05/11/2012

ATTACHMENT #1

Emissions Calculations

May 11, 2012 123-99732

Cheryl Robinson
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706

RE: DISPERSON MODELING SUMMARY
STIMSON LUMBER COMPANY ST. MARIES, IDAHO FACILITY

Dear Cheryl:

Golder Associates Inc. is submitting this dispersion modeling summary on behalf of the Stimson Lumber Company. The modeling discussed pertains to a permit-to-construct (PTC) application that is being submitted under separate cover for the project described in this document at the Stimson Lumber Company St. Maries, Idaho lumber manufacturing facility (Facility). The Facility currently operates under Idaho Department of Environmental Quality (IDEQ) permit number P-2009.0070.

The general location of the Facility is shown in Figure 1.

The dispersion modeling was conducted in accordance with the modeling protocol submitted by Golder dated September 9, 2011; the IDEQ response to the protocol document dated October 13, 2011; and subsequent correspondence.

1.0 PROJECT DESCRIPTION

Although the modeling protocol submitted on September 9, 2011 assumed that an additional kiln, and a related increase in boiler steaming rate, would be part of the project, the current project does not rely on the addition of a fourth kiln to the Facility, nor does it rely on an increase in the currently permitted steaming rate for the boiler. As such, the ambient air quality assessment is streamlined relative to what was presented in the September 9, 2011 modeling protocol.

The purpose of the proposed project is to increase the permitted annual throughput of the Facility from 93.45 million board feet (MMBF) of lumber to 110 MMBF. The Facility has indicated that this will not require an increase in the currently boiler output limit of 35,000 pounds of steam per hour.

Because the current annual kiln throughput of 93.45 MMBF is based on an assumed hourly rate of throughput multiplied by 8,760 hours per year, this change will result in an increase in estimated kiln emissions on an hourly, daily, and annual basis. Additionally, emissions of sources dependent on kiln throughput, such as material handling of shavings and chips produced by creating the dimensional lumber to be dried, are assumed to increase proportional to the increase in kiln throughput.

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As part of this project, emissions from the chip target box (source ID S8) will be vented to a new baghouse achieving at least 99% control efficiency for particulate matter less than 2.5 and 10 microns in diameter ($PM_{2.5}/PM_{10}$). Additionally, exhaust from the existing planer chipper cyclone (source ID S1) will be routed to the existing baghouse (source ID S2), controlling $PM_{2.5}/PM_{10}$ emissions by at least 99%.

Note that the facility is also considering replacement of the pneumatic transfer system associated with the chip target box (source ID S8) with a tube conveyor, which would completely eliminate this emission source. If this were to occur, the ambient air quality assessment presented in this report would be conservative.

Finally, the exhaust from the rooftop vents on the three existing kilns will be captured and exhausted in accordance with one of two potential configurations, depending on the outcome of future engineering studies:

- **Configuration 1:** An exhaust stack (or sleeve) will be placed atop each kiln vent, allowing the kiln to exhaust to atmosphere at a higher elevation.

- **Configuration 2:** The exhaust from each kiln vent will be ducted to a pair of larger stacks. At any given time, one stack will serve to vent the kiln, while the other draws ambient air into the kiln. These roles played by the stacks will alternate frequently (i.e. numerous times on a daily basis).

Emissions from the hog fuel handling system for the boiler are assumed to be unchanged, since the maximum boiler operations are unchanged.

2.0 AIR POLLUTANT EMISSION ESTIMATES

Air pollutant emissions for both criteria pollutants and Idaho toxic air pollutants (TAPs) were estimated for the project primarily based on methods used historically for the Facility. Note that proposed emissions are the same regardless of whether Configuration 1 or Configuration 2 is ultimately implemented.

Maximum hourly and annual emission rates were calculated for the existing kilns at the facility. Maximum hourly emissions of each pollutant were based on a "worst case wood species" (i.e. the wood species with the highest emission factor for a given pollutant is used to estimate maximum hourly emissions of that pollutant). Annual emissions for the kilns were based on composite emission factors representing a typical mix of wood species processed through the kilns on an annual basis. The emission factors used, and the annual average wood species mixture, are shown in Table A-1 in Attachment A.

For all other sources, maximum hourly emissions are based on the maximum annual emission rate divided by 8,760 hours of operation per year.

Emissions estimated based on currently permitted operating limits are provided in Table A-2. Emissions estimated for operations at proposed operating limits based on 110 MMBF/yr of kiln throughput are provided in Table A-3. These estimates include the emissions reductions associated with baghouse controls as noted in Section 1.0 above. Because the evaluation of modeling thresholds does not allow for consideration of emission reductions associated with the additional of emission control equipment, Table A-3b estimates emissions for the proposed operating limits without accounting for emission reductions associated with baghouse control of exhaust from the planer chipper cyclone (source ID S1) and the chip target box (source ID S8).

Emission factors used are referenced in the tables.

The resulting emissions increases of criteria pollutants resulting from the project (not accounting for new baghouse emission reductions) are summarized in Table A-4; these emission increases are compared to the Tier I dispersion modeling thresholds provided in the current July 2011 IDEQ dispersion modeling guidance document.

As shown in Table A-4, the estimated emissions increases for 24-hour averaged PM_{10}, 24-hour averaged $PM_{2.5}$, and annual average $PM_{2.5}$ exceed a Tier I modeling threshold. IDEQ has indicated that Tier I, not Tier II, modeling thresholds are applicable for this project.

Emissions increases of TAPs are summarized in Table A-5. As shown in this table, the maximum hourly emissions for acetaldehyde and formaldehyde exceeded their respective Emission Limits (ELs). As a result, dispersion modeling assessments were required for these two TAPs.

3.0 REQUIRED MODELING ASSESSMENTS

Based on the assessment of dispersion modeling thresholds, modeling assessments were required for $PM_{2.5}$ and PM_{10} emissions. For these pollutants, initial modeling of the emissions increases associated only with the project were conducted and compared to the Significant Impact Levels (SILs). If these concentrations were exceeded, facility-wide potential emissions were modeled. The maximum concentrations resulting from this modeling were added to appropriate background concentrations and compared to the associated ambient air quality standard (AAQS).

In addition, for the TAPs with increased emissions exceeding the associated ELs published in IDAPA 58.01.01.585 and 586, the emissions increases were modeled and the maximum predicted concentration compared to the Acceptable Ambient Concentrations (AACs) also published in IDAPA 58.01.01.585 and 586.

Appropriate SILs, AAQS, and AACs are presented later in this report along with the associated dispersion modeling results.

4.0 MODELING METHODOLOGY

The following dispersion modeling methodology was used to evaluate the ambient air quality impacts from the project.

4.1 Dispersion Modeling Software

The project utilized the current version of the U.S. EPA AERMOD model (currently version 12060) to predict maximum ambient concentrations at model receptor locations. The Lakes Environmental third-party overlay software was used to set-up and execute the AERMOD model.

4.2 Meteorological Data

There are no meteorological data sets suitable for use in the AERMOD dispersion model that have been collected in St. Maries. As a result, the IDEQ provided Golder with two five-year meteorological data sets (pre-processed for use in the AERMOD model) as discussed in IDEQ's October 11, 2011 letter responding to the modeling protocol for this project. These two data sets are as follows:

- Sandpoint/Coeur d'Alene (2002-2006)
- Soda Springs/P4 (2004-2008)

The IDEQ indicated that it would be appropriate to use these data sets without any rotation of wind directions, since the predominant wind directions in each data set generally lined up with the south-southwest to north-northeast orientation of the immediate valley that the Facility sits in (see Figure 1). Wind roses for the Sandpoint and Soda Springs data sets are provided in Figures 2 and 3, respectively.

Because the meteorological data are taken from locations outside of St. Maries, the IDEQ requested that the maximum model results from either data set be used for each ambient air quality impact assessment. This approach was used for the modeling assessments presented in this report.

4.3 Source Representations

Table 1 provides the stack parameters used for existing, Configuration 1, and/or Configuration 2 sources, indicating if the parameters were applicable to SIL and/or AAQS modeling. Parameters are based on measured values where available, and best estimates otherwise.

4.3.1 Source Representations Affected by the Project

Existing and proposed source representations were used for chip target box (source ID S8), Kiln 3 (source ID S3_1 through S3_10), and Kilns 1 and 2 (source IDs S4_1 through S4_28).

The 38 existing kiln vent source representations are denoted with a "_E" following the source ID. Proposed kiln source representations in Configuration 1 are denoted by the same source IDs followed with a "_P" (again, 38 total source representations). Proposed kiln source representations in Configuration 2 are denoted by S3_1, S3_2, and S4_1 through S4_4 (six source representations total, two for each kiln).

Existing Kilns 1, 2, and 3 source representations (source ID S3_1_E through S3_10_E and S4_1_E through S4_28_E) represent multiple roof exhaust vents with heat-driven vertical exhaust velocity (resulting from thermal buoyant pressure generated inside of the kiln). Exhaust temperatures were

set equal to the approximate internal kiln temperature. Exhaust velocities were conservatively set equal to two meters per second based on observation of kiln operations and historical exit velocity measurements.

The Configuration 1 Kiln 1, 2, and 3 source representations (source ID S3_1_P through S3_10_P and S4_1_P through S4_28_P) retained the existing source representation diameter, velocity, and diameter, but reflect an increase in release height due to the addition of stacks over each vent.

The Configuration 2 Kiln 1, 2, and 3 source representations (S3_1, S3_2, and S4_1 through S4_4) have parameters determined in conjunction with Wellons, the company that would likely assist with designing the Configuration 2 ducting and exhaust system.

The project includes routing the exhaust from the existing planer chipper cyclone (source ID S1) to the existing baghouse (source ID S2). The SIL modeling includes an existing source representation for S1. There is no "proposed" source representation for S1 since emissions will be ducted to S2. The emission rate assigned to S2 in the SIL modeling represents the proposed future maximum potential emissions (emission from the planer chipper cyclone, planer shavings cyclone, and the small planer [trimming] cyclone) minus the existing maximum permitted emission rate (emissions from only the planer shavings cyclone, and the small planer [trimming] cyclone).

Source parameters for the proposed baghouse (source S8NEW) were based on a similar baghouse located at the Stimson facility in Priest River.

4.3.2 Source Representations Unaffected by the Project

The Baghouse (S2), Hogged Fuel Truck Bin (S7_A), Shavings Truck Bin (S7_B), Fuel Silo Target Box (S6), and the existing Sawmill Chipper Cyclone (S8) sources have multiple emission locations with some or all of the emissions exhausted horizontally. As such, these emissions are best represented as volume sources. Initial vertical and lateral dimensions are estimated as indicated in Table 1.

Boiler emissions exhaust through the electrostatic precipitator (ESP) stack (S5). The parameters for this point source were derived from measured parameters from source test data collected on October 7, 2009.

Locations of source representations for existing sources are shown in Figure 4, locations of source representations for existing and proposed sources in Configuration 1 are shown in Figure 5, and locations of source representations for existing and proposed sources in Configuration 2 are shown in Figure 6.

4.4 Building Downwash

Building downwash affecting point source emissions was accounted for using the U.S. EPA Building Profile Input Program for PRIME (BPIPPRM) software (version 04274). Building structures within 5L of any point source representation in the model (where L is the lesser of the building height or maximum projected width) were included in the BPIP analysis. The BPIP program generates

direction-specific downwash parameters for each point source to be input to the AERMOD model (AERMOD only accounts for building downwash for point source representations).

4.5 Receptors and Terrain

Model receptors were placed outside of the facility property boundary[1] with the following spacing:

- 50 meter spacing out to 1,000 meters from the centroid of modeled emission sources
- 250 meter spacing out to 3,000 meters from the centroid of modeled emission sources

The 50 meter grid sufficiently covers any areas in steep terrain where maximum predicted ambient concentrations would occur. In addition, model receptors were placed every 25 meters along the facility property boundary. A summary of the near-field model receptors is provided in Figure 7 and the entire modeling grid is shown in Figure 8.

Terrain elevations for model receptors, source representations, and downwash structures were determined using National Elevation Dataset 1/3 arc-second data available from the U.S. Geological Survey Seamless Server (http://seamless.usgs.gov/ned1.php).

4.6 Background Concentrations

Background concentrations are necessary for AAQS assessments and must be added to maximum modeled concentrations for comparison to an AAQS.

The IDEQ provided background concentrations for use in this ambient impact modeling assessment in the October 13, 2011 response to the modeling protocol for this project. However, subsequent correspondence with the IDEQ led to a request for Golder to develop an appropriate background concentration for 24-hour $PM_{2.5}$ based on available ambient monitoring data collected in St. Maries. The data used come from a monitoring site managed by the U.S. Forest Service at the intersection of Center and 9th streets in downtown St. Maries (AQS Site ID: 16-009-0010).

The 24-hour $PM_{2.5}$ background concentration was derived as the most recent (i.e. 2009 through 2011) three-year average of the 98th percentile maximum monitored 24-hour concentrations at the St. Maries monitoring station. Daily $PM_{2.5}$ concentrations were measured on either an every-three-day or every-six-day frequency.

Golder considers these data to be very conservative for determining 24-hour $PM_{2.5}$ background concentrations near the Facility location since the ambient monitoring site is located within the town of St. Maries, well over two kilometers from the rural Facility location, and will be impacted by localized in-town emission sources such as road sand and residential wood combustion in the winter, and motor vehicle tailpipe exhaust year-round.

[1] Note that the legal property boundary for the St. Maries facility along the western edge does not include a number of facility buildings and areas clearly under the control of Stimson. For modeling purposes, these areas (within the portion of the railroad right-of-way used by Stimson) were considered to be excluded from "ambient air" as they are not accessible to the public, consistent with previous modeling conducted for the facility.

Using these data, a 24-hour average $PM_{2.5}$ background concentration of 27.4 µg/m^3 was derived based on the three year average (see Table 2). The raw data for this derivation are provided in a spreadsheet file included with the dispersion modeling files for this report.

5.0 MODEL OUTPUT AND EVALUATION (BCP)

AERMOD model output for comparison to threshold values will be generated as discussed below.

5.1 Significant Impact Level (SIL) Modeling

Initial modeling was conducted for the pollutants and averaging times that were above the Tier I dispersion modeling thresholds presented in Table A-4. Maximum predicted concentrations resulting from the emissions increases associated with the project were compared to the applicable SIL values. These assessments were made for both Configuration 1 and Configuration 2 of the kilns.

Emissions increases were calculated as future potential emission rates minus the current permitted potential emission rates. SIL modeling was conducted for each applicable PM_{10} and $PM_{2.5}$ averaging time, as well as for each meteorological data set (Sandpoint and Soda Springs), as discussed above in Section 4.2.

The project includes the modification of several existing sources. To account for the change in both the emission rate and in the source parameters for a modified sources, both the "existing" source and the "proposed" source are included in the SIL modeling. The existing source represents the source as it is currently configured, including the maximum permitted emission rate. The proposed source represents the modified source as it would exist after the project is completed including the newly permitted maximum emission rate. To determine the difference between the existing and the proposed source configurations, the emission rate assigned to the existing source is entered into the model as a negative value. Concentrations predicted by the dispersion model are the result of the difference between the existing and proposes sources (along with increases associated with unmodified sources with increased potential emissions).

The resulting maximum predicted concentrations and a comparison to the applicable SILs are presented in Table 3 for both Configuration 1 and Configuration 2. As shown in this table, only the SIL for 24-hour $PM_{2.5}$ was exceeded for the Configuration 1 and Configuration 2 assessments (although not for the Soda Springs meteorological data set for Configuration 2). Figures 9, 10, and 11 show the model receptors where the SIL was exceeded for the three assessments that the 24-hour $PM_{2.5}$ SIL was exceeded.

As a result, AAQS modeling assessments were performed for 24-hour $PM_{2.5}$ for the three configuration/meteorological data set combinations that had modeling results exceeding the SIL..

5.2 Facility Wide Ambient Air Quality Standard Modeling

The AAQS modeling was only conducted for those model receptors exceeding the SIL (as shown in Figures 9, 10, and 11). For these dispersion modeling assessments, future post-project source representations and emission rates were used.

The maximum concentrations resulting from this modeling were added to the appropriate 24-hour $PM_{2.5}$ background concentration (see Section 4.6) and compared to the associated AAQS. Both the appropriate background concentrations and the applicable AAQS modeling results are presented in Table 4. All AAQS modeling assessments indicate that the 24-hour $PM_{2.5}$ AAQS will not be exceeded.

5.3 Toxic Air Pollutant Modeling

TAPs with emissions increases resulting from the project exceeding applicable ELs (i.e. acetaldehyde and formaldehyde) were modeled to determine the maximum predicted ambient concentration at any model receptor location based on the averaging period of the applicable AAC. Because these are both carcinogens (listed in IDAPA 58.01.01.586), their AACs published in IDAPA 586 are evaluated versus the maximum annual average modeled concentration at any receptor on, or outside of, the modeled Facility boundary.

The modeling results shown in Table 5 demonstrate that the maximum predicted annual average concentration in each case was less than the associated AAC.

6.0 CLOSING

Based on the information presented in this report, the proposed project will meet the air quality impact assessment requirements for both criteria pollutants and TAPs, supporting approval of the air quality PTC application submitted for this project.

Please don't hesitate to contact me at 503-607-1820 if you have any questions or comments.

Sincerely,
GOLDER ASSOCIATES INC.

