



# **Air Quality Permitting Technical Analysis**

July 30, 2003

**Permit to Construct No. P-030119**

**Louisiana-Pacific Corporation, Moyie Springs**

**AIRS Facility No. 021-00001**

*Prepared by:*

*Daniel P. Salgado, Air Quality Permits Coordinator*  
**AIR QUALITY DIVISION**

**FINAL PERMIT**

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## Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
Department/DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	Environmental Protection Agency
gpm	gallons per minute
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
hp	horsepower
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
MMBtu	Million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O <sub>3</sub>	ozone
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
TSP	Total Suspended Particulate
T/yr	Tons per year
µg/m <sup>3</sup>	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

## 1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, *Rules for the Control of Air Pollution in Idaho*, for issuing PTC.

## 2. PROJECT DESCRIPTION

Louisiana-Pacific Corporation, Moyie Springs (LP) is requesting that PTC No. 021-00001 issued on July 23, 2001 be reissued because modification of the facility has not yet commenced and the PTC is due to expire on July 23, 2003.

## 3. FACILITY DESCRIPTION

LP, Moyie Springs is a dimensional lumber manufacturing facility.

## 4. SUMMARY OF EVENTS

6/16/03	DEQ received a request from LP to extend the PTC because installation of the new equipment had not yet commenced and the existing PTC is set to expire on July 23, 2003
6/24/03	DEQ received a written request for a facility draft permit.
6/27/03	DEQ sent a receipt letter to LP requesting the required \$1000 application fee.
6/30/03	DEQ received the \$1000 application fee from LP.
7/11/03	The application was determined complete and processing of the application continued.
7/11/03	A facility draft permit was sent to the facility for review via fax and mail.
7/11/03	LP submitted their comments on the facility draft permit and requested that processing continue.

## 5. PERMIT HISTORY

The following is a summary of the permit history:

7/23/2001	LP, Moyie Springs was issued a PTC to replace the current infeed with a double length infeed, to replace two edgers with a single high-speed edger, and for some rearranging of equipment inside the mill to improve material flow.
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## 6. TECHNICAL ANALYSIS

### ***Process Description***

A detailed description of the process is included in the original technical memorandum dated July 5, 2001, included in the Appendix.

### ***Equipment Listing***

A detailed description of the equipment associated with this project is included in the original technical memorandum dated July 5, 2001, included in the Appendix.

### ***Emission Estimates***

A detailed description of the emissions as a result of this modification is included in the original technical memorandum dated July 5, 2001, included in the Appendix.

## ***Modeling***

A detailed description of the modeling associated with this project is included in the original technical memorandum dated July 5, 2001, and is included in the Appendix.

## ***Facility Classification***

The facility is classified as a major facility in accordance with IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. The facility is not a designated facility as defined at IDAPA 58.01.01.006.27 and is not subject to federal New Source Performance Standards in accordance with 40 CFR 60, federal National Emission Standards for Hazardous Air Pollutants in accordance with 40 CFR 61, or federal Maximum Achievable Control Technology standards in accordance with 40 CFR 63. The facility classification is A and the standard industrial classification code is 2421.

## ***Area Classification***

The facility is located in Boundary County, which is designated as an attainment or unclassifiable area for all criteria pollutants. Boundary County is located in AQCR 63, Zone 11. There are no Class I areas within 10 kilometers of the facility.

## **7. PERMIT REQUIREMENTS**

A detailed description of the permit requirements is included in the original technical memorandum dated July 5, 2001, and is included in the Appendix. The language in the permit was updated and modified to match the Tier I operating permit issued on October 29, 2002, but no substantive requirements were changed.

## ***Regulatory Review***

This permit to construct is subject to the following permitting requirements:

IDAPA 58.01.01.201 ..... Permit to Construct Required

Since construction of the modification was not going to be commenced within two years of issuance of the original PTC a new permit is required.

IDAPA 58.01.01.210 ..... Demonstration of Preconstruction Compliance with Toxic Standards

Demonstration of preconstruction compliance with toxic standards was demonstrated in the original permit application and summarized in the original technical memorandum written on July 5, 2001, and is included in the appendix.

40 CFR 52..... Prevention of Significant Deterioration

The facility is not a designated facility and emits less than 250 tons per year of any regulated pollutant. In accordance with IDAPA 58.01.01.205.04.a, the facility is exempt from PSD requirements in IDAPA 58.01.01.205.01.b.iii.

40 CFR 60..... New Source Performance Standards

Not applicable

40 CFR 61 and 63..... National Emission Standards for Hazardous Air Pollutants & MACT

Not applicable

## 8. AIRS INFORMATION

Table 8.1 AIRS/AFS<sup>a</sup> FACILITY-WIDE CLASSIFICATION<sup>b</sup> DATA ENTRY FORM

AIR PROGRAM	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
POLLUTANT							
SO <sub>2</sub>	B						U
No <sub>x</sub>	B						U
CO	A					A	U
PM <sub>10</sub>	A					A	U
PT (Particulate)	A					A	N/A
VOC	A					A	U
THAP (Total HAPs)	A					A	N/A
			APPLICABLE SUBPART				

<sup>a</sup> Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

<sup>b</sup> AIRS/AFS Classification Codes:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 T/yr threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

## 9. FEES

LP, Moyie Springs paid the \$1,000 application fee as required in IDAPA 58.01.01.224 on June 30, 2003.

A permit to construct processing fee of \$250.00 is required in accordance with IDAPA 58.01.01.225 because there was no increase in emissions and no engineering analysis is required. The processing fee was received on 7/18/03

The LP, Moyie Springs facility is a major facility as defined in IDAPA 58.01.01.008.10 and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.387. The facility is current with its registration fees.