Brian Patterson

Brian Patterson, Ph.D.
Associate and Senior Consultant

Geoff Scott, P.E.
Senior Air Resources Engineer

cc: Steven Petrin – Stimson Lumber Company

TABLES

Table 1
Modeling Source Representation Parameters

Source ID	Point Source Description	X-coordinate [1] (Easting UTM)	Y-coordinate [1] (Northing UTM)	Z-coordinate [2] (m)	Parameters								Used in Modeling For:			
					Release Height		Temperature		Diameter		Velocity		Config. 1 SIL	Config. 1 AAQS	Config. 2 SIL	Config. 2 AAQS
					(ft)	(m)	(°F)	(K)	(in)	(m)	(ft/s)	(m/s)				
S1OLD	Planer chipper cyclone - capped source - Existing Configuration	534523.13	5241618.89	659.92	45.00	13.72	Ambient		27.56	0.7	20.11	6.13	Yes	No	Yes	No
S5	Boiler Stack	534480.76	5241776.12	654.14	97.97	29.87	375.28	463.71	24.02	0.61	135.14	41.2	Yes	Yes	Yes	Yes
S8NEW	Sawmill chipper cyclone box - Proposed Configuration	534593.56	5241555.85	674.48	12.00	3.66	Ambient		24.00	0.61	47.72	14.55	Yes	Yes	Yes	Yes
S3_1_E / S3_1_P	Kiln 3 - Vent 1 Existing Configuration / Proposed Configuration 1	534488.26	5241716.84	655.3	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_2_E / S3_2_P	Kiln 3 - Vent 2 Existing Configuration / Proposed Configuration 1	534494.21	5241715.99	655.5	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_3_E / S3_3_P	Kiln 3 - Vent 3 Existing Configuration / Proposed Configuration 1	534500.6	5241715.02	655.73	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_4_E / S3_4_P	Kiln 3 - Vent 4 Existing Configuration / Proposed Configuration 1	534506.71	5241713.98	655.88	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_5_E / S3_5_P	Kiln 3 - Vent 5 Existing Configuration / Proposed Configuration 1	534512.52	5241713.2	656.11	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_6_E / S3_6_P	Kiln 3 - Vent 6 Existing Configuration / Proposed Configuration 1	534487.4	5241711.76	655.22	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_7_E / S3_7_P	Kiln 3 - Vent 7 Existing Configuration / Proposed Configuration 1	534493.35	5241710.73	655.47	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_8_E / S3_8_P	Kiln 3 - Vent 8 Existing Configuration / Proposed Configuration 1	534499.54	5241709.7	655.62	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_9_E / S3_9_P	Kiln 3 - Vent 9 Existing Configuration / Proposed Configuration 1	534505.85	5241708.73	655.88	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S3_10_E / S3_10_P	Kiln 3 - Vent 10 Existing Configuration / Proposed Configuration 1	534511.26	5241707.82	656.11	24.50	7.47	190.27	360.93	33.86	0.86	6.56	2	Yes	_P only	No	No
S4_1_E / S4_1_P	Kiln 1&2 - Vent 1 Existing Configuration / Proposed Configuration 1	534491.13	5241749.16	654.76	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_2_E / S4_2_P	Kiln 1&2 - Vent 2 Existing Configuration / Proposed Configuration 1	534495.22	5241748.55	654.76	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_3_E / S4_3_P	Kiln 1&2 - Vent 3 Existing Configuration / Proposed Configuration 1	534498.13	5241748.1	654.76	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_4_E / S4_4_P	Kiln 1&2 - Vent 4 Existing Configuration / Proposed Configuration 1	534501.11	5241747.65	655.04	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_5_E / S4_5_P	Kiln 1&2 - Vent 5 Existing Configuration / Proposed Configuration 1	534504.36	5241747.03	655.04	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_6_E / S4_6_P	Kiln 1&2 - Vent 6 Existing Configuration / Proposed Configuration 1	534507.33	5241746.64	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_7_E / S4_7_P	Kiln 1&2 - Vent 7 Existing Configuration / Proposed Configuration 1	534510.36	5241746.08	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_8_E / S4_8_P	Kiln 1&2 - Vent 8 Existing Configuration / Proposed Configuration 1	534490.84	5241740.86	654.96	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_9_E / S4_9_P	Kiln 1&2 - Vent 9 Existing Configuration / Proposed Configuration 1	534494.04	5241740.41	655.04	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_10_E / S4_10_P	Kiln 1&2 - Vent 10 Existing Configuration / Proposed Configuration 1	534496.95	5241739.91	655.04	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_11_E / S4_11_P	Kiln 1&2 - Vent 11 Existing Configuration / Proposed Configuration 1	534500.15	5241739.35	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_12_E / S4_12_P	Kiln 1&2 - Vent 12 Existing Configuration / Proposed Configuration 1	534503.13	5241739.07	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_13_E / S4_13_P	Kiln 1&2 - Vent 13 Existing Configuration / Proposed Configuration 1	534506.15	5241738.87	655.12	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_14_E / S4_14_P	Kiln 1&2 - Vent 14 Existing Configuration / Proposed Configuration 1	534509.15	5241738.06	655.12	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_15_E / S4_15_P	Kiln 1&2 - Vent 15 Existing Configuration / Proposed Configuration 1	534490.5	5241738.67	654.96	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_16_E / S4_16_P	Kiln 1&2 - Vent 16 Existing Configuration / Proposed Configuration 1	534493.7	5241738.17	655.04	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_17_E / S4_17_P	Kiln 1&2 - Vent 17 Existing Configuration / Proposed Configuration 1	534496.73	5241737.66	655.04	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_18_E / S4_18_P	Kiln 1&2 - Vent 18 Existing Configuration / Proposed Configuration 1	534499.82	5241737.33	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_19_E / S4_19_P	Kiln 1&2 - Vent 19 Existing Configuration / Proposed Configuration 1	534502.84	5241736.82	655.22	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_20_E / S4_20_P	Kiln 1&2 - Vent 20 Existing Configuration / Proposed Configuration 1	534505.87	5241736.37	655.43	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_21_E / S4_21_P	Kiln 1&2 - Vent 21 Existing Configuration / Proposed Configuration 1	534509.07	5241735.87	655.43	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_22_E / S4_22_P	Kiln 1&2 - Vent 22 Existing Configuration / Proposed Configuration 1	534489.03	5241731.66	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_23_E / S4_23_P	Kiln 1&2 - Vent 23 Existing Configuration / Proposed Configuration 1	534492.41	5241731.1	655.07	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_24_E / S4_24_P	Kiln 1&2 - Vent 24 Existing Configuration / Proposed Configuration 1	534495.5	5241730.6	655.22	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_25_E / S4_25_P	Kiln 1&2 - Vent 25 Existing Configuration / Proposed Configuration 1	534498.75	5241729.98	655.22	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_26_E / S4_26_P	Kiln 1&2 - Vent 26 Existing Configuration / Proposed Configuration 1	534501.44	5241729.14	655.43	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_27_E / S4_27_P	Kiln 1&2 - Vent 27 Existing Configuration / Proposed Configuration 1	534504.53	5241728.46	655.43	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S4_28_E / S4_28_P	Kiln 1&2 - Vent 28 Existing Configuration / Proposed Configuration 1	534507.56	5241728.18	655.65	27.98	8.53	190.27	360.93	23.62	0.60	6.56	2	Yes	_P only	No	No
S3_1	Kiln 3 - Stack 1 Proposed Configuration 2	534482.01	5241717.84	655.14	24.99	7.62	180.21	355.34	24.00	0.61	49.2	15	No	No	Yes	Yes
S3_2	Kiln 3 - Stack 2 Proposed Configuration 2	534481.99	5241711.48	655.22	24.99	7.62	180.21	355.34	24.00	0.61	49.2	15	No	No	Yes	Yes
S4_1	Kiln 1&2 - Stack 1 Proposed Configuration 2	534490.42	5241749.44	654.67	34.99	10.668	180.21	355.34	24.00	0.61	49.2	15	No	No	Yes	Yes
S4_2	Kiln 1&2 - Stack 2 Proposed Configuration 2	534489.70	5241743.07	654.96	34.99	10.668	180.21	355.34	24.00	0.61	49.2	15	No	No	Yes	Yes
S4_3	Kiln 1&2 - Stack 3 Proposed Configuration 2	534488.76	5241737.26	654.96	50.02	15.25	180.21	355.34	24.00	0.61	49.2	15	No	No	Yes	Yes
S4_4	Kiln 1&2 - Stack 4 Proposed Configuration 2	534487.78	5241731.20	655.07	50.02	15.25	180.21	355.34	24.00	0.61	49.2	15	No	No	Yes	Yes

Source ID	Volume Source Description	X-coordinate [1] (Easting UTM)	Y-coordinate [1] (Northing UTM)	Z-coordinate [2] (m)	Parameters						Used in Modeling For:			
					Init. Lateral Dim. [3]		Init. Vertical Dim.		Length of Side		Config. 1 SIL	Config. 1 AAQS	Config. 2 SIL	Config. 2 AAQS
					(ft)	(m)	(ft)	(m)	(ft)	(m)				
S2	Baghouse	534479.99	5241633.14	657.77	3.80	1.16	12.10	3.69	16.40	5	Yes	Yes	Yes	Yes
S6	Fuel silo target box	534619.19	5241765.86	653.46	4.96	1.51	34.87	10.63	21.32	6.5	Yes	Yes	Yes	Yes
S7_A	Hogged Fuel Truck Bin	534531.57	5241771.30	655.22	3.80	1.16	4.89	1.49	16.40	5	Yes	Yes	Yes	Yes
S7_B	Shavings Truck Bin	534532.66	5241766.7	655.03	3.80	1.16	4.89	1.49	16.40	5	Yes	Yes	Yes	Yes
S8OLD	Sawmill chipper cyclone box - Existing Configuration	534599.21	5241574.78	671.15	3.80	1.16	19.06	5.81	16.40	5	Yes	No	Yes	No

Notes:

(1) UTM - Universal Transverse Mercator, Zone 11

(2) Z-values obtained from 1/3 arc-second (roughly 10 meters) National Elevation Dataset (NED) elevation data

(3) Initial lateral dimension is obtained by dividing the length of side by 4.3 per EPA guidance in the AERMOD user's guide

Table 2
3-Year Summary of Ambient 24-Hour $PM_{2.5}$ Monitoring Data
St Maries, Idaho

Monitoring Site	Year	98th Percentile 24-Hr $PM_{2.5}$ Concentration ($\mu g/m^3$)
St Maries	2009	26.6
	2010	26.8
	2011	28.8
	3-Yr Average:	**27.4**

Data obtained from: http://www.epa.gov/airdata/ad_maps.html

Table 3
Results of Significant Impact Level Assessments

Configuration Evaluated	Pollutant	Averaging Period	Meteorological Data Set	Maximum Modeled Concentration ($\mu g/m^3$)	SIL [1] ($\mu g/m^3$)	SIL Exceeded? (Yes/No)
Configuration 1	PM_{10}	24-Hour	Sandpoint	1.01	5.0	No
Configuration 1	PM_{10}	24-Hour	Soda Springs	0.38	5.0	No
Configuration 1	$PM_{2.5}$	24-Hour	Sandpoint	1.77	1.2	**Yes**
Configuration 1	$PM_{2.5}$	24-Hour	Soda Springs	2.94	1.2	**Yes**
Configuration 1	$PM_{2.5}$	Annual [2]	Sandpoint	0.030	0.3	No
Configuration 1	$PM_{2.5}$	Annual [3]	Soda Springs	0.000	0.3	No
Configuration 2	PM_{10}	24-Hour	Sandpoint	3.16	5.0	No
Configuration 2	PM_{10}	24-Hour	Soda Springs	1.93	5.0	No
Configuration 2	$PM_{2.5}$	24-Hour	Sandpoint	2.75	1.2	**Yes**
Configuration 2	$PM_{2.5}$	24-Hour	Soda Springs	1.19	1.2	No
Configuration 2	$PM_{2.5}$	Annual [4]	Sandpoint	0.083	0.3	No
Configuration 2	$PM_{2.5}$	Annual [5]	Soda Springs	0.0003	0.3	No

Notes:

(1) SIL = Significant Impact Level. Taken from July 2011 IDEQ Dispersion Modeling Guidance document.
(2) Maximum modeled concentration from meteorological year 2005 (conservative relative to 5-yr average).
(3) Zero or negative concentrations reported at all model receptors.
(4) Maximum modeled concentration from meteorological year 2002 (conservative relative to 5-yr average).
(5) Maximum modeled concentration from meteorological year 2005 (conservative relative to 5-yr average).

Table 4
Results of Ambient Air Quality Standard Assessments

Configuration Evaluated	Pollutant	Averaging Period	Meteorological Data Set	Maximum Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Maximum Total Concentration ($\mu g/m^3$)	AAQS (1) ($\mu g/m^3$)	AAQS Exceeded? (Yes/No)
Configuration 1	$PM_{2.5}$	24-Hour	Sandpoint	3.81	27.4	31.2	35	No
Configuration 1	$PM_{2.5}$	24-Hour	Soda Springs	5.68	27.4	33.1	35	No
Configuration 2	$PM_{2.5}$	24-Hour	Sandpoint	5.57	27.4	33.0	35	No

Notes:
(1) AAQS = Ambient Air Quality Standard. Taken from July 2011 IDEQ Dispersion Modeling Guidance document.

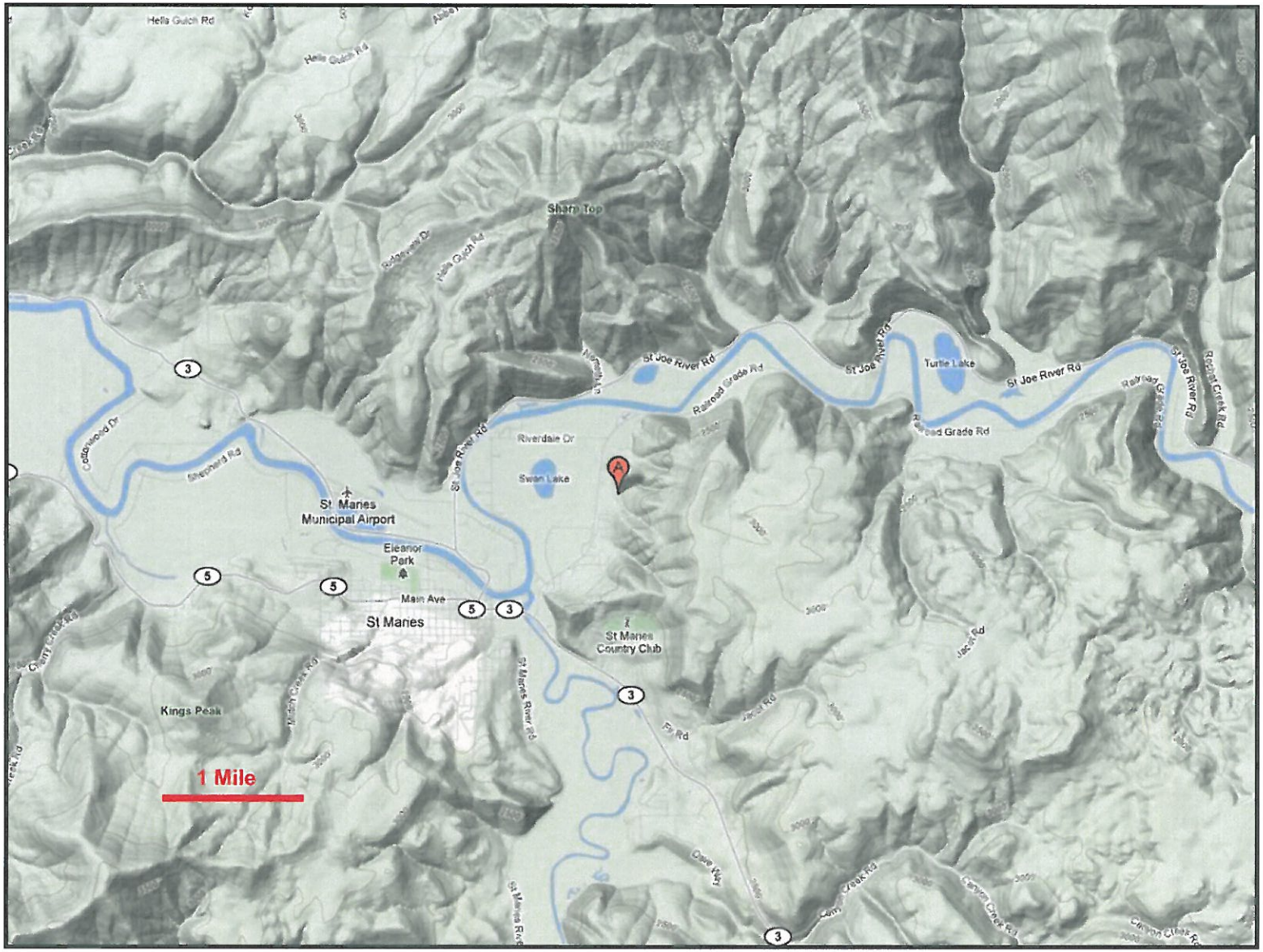
Table 5
Results of Toxic Air Polluant Assessments

Configuration Evaluated	Pollutant	Averaging Period	Meteorological Data Set	Maximum Modeled Concentration ($\mu g/m^3$)	AAC [1] ($\mu g/m^3$)	AAC Exceeded? (Yes/No)
Configuration 1	Acetaldehyde	Annual [2]	Sandpoint	0.370	0.45	No
Configuration 1	Acetaldehyde	Annual [2]	Soda Springs	0.318	0.45	No
Configuration 1	Formaldehyde	Annual [2]	Sandpoint	0.0054	0.077	No
Configuration 1	Formaldehyde	Annual [2]	Soda Springs	0.0046	0.077	No
Configuration 2	Acetaldehyde	Annual [2]	Sandpoint	0.245	0.45	No
Configuration 2	Acetaldehyde	Annual [2]	Soda Springs	0.154	0.45	No
Configuration 2	Formaldehyde	Annual [2]	Sandpoint	0.0036	0.077	No
Configuration 2	Formaldehyde	Annual [2]	Soda Springs	0.0022	0.077	No

Notes:
(1) AAC = Acceptable Ambient Concentration. Taken from IDAPA 58.01.01.586.
(2) Period average over meteorological data set. Polluant is considered a carcinogen.