Table 9.1 EMISSIONS INVENTORY

EMISSIONS INVENTORY			
NO <sub>x</sub>	0.0	0	0.0
SO <sub>2</sub>	0.0	0	0.0
CO	0.0	0	0.0
PM <sub>10</sub>	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	0.0
Fee Due	\$	250.00	

## **10. RECOMMENDATION**

Based on review of application materials and all applicable state and federal rules and regulations, staff recommends that LP, Moyie Springs be issued amended PTC No. P-030119 for the sawmill equipment modifications. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

DS/sd              Permit No. P-030119

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**APPENDIX A**  
**July 5, 2001 Technical Memorandum**



July 5, 2001

## **MEMORANDUM**

TO: Gwen Fransen, Administrator  
Coeur d'Alene Regional Office

FROM: Steve Ogle, Air Quality Engineer   
State Office of Technical Services

SUBJECT: **PERMIT TO CONSTRUCT TECHNICAL ANALYSIS**  
P-000121, Louisiana-Pacific Corporation, Moyie Springs  
(Sawmill Equipment Modifications, PTC No. 021-00001)

### **PURPOSE**

The purpose of this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

### **PROJECT DESCRIPTION**

Louisiana-Pacific Corporation (LP) is proposing to replace equipment at the Moyie Springs studmill. The project involves replacing the current infeed with a double length infeed, replacing two edgers with a single high-speed edger, and some rearrangement of equipment inside the mill.

### **SUMMARY OF EVENTS**

On November 13, 2000, the Idaho Department of Environmental Quality (DEQ) received an application from LP for sawmill equipment modifications and kiln upgrades at the Moyie Springs facility. On February 13, 2001, the application was determined to be incomplete. LP submitted additional information on March 22, 2001. On April 9, 2001, the DEQ received a letter stating that the kiln upgrades would be carried out separately from the sawmill equipment modifications. On April 10, 2001, the DEQ issued a letter confirming that the kiln upgrades did not constitute a modification, and therefore, did not require a PTC. On April 16, 2001, the application for sawmill equipment modifications was determined complete. A draft permit and technical memorandum were completed on June 4, 2001. Copies of the draft documents were requested by LP on June 6, 2001. DEQ received LP's comments on the draft documents on June 22, 2001, and developed the final drafts of the permit and technical memorandum on June 28, 2001.

### **DISCUSSION**

#### **1. Process Description**

The manufacturing process at Moyie Springs is relatively complex; the following paragraph is a basic summary outlining the flow of the process.

Logs are delivered by truck to the Moyie Springs facility, unloaded, and stored in the log yard. The logs are then transported from the log yard by truck and loaded onto the log deck by a dedicated crane. At the log deck, an infeeder sends the logs to one of two debarkers, which are the first step in the manufacturing process. Debarked logs are then trimmed to a desired length and transferred to the studmill. Sawing operations within the studmill reduce logs to the desired dimensions, and the lumber is then transferred to one of four kilns to be dried. After drying, the lumber is planed to final dimensions and trimmed to a marketable length. Lumber is then graded, waxed or inked, stacked, and banded. Finished lumber is shipped off-site, primarily by rail, and also by truck.

## 2. Equipment Listing

The purposed project involves replacing of the current log infeed with a double length infeed. Rework of the log infeed includes the addition of a log belt and log ladder. The building will also be extended to cover the double length infeed.

Two edgers, one manual feed and one optimized feed, will be replaced by a single high-speed edger with top head reman and automatic edge picker. The new edger will have approximately the same throughput capacity as the two edgers it replaces.

Equipment inside the mill building will also be rearranged to improve material flow.

## 3. Emission Estimates

The equipment changes and rearrangements within the mill are not associated with any increase in air emissions from the mill itself; however, these changes will result in increased product output from the mill, due to improved recovery from the same, or fewer, number of logs. The product output from the mill represents the product input to the kilns, and this additional loading to the kilns will result in an increase in particulate matter/particulate matter with an aerodynamic diameter of 10 microns or less (PM/PM<sub>10</sub>), volatile organic compounds (VOCs), methanol, and formaldehyde emissions.

Tables 1 and 2 show the current actual and future potential emissions from the kilns. The emissions factors for PM/PM<sub>10</sub> and VOCs are taken from a National Council of the Paper Industry for Air and Stream Improvement, Incorporated study, while the methanol and formaldehyde emissions factors are taken from a study conducted by the Intermountain Forest Association and Oregon State University in September 2000. These emission factors are specific to wood species; therefore, the worst case specie (i.e., the factor from the species with the highest emission rate) was used to estimate the potential impact. The current emission estimates are based on the previous two-year average annual throughput of the kilns at the Moyie Springs facility, and the potential emissions estimates are based on the maximum annual throughput capacity of the kilns. Appendix A contains example calculations and the spreadsheet used to calculate the values in Tables 1 and 2.