FIGURES

Figure 1. General Facility Location
Stimson Lumber, St. Maries, Idaho



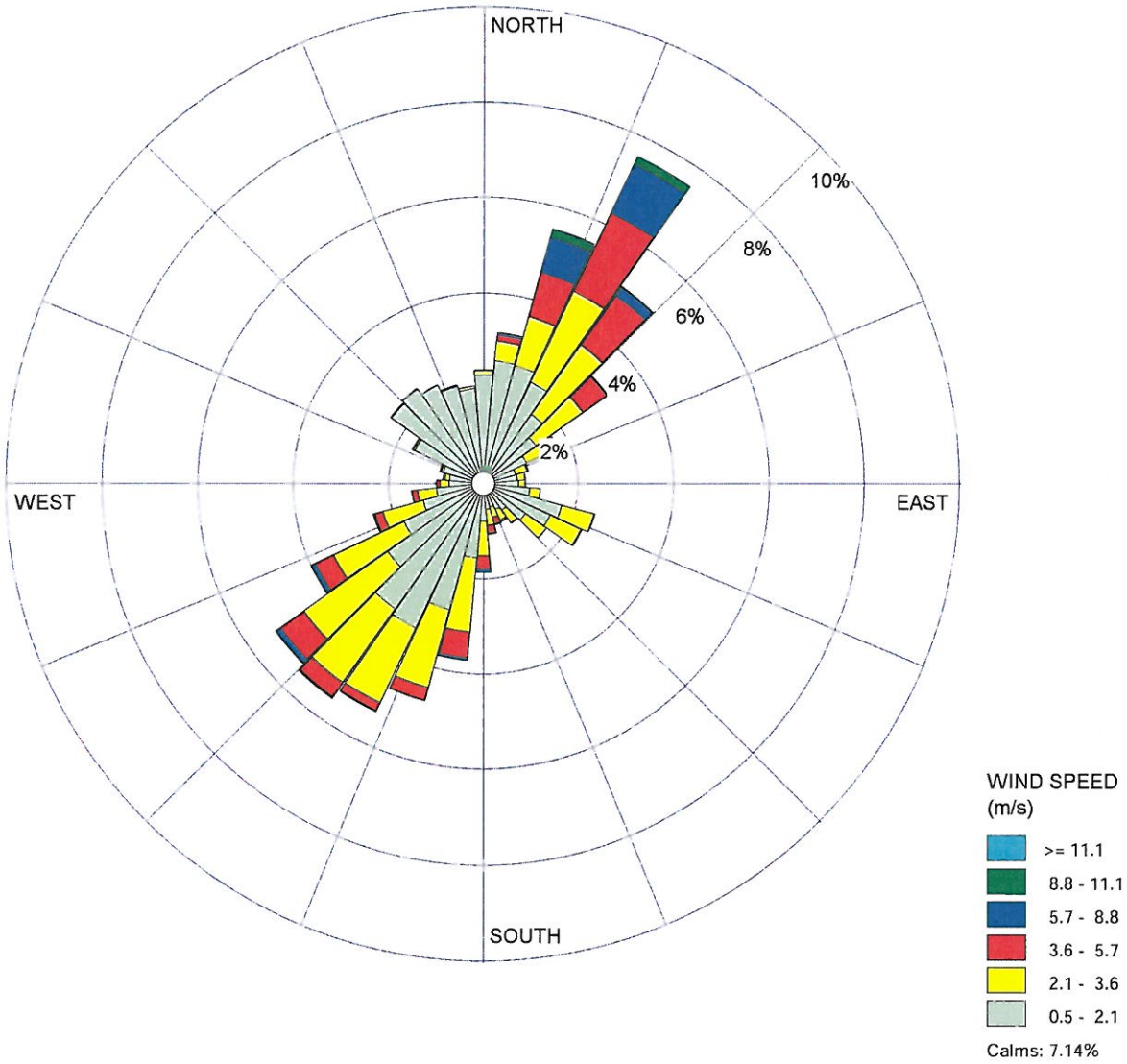
Facility location denoted by "A" marker.

WIND ROSE PLOT:

Figure 2. Wind Rose for Sandpoint Meteorological Data Set
Stimson St. Maries, Idaho

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Data provided by Idaho DEQ. 5 year data set. 2002 - 2006.	**Start Date: 1/1/2002 - 00:00** **End Date: 12/31/2006 - 23:00**	MODELER:	Golder Associates
	CALM WINDS: **7.14%**	TOTAL COUNT: **43788 hrs.**	
	AVG. WIND SPEED: **1.92 m/s**	DATE: **5/10/2012**	PROJECT NO.: **123-99732**

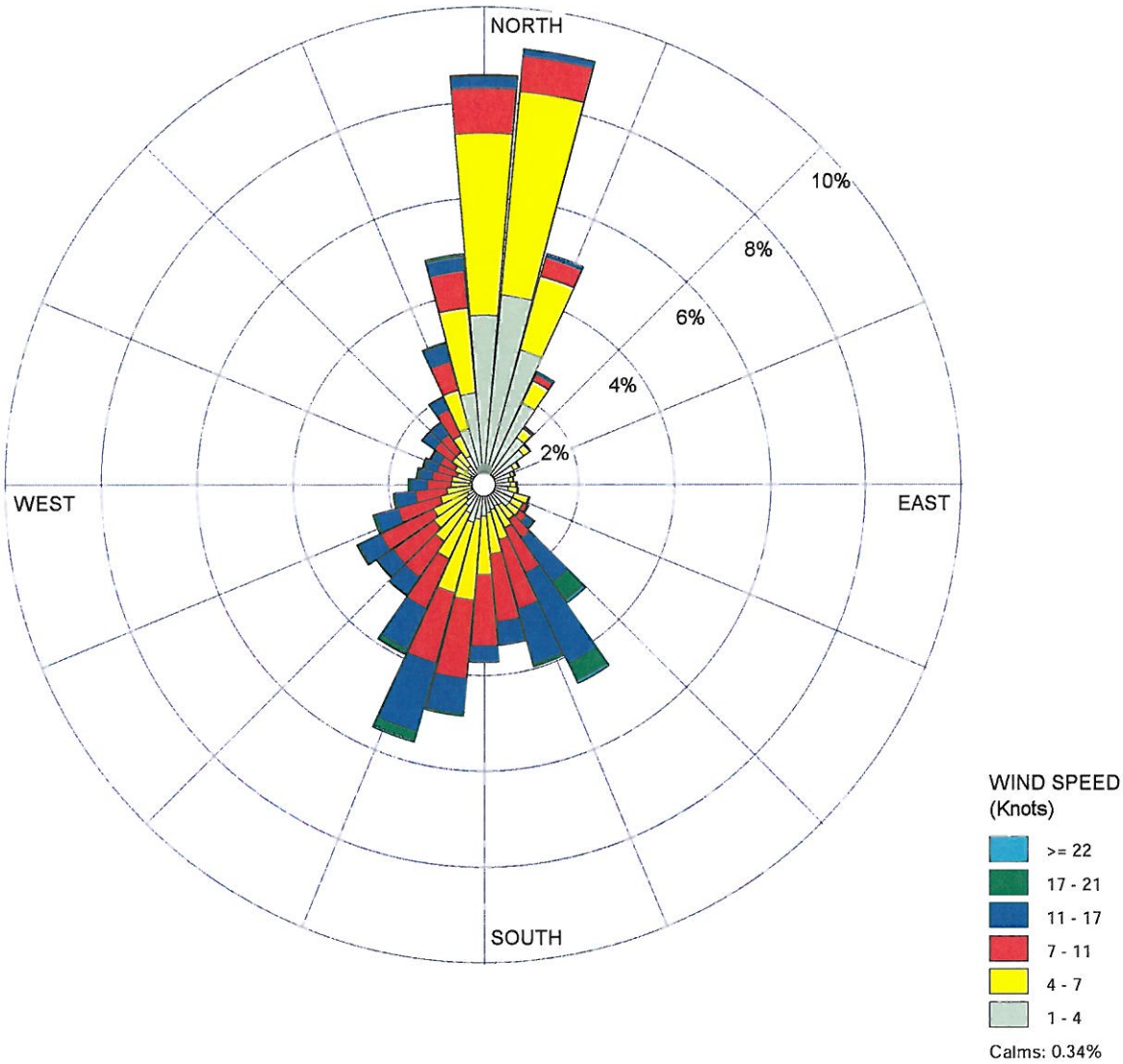
WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:

Figure 3. Wind Rose for Soda Springs Meteorological Data Set
Stimson St. Maries, Idaho

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Data provided by Idaho DEQ. 5 year data set. 2004 - 2008.	**Start Date: 1/1/2004 - 00:00** **End Date: 12/31/2008 - 23:00**	MODELER:	Golder Associates
	CALM WINDS: **0.34%**	TOTAL COUNT: **43843 hrs.**	
	AVG. WIND SPEED: **6.68 Knots**	DATE: **5/10/2012**	PROJECT NO.: **123-99732**

WRPLOT View - Lakes Environmental Software

PROJECT TITLE:

Figure 4. Source Representation Locations - Existing Facility
Stimson Lumber Company, St. Maries, Idaho

COMMENTS:	SOURCES:	COMPANY NAME:	
Red crosshairs represent point sources (labeled in red). Dashed blue lines represent volume sources (labeled in orange). Solid blue lines denote building outlines. Solid red line denotes the property boundary. Datum: WGS 84 UTM Zone: 11	**45**	**Golder Associates**	
	RECEPTORS:	MODELER:	
	2343	**Portland, Oregon**	Golder Associates
		SCALE: 1:1,500 0 — 0.05 km	
			PROJECT NO.:
			123-99732

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

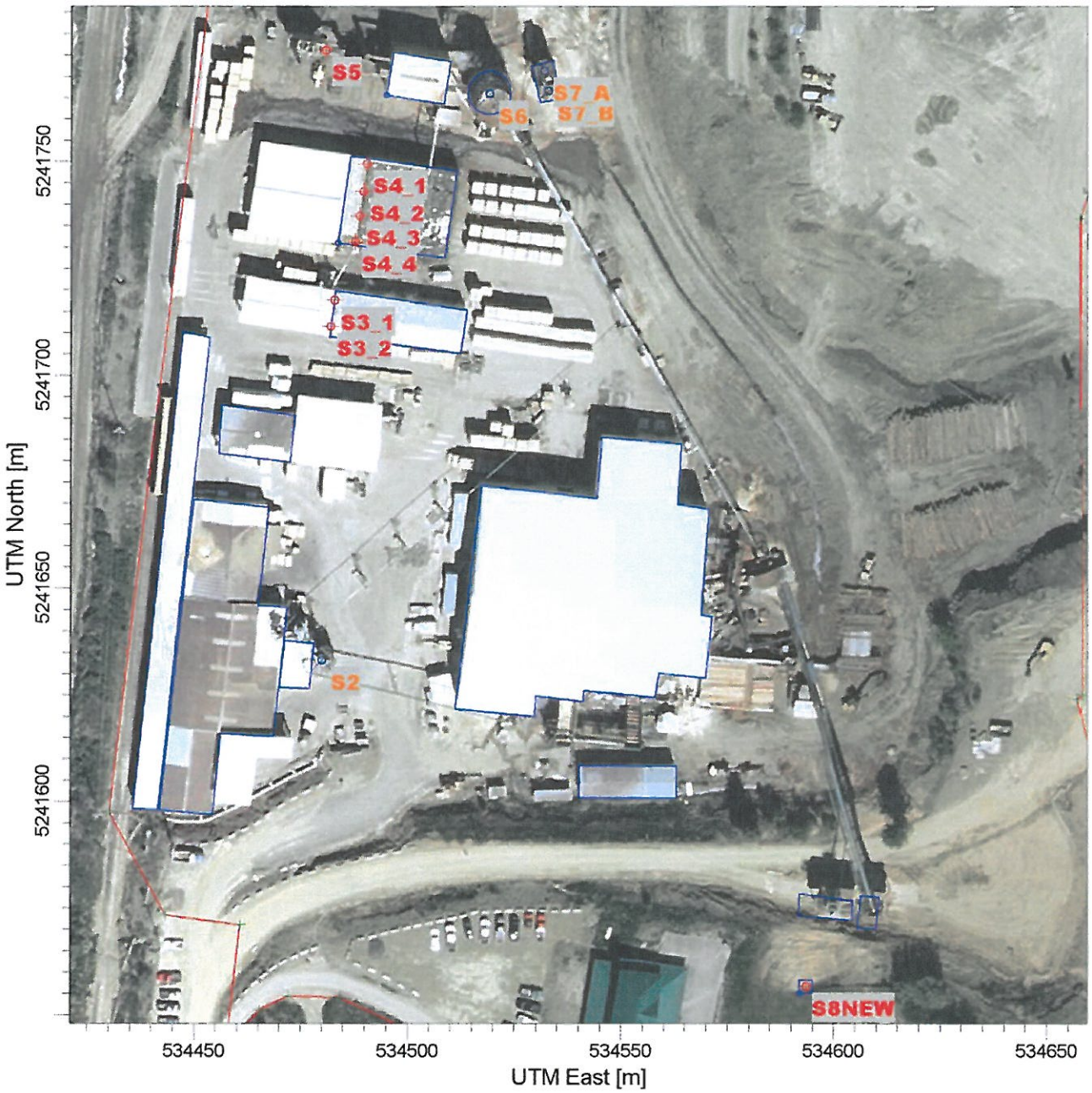
Figure 5. Source Representation Locations - Proposed Configuration 1
Stimson Lumber Company, St. Maries, Idaho

COMMENTS:	SOURCES:	COMPANY NAME:	
Red crosshairs represent point sources (labeled in red). Dashed blue lines represent volume sources (labeled in orange). Solid blue lines denote building outlines. Solid red line denotes the property boundary. Datum: WGS 84 UTM Zone: 11	44	Golder Associates	
	RECEPTORS:	MODELER:	
	2343	Portland, Oregon	
		SCALE: 1:1,500 0 — 0.05 km	
			PROJECT NO.:
			123-99732

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Figure 6. Source Representation Locations - Proposed Configuration 2
Stimson Lumber Company, St. Maries, Idaho

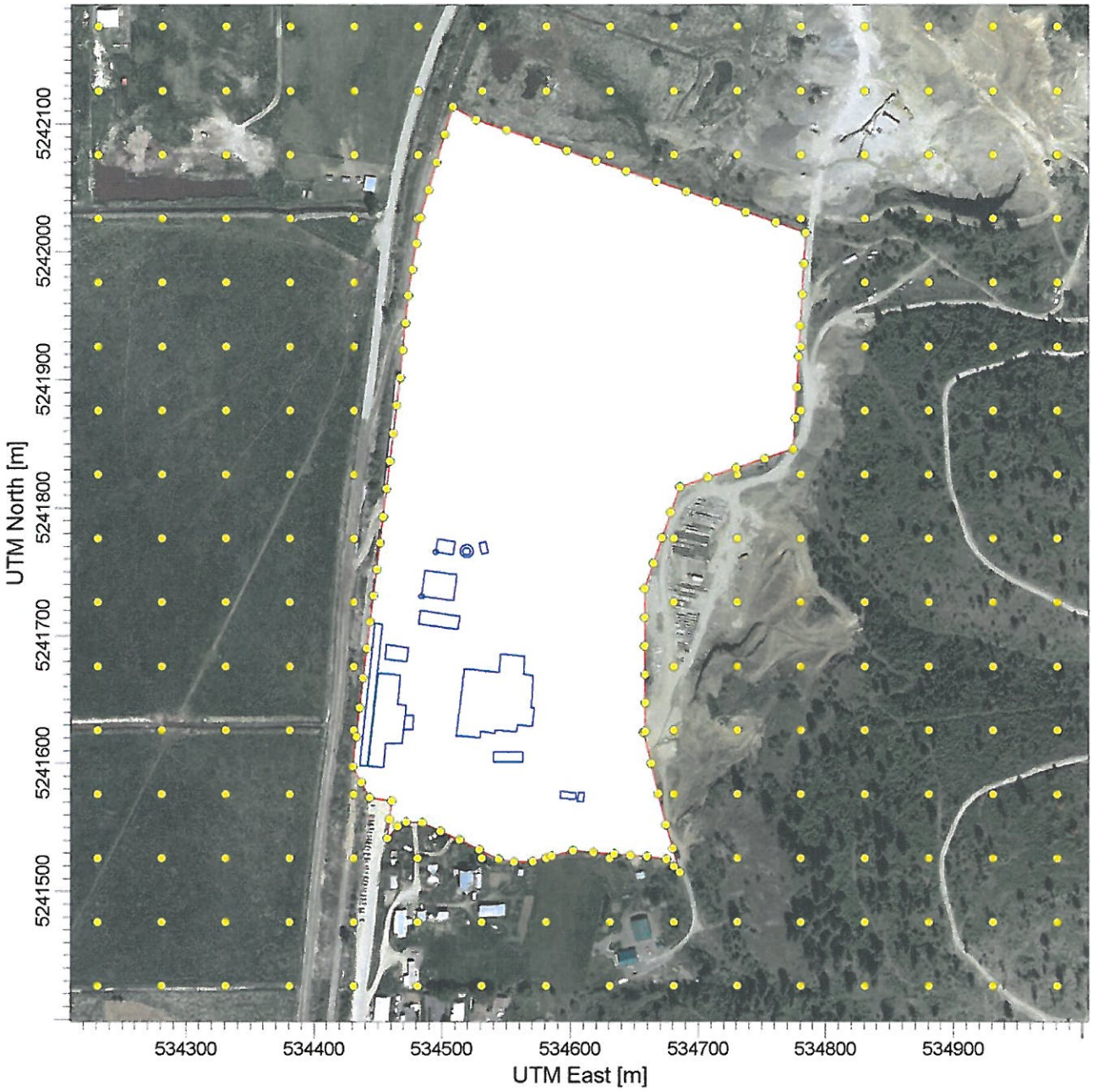


COMMENTS:	SOURCES:	COMPANY NAME:	
Red crosshairs represent point sources (labeled in red). Dashed blue lines represent volume sources (labeled in orange). Solid blue lines denote building outlines. Solid red line denotes the property boundary. Datum: WGS 84 UTM Zone: 11	**12**	**Golder Associates**	
	RECEPTORS: **2343**	MODELER: **Portland, Oregon**	Golder Associates
		SCALE: 1:1,500 0 — 0.05 km	
			PROJECT NO.: **123-99732**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Figure 7. Near-Field Model Receptors
Stimson Lumber Company, St. Maries, Idaho

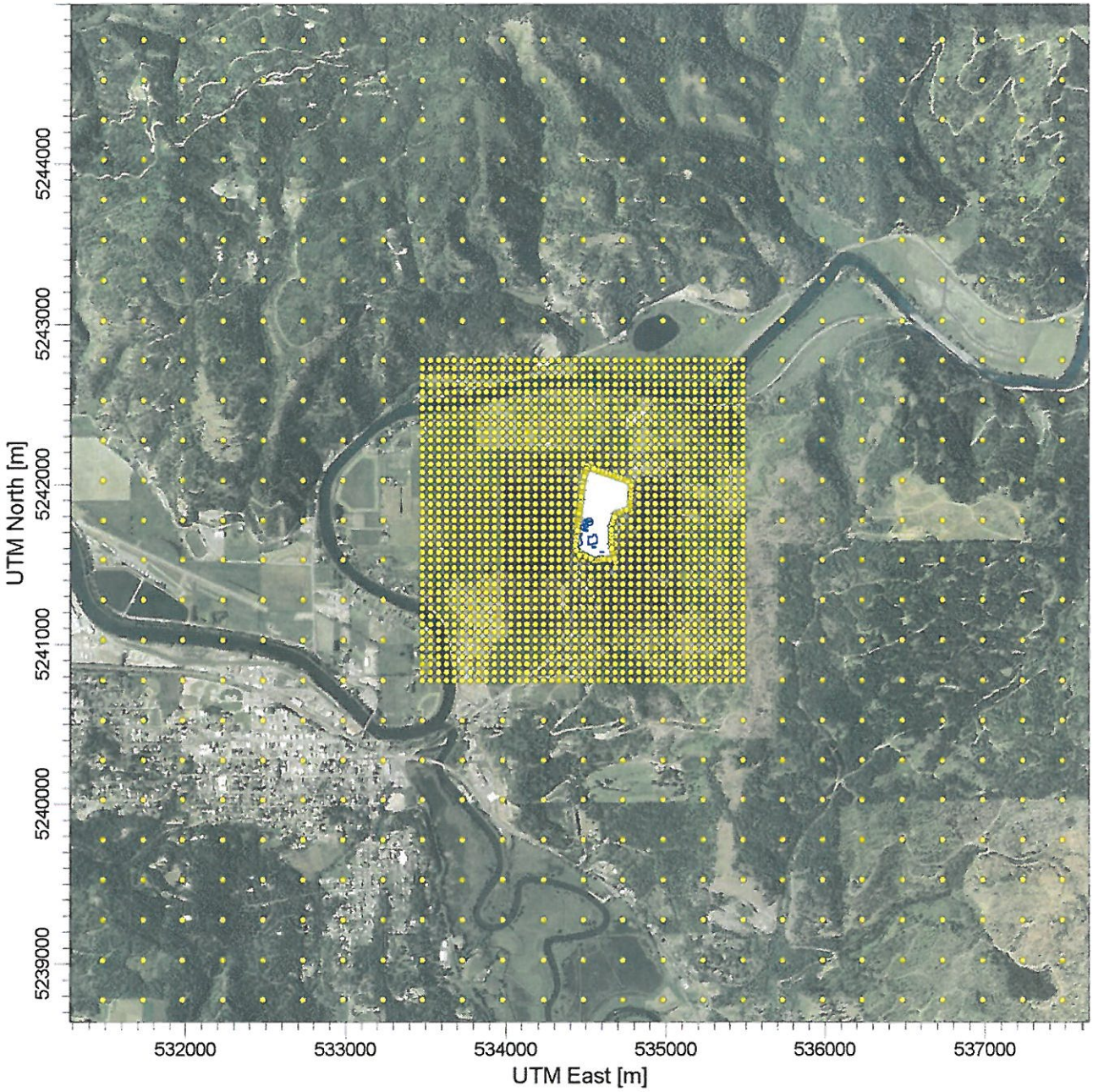


COMMENTS: Yellow dots denote receptor locations. Solid blue lines denote building outlines. Solid red line denotes the property boundary. Datum: WGS 84 UTM Zone: 11		COMPANY NAME: **Golder Associates**	
	RECEPTORS: **2343**	MODELER: **Portland, Oregon**	Golder Associates
		SCALE: 1:5,000 0 0.1 km	
			PROJECT NO.: **123-99732**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Figure 8. Complete Modeling Receptor Grid
Stimson Lumber Company, St. Maries, Idaho

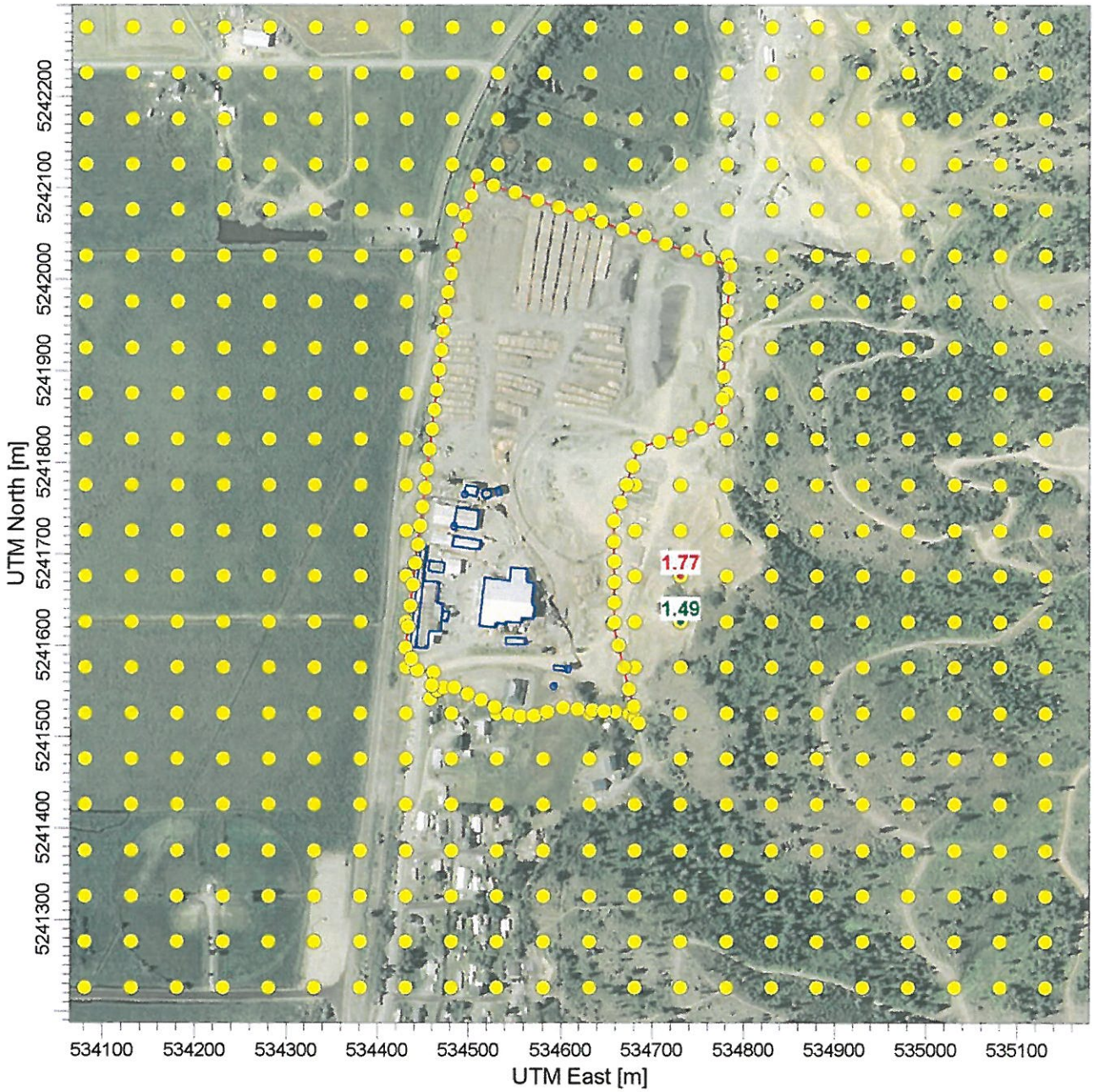


COMMENTS: Yellow dots denote receptor locations. Solid blue lines denote building outlines. Datum: WGS 84 UTM Zone: 11		COMPANY NAME: **Golder Associates**	
	RECEPTORS: **2343**	MODELER: **Portland, Oregon**	Golder Associates
		SCALE: 1:40,000 0 1 km	
			PROJECT NO.: **123-99732**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Figure 9. Model Receptors Exceeding the 24-Hour PM2.5 SIL (Configuration 1, Sandpoint Meteorological Data)
Stimson Lumber Company, St. Maries, Idaho

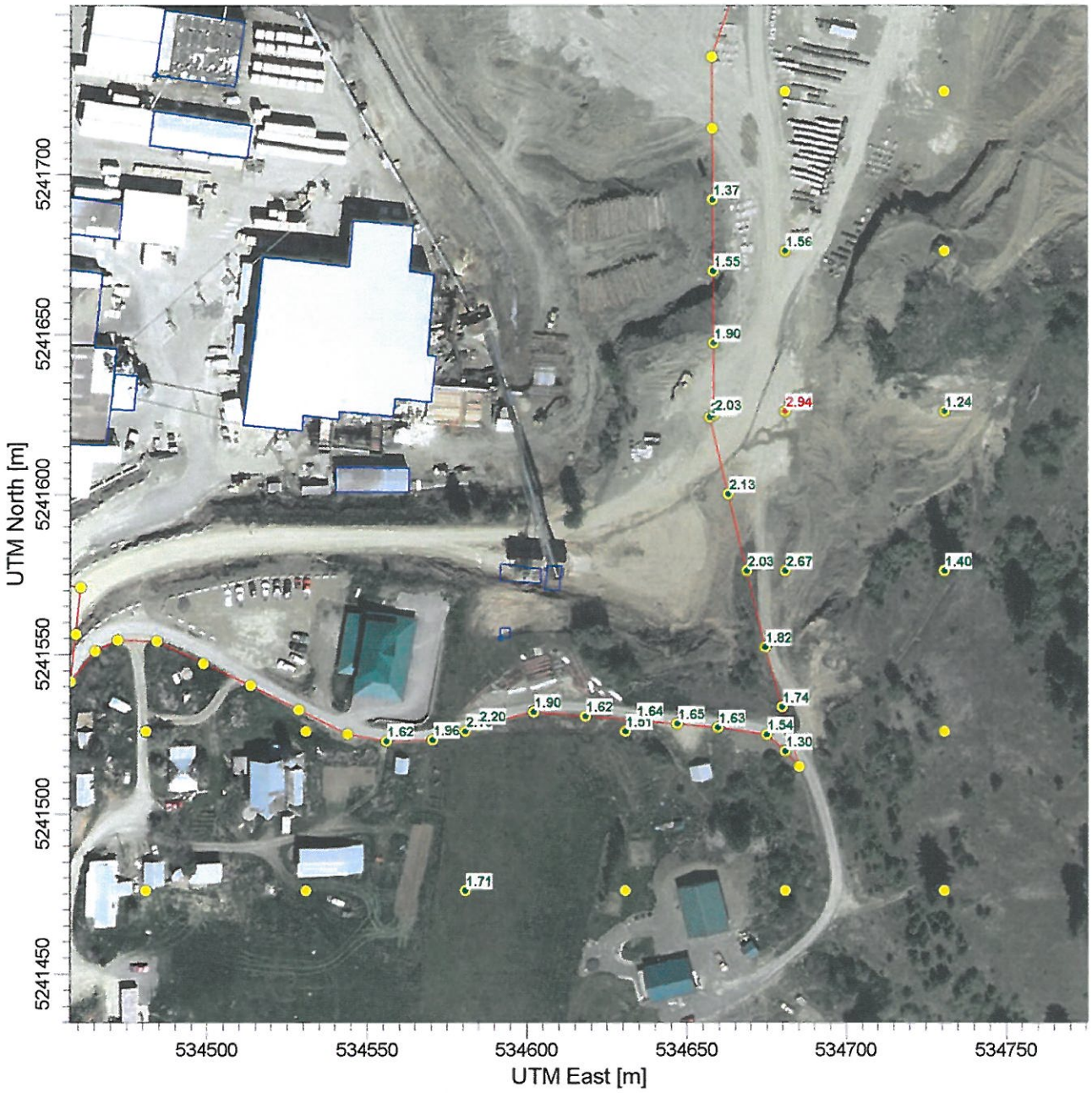


COMMENTS: SIL Standard = 1.2 µg/m³ Yellow dots denote receptor locations. Labeled receptors (in µg/m³) represent SIL exceedance locations. Solid blue lines denote building outlines. Datum: WGS 84 UTM Zone: 11		COMPANY NAME: **Golder Associates**	
		MODELER: **Portland, Oregon**	Golder Associates
	OUTPUT TYPE: **Concentration**	SCALE: 1:7,000 0 0.2 km	
	MAX: **1.76751 µg/m³**		PROJECT NO.: **123-99732**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Figure 10. Model Receptors Exceeding the 24-Hour PM2.5 SIL (Configuration 1, Soda Springs Meteorological Data)
Stimson Lumber Company, St. Maries, Idaho