Table 1: Criteria Pollutant Emissions Estimates for the Moyie Springs Kilns

Pollutant	Emissions Factor (lb/Mbdft) <sup>1</sup>	Actual Emissions (lb/hr) <sup>2</sup>	Future Emissions (lb/hr)	Difference (T/yr) <sup>3</sup>
PM/PM <sub>10</sub> <sup>4</sup>	0.330	5.46	9.57	17.99
VOCs <sup>5</sup>	0.630	10.43	18.27	34.34

<sup>1</sup> pounds per thousand board-feet

<sup>2</sup> pounds per hour

<sup>3</sup> tons per year

<sup>4</sup> particulate matter/particulate matter with an aerodynamic diameter of 10 microns or less

<sup>5</sup> volatile organic compounds

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Table 2: Toxic Air Pollutant Emissions Estimates for the Moyie Springs Kilns

Pollutant	Emissions Factor (lb/Mbdf <sup>1</sup> )	Actual Emissions (lb/hr) <sup>2</sup>	Future Emissions (lb/hr)	Difference (lb/hr)
Methanol	0.122	2.02	3.54	1.52
Formaldehyde	0.004	0.07	0.12	0.05

<sup>1</sup> pounds per thousand board-feet

<sup>2</sup> pounds per hours

The difference in current actual emissions and the future potential emissions for PM<sub>10</sub> is significant as defined by IDAPA 58.01.01.006.92; and therefore, this project is a major modification as defined by IDAPA 58.01.01.006.56. Since the facility does not emit more than 250 tons per year (T/yr) of any regulated pollutants, in accordance with IDAPA 58.01.01.205.04 (a), the facility is exempt from the requirements of IDAPA 58.01.01.205.01 (b) ii.

The actual-to-permitted emissions increments for all pollutants associated with this project are given in Section 8 of this memorandum.

#### 4. Modeling

Based on the potential increase in formaldehyde shown in Table 2, the emissions of this toxic air pollutant may exceed the screening emission level given in IDAPA 58.01.01.586. Therefore, modeling is required to demonstrate that the acceptable ambient concentration for a carcinogen (AACC) will not be exceeded. Mary Anderson, DEQ meteorologist, conducted the modeling for this project, and the technical memorandum addressing the model can be found in Appendix B.

During the modeling exercise, it was determined that the potential impact of formaldehyde emissions could exceed the AACC. Subsequently, the model was used to back-calculate an acceptable emissions rate increase in formaldehyde that would not violate the AACC. This emission rate increase was added to the current actual formaldehyde emissions to derive a permitted limit on the total allowable formaldehyde emission rate. Refer to Appendix C for the calculations used to derive the permitted emissions rate.

The model was also used to demonstrate that the ambient impact of PM/PM10 would not exceed the Ambient Air Quality Standards (IDAPA 58.01.01.577)

#### 5. Facility Classification

The facility is classified as major in accordance with IDAPA 58.01.01.008.10, due to a potential to emit carbon dioxide and PM over 100 T/yr. The facility is not a designated facility as defined at IDAPA 58.01.10.006.27. The facility is not subject to federal New Source Performance Standards in accordance with 40 CFR 60, or federal National Emission Standards for Hazardous Air Pollutants in accordance with 40 CFR 61, or federal Maximum Achievable Control Technology standards in accordance with 40 CFR 63. The facility classification is A and the standard industrial classification is 2421.

#### 6. Area Classification

The facility is located in Boundary County, which is designed as an attainment or unclassifiable area for all regulated criteria air pollutants. Boundary County is located in Air Quality Control Region 63 and Zone 11. There are no Class I areas within ten kilometers of the facility.

7. Regulatory Review

7.1 IDAPA 58.01.01.201 Permit to Construct Required

The facility has purposed physical changes that will result in increased PM, PM<sub>10</sub>, and VOC emissions. The purposed changes increase the operating design capacity of the kiln and therefore; per IDAPA 58.01.01.006.58; this is a modification. In accordance with IDAPA 58.01.01.201, a PTC is required for a modification to any stationary source.

7.2 IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

In accordance with IDAPA 58.01.01.210.10, modeling was carried out to demonstrate compliance with the AACC for the net increase in formaldehyde emissions as a result of this project (refer to Section 4 of this memorandum). The modeling exercise satisfies the requirements of IDAPA 58.01.01.210.10 (c), and demonstrates preconstruction compliance with toxic standards.

7.3 IDAPA 58.01.01.577 Ambient Air Quality Standards for Specific Air Pollutants

Modeling was carried out to demonstrate conformance with the requirements of IDAPA 58.01.01.577 (refer to Section 4 of this memorandum). The modeling exercise satisfies the requirements of IDAPA 58.01.01.577, and demonstrates compliance with the ambient air quality standards.

7.4 40 CFR 52 Prevention of Significant Deterioration

The facility is not a designated facility and does not emit 250 T/yr or more of any regulated air pollutant. In accordance with IDAPA 58.01.01.205.04 (a), the facility is exempt from the requirements of IDAPA 58.01.01.205.01 (b) ii.

7.5 40 CFR 60 New Source Performance Standards

Not applicable (refer to Section 5 of this memorandum).

7.6 40 CFR 61 and 63 National Emission Standards for Hazardous Air Pollutants and Maximum Achievable Control Technology

Not applicable (refer to Section 5 of this memorandum).

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## 8. Permit Requirements

### 8.1 Emissions Limits

For this project, formaldehyde is the only pollutant that required an emissions limit. The uncontrolled increase in emissions of formaldehyde has the potential to cause an ambient impact exceeding the corresponding AACC (refer to Section 4 of this memorandum). The formaldehyde emissions from the kiln correlate directly to the lumber throughput of the kilns as related by emissions factors specific to wood species. In order to restrict the potential formaldehyde emissions such that the ambient impact would not exceed the AACC, an annual emissions limit for formaldehyde was established. Compliance with IDAPA 58.01.01.210.10 (d) requires that DEQ "...include emission limits...for the toxic air pollutant in the permit."