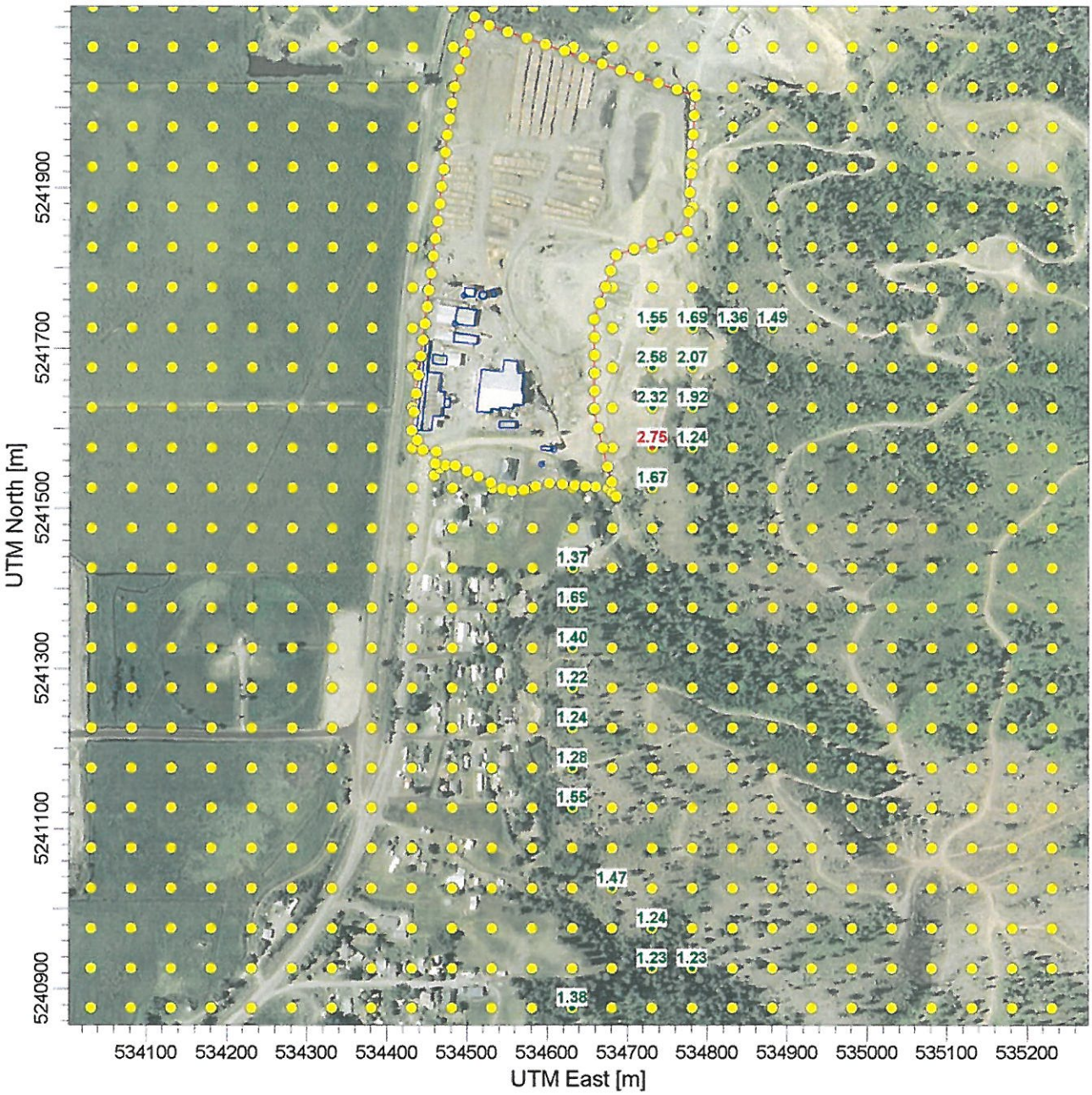


COMMENTS: SIL Standard = 1.2 µg/m³ Yellow dots denote receptor locations. Labeled receptors (in µg/m³) represent SIL exceedance locations. Solid blue lines denote building outlines. Solid red line denotes the property boundary. Datum: WGS 84 UTM Zone: 11		COMPANY NAME: **Golder Associates**	
		MODELER: **Portland, Oregon**	Golder Associates
	OUTPUT TYPE: **Concentration**	SCALE: 1:2,000 0 — 0.05 km	
	MAX: **2.93731 µg/m³**		PROJECT NO.: **123-99732**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Figure 11. Model Receptors Exceeding the 24-Hour PM2.5 SIL (Configuration 2, Sandpoint Meteorological Data)
Stimson Lumber Company, St. Maries, Idaho



COMMENTS: SIL Standard = 1.2 µg/m³ Yellow dots denote receptor locations. Labeled receptors (in µg/m³) represent SIL exceedance locations. Solid blue lines denote building outlines. Datum: WGS 84		COMPANY NAME: **Golder Associates**	
		MODELER: **Portland, Oregon**	Golder Associates
	OUTPUT TYPE: **Concentration**	SCALE: 1:8,000 0 — 0.3 km	
	MAX: **2.7483 µg/m³**		PROJECT NO.: **123-99732**

AERMOD View - Lakes Environmental Software

ATTACHMENT A

EMISSION CALCULATIONS

Table A-1
Drying Kilns Emission Factors
Stimson Lumber Company, St. Maries, Idaho

Pollutant		Cedar	Fir			Hemlock	Pine					Redwood	Annual Average	Max Short Term
Name	Units	Western	Douglas	Alpine/Larch	White	Hemlock	Lodgepole	Ponderosa	Southern	Sugar	White	Redwood	Emission Factor (1)	Emission Factor (2)
Stimson Distibution (3)	%		20.0	5.0		70.0	5.0						100	
Kiln Temp	F		< 200	< 200	< 200	< 200	< 200		< 200					
PM_{10}	lb/1000 BF		0.02	0.02		0.05	0.02						**0.041**	**0.050**
VOC (as propane)	lb/1000 BF	0.15	0.56	0.65	0.65	0.29	1.32	1.98	3.93	2.53	2.76	0.15	**0.42**	**1.318**
Acetaldehyde	lb/1000 BF		0.057	0.113	0.113	0.113	0.012	0.113	0.045				**0.097**	**0.113**
Acetone	lb/1000 BF								0.058				--	--
Acrolein	lb/1000 BF		0.00065	0.0016	0.0016	0.0016	0.0016	0.0016	0.006				**0.001**	**0.002**
Formaldehyde	lb/1000 BF		0.001	0.0028	0.0028	0.00124	0.0040	0.0029	0.0595				**0.001**	**0.004**
Methanol	lb/1000 BF		0.038	0.122	0.122	0.072	0.055	0.065	0.183				**0.067**	**0.122**
Methyl Isobutyl Ketone	lb/1000 BF								0.001				--	--
Propionaldehyde	lb/1000 BF		0.00055	0.001	0.001	0.001	0.001	0.001	0.002				**0.001**	**0.001**
Toluene	lb/1000 BF								0.0001				--	--
Xylenes (total)	lb/1000 BF								0.0002				--	--

Notes:

(1) Factors are weighted according to log species distribution. Speciated VOC factors were obtained from an Oregon DEQ study of May 8, 2007 titled "Title III Implications of Drying Kiln Source Test Resuls". VOC factors were obtained from NCASI values as summarized by Z. Hedgpeth of Ecology. PM factors were obtained from the Oregon DEQ AQ-EF02 document, Emission Factors, Wood Products.

(2) Max short term emission factor based on highest emitting species processed at mill.

(3) Assumed worst case distribution based on normal species processed at mill.

Table A-2
PTE Emissions Before Project
Stimson Lumber Company, St. Maries, Idaho

PTE Parameter	Parameter Value	Notes
Maximum annual boiler fuel input (MMBtu/yr):	527,878	(from steaming rate; assumes 1205.2 Btu/lb steam and 70% efficiency)
Maximum annual boiler steam output (Mlb steam/yr):	306,600	(35 Mlb steam/hr x 8,760 hrs/yr)
Maximum annual kiln throughput (MBF/yr):	93,450	(from 5/17/2010 SOB)
Planer Chipper Cyclone throughput (BDT/yr):	9,111	(from 5/17/2010 SOB)
Planer Shavings Cyclone throughput (BDT/yr):	10,513	(from 5/17/2010 SOB; controlled 99% by baghouse)
Small Planer (Trimmer) Cyclone throughput (BDT/yr):	1,682	(from 5/17/2010 SOB; controlled 99% by baghouse)
Chip Target Box throughput (BDT/yr):	126,932	(from 5/17/2010 SOB)
Shavings Target Box throughput (BDT/yr):	6,920	(from 5/17/2010 SOB)
Hog Fuel Target Box throughput (BDT/yr):	24,616	(from 5/17/2010 SOB)
Fuel Silo Target Box throughput (BDT/yr):	28,558	(from 5/17/2010 SOB)

Pollutant	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
	(lb/10^3 lb steam)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(Annual - lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
PM_{10}	0.01171 [1]	1.80	0.05 [2]	0.041 [2]	0.53	1.92	1.15 [3]	4.68 [6]	9.54
$PM_{2.5}$	0.01171 [7]	1.80	0.05 [7]	0.041 [7]	0.53	1.92	0.28 [3]	1.11 [6]	5.10
NO_X	0.36 [1]	55.19							55.19
CO	0.566 [1]	86.77							86.77
SO_2	0.0144 [1]	2.21							2.21
VOC	0.13 [1]	19.93	1.32 [2]	0.42 [2]	14.06	19.44			39.37

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
			(lb/MMBTU)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(Annual - lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
Acetaldehyde	75-07-0	Y	8.3E-04 [8]	2.2E-01	1.1E-01 [2]	9.7E-02 [2]	1.2E+00	4.5E+00			4.7E+00
Acetophenone	98-86-2	Y	3.2E-09 [8]	8.4E-07							8.4E-07
Acrolein	107-02-8	Y	4.0E-03 [8]	1.1E+00	1.6E-03 [2]	1.4E-03 [2]	1.7E-02	6.6E-02			1.1E+00
Benzene	71-43-2	Y	4.2E-03 [8]	1.1E+00							1.1E+00
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7	Y	4.7E-08 [8]	1.2E-05							1.2E-05
Bromomethane (methyl bromide)	74-83-9	Y	1.5E-05 [8]	4.0E-03							4.0E-03
2-Butanone (MEK)	78-93-3	N	5.4E-06 [8]	1.4E-03							1.4E-03
Carbon Tetrachloride	56-23-5	Y	4.5E-05 [8]	1.2E-02							1.2E-02
Chlorine	7782-50-5	Y	7.9E-04 [8]	2.1E-01							2.1E-01
Chlorobenzene	108-90-7	Y	3.3E-05 [8]	8.7E-03							8.7E-03
Chloroform	67-66-3	Y	2.8E-05 [8]	7.4E-03							7.4E-03
Chloromethane (methyl chloride)	74-87-3	Y	2.3E-05 [8]	6.1E-03							6.1E-03
1,2-Dichloroethane	107-06-2	Y	2.9E-05 [8]	7.7E-03							7.7E-03
Dichloromethane	75-09-2	Y	2.9E-04 [8]	7.7E-02							7.7E-02
1,2-Dichloropropane	78-87-5	Y	3.3E-05 [8]	8.7E-03							8.7E-03
2,4-Dinitrophenol	51-28-5	Y	1.8E-07 [8]	4.8E-05							4.8E-05
Ethylbenzene	100-41-4	Y	3.1E-05 [8]	8.2E-03							8.2E-03
Formaldehyde	50-00-0	Y	4.4E-03 [8]	1.2E+00	4.0E-03 [2]	1.4E-03 [2]	4.3E-02	6.6E-02			1.2E+00
Hydrogen Chloride	7647-01-0	Y	1.9E-02 [8]	5.0E+00							5.0E+00
Methanol	67-56-1	Y			1.2E-01 [2]	6.7E-02 [2]	1.3E+00	3.1E+00			3.1E+00
Naphthalene	91-20-3	Y	9.7E-05 [8]	2.6E-02							2.6E-02
4-Nitrophenol	100-02-7	Y	1.1E-07 [8]	2.9E-05							2.9E-05
Pentachlorophenol	87-86-5	Y	5.1E-08 [8]	1.3E-05							1.3E-05
Phenol	108-95-2	Y	5.1E-05 [8]	1.3E-02							1.3E-02
Propionaldehyde	123-38-6	Y	6.1E-05 [8]	1.6E-02	1.0E-03 [2]	9.1E-04 [2]	1.1E-02	4.3E-02			5.9E-02
Styrene	100-42-5	Y	1.9E-03 [8]	5.0E-01							5.0E-01
Tetrachloroethene	127-18-4	Y	3.8E-05 [8]	1.0E-02							1.0E-02
Toluene	108-88-3	Y	9.2E-04 [8]	2.4E-01							2.4E-01
1,1,1-Trichloroethane	71-55-6	Y	3.1E-05 [8]	8.2E-03							8.2E-03
Trichloroethylene (Trichloroethene)	79-01-6	Y	3.0E-05 [8]	7.9E-03							7.9E-03
2,4,6-Trichlorophenol	88-06-2	Y	2.2E-08 [8]	5.8E-06							5.8E-06
Vinyl Chloride	75-01-4	Y	1.8E-05 [8]	4.8E-03							4.8E-03
o-Xylene	1330-20-7	Y	2.5E-05 [8]	6.6E-03							6.6E-03

Table A-2 (Continued)

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler (lb/MMBTU)	Wellons Wood Boiler (ton/yr) [a]	Kilns (Max Hourly - lb/MBF)	Kilns (Annual - lb/MBF)	Kilns (lb/hr) [b]	Kilns (ton/yr) [a]	Cyclones (ton/yr)	Target Boxes (ton/yr)	Total (ton/yr)
PAH Emissions											
Acenaphthene	83-32-9	Y	9.1E-07 [d]	2.4E-04							2.4E-04
Acenaphthylene	208-96-8	Y	5.0E-06 [d]	1.3E-03							1.3E-03
Anthracene	120-12-7	Y	3.0E-06 [d]	7.9E-04							7.9E-04
Benzo(a)anthracene	56-55-3	Y	6.5E-08 [d]	1.7E-05							1.7E-05
Benzo(a)pyrene	50-32-8	Y	2.6E-06 [d]	6.9E-04							6.9E-04
Benzo(b)fluoranthene	205-99-2	Y	1.0E-07 [d]	2.6E-05							2.6E-05
Benzo(e)pyrene	192-97-2	Y	2.6E-09 [d]	6.9E-07							6.9E-07
Benzo(g,h,i)perylene	191-24-2	Y	9.3E-08 [d]	2.5E-05							2.5E-05
Benzo(j,k)fluoranthene		Y	1.6E-07 [d]	4.2E-05							4.2E-05
Benzo(k)fluoranthene	207-08-9	Y	3.6E-08 [d]	9.5E-06							9.5E-06
Chrysene	218-01-9	Y	3.8E-08 [d]	1.0E-05							1.0E-05
Dibenzo(a,h)anthracene	53-70-3	Y	9.1E-09 [d]	2.4E-06							2.4E-06
Fluoranthene	206-44-0	Y	1.6E-06 [d]	4.2E-04							4.2E-04
Fluorene	86-73-7	Y	3.4E-06 [d]	9.0E-04							9.0E-04
Indeno(1,2,3,c,d)pyrene	193-39-5	Y	8.7E-08 [d]	2.3E-05							2.3E-05
2-Methylnaphthalene	91-57-6	Y	1.6E-07 [d]	4.2E-05							4.2E-05
Phenanthrene	85-01-8	Y	7.0E-06 [d]	1.8E-03							1.8E-03
Pyrene	129-00-0	Y	3.7E-06 [d]	9.8E-04							9.8E-04
PCB Emissions											
Decachlorobiphenyl	2051-24-3	Y	2.7E-10 [d]	7.1E-08							7.1E-08
Dichlorobiphenyl		Y	7.4E-10 [d]	2.0E-07							2.0E-07
Heptachlorobiphenyl		Y	6.6E-11 [d]	1.7E-08							1.7E-08
Hextachlorobiphenyl		Y	5.5E-10 [d]	1.5E-07							1.5E-07
Pentachlorobiphenyl		Y	1.2E-09 [d]	3.2E-07							3.2E-07
Tetrachlorobiphenyl		Y	2.5E-09 [d]	6.6E-07							6.6E-07
Trichlorobiphenyl		Y	2.6E-09 [d]	6.9E-07							6.9E-07
Dioxin/Furan Emissions											
2,3,7,8-TCDD	1746-01-6	Y	8.6E-12 [d]	2.3E-09							2.3E-09
2,3,7,8-TCDF	51207-31-9	Y	9.0E-11 [d]	2.4E-08							2.4E-08
HpCDF		Y	2.4E-10 [d]	6.3E-08							6.3E-08
HxCDF		Y	2.8E-10 [d]	7.4E-08							7.4E-08
OCDF		Y	8.8E-11 [d]	2.3E-08							2.3E-08
PCDF		Y	4.2E-10 [d]	1.1E-07							1.1E-07
TCDF		Y	7.5E-10 [d]	2.0E-07							2.0E-07
Metals Emissions											
Antimony	7440-36-0	Y	7.9E-06 [c]	2.1E-03							2.1E-03
Arsenic	7440-38-2	Y	2.2E-05 [c]	5.8E-03							5.8E-03
Beryllium	7440-41-7	Y	1.1E-06 [c]	2.9E-04							2.9E-04
Cadmium	7440-43-9	Y	4.1E-06 [c]	1.1E-03							1.1E-03
Chromium	7440-47-3	Y	2.1E-05 [c]	5.5E-03							5.5E-03
Chromium (hexavalent)	18540-29-9	Y	3.5E-06 [c]	9.2E-04							9.2E-04
Cobalt	7440-48-4	Y	6.5E-06 [c]	1.7E-03							1.7E-03
Lead	7439-92-1	Y	4.8E-05 [c]	1.3E-02							1.3E-02
Manganese	7439-96-5	Y	1.6E-03 [c]	4.2E-01							4.2E-01
Mercury	7439-97-6	Y	3.5E-06 [c]	9.2E-04							9.2E-04
Nickel	7440-02-0	Y	3.3E-05 [c]	8.7E-03							8.7E-03
Phosphorus	7723-14-0	Y	2.7E-05 [c]	7.1E-03							7.1E-03
Selenium	7782-49-2	Y	2.8E-06 [c]	7.4E-04							7.4E-04
Zinc	7440-66-6	N	4.2E-04 [c]	1.1E-01							1.1E-01
Total HAPs				10.22			2.58	7.82			18.04

Table A-2 (Continued)

Notes:

(a) Emissions (ton/yr) = (PTE parameter) x (emission factor) x (ton/2,000 lbs)

(b) Emissions (lb/hr) = (PTE parameter) / (annual hours of operation [hr/yr]) x (max short term emission factor)

Annual hours of operation (hr/yr) = 8,760

(c) Planer Shavings and Small Planer (Trimmer) Cyclone emission rates (ton/yr) = (Future PTE throughput [BDT/yr]) x (emission factor [lb/BDT]) x (1 - [baghouse control efficiency (%) / 100]) x (ton/2,000 lbs)

Baghouse control efficiency (%) = 99

References:

(1) Taken from 2008 Statement of Basis. Boiler emission factors are based on a 2009 test.

(2) See Table A-1, Drying Kilns Emission Factors. Max hourly emission factor assumes the kilns could dry the highest emitting wood for a period of 24 hours for purposes of emissions modeling.

(3) Cyclone emissions are the sum of the uncontrolled Planer Chipper Cyclone, and the Planer Shavings Cyclone and Small Planer (Trimmer) Cyclone which are controlled by a baghouse. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	PM_{10} Emission Factor (1) (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Planer Chipper Cyclone throughput (BDT/yr)	S1	9,111	0.25	0.06 (2)	1.14 (3)	0.27 (3)
Planer Shavings Cyclone throughput (BDT/yr)	S2	10,513	0.25	0.11 (2)	0.013 (4)	0.006 (4)
Small Planer (Trimmer) Cyclone throughput (BDT/yr)		1,[illegible]2	0.25	0.11 (2)	0.0021 (4)	0.0009 (4)

(4) Forest Products Association of Canada (5/07), Final Report Wood Product Sector Particulate Emission Study. Average $PM_{2.5}$ fraction of PM_{10} calculated from Table 4.1-3.

PM_{10} to $PM_{2.5}$ fraction for cyclone control = 0.238

(5) AP-42 Appendix B.1 (10/86) for woodworking waste collection operations (page B.1-4[illegible]) based on cumulative weight percentages.

$PM_{2.5}$ to PM_{10} fraction for baghouse control: 14.3% $PM_{2.5}$ / 32.1% PM_{10} = 0.45

(6) Target Box emissions are the sum of the Chip Target Box, Shavings Target Box, Hog Fuel Target Box, and Fuel Silo Target Box. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	PM_{10} Emission Factor (1) (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Chip Target Box throughput (BDT/yr)	S8	126,992	0.05	0.0119 (5)	3.17 (6)	0.755 (6)
Shavings Target Box throughput (BDT/yr)	S7_B	6,920	0.05	0.0119 (5)	0.17 (6)	0.041 (6)
Hog Fuel Target Box throughput (BDT/yr)	S7_A	24,816	0.05	0.0119 (5)	0.62 (6)	0.148 (6)
Fuel Silo Target Box throughput (BDT/yr)	S6	28,558	0.05	0.0119 (5)	0.71 (6)	0.170 (6)

(7) It is conservatively assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

(8) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-3. Although AP-42 provides an emission factor for polychlorinated dibenzo-p-dioxins, it was not used for reasons discussed in this submittal.

(9) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-4. Factors do not fully reflect potential emission reductions due to the particulate control device proposed for this project.

Table A-3
PTE Emissions After Project
Stimson Lumber Company, St. Maries, Idaho

PTE Parameter	Future PTE Parameter Value	Current PTE Parameter Value	Adjustment Factor Used	Notes
Maximum annual boiler fuel input (MMBtu/yr):	527,878	527,878	1.000	No change proposed.
Maximum annual boiler steam output (Mlb steam/yr):	306,600	306,600	1.000	No change proposed.
Maximum annual kiln throughput (MBF/yr):	110,000	93,450	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Planer Chipper Cyclone throughput (BDT/yr):	10,725	9,111	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Planer Shavings Cyclone throughput (BDT/yr):	12,375	10,513	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Small Planer (Trimmer) Cyclone throughput (BDT/yr):	1,980	1,682	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Chip Target Box throughput (BDT/yr):	149,412	126,932	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Shavings Target Box throughput (BDT/yr):	8,146	6,920	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Hog Fuel Target Box throughput (BDT/yr):	28,975	24,616	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Fuel Silo Target Box throughput (BDT/yr):	28,558	28,558	1.000	No change proposed.

Pollutant	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
	(lb/10^3 lb steam)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(Annual - lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
PM_{10}	0.01171 [1]	1.80	0.05 [2]	0.041 [2]	0.63	2.26	0.03 [3]	1.68 [3]	5.76
$PM_{2.5}$	0.01171 [7]	1.80	0.05 [7]	0.041 [7]	0.63	2.26	0.01 [3]	0.40 [3]	4.46
NO_X	0.36 [1]	55.19							55.19
CO	0.566 [1]	86.77							86.77
SO_2	0.0144 [1]	2.21							2.21
VOC	0.13 [1]	19.93	1.32 [2]	0.42 [2]	16.55	22.88			42.81

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
			(lb/MMBTU)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(Annual - lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
Acetaldehyde	75-07-0	Y	8.3E-04 [8]	2.2E-01	1.1E-01 [2]	9.7E-02 [2]	1.4E+00	5.3E+00			5.5E+00
Acetophenone	98-86-2	Y	3.2E-09 [8]	8.4E-07							8.4E-07
Acrolein	107-02-8	Y	4.0E-03 [8]	1.1E+00	1.6E-03 [2]	1.4E-03 [2]	2.0E-02	7.8E-02			1.1E+00
Benzene	71-43-2	Y	4.2E-03 [8]	1.1E+00							1.1E+00
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7	Y	4.7E-08 [8]	1.2E-05							1.2E-05
Bromomethane (methyl bromide)	74-83-9	Y	1.5E-05 [8]	4.0E-03							4.0E-03
2-Butanone (MEK)	78-93-3	N	5.4E-06 [8]	1.4E-03							1.4E-03
Carbon Tetrachloride	56-23-5	Y	4.5E-05 [8]	1.2E-02							1.2E-02
Chlorine	7782-50-5	Y	7.9E-04 [8]	2.1E-01							2.1E-01
Chlorobenzene	108-90-7	Y	3.3E-05 [8]	8.7E-03							8.7E-03
Chloroform	67-66-3	Y	2.8E-05 [8]	7.4E-03							7.4E-03
Chloromethane (methyl chloride)	74-87-3	Y	2.3E-05 [8]	6.1E-03							6.1E-03
1,2-Dichloroethane	107-06-2	Y	2.9E-05 [8]	7.7E-03							7.7E-03
Dichloromethane	75-09-2	Y	2.9E-04 [8]	7.7E-02							7.7E-02
1,2-Dichloropropane	78-87-5	Y	3.3E-05 [8]	8.7E-03							8.7E-03
2,4-Dinitrophenol	51-28-5	Y	1.8E-07 [8]	4.8E-05							4.8E-05
Ethylbenzene	100-41-4	Y	3.1E-05 [8]	8.2E-03							8.2E-03
Formaldehyde	50-00-0	Y	4.4E-03 [8]	1.2E+00	4.0E-03 [2]	1.4E-03 [2]	5.0E-02	7.7E-02			1.2E+00
Hydrogen Chloride	7647-01-0	Y	1.9E-02 [8]	5.0E+00							5.0E+00
Methanol	67-56-1	Y			1.2E-01 [2]	6.7E-02 [2]	1.5E+00	3.7E+00			3.7E+00
Naphthalene	91-20-3	Y	9.7E-05 [8]	2.6E-02							2.6E-02
4-Nitrophenol	100-02-7	Y	1.1E-07 [8]	2.9E-05							2.9E-05
Pentachlorophenol	87-86-5	Y	5.1E-08 [8]	1.3E-05							1.3E-05
Phenol	108-95-2	Y	5.1E-05 [8]	1.3E-02							1.3E-02
Propionaldehyde	123-38-6	Y	6.1E-05 [8]	1.6E-02	1.0E-03 [2]	9.1E-04 [2]	1.3E-02	5.0E-02			6.6E-02
Styrene	100-42-5	Y	1.9E-03 [8]	5.0E-01							5.0E-01
Tetrachloroethene	127-18-4	Y	3.8E-05 [8]	1.0E-02							1.0E-02
Toluene	108-88-3	Y	9.2E-04 [8]	2.4E-01							2.4E-01
1,1,1-Trichloroethane	71-55-6	Y	3.1E-05 [8]	8.2E-03							8.2E-03
Trichloroethylene (Trichloroethene)	79-01-6	Y	3.0E-05 [8]	7.9E-03							7.9E-03
2,4,6-Trichlorophenol	88-06-2	Y	2.2E-08 [8]	5.8E-06							5.8E-06
Vinyl Chloride	75-01-4	Y	1.8E-05 [8]	4.8E-03							4.8E-03
o-Xylene	1330-20-7	Y	2.5E-05 [8]	6.6E-03							6.6E-03

Table A-3 (Continued)

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler (lb/MMBTU)	Wellons Wood Boiler (ton/yr) [a]	Kilns (Max Hourly - lb/MBF)	Kilns (Annual - lb/MBF)	Kilns (lb/hr) [b]	Kilns (ton/yr) [a]	Cyclones (ton/yr)	Target Boxes (ton/yr)	Total (ton/yr)
PAH Emissions											
Acenaphthene	83-32-9	Y	9.1E-07 [d]	2.4E-04							2.4E-04
Acenaphthylene	208-96-8	Y	5.0E-06 [d]	1.3E-03							1.3E-03
Anthracene	120-12-7	Y	3.0E-06 [d]	7.9E-04							7.9E-04
Benzo(a)anthracene	56-55-3	Y	6.5E-08 [d]	1.7E-05							1.7E-05
Benzo(a)pyrene	50-32-8	Y	2.6E-06 [d]	6.9E-04							6.9E-04
Benzo(b)fluoranthene	205-99-2	Y	1.0E-07 [d]	2.6E-05							2.6E-05
Benzo(e)pyrene	192-97-2	Y	2.6E-09 [d]	6.9E-07							6.9E-07
Benzo(g,h,i)perylene	191-24-2	Y	9.3E-08 [d]	2.5E-05							2.5E-05
Benzo(j,k)fluoranthene		Y	1.6E-07 [d]	4.2E-05							4.2E-05
Benzo(k)fluoranthene	207-08-9	Y	3.6E-08 [d]	9.5E-06							9.5E-06
Chrysene	218-01-9	Y	3.8E-08 [d]	1.0E-05							1.0E-05
Dibenzo(a,h)anthracene	53-70-3	Y	9.1E-09 [d]	2.4E-06							2.4E-06
Fluoranthene	206-44-0	Y	1.6E-06 [d]	4.2E-04							4.2E-04
Fluorene	86-73-7	Y	3.4E-06 [d]	9.0E-04							9.0E-04
Indeno(1,2,3,c,d)pyrene	193-39-5	Y	8.7E-08 [d]	2.3E-05							2.3E-05
2-Methylnaphthalene	91-57-6	Y	1.6E-07 [d]	4.2E-05							4.2E-05
Phenanthrene	85-01-8	Y	7.0E-06 [d]	1.8E-03							1.8E-03
Pyrene	129-00-0	Y	3.7E-06 [d]	9.8E-04							9.8E-04
PCB Emissions											
Decachlorobiphenyl	2051-24-3	Y	2.7E-10 [d]	7.1E-08							7.1E-08
Dichlorobiphenyl		Y	7.4E-10 [d]	2.0E-07							2.0E-07
Heptachlorobiphenyl		Y	6.6E-11 [d]	1.7E-08							1.7E-08
Hextachlorobiphenyl		Y	5.5E-10 [d]	1.5E-07							1.5E-07
Pentachlorobiphenyl		Y	1.2E-09 [d]	3.2E-07							3.2E-07
Tetrachlorobiphenyl		Y	2.5E-09 [d]	6.6E-07							6.6E-07
Trichlorobiphenyl		Y	2.6E-09 [d]	6.9E-07							6.9E-07
Dioxin/Furan Emissions											
2,3,7,8-TCDD	1746-01-6	Y	8.6E-12 [d]	2.3E-09							2.3E-09
2,3,7,8-TCDF	51207-31-9	Y	9.0E-11 [d]	2.4E-08							2.4E-08
HpCDF		Y	2.4E-10 [d]	6.3E-08							6.3E-08
HxCDF		Y	2.8E-10 [d]	7.4E-08							7.4E-08
OCDF		Y	8.8E-11 [d]	2.3E-08							2.3E-08
PCDF		Y	4.2E-10 [d]	1.1E-07							1.1E-07
TCDF		Y	7.5E-10 [d]	2.0E-07							2.0E-07
Metals Emissions											
Antimony	7440-36-0	Y	7.9E-06 [c]	2.1E-03							2.1E-03
Arsenic	7440-38-2	Y	2.2E-05 [c]	5.8E-03							5.8E-03
Beryllium	7440-41-7	Y	1.1E-06 [c]	2.9E-04							2.9E-04
Cadmium	7440-43-9	Y	4.1E-06 [c]	1.1E-03							1.1E-03
Chromium	7440-47-3	Y	2.1E-05 [c]	5.5E-03							5.5E-03
Chromium (hexavalent)	18540-29-9	Y	3.5E-06 [c]	9.2E-04							9.2E-04
Cobalt	7440-48-4	Y	6.5E-06 [c]	1.7E-03							1.7E-03
Lead	7439-92-1	Y	4.8E-05 [c]	1.3E-02							1.3E-02
Manganese	7439-96-5	Y	1.6E-03 [c]	4.2E-01							4.2E-01
Mercury	7439-97-6	Y	3.5E-06 [c]	9.2E-04							9.2E-04
Nickel	7440-02-0	Y	3.3E-05 [c]	8.7E-03							8.7E-03
Phosphorus	7723-14-0	Y	2.7E-05 [c]	7.1E-03							7.1E-03
Selenium	7782-49-2	Y	2.8E-06 [c]	7.4E-04							7.4E-04
Zinc	7440-66-6	N	4.2E-04 [c]	1.1E-01							1.1E-01
Total HAPs				10.22			3.03	9.20			19.42

Table A-3 (Continued)

Notes:

(a) Emissions (ton/yr) = (PTE parameter) x (emission factor) x (ton/2,000 lbs)

(b) Emissions (lb/hr) = (PTE parameter) / (annual hours of operation [hr/yr]) x (max short term emission factor)

Annual hours of operation (hr/yr) = 8,760

(c) Emission rates (ton/yr) = (Future PTE throughput [BDT/yr]) x (emission factor [lb/BDT]) x (1 - [baghouse control efficiency (%) / 100]) x (ton/2,000 lbs)

Baghouse control efficiency (%) = 99

References:

(1) Taken from 2009 Statement of Basis. Boiler emission factors are based on a 2009 test.

(2) See Table A-1, Drying Kilns Emission Factors. Max hourly emission factor assumes the kilns could dry the highest emitting wood for a period of 24 hours for purposes of emissions modeling.

(3) Cyclone emissions are the sum of the Planer Chipper Cyclone, Planer Shavings Cyclone, and Small Planer (Trimmer) Cyclone, all of which are controlled by a baghouse in the future scenario. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	PM_{10} Emission Factor[1] (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Planer Chipper Cyclone throughput (BDT/yr) (Formerly S1)	S2	16,725	0.25	0.111 [4]	0.013 [5]	0.0060 [5]
Planer Shavings Cyclone throughput (BDT/yr)		12,375	0.25	0.111 [4]	0.015 [5]	0.0069 [5]
Small Planer (Trimmer) Cyclone throughput (BDT/yr)		1,980	0.25	0.111 [4]	0.0025 [5]	0.0011 [5]

(4) AP-42 Appendix B.1 (10/86) for woodworking waste collection operations (page B.1-48) based on cumulative weight percentage:

$PM_{2.5}$ to PM_{10} fraction for baghouse control: 14.3% $PM_{2.5}$ / 32.1% PM_{10} = 0.45

(5) Target Box emissions are the sum of the Chip Target Box, Shavings Target Box, Hog Fuel Target Box, and Fuel Silo Target Box. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	PM_{10} Emission Factor[1] (lb/BDT)	$PM_{2.5}$ Emission Factor[6] (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Chip Target Box throughput (BDT/yr)	S8	149,412	0.05	0.0119 [4]	0.037 [5]	0.009 [5]
Shavings Target Box throughput (BDT/yr)	S7_B	8,146	0.05	0.0119 [4]	0.20 [5]	0.05 [5]
Hog Fuel Target Box throughput (BDT/yr)	S7_A	28,975	0.05	0.0119 [4]	0.72 [5]	0.17 [5]
Fuel Silo Target Box throughput (BDT/yr)	S6	28,558	0.05	0.0119 [4]	0.71 [5]	0.17 [5]

(6) Forest Products Association of Canada (5/07), Final Report Wood Product Sector Particulate Emission Study. Average $PM_{2.5}$ fraction of PM_{10} calculated from Table 4.1-3.

$PM_{2.5}$ to PM_{10} fraction for cyclone control = 0.238

(7) It is conservatively assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

(8) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-3. Although AP-42 provides an emission factor for polychlorinated dibenzo-p-dioxins, it was not used for reasons discussed in this submittal.

(9) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-4. Factors do not fully reflect potential emission reductions due to the particulate control device proposed for this project.