The facility uses the kilns to dry several species of lumber with several different formaldehyde emissions factors. In order to allow operational flexibility for the facility, it was determined that the optimal method for demonstrating compliance with the annual formaldehyde emissions limit would be the use of monitoring requirements and a 12-month rolling formaldehyde emissions calculation based on the kiln throughput. The permit requires the facility to 1) monitor the amount of each wood species sent through the kiln each month and 2) use the throughput information in conjunction with defined emissions factors to calculate a monthly formaldehyde emissions rate. The monthly emissions rates are used as basis for a rolling 12-month estimate of formaldehyde emissions from the kiln. In this manner, the only constraint placed on the facility is maintaining emissions rates below the annually permitted limit (i.e., there are no specific throughput limits or limitations of the mix of species that can be sent through the kiln).

Table 3 gives the incremental increases in emissions resulting from this project. The actual emission estimates are based on the previous two-year average annual throughput of the kilns at the Moyie Springs facility and the future emissions estimates are based on the permitted emissions rate limit (0.49 T/yr) for the kilns. The example calculations in Appendix A illustrate the method used to calculate the emissions estimates in Table 3.

Table 3: Incremental Increases in Pollutant Emissions for the Moyie Springs Kilns

Pollutant	Emissions Factor (lb/Mbdft) <sup>1</sup>	Actual Emissions (lb/hr) <sup>2</sup>	Future Emissions (lb/hr)	Difference (T/yr) <sup>3</sup>
PM/PM <sub>10</sub> <sup>4</sup>	0.330	5.46	9.15	16.18
VOC <sup>5</sup>	0.630	10.43	17.48	30.86
Methanol	0.122	2.02	3.38	5.98
Formaldehyde	0.004	0.07	0.11	0.18

<sup>1</sup> pounds per thousand board-feet

<sup>2</sup> pounds per hours

<sup>3</sup> tons per year

<sup>4</sup> particulate matter/particulate matter with an aerodynamic diameter of 10 microns or less

<sup>5</sup> volatile organic compounds

## 9. Permit Coordination

The LP facility currently has a Tier I operating permit (OP) in the draft phase. The Air Quality

Engineer responsible for the Tier I OP, Dan Pitman, was informed and consulted regarding the terms and conditions of this PTC. This PTC does not violate any of the terms and/or conditions of the Tier I OP.

10. AIRS Information

This permit does not represent a new source at the Moyie Springs facility; therefore, no Abbreviated AIRS Data Entry Sheet is required.

**AIRS/AFS<sup>1</sup> FACILITY-WIDE CLASSIFICATION<sup>2</sup> DATA ENTRY FORM**

Air Program Description	SIP <sup>3</sup>	PSD <sup>4</sup>	NESHAP <sup>5</sup>	NSPS <sup>6</sup>	MACT <sup>7</sup>	TITLE V	AREA CLASSIFICATION
							A - Attainment U - Unclassifiable N - Nonattainment
SO <sub>2</sub> <sup>8</sup>	B					B	A
NOx <sup>9</sup>	B					B	A
CO <sup>10</sup>	A					A	A
PM <sub>10</sub> <sup>11</sup>	A					A	A
PM <sup>12</sup>	A					A	A
VOC <sup>13</sup>	A					A	U
Total HAPs <sup>14</sup>	A					A	U
VE/FE/FD 15	ND	ND	ND	ND	ND	ND	

1 Aerometric Information Retrieval System/AIRS Facility Subsystem

2 AIRS/AFS CLASSIFICATION CODES:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

3 State Implementation Plan

4 Prevention of Significant Deterioration

5 National Emission Standards for Hazardous Air Pollutants

6 New Source Performance Standards

7 Maximum Achievable Control Technology

8 Sulfur Dioxide

9 Nitrogen Oxide

10 Carbon Monoxide

11 Particulate matter with an aerodynamic diameter of 10 microns or less

12 Particulate Matter

13 Volatile Organic Compounds

14 Hazardous Air Pollutants

15 VE/FE/FD (visible emissions, fugitive emissions, and fugitive dust) are entered for compliance purposes only and do not require evaluation by the permit engineer.

FEES

The LP facility is a major facility as defined in IDAPA 58.01.01.008.10 and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.527. According to the Air Emissions Data Base Master List for 2001, the LP, Moyie Springs facility has registered 183 tons of pollutants by

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paying fees. This modification has the potential to increase annual fees.

#### RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, DEQ staff recommend that LP be issued PTC No. 021-00001 for the sawmill equipment modifications. No public comment period is recommended, no entity has requested a comment period, and the project does not involve Prevention of Significant Deterioration requirements.

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cc: DEQ State Office  
Tom Harman, Coeur d'Alene Regional Office

**Appendix A**

**Louisiana-Pacific Corporation, Moyie Springs  
Sawmill Equipment Modifications, P-000121  
Calculation of Actual and Potential Emissions Estimates**



KILN PROCESS INPUTS	
Two-year average kiln input (MMbdt/yr):	145
Maximum kiln input (MMbdt/yr):	254
Hourly kiln operation (hr/yr):	8760

TAP	Emission factor (lb/MMbdt)	Current Emissions Estimates (lb/hr)	Potential Emissions Estimates (lb/hr)	Actual to Potential Difference (lb/hr)	EL (lb/hr)	Exceeds EL?
Formaldehyde	0.0040	0.07	0.12	0.05	0.0005	Yes
Methanol	0.1220	2.02	3.54	1.52	17.3000	No
Criteria Pollutants	Emission factor (lb/MMbdt)	Current Emissions Estimates (lb/hr)	Potential Emissions Estimates (lb/hr)	Actual to Potential Difference (T/yr)	Significant Level (T/yr)	Significant?
PM/PM-10	0.3300	5.46	9.57	17.99	15	Yes
VOC	0.6300	10.43	18.27	34.34	n/a	n/a

EXAMPLE CALCULATIONS:

A)  $PM/PM_{10}$ : - CURRENT, ACTUALS:  $(145 \frac{MMbdt}{yr}) (\frac{yr}{8760 hr}) (0.3300 \frac{lb}{MMbdt}) (\frac{1000 MMbdt}{MMbdt}) = 54.6 \frac{lb}{hr}$   
 - POTENTIALS:  $(254 \frac{MMbdt}{yr}) (\frac{yr}{8760 hr}) (0.3300 \frac{lb}{MMbdt}) (\frac{1000 MMbdt}{MMbdt}) = 95.7 \frac{lb}{hr}$

**Appendix B**

**Louisiana-Pacific Corporation, Moyie Springs  
Sawmill Equipment Modifications, P-000121  
Technical Memorandum by Mary Anderson**

**MEMORANDUM**

**TO:** Steve Ogle, Technical Services Office

**FROM:** Mary Anderson, <sup>MA</sup> Air Quality Modeler, Technical Services Office

**SUBJECT:** Modeling Analysis for the Permit to Construct for Louisiana Pacific (LP) in Moyie Springs, Idaho

**DATE:** May 21, 2001

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**1. SUMMARY:**

Louisiana Pacific in Moyie Springs, Idaho submitted a permit to construct application in November of 2000. The original submittal described a two-phased project. This modeling analysis only addressed the impacts from Phase I of the original application. Only PM<sub>10</sub> and formaldehyde emissions from the kilns were addressed. Originally, the modeling analysis assumed that the total potential emissions were based on 254 MMbdf/yr. However, at this increase in emissions, the ambient concentration for formaldehyde exceeded the AACC. Therefore, DEQ staff back calculated an acceptable total production rate that would not result in ambient concentrations exceeding the AACC. The final total production rate that is used is 243 MMbdf/yr. The current actual emissions are based on 145 MMbdf/yr. Therefore, the emission rates used in this modeling analysis are based on the increase in production of 98 MMbdf/yr. Based on this increase in production rate, the facility has demonstrated compliance with all applicable regulations.

**2. DISCUSSION:****2.1 Project Description**

The original submittal described a phased project that included the installation of a double length infed, replacement of two edgers with one high-speed optimized edger, and mill floor changes in the first phase. The second phase involves renovations to the kilns and includes upgrading kiln operating controls, adding zones and circulation capacity, replacement of some doors, kiln steam flow regulation, and general tightening to improve air flow inside the kilns. After the initial review, DEQ determined that the kiln upgrades did not meet the definition of a modification. Therefore, it did not require a PTC (see April 13, 2001 letter from Gwen P. Fransen, DEQ Coeur d'Alene Regional Office to Mr. Jim Perry, Plant Manager, Louisiana-Pacific Corporation). Therefore, these upgrades are not addressed in this modeling analysis.

**2.2 Applicable Air Quality Impact Limits**

This facility is located in Boundary County which is designated an attainment or unclassifiable area for PM<sub>10</sub>. Therefore ambient impacts for this criteria pollutant must be below the National Ambient Air Quality Standards (NAAQS), listed in Table 1. Formaldehyde ambient

concentration must be below the AACC.

Table 1. Applicable Regulatory Standards.		
Pollutant	Averaging Period	Regulatory Standard ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>
PM <sub>10</sub>	Annual	50
	24-hour	150
Formaldehyde	Annual	0.077
a. IDAPA 58.01.01.577 for PM-10 and 58.01.01.586 for formaldehyde.		

### 2.3 Background Concentrations

General statewide background concentrations are used for PM-10 impacts analyses. No background concentrations are available for formaldehyde.

### 2.4 Co-contributing Sources

Co-contributing sources are not included in this analysis.

### 2.5 Modeling Impact Assessment

DEQ performed the air quality impact analysis for the PTC application. LP provided the necessary information for this analysis. DEQ used the most current version of ISCST3 (Julian date 00101). Spokane meteorological data was used for the years 1987 – 1991. Building downwash was addressed by using BPIP. Building heights and dimensions were provided by LP in the modeling checklist (see attachment A). Terrain elevations were obtained from 7.5 min DEM files.

For this modeling analysis, the point at which ambient air started was reviewed. This facility is not fenced. There is a public road and houses near the facility. The facility has two sections, separated by the public road. There is also a large section of the facility that is not currently used and still has vegetation (trees). Based on this information, DEQ staff determined the facility property that is controlled by the facility and public access is effectively precluded is the area that surrounds the buildings. The public is effectively precluded from this area because during normal operations personnel are outside on a regular basis and are able to see anyone entering the area. Figure 1 presents the property boundary assumed for this analysis.

Only the projected increase in emissions were addressed in this modeling analysis. The original application was submitted prior to the policy of requiring a full impact analysis if the projected increase in ambient concentration exceeded the significant contribution level was finalized. It was determined that only PM<sub>10</sub> and formaldehyde emissions would increase from the kilns. Therefore, only the kilns were modeled. The kilns are inside a building and the emissions escape through vents in the roof. There is a line of vents along the roof for each kiln. The vents have

lids that open at various times and degrees. Based on this information, the kilns were modeled as area sources. The source parameters for the kilns are presented in Table 2.

Originally, the modeling analysis assumed that the total potential emissions were based on 254 MMbdf/yr. However, at this increase in emissions, the ambient concentration for formaldehyde exceeded the AACC. Therefore, DEQ staff back calculated an acceptable total production rate that would not result in ambient concentrations exceeding the AACC. The final total production rate that is used is 243 MMbdf/yr. The current actual emissions are based on 145 MMbdf/yr. Therefore, the emission rates used in this modeling analysis are based on the increase in production of 98 MMbdf/yr. Equations 1 and 2 present the calculations of the emission rates for formaldehyde and PM<sub>10</sub>, respectively. Table 3 presents the emissions rates used in this modeling analysis.