Table A-3b
PTE Emissions After Project (Modeling Threshold Comparison)
Stimson Lumber Company, St. Maries, Idaho

PTE Parameter	Future PTE Parameter Value (SIL)	Current PTE Parameter Value	Adjustment Factor Used	
Maximum annual boiler fuel input (MMBtu/yr):	527,878	527,878	1.000	No change proposed.
Maximum annual boiler steam output (Mlb steam/yr):	306,600	306,600	1.000	No change proposed.
Maximum annual kiln throughput (MBF/yr):	110,000	93,450	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Planer Chipper Cyclone throughput (BDT/yr):	10,725	9,111	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Planer Shavings Cyclone throughput (BDT/yr):	12,375	10,513	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Small Planer (Trimmer) Cyclone throughput (BDT/yr):	1,980	1,682	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Chip Target Box throughput (BDT/yr):	149,412	126,932	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Shavings Target Box throughput (BDT/yr):	8,146	6,920	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Hog Fuel Target Box throughput (BDT/yr):	28,975	24,616	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Fuel Silo Target Box throughput (BDT/yr):	28,558	28,558	1.000	No change proposed.

Pollutant	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
	(lb/10^3 lb steam)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
PM_{10}	0.01171 [1]	1.80	0.05 [2]	0.041 [2]	0.63	2.26	1.36 [3]	5.38 [6]	10.79
$PM_{2.5}$	0.01171 [1]	1.80	0.050 [1]	0.041 [1]	0.63	2.26	0.33 [3]	1.28 [6]	5.66
NO_X	0.36 [1]	55.19							55.19
CO	0.566 [1]	86.77							86.77
SO_2	0.0144 [1]	2.21							2.21
VOC	0.13 [1]	19.93	1.32 [2]	0.46 [2]	16.55	25.30			45.23

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
			(lb/MMBTU)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
Acetaldehyde	75-07-0	Y	8.3E-04 [8]	2.2E-01	1.1E-01 [2]	9.7E-02 [2]	1.4E+00	5.3E+00			5.5E+00
Acetophenone	98-86-2	Y	3.2E-09 [8]	8.4E-07							8.4E-07
Acrolein	107-02-8	Y	4.0E-03 [8]	1.1E+00	1.6E-03 [2]	1.4E-03 [2]	2.0E-02	7.8E-02			1.1E+00
Benzene	71-43-2	Y	4.2E-03 [8]	1.1E+00							1.1E+00
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7	Y	4.7E-08 [8]	1.2E-05							1.2E-05
Bromomethane (methyl bromide)	74-83-9	Y	1.5E-05 [8]	4.0E-03							4.0E-03
2-Butanone (MEK)	78-93-3	N	5.4E-06 [8]	1.4E-03							1.4E-03
Carbon Tetrachloride	56-23-5	Y	4.5E-05 [8]	1.2E-02							1.2E-02
Chlorine	7782-50-5	Y	7.9E-04 [8]	2.1E-01							2.1E-01
Chlorobenzene	108-90-7	Y	3.3E-05 [8]	8.7E-03							8.7E-03
Chloroform	67-66-3	Y	2.8E-05 [8]	7.4E-03							7.4E-03
Chloromethane (methyl chloride)	74-87-3	Y	2.3E-05 [8]	6.1E-03							6.1E-03
1,2-Dichloroethane	107-06-2	Y	2.9E-05 [8]	7.7E-03							7.7E-03
Dichloromethane	75-09-2	Y	2.9E-04 [8]	7.7E-02							7.7E-02
1,2-Dichloropropane	78-87-5	Y	3.3E-05 [8]	8.7E-03							8.7E-03
2,4-Dinitrophenol	51-28-5	Y	1.8E-07 [8]	4.8E-05							4.8E-05
Ethylbenzene	100-41-4	Y	3.1E-05 [8]	8.2E-03							8.2E-03
Formaldehyde	50-00-0	Y	4.4E-03 [8]	1.2E+00	4.0E-03 [2]	1.4E-03 [2]	5.0E-02	7.7E-02			1.2E+00
Hydrogen Chloride	7647-01-0	Y	1.9E-02 [8]	5.0E+00							5.0E+00
Methanol	67-56-1	Y			1.2E-01 [2]	6.7E-02 [2]	1.5E+00	3.7E+00			3.7E+00
Naphthalene	91-20-3	Y	9.7E-05 [8]	2.6E-02							2.6E-02
4-Nitrophenol	100-02-7	Y	1.1E-07 [8]	2.9E-05							2.9E-05
Pentachlorophenol	87-86-5	Y	5.1E-08 [8]	1.3E-05							1.3E-05
Phenol	108-95-2	Y	5.1E-05 [8]	1.3E-02							1.3E-02
Propionaldehyde	123-38-6	Y	6.1E-05 [8]	1.6E-02	1.0E-03 [2]	9.1E-04 [2]	1.3E-02	5.0E-02			6.6E-02
Styrene	100-42-5	Y	1.9E-03 [8]	5.0E-01							5.0E-01
Tetrachloroethene	127-18-4	Y	3.8E-05 [8]	1.0E-02							1.0E-02
Toluene	108-88-3	Y	9.2E-04 [8]	2.4E-01							2.4E-01
1,1,1-Trichloroethane	71-55-6	Y	3.1E-05 [8]	8.2E-03							8.2E-03
Trichloroethylene (Trichloroethene)	79-01-6	Y	3.0E-05 [8]	7.9E-03							7.9E-03
2,4,6-Trichlorophenol	88-06-2	Y	2.2E-08 [8]	5.8E-06							5.8E-06
Vinyl Chloride	75-01-4	Y	1.8E-05 [8]	4.8E-03							4.8E-03
o-Xylene	1330-20-7	Y	2.5E-05 [8]	6.6E-03							6.6E-03

Table A-3b (Continued)

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler (lb/MMBTU)	Wellons Wood Boiler (ton/yr) [a]	Kilns (Max Hourly - lb/MBF)	Kilns (lb/MBF)	Kilns (lb/hr) [b]	Kilns (ton/yr) [a]	Cyclones (ton/yr)	Target Boxes (ton/yr)	Total (ton/yr)
PAH Emissions											
Acenaphthene	83-32-9	Y	9.1E-07 [6]	2.4E-04							2.4E-04
Acenaphthylene	208-96-8	Y	5.0E-06 [6]	1.3E-03							1.3E-03
Anthracene	120-12-7	Y	3.0E-06 [6]	7.9E-04							7.9E-04
Benzo(a)anthracene	56-55-3	Y	6.5E-08 [6]	1.7E-05							1.7E-05
Benzo(a)pyrene	50-32-8	Y	2.6E-06 [6]	6.9E-04							6.9E-04
Benzo(b)fluoranthene	205-99-2	Y	1.0E-07 [6]	2.6E-05							2.6E-05
Benzo(e)pyrene	192-97-2	Y	2.6E-09 [6]	6.9E-07							6.9E-07
Benzo(g,h,i)perylene	191-24-2	Y	9.3E-08 [6]	2.5E-05							2.5E-05
Benzo(j,k)fluoranthene		Y	1.6E-07 [6]	4.2E-05							4.2E-05
Benzo(k)fluoranthene	207-08-9	Y	3.6E-08 [6]	9.5E-06							9.5E-06
Chrysene	218-01-9	Y	3.8E-08 [6]	1.0E-05							1.0E-05
Dibenzo(a,h)anthracene	53-70-3	Y	9.1E-09 [6]	2.4E-06							2.4E-06
Fluoranthene	206-44-0	Y	1.6E-06 [6]	4.2E-04							4.2E-04
Fluorene	86-73-7	Y	3.4E-06 [6]	9.0E-04							9.0E-04
Indeno(1,2,3,c,d)pyrene	193-39-5	Y	8.7E-08 [6]	2.3E-05							2.3E-05
2-Methylnaphthalene	91-57-6	Y	1.6E-07 [6]	4.2E-05							4.2E-05
Phenanthrene	85-01-8	Y	7.0E-06 [6]	1.8E-03							1.8E-03
Pyrene	129-00-0	Y	3.7E-06 [6]	9.8E-04							9.8E-04
PCB Emissions											
Decachlorobiphenyl	2051-24-3	Y	2.7E-10 [6]	7.1E-08							7.1E-08
Dichlorobiphenyl		Y	7.4E-10 [6]	2.0E-07							2.0E-07
Heptachlorobiphenyl		Y	6.6E-11 [6]	1.7E-08							1.7E-08
Hextachlorobiphenyl		Y	5.5E-10 [6]	1.5E-07							1.5E-07
Pentachlorobiphenyl		Y	1.2E-09 [6]	3.2E-07							3.2E-07
Tetrachlorobiphenyl		Y	2.5E-09 [6]	6.6E-07							6.6E-07
Trichlorobiphenyl		Y	2.6E-09 [6]	6.9E-07							6.9E-07
Dioxin/Furan Emissions											
2,3,7,8-TCDD	1746-01-6	Y	8.6E-12 [6]	2.3E-09							2.3E-09
2,3,7,8-TCDF	51207-31-9	Y	9.0E-11 [6]	2.4E-08							2.4E-08
HpCDF		Y	2.4E-10 [6]	6.3E-08							6.3E-08
HxCDF		Y	2.8E-10 [6]	7.4E-08							7.4E-08
OCDF		Y	8.8E-11 [6]	2.3E-08							2.3E-08
PCDF		Y	4.2E-10 [6]	1.1E-07							1.1E-07
TCDF		Y	7.5E-10 [6]	2.0E-07							2.0E-07
Metals Emissions											
Antimony	7440-36-0	Y	7.9E-06 [9]	2.1E-03							2.1E-03
Arsenic	7440-38-2	Y	2.2E-05 [9]	5.8E-03							5.8E-03
Beryllium	7440-41-7	Y	1.1E-06 [9]	2.9E-04							2.9E-04
Cadmium	7440-43-9	Y	4.1E-06 [9]	1.1E-03							1.1E-03
Chromium	7440-47-3	Y	2.1E-05 [9]	5.5E-03							5.5E-03
Chromium (hexavalent)	18540-29-9	Y	3.5E-06 [9]	9.2E-04							9.2E-04
Cobalt	7440-48-4	Y	6.5E-06 [9]	1.7E-03							1.7E-03
Lead	7439-92-1	Y	4.8E-05 [9]	1.3E-02							1.3E-02
Manganese	7439-96-5	Y	1.6E-03 [9]	4.2E-01							4.2E-01
Mercury	7439-97-6	Y	3.5E-06 [9]	9.2E-04							9.2E-04
Nickel	7440-02-0	Y	3.3E-05 [9]	8.7E-03							8.7E-03
Phosphorus	7723-14-0	Y	2.7E-05 [9]	7.1E-03							7.1E-03
Selenium	7782-49-2	Y	2.8E-06 [9]	7.4E-04							7.4E-04
Zinc	7440-66-6	N	4.2E-04 [9]	1.1E-01							1.1E-01
Total HAPs				10.22			3.03	9.20			19.42

Table A-3b (Continued)

Notes:

(a) Emissions (ton/yr) = (PTE parameter) x (emission factor) x (ton/2,000 lbs)

(b) Emissions (lb/hr) = (PTE parameter) / (annual hours of operation [hr/yr]) x (max short term emission factor)

Annual hours of operation (hr/yr) = 8,760

(c) Planer Shavings and Small Planer (Trimmer) Cyclone emission rates (ton/yr) = (Future PTE throughput [BDT/yr]) x (emission factor [lb/BDT]) x (1 - [baghouse control efficiency (%)] / 100]) x (ton/2,000 lbs)

Baghouse control efficiency (%) = 99

References:

(1) Taken from 2009 Statement of Basis. Boiler emission factors are based on a 2009 test.

(2) See Table A-1, Drying Kilns Emission Factors. Max hourly emission factor assumes the kilns could dry the highest emitting wood for a period of 24 hours for purposes of emissions modeling.

(3) Cyclone emissions are the sum of the uncontrolled Planer Chipper Cyclone, and the Planer Shavings Cyclone and Small Planer (Trimmer) Cyclone which are controlled by a baghouse. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	PM_{10} Emission Factor (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	$PM_{0.1}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Planer Chipper Cyclone throughput (BDT/yr)	S1	10,725	0.25	0.25	0.06	1.34 (1,2)	0.32 (1,2)
Planer Shavings Cyclone throughput (BDT/yr)	S2	12,375	0.25	0.25	0.11	0.015 (1,2)	0.007 (1,2)
Small Planer (Trimmer) Cyclone throughput (BDT/yr)		1,980	0.25	0.25	0.11	0.0025 (1,2)	0.0011 (1,2)

(4) Forest Products Association of Canada (5/07), Final Report Wood Product Sector Particulate Emission Study. Average $PM_{2.5}$ fraction of PM_{10} calculated from Table 4.1-3.

$PM_{2.5}$ to PM_{10} fraction for cyclone control: 23.8% $PM_{2.5}$ / 23.8% PM_{10} = 0.238

(5) AP-42 Appendix B.1 (10/86) for woodworking waste collection operations (page B.1-48) based on cumulative weight percentages

$PM_{2.5}$ to PM_{10} fraction for baghouse control: 14.3% $PM_{2.5}$ / 32.1% PM_{10} = 0.45

(6) Target Box emissions are the sum of the Chip Target Box, Shavings Target Box, Hog Fuel Target Box, and Fuel Silo Target Box. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	PM_{10} Emission Factor (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	$PM_{0.1}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Chip Target Box throughput (BDT/yr)	S8	149,412	0.05	0.05	0.0119	3.74 (1,2)	0.889 (1,2)
Shavings Target Box throughput (BDT/yr)	S7_B	8,146	0.05	0.05	0.0119	0.20 (1,2)	0.048 (1,2)
Hog Fuel Target Box throughput (BDT/yr)	S7_A	28,975	0.05	0.05	0.0119	0.72 (1,2)	0.172 (1,2)
Fuel Silo Target Box throughput (BDT/yr)	S6	28,558	0.05	0.05	0.0119	0.71 (1,2)	0.170 (1,2)

(7) It is conservatively assumed that 100% of $PM_{2.5}$ emissions are $PM_{0.1}$.

(8) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-3. Although AP-42 provides an emission factor for polychlorinated dibenzo-p-dioxins, it was not used for reasons discussed in this submittal.

(9) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-4. Factors do not fully reflect potential emission reductions due to the particulate control device proposed for this project.

Table A-4
Modeling Threshold Comparison
Stimson Lumber Company, St. Maries, Idaho

Pollutant	Emission Change (1)						Total Change	Threshold (3)	Total Change	Threshold (3)
	Kilns		Cyclones		Target Boxes					
	(lb/hr)	(ton/yr)	(lb/hr) (2)	(ton/yr)	(lb/hr) (2)	(ton/yr)	(lb/hr)	(lb/hr)	(ton/yr)	(ton/yr)
PM_{10}	0.09	0.34	0.05	0.20	0.16	0.70	0.30	0.22	1.25	-
$PM_{2.5}$	0.09	0.34	0.01	0.05	0.04	0.17	0.14	0.054	0.56	0.35
NO_X	-	-	-	-	-	-	0.00	0.2	0.00	1.2
CO	-	-	-	-	-	-	0.00	15	0.00	-
SO_2	-	-	-	-	-	-	0.00	0.21	0.00	2.5
VOC	2.49	5.86	-	-	-	-	2.49	-	5.86	-

Pollutant	CAS	Emission Change (1)						Total Change	Threshold	Total Change	Threshold
		Kilns		Cyclones		Target Boxes					
		(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(lb/hr)	(ton/yr)	(ton/yr)
Acetaldehyde	75-07-0	2.1E-01	8.0E-01	-	-	-	-	2.1E-01	-	8.0E-01	-
Acrolein	107-02-8	3.0E-03	1.2E-02	-	-	-	-	3.0E-03	-	1.2E-02	-
Formaldehyde	50-00-0	7.6E-03	1.2E-02	-	-	-	-	7.6E-03	-	1.2E-02	-
Methanol	67-56-1	2.3E-01	5.5E-01	-	-	-	-	2.3E-01	-	5.5E-01	-
Propionaldehyde	123-38-6	1.9E-03	7.5E-03	-	-	-	-	1.9E-03	-	7.5E-03	-

Notes:

(1) Comparison represents the difference between the facility PTE prior to the project and the PTE after the project due to increased production only. Emission reductions achieved by the addition of emission control devices are not included in the comparison.

(2) Hourly emissions (lb/hr) equal to annual emissions (ton/yr) multiplied by 2,000 lb/ton and divided by 8,760 hours per year.

(3) Idaho DEQ Modeling Thresholds, Threshold I.

Table A-5
Emissions Increase Comparison to Idaho Emission Limits
Stimson Lumber Company, St. Maries, Idaho

Pollutant	CAS	PTE Emissions Increase (1) (lb/hr)	Emission Level (2) (lb/hr)	PTE Emissions Increase > Emission Level? (Yes/No)	Evaluated as 24-hr or Annual Concentration?
Acetaldehyde	75-07-0	2.1E-01	3.0E-03	Yes	Annual
Acrolein	107-02-8	3.0E-03	1.7E-02	No	Not Evaluated
Formaldehyde	50-00-0	7.6E-03	5.1E-04	Yes	Annual
Methanol	67-56-1	2.3E-01	1.7E+01	No	Not Evaluated
Propionaldehyde	123-38-6	1.9E-03	2.9E-02	No	Not Evaluated

Notes:

(1) PTE Emissions Increase taken from Table A-4, Modeling Threshold Comparison.

(2) Emission Levels are the screening emissions levels (EL) from Idaho Administrative Code 58.01.01, Sections 585 and 586. If the PTE emissions increase is less than or equal to the EL, no further preconstruction compliance demonstration is required for that specific HAP.