#### Equation 1: Formaldehyde emission rate

$$0.045 \text{ lb/hr} = \frac{(98 \text{ E}+3 \text{ Mbdf/yr}) * (0.004 \text{ lb/Mbdf})}{8760 \text{ hr/yr}}$$

#### Equation 2: PM<sub>10</sub> emission rate

$$3.69 \text{ lb/hr} = \frac{(98 \text{ E}+3 \text{ Mbdf/yr}) * (0.33 \text{ lb/Mbdf})}{8760 \text{ hr/yr}}$$

Table 2. Kiln source information.

Stack Identifier	Location		Elevation (m)	Height (m)	Easterly length (m)	Northerly length (m)	Angle from North (°)
	Easting (X) (m)	Northing (Y) (m)					
Kiln 1	559480.37	5396813	665.8	7.925	26.21	0.3	315
Kiln 2	559486.44	5396807	665.7	7.925	26.21	0.3	315
Kiln 3	559495.94	5396800.5	665.5	7.925	26.21	0.3	315
Kiln 4	559498.38	5396795	665.3	7.925	26.21	0.3	315

Table 3. Emission rates for the kilns.

Pollutant	Emission Rates (lb/hr)	
	PM <sub>10</sub>	Formaldehyde
Kiln 1	0.9225	0.01125
Kiln 2	0.9225	0.01125
Kiln 3	0.9225	0.01125
Kiln 4	0.9225	0.01125
Total	3.69	.045

### 3. MODELING RESULTS:

Table 4 presents the results for the air quality impact analysis.

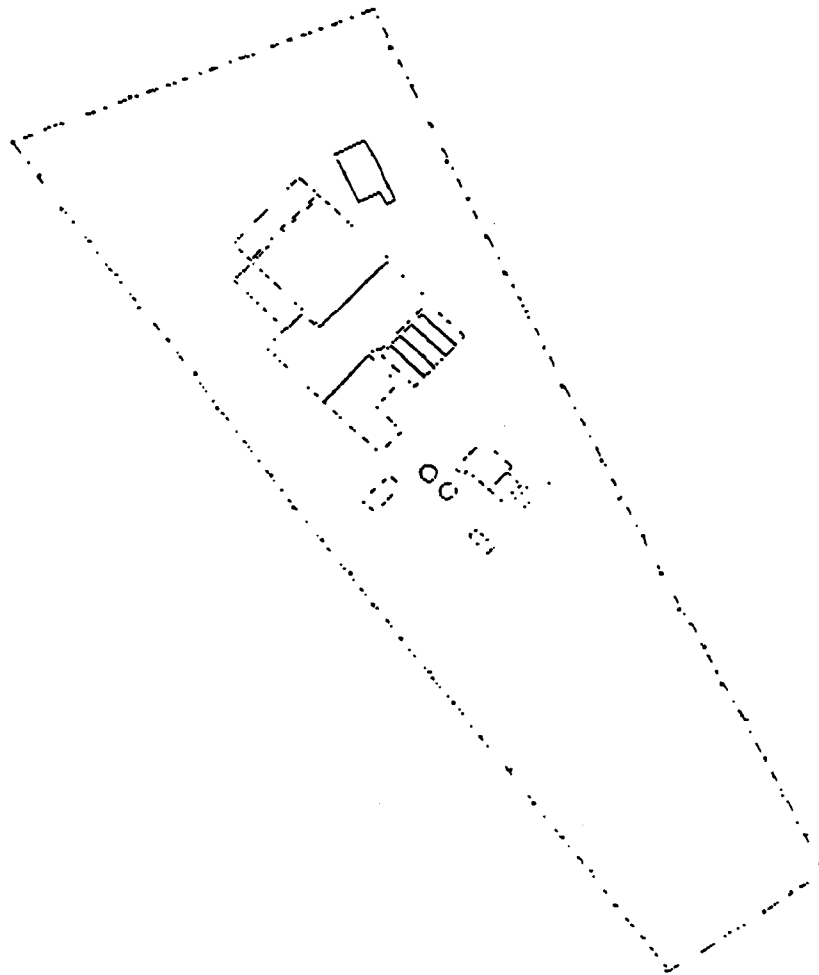
Table 4. Air quality impact results.

Pollutant	Averaging Period	Meteorological Year	Modeled Ambient Concentration ( $\mu\text{g}/\text{m}^3$ )	Background Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>a</sup>	Total Ambient Concentration ( $\mu\text{g}/\text{m}^3$ )	In Compliance Y or N?
PM <sub>10</sub>	24-hour	1987	39.06	86	125.06	
		1988	34.57	86	120.57	
		1989	36.95	86	122.95	
		1990	35.91	86	121.91	
		1991	39.17	86	125.17	
		Maximum	39.17	86	125.17	Y
	Annual	1987	5.14	32.7	37.84	
		1988	5.79	32.7	38.49	
		1989	5.43	32.7	38.13	
		1990	6.22	32.7	38.92	
		1991	5.69	32.7	38.39	
		Maximum	6.22	32.7	38.92	Y
Formaldehyde	Annual	1987	0.063	N/A	0.063	
		1988	0.071	N/A	0.071	
		1989	0.066	N/A	0.066	
		1990	0.076	N/A	0.076	
		1991	0.069	N/A	0.069	
		Maximum	0.076	N/A	0.076	Y

a. PM<sub>10</sub> background concentrations are statewide averages. There are no background concentrations for formaldehyde.

Electronic copies of the modeling analysis are saved on disk.  
 Steve Ogle reviewed this memo to ensure consistency with the PTC and technical memorandum.

Figure 1. Ambient Air Boundary



**ATTACHMENT A**

**Modeling Checklist Provided by  
Louisiana-Pacific Corporation**



## Idaho DEQ Air Dispersion Modeling Checklist

As a requirement of the air permitting process, an air dispersion modeling analysis (screening and/or refined) must be conducted. Air dispersion models are used to predict the potential impact something may have on the air shed in which it is located. This checklist will aid in collecting all of the necessary information to perform a complete modeling analysis.

The EPA Guideline on Air Quality Models and the DEQ Modeling Protocol should be used as a reference to ensure that the modeling techniques used will meet federal and state approval. Please include computer disk copies of the DOS versions of input and output files sufficient for DEQ to reproduce model runs. Copies of the meteorological data files used and all building information should also be included. A scaled plot plan showing the location of all structures needs to be submitted as part of the permitting application.

**It is important that the most recent model versions be utilized in any analysis.**

1. Name of Applicant/ Company: LP Corporation  
Facility Description: Stud Mill & Planing Mill, Moyie Springs, Idaho, Boundary County  
Dispersion Model(s) Used:
2. Source Classification:
- |                          |           |
|--------------------------|-----------|
| Number of Point Sources  | <u>6</u>  |
| (Section 3)              |           |
| Number of Area Sources   | <u>11</u> |
| (Section 4)              |           |
| Number of Volume Sources | <u>0</u>  |
| (Section 5)              |           |
3. Stack/Point Source Parameters (please include for each stack/point source modeled). List the Maximum Emissions Rate(s) for each pollutant. NOTE: If the stack is not circular, use equivalent dimensions determined by  $AREA = \pi d^2/4$ , where d is the inner stack diameter.

Source 75,000 lb./hr. Kipper &amp; Sons Hog Fuel Fired Boiler

Toxic(s) (Please List): unknown

Stack Height 80 ft Stack Diameter 41.4 inches Stack Temperature 341 Degrees F.

Stack Exit Velocity 4003 ft/min. and/or Actual Stack Flow Rate 37.414 cu. ft/min.

Source Cyclone #1 Fuel Mixing Bin

NO<sub>x</sub> SO<sub>2</sub> CO VOC

Toxic(s) (Please List):

Stack Height 45 ft.      Stack Diameter 4.17 ft.      Stack Temperature 80 F

Stack Exit Velocity 2,146 ft/min. and/ or Actual Stack Flow Rate 29,317 cu. ft/min.

Source Cyclone # 2 Green Chip Surge Bin

2.5 \_\_\_\_\_ NO<sub>2</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC 7.57 lb/yr

Toxic(s) (Please List):

Stack Height 40 ft. Stack Diameter 30" Stack Temperature 80 F

Stack Exit Velocity 611 ft/min. and/or Actual Stack Flow Rate 3,000 cu. ft/min.

Source Baghouse Vent Stetson Planer :

[REDACTED] M<sub>2.5</sub> NO<sub>x</sub> SO<sub>2</sub> CO VOC

Toxic(s) (Please List):

Stack Height 8 ft. Stack Diameter 3 ft.x3.75 ft. Stack Temperature 80 F

Stack Exit Velocity 2,355 ft/min. and/or Actual Stack Flow Rate 26,490 cu. ft/min.

Source Baghouse Vent Newman Planer :

[REDACTED] M<sub>2.5</sub> NO<sub>x</sub> SO<sub>2</sub> CO VOC

Toxic(s) (Please List):

Stack Height 8 ft. Stack Diameter 3 ft.x3.75 ft. Stack Temperature 80 F

Stack Exit Velocity 2,355 ft/min. and/or Actual Stack Flow Rate 26,490 cu. ft/min.

Source Baghouse Vent EFB :

[REDACTED] M<sub>2.5</sub> NO<sub>x</sub> SO<sub>2</sub> CO VOC

Toxic(s) (Please List):

Stack Height 43 ft. Stack Diameter 1 ft. x 1 ft. Stack Temperature 80 F

Stack Exit Velocity 4,200 ft/min. and/or Actual Stack Flow Rate 4,200 cu. ft/min.

4. Area Source Parameters (please include for each area source modeled). List the Maximum Emissions Rate(s) for each pollutant.

Source Hog Fuel Bin Target Box :

[REDACTED] M<sub>2.5</sub> NO<sub>x</sub> SO<sub>2</sub> CO VOC

Toxic(s) (Please List):

Source Height 48 ft. Easterly Dimension 1 ft. Northerly Dimension 1 ft.

Initial Vertical Dimension 48 ft. Angle from North

Source Hog Fuel Bin Truck Loading :

[REDACTED] M<sub>2.5</sub> NO<sub>x</sub> SO<sub>2</sub> CO VOC

Toxic(s) (Please List):

Source Height 20 ft. Easterly Dimension 20 ft. Northerly Dimension 17 ft.

Initial Vertical Dimension 20 ft. Angle from North \_\_\_\_\_

Source Sawdust Bin Target Box :

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 41 ft. Easterly Dimension 1 ft. Northerly Dimension 1 ft.

Initial Vertical Dimension 41 ft. Angle from North \_\_\_\_\_

Source Sawdust Bin Truck Loading :

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 20 ft. Easterly Dimension 20 ft. Northerly Dimension 17 ft.

Initial Vertical Dimension 20 ft. Angle from North \_\_\_\_\_

Source Hog Fuel Bin # 1 Target Box :

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 80 ft. Easterly Dimension 1 ft. Northerly Dimension 1 ft.