ATTACHMENT #2

Modeling Protocol and Approval

Table A-1
Drying Kilns Emission Factors
Stimson Lumber Company, St. Maries, Idaho

Pollutant		Cedar	Fir			Hemlock	Pine					Redwood	Annual Average	Max Short Term
Name	Units	Western	Douglas	Alpine/Larch	White	Hemlock	Lodgepole	Ponderosa	Southern	Sugar	White	Redwood	Emission Factor (1)	Emission Factor (2)
Stimson Distibution (3)	%		20.0	5.0		70.0	5.0						100	
Kiln Temp	F		< 200	< 200	< 200	< 200	< 200		< 200					
PM_{10}	lb/1000 BF		0.02	0.02		0.05	0.02						**0.041**	**0.050**
VOC (as propane)	lb/1000 BF	0.15	0.56	0.65	0.65	0.29	1.32	1.98	3.93	2.53	2.76	0.15	**0.42**	**1.318**
Acetaldehyde	lb/1000 BF		0.057	0.113	0.113	0.113	0.012	0.113	0.045				**0.097**	**0.113**
Acetone	lb/1000 BF								0.058				--	--
Acrolein	lb/1000 BF		0.00065	0.0016	0.0016	0.0016	0.0016	0.0016	0.006				**0.001**	**0.002**
Formaldehyde	lb/1000 BF		0.001	0.0028	0.0028	0.00124	0.0040	0.0029	0.0595				**0.001**	**0.004**
Methanol	lb/1000 BF		0.038	0.122	0.122	0.072	0.055	0.065	0.183				**0.067**	**0.122**
Methyl Isobutyl Ketone	lb/1000 BF								0.001				--	--
Propionaldehyde	lb/1000 BF		0.00055	0.001	0.001	0.001	0.001	0.001	0.002				**0.001**	**0.001**
Toluene	lb/1000 BF								0.0001				--	--
Xylenes (total)	lb/1000 BF								0.0002				--	--

Notes:
(1) Factors are weighted according to log species distribution. Speciated VOC factors were obtained from an Oregon DEQ study of May 8, 2007 titled "Title III Implications of Drying Kiln Source Test Resuls".
VOC factors were obtained from NCASI values as summarized by Z. Hedgpeth of Ecology. PM factors were obtained from the Oregon DEQ AQ-EF02 document, Emission Factors, Wood Products.
(2) Max short term emission factor based on highest emitting species processed at mill.
(3) Assumed worst case distribution based on normal species processed at mill.

Table A-3
PTE Emissions After Project
Stimson Lumber Company, St. Maries, Idaho

PTE Parameter	Future PTE Parameter Value	Current PTE Parameter Value	Adjustment Factor Used	Notes
Maximum annual boiler fuel input (MMBtu/yr):	527,878	527,878	1.000	No change proposed.
Maximum annual boiler steam output (Mlb steam/yr):	306,600	306,600	1.000	No change proposed.
Maximum annual kiln throughput (MBF/yr):	110,000	93,450	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Planer Chipper Cyclone throughput (BDT/yr):	10,725	9,111	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Planer Shavings Cyclone throughput (BDT/yr):	12,375	10,513	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Small Planer (Trimmer) Cyclone throughput (BDT/yr):	1,980	1,682	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Chip Target Box throughput (BDT/yr):	149,412	126,932	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Shavings Target Box throughput (BDT/yr):	8,146	6,920	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Hog Fuel Target Box throughput (BDT/yr):	28,975	24,616	1.177	= (110,000 MBF/yr)/(93,450 MBF/yr)
Fuel Silo Target Box throughput (BDT/yr):	28,558	28,558	1.000	No change proposed.

Pollutant	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
	(lb/10^3 lb steam)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(Annual - lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
PM_{10}	0.01171 [1]	1.80	0.05 [2]	0.041 [2]	0.63	2.26	0.03 [3]	1.68 [3]	5.76
$PM_{2.5}$	0.01171 [7]	1.80	0.05 [7]	0.041 [7]	0.63	2.26	0.01 [3]	0.40 [3]	4.46
NO_x	0.36 [1]	55.19							55.19
CO	0.566 [1]	86.77							86.77
SO_2	0.0144 [1]	2.21							2.21
VOC	0.13 [1]	19.93	1.32 [2]	0.42 [2]	16.55	22.88			42.81

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler		Kilns				Cyclones	Target Boxes	Total
			(lb/MMBTU)	(ton/yr) [a]	(Max Hourly - lb/MBF)	(Annual - lb/MBF)	(lb/hr) [b]	(ton/yr) [a]	(ton/yr)	(ton/yr)	(ton/yr)
Acetaldehyde	75-07-0	Y	8.3E-04 [6]	2.2E-01	1.1E-01 [2]	9.7E-02 [2]	1.4E+00	5.3E+00			5.5E+00
Acetophenone	98-86-2	Y	3.2E-09 [6]	8.4E-07							8.4E-07
Acrolein	107-02-8	Y	4.0E-03 [6]	1.1E+00	1.6E-03 [2]	1.4E-03 [2]	2.0E-02	7.8E-02			1.1E+00
Benzene	71-43-2	Y	4.2E-03 [6]	1.1E+00							1.1E+00
bis(2-Ethylhexyl)phthalate (DEHP)	117-81-7	Y	4.7E-08 [6]	1.2E-05							1.2E-05
Bromomethane (methyl bromide)	74-83-9	Y	1.5E-05 [6]	4.0E-03							4.0E-03
2-Butanone (MEK)	78-93-3	N	5.4E-06 [6]	1.4E-03							1.4E-03
Carbon Tetrachloride	56-23-5	Y	4.5E-05 [6]	1.2E-02							1.2E-02
Chlorine	7782-50-5	Y	7.9E-04 [6]	2.1E-01							2.1E-01
Chlorobenzene	108-90-7	Y	3.3E-05 [6]	8.7E-03							8.7E-03
Chloroform	67-66-3	Y	2.8E-05 [6]	7.4E-03							7.4E-03
Chloromethane (methyl chloride)	74-87-3	Y	2.3E-05 [6]	6.1E-03							6.1E-03
1,2-Dichloroethane	107-06-2	Y	2.9E-05 [6]	7.7E-03							7.7E-03
Dichloromethane	75-09-2	Y	2.9E-04 [6]	7.7E-02							7.7E-02
1,2-Dichloropropane	78-87-5	Y	3.3E-05 [6]	8.7E-03							8.7E-03
2,4-Dinitrophenol	51-28-5	Y	1.8E-07 [6]	4.8E-05							4.8E-05
Ethylbenzene	100-41-4	Y	3.1E-05 [6]	8.2E-03							8.2E-03
Formaldehyde	50-00-0	Y	4.4E-03 [6]	1.2E+00	4.0E-03 [2]	1.4E-03 [2]	5.0E-02	7.7E-02			1.2E+00
Hydrogen Chloride	7647-01-0	Y	1.9E-02 [6]	5.0E+00							5.0E+00
Methanol	67-56-1	Y			1.2E-01 [2]	6.7E-02 [2]	1.5E+00	3.7E+00			3.7E+00
Naphthalene	91-20-3	Y	9.7E-05 [6]	2.6E-02							2.6E-02
4-Nitrophenol	100-02-7	Y	1.1E-07 [6]	2.9E-05							2.9E-05
Pentachlorophenol	87-86-5	Y	5.1E-08 [6]	1.3E-05							1.3E-05
Phenol	108-95-2	Y	5.1E-05 [6]	1.3E-02							1.3E-02
Propionaldehyde	123-38-6	Y	6.1E-05 [6]	1.6E-02	1.0E-03 [2]	9.1E-04 [2]	1.3E-02	5.0E-02			6.6E-02
Styrene	100-42-5	Y	1.9E-03 [6]	5.0E-01							5.0E-01
Tetrachloroethene	127-18-4	Y	3.8E-05 [6]	1.0E-02							1.0E-02
Toluene	108-88-3	Y	9.2E-04 [6]	2.4E-01							2.4E-01
1,1,1-Trichloroethane	71-55-6	Y	3.1E-05 [6]	8.2E-03							8.2E-03
Trichloroethylene (Trichloroethene)	79-01-6	Y	3.0E-05 [6]	7.9E-03							7.9E-03
2,4,6-Trichlorophenol	88-06-2	Y	2.2E-08 [6]	5.8E-06							5.8E-06
Vinyl Chloride	75-01-4	Y	1.8E-05 [6]	4.8E-03							4.8E-03
o-Xylene	1330-20-7	Y	2.5E-05 [6]	6.6E-03							6.6E-03

Table A-3 (Continued)

TAP	CAS	HAP (Y/N)	Wellons Wood Boiler (lb/MMBTU)	Wellons Wood Boiler (ton/yr) [a]	Kilns (Max Hourly - lb/MBF)	Kilns (Annual - lb/MBF)	Kilns (lb/hr) [b]	Kilns (ton/yr) [a]	Cyclones (ton/yr)	Target Boxes (ton/yr)	Total (ton/yr)
PAH Emissions											
Acenaphthene	83-32-9	Y	9.1E-07 [d]	2.4E-04							2.4E-04
Acenaphthylene	208-96-8	Y	5.0E-06 [d]	1.3E-03							1.3E-03
Anthracene	120-12-7	Y	3.0E-06 [d]	7.9E-04							7.9E-04
Benzo(a)anthracene	56-55-3	Y	6.5E-08 [d]	1.7E-05							1.7E-05
Benzo(a)pyrene	50-32-8	Y	2.6E-06 [d]	6.9E-04							6.9E-04
Benzo(b)fluoranthene	205-99-2	Y	1.0E-07 [d]	2.6E-05							2.6E-05
Benzo(e)pyrene	192-97-2	Y	2.6E-09 [d]	6.9E-07							6.9E-07
Benzo(g,h,i)perylene	191-24-2	Y	9.3E-08 [d]	2.5E-05							2.5E-05
Benzo(j,k)fluoranthene		Y	1.6E-07 [d]	4.2E-05							4.2E-05
Benzo(k)fluoranthene	207-08-9	Y	3.6E-08 [d]	9.5E-06							9.5E-06
Chrysene	218-01-9	Y	3.8E-08 [d]	1.0E-05							1.0E-05
Dibenzo(a,h)anthracene	53-70-3	Y	9.1E-09 [d]	2.4E-06							2.4E-06
Fluoranthene	206-44-0	Y	1.6E-06 [d]	4.2E-04							4.2E-04
Fluorene	86-73-7	Y	3.4E-06 [d]	9.0E-04							9.0E-04
Indeno(1,2,3,c,d)pyrene	193-39-5	Y	8.7E-08 [d]	2.3E-05							2.3E-05
2-Methylnaphthalene	91-57-6	Y	1.6E-07 [d]	4.2E-05							4.2E-05
Phenanthrene	85-01-8	Y	7.0E-06 [d]	1.8E-03							1.8E-03
Pyrene	129-00-0	Y	3.7E-06 [d]	9.8E-04							9.8E-04
PCB Emissions											
Decachlorobiphenyl	2051-24-3	Y	2.7E-10 [d]	7.1E-08							7.1E-08
Dichlorobiphenyl		Y	7.4E-10 [d]	2.0E-07							2.0E-07
Heptachlorobiphenyl		Y	6.6E-11 [d]	1.7E-08							1.7E-08
Hextachlorobiphenyl		Y	5.5E-10 [d]	1.5E-07							1.5E-07
Pentachlorobiphenyl		Y	1.2E-09 [d]	3.2E-07							3.2E-07
Tetrachlorobiphenyl		Y	2.5E-09 [d]	6.6E-07							6.6E-07
Trichlorobiphenyl		Y	2.6E-09 [d]	6.9E-07							6.9E-07
Dioxin/Furan Emissions											
2,3,7,8-TCDD	1746-01-6	Y	8.6E-12 [d]	2.3E-09							2.3E-09
2,3,7,8-TCDF	51207-31-9	Y	9.0E-11 [d]	2.4E-08							2.4E-08
HpCDF		Y	2.4E-10 [d]	6.3E-08							6.3E-08
HxCDF		Y	2.8E-10 [d]	7.4E-08							7.4E-08
OCDF		Y	8.8E-11 [d]	2.3E-08							2.3E-08
PCDF		Y	4.2E-10 [d]	1.1E-07							1.1E-07
TCDF		Y	7.5E-10 [d]	2.0E-07							2.0E-07
Metals Emissions											
Antimony	7440-36-0	Y	7.9E-06 [g]	2.1E-03							2.1E-03
Arsenic	7440-38-2	Y	2.2E-05 [g]	5.8E-03							5.8E-03
Beryllium	7440-41-7	Y	1.1E-06 [g]	2.9E-04							2.9E-04
Cadmium	7440-43-9	Y	4.1E-06 [g]	1.1E-03							1.1E-03
Chromium	7440-47-3	Y	2.1E-05 [g]	5.5E-03							5.5E-03
Chromium (hexavalent)	18540-29-9	Y	3.5E-06 [g]	9.2E-04							9.2E-04
Cobalt	7440-48-4	Y	6.5E-06 [g]	1.7E-03							1.7E-03
Lead	7439-92-1	Y	4.8E-05 [g]	1.3E-02							1.3E-02
Manganese	7439-96-5	Y	1.6E-03 [g]	4.2E-01							4.2E-01
Mercury	7439-97-6	Y	3.5E-06 [g]	9.2E-04							9.2E-04
Nickel	7440-02-0	Y	3.3E-05 [g]	8.7E-03							8.7E-03
Phosphorus	7723-14-0	Y	2.7E-05 [g]	7.1E-03							7.1E-03
Selenium	7782-49-2	Y	2.8E-06 [g]	7.4E-04							7.4E-04
Zinc	7440-66-6	N	4.2E-04 [g]	1.1E-01							1.1E-01
Total HAPs				10.22			3.03	9.20			19.42

Table A-3 (Continued)

Notes:

(a) Emissions (ton/yr) = (PTE parameter) x (emission factor) x (ton/2,000 lbs)

(b) Emissions (lb/hr) = (PTE parameter) / (annual hours of operation [hr/yr]) x (max short term emission factor)

Annual hours of operation (hr/yr) = 8,760

(c) Emission rates (ton/yr) = (Future PTE throughput [BDT/yr]) x (emission factor [lb/BDT]) x (1 - [baghouse control efficiency (%) / 100]) x (ton/2,000 lbs)

Baghouse control efficiency (%) = 99

References:

(1) Taken from 2009 Statement of Basis. Boiler emission factors are based on a 2008 test.

(2) See Table A-1, Drying Kilns Emission Factors. Max hourly emission factor assumes the kilns could dry the highest emitting wood for a period of 24 hours for purposes of emissions modeling.

(3) Cyclone emissions are the sum of the Planer Chipper Cyclone, Planer Shavings Cyclone and Small Planer (Trimmer) Cyclone, all of which are controlled by a baghouse in the future scenario. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	$PM_{2.5}$ Emission Factor (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Planer Chipper Cyclone throughput (BDT/yr) (Formerly S1)	S2	10,725	0.25	0.111 (4)	0.013 (5)	0.0060 (5)
Planer Shavings Cyclone throughput (BDT/yr)		12,375	0.25	0.111 (4)	0.015 (5)	0.0069 (5)
Small Planer (Trimmer) Cyclone throughput (BDT/yr)		1,980	0.25	0.111 (4)	0.0025 (5)	0.0011 (5)

(4) AP-42 Appendix B.1 (10/86) for woodworking waste collection operations (page B.1-48) based on cumulative weight percentages

$PM_{2.5}$ to PM_{10} fraction for baghouse control: 14.3% $PM_{2.5}$ / 32.1% PM_{10} = 0.45

(5) Target Box emissions are the sum of the Chip Target Box, Shavings Target Box, Hog Fuel Target Box, and Fuel Silo Target Box. Individual emission rates are calculated in the following table:

Source	Source ID	Future PTE Throughput (BDT/yr)	$PM_{2.5}$ Emission Factor (lb/BDT)	$PM_{2.5}$ Emission Factor (lb/BDT)	PM_{10} Emission Rate (ton/yr)	$PM_{2.5}$ Emission Rate (ton/yr)
Chip Target Box throughput (BDT/yr)	S8	149,412	0.05	0.0119 (6)	0.037 (7)	0.089 (7)
Shavings Target Box throughput (BDT/yr)	S7_B	8,146	0.05	0.0119 (6)	0.20 (8)	0.05 (8)
Hog Fuel Target Box throughput (BDT/yr)	S7_A	28,975	0.05	0.0119 (6)	0.72 (9)	0.17 (9)
Fuel Silo Target Box throughput (BDT/yr)	S6	28,558	0.05	0.0119 (6)	0.71 (9)	0.17 (9)

(6) Forest Products Association of Canada (5/07), Final Report Wood Product Sector Particulate Emission Study. Average $PM_{2.5}$ fraction of PM_{10} calculated from Table 4.1-3.

$PM_{2.5}$ to PM_{10} fraction for cyclone control = 0.238

(7) It is conservatively assumed that 100% of PM_{10} emissions are $PM_{2.5}$.

(8) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-3. Although AP-42 provides an emission factor for polychlorinated dibenzo-p-dioxins, it was not used for reasons discussed in this submittal.

(9) AP-42, Section 1.6 (9/03), *Wood Residue Combustion in Boilers*, Table 1.6-4. Factors do not fully reflect potential emission reductions due to the particulate control device proposed for this project.