Initial Vertical Dimension 80 ft. Angle from North \_\_\_\_\_

Source Hog Fuel Bin # 2 Target Box :

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 80 ft. Easterly Dimension 1 ft. Northerly Dimension 1 ft.

Initial Vertical Dimension 80 ft. Angle from North \_\_\_\_\_

Source Green Chip Railcar Loading :

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 23 ft. Easterly Dimension 1 ft. Northerly Dimension 1 ft.

Initial Vertical Dimension 23 ft. Angle from North \_\_\_\_\_

Source Green Chip Truck Loading Target Box:

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 46 ft. Easterly Dimension 1 ft. Northerly Dimension 1 ft.

Initial Vertical Dimension 46 ft. Angle from North \_\_\_\_\_

Source Green Chip Truck Loading:

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 20 ft. Easterly Dimension 42 ft. Northerly Dimension 16 ft.

Initial Vertical Dimension 20 ft. Angle from North \_\_\_\_\_

Source Shavings Truck Loading:

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height 20 ft. Easterly Dimension 61 ft. Northerly Dimension 30 ft.

Initial Vertical Dimension 20 ft. Angle from North \_\_\_\_\_

Source Dry Kilns:

[REDACTED] PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC 52.19 lb./hr.

Toxic(s) (Please List): Formaldehyde, Methanol

Source Height 26 ft. Easterly Dimension 86 ft. Northerly Dimension 132 ft.

Initial Vertical Dimension 26 ft. Angle from North \_\_\_\_\_

5. Volume Source Parameters (please include for each volume source modeled). List the Maximum Emissions Rate(s) for each pollutant. NONE

6. Structure Parameters: (Applies to any and all structures within the property boundary(ies) as well as nearby structures that may influence the dispersion of pollutants emitted by the source(s))

Building Storage Shed:

Building Tier #1 Height: 26 ft. Building Tier #1 Length: 110 ft. Building Tier #1 Width: 80 ft.

Building Dock Roof:

Building Tier #1 Height: 24 ft. Building Tier #1 Length: 280 ft. Building Tier #1 Width: 40 ft.

Building Libby Stacker:

Building Tier #1 Height: 24 ft. Building Tier #1 Length: 72 ft. Building Tier #1 Width: 24 ft.

Building EFB:Building Tier #1 Height: 65 ft. Building Tier #1 Length: 34 ft. Building Tier #1 Width: 46 ft.Building Boiler:Building Tier #1 Height: 55 ft. Building Tier #1 Length: 72 ft. Building Tier #1 Width: 46 ft.Building Debarker Shed:Building Tier #1 Height: 30 ft. Building Tier #1 Length: 70 ft. Building Tier #1 Width: 32 ft.Building Studmill:Building Tier #1 Height: 37 ft. Building Tier #1 Length: 140 ft. Building Tier #1 Width: 120 ft.Building Dry Kilns:Building Tier #1 Height: 26 ft. Building Tier #1 Length: 86 ft. Building Tier #1 Width: 132 ft.Building Cooling Shed Roof:Building Tier #1 Height: 26 ft. Building Tier #1 Length: 265 ft. Building Tier #1 Width: 120 ft.Building Planer:Building Tier #1 Height: 34 ft. Building Tier #1 Length: 180 ft. Building Tier #1 Width: 178 ft.Building Dry Shed Roof:Building Tier #1 Height: 26 ft. Building Tier #1 Length: 180 ft. Building Tier #1 Width: 45 ft.Building Warehouse:Building Tier #1 Height: 26 ft. Building Tier #1 Length: 136 ft. Building Tier #1 Width: 49 ft.Building Shop:Building Tier #1 Height: 30 ft. Building Tier #1 Length: 112 ft. Building Tier #1 Width: 66 ft.Building Diesel Pad Roof:Building Tier #1 Height: 24 ft. Building Tier #1 Length: 42 ft. Building Tier #1 Width: 24 ft.Building Fuel Bin #1:Building Tier #1 Height: 80 ft. Building Tier #1 Length: N/A Building Tier #1 Width: 30 ft. diameterBuilding Fuel Bin #2:Building Tier #1 Height: 80 ft. Building Tier #1 Length: N/A Building Tier #1 Width: 30 ft. diameterTank DieselTank Height 10 ft.Tank Diameter 9 ft.Tank PropaneTank Height 8 ft.Tank Diameter 6 ft.

7. Scaled Plot Plan Showing: (Make sure that all of the buildings and tanks shown on the scaled plot plan are also listed in section 6.) scaled plot plan attached

Emission Release Locations \_\_\_\_\_

Buildings \_\_\_\_\_  
(On site and neighboring)Tanks \_\_\_\_\_  
(On site and neighboring)

Property Boundary(ies) \_\_\_\_\_

Potential Co-contributor(s) \_\_\_\_\_

Sensitive Receptors none

Note: Sensitive receptor is defined in IDAPA 58.01.01.007.10 as any residence, building or location occupied or frequented by persons who, due to age, infirmity or health based criteria, may be more susceptible to the deleterious effects of a toxic air pollutant than the general population including, but not limited to, elementary and secondary schools, day care centers, playgrounds and parks, hospitals, clinics, and nursing homes.

8. Topographic Map Showing: map attached

Source Location(s) \_\_\_\_\_ Building \_\_\_\_\_ Tanks \_\_\_\_\_  
(On site and neighboring) (On site and neighboring)

Property Boundary(ies) \_\_\_\_\_ Model Receptors \_\_\_\_\_ Maximum Impact Locations \_\_\_\_\_

9. Meteorology Used (upper air and surface data):

On Site \_\_\_\_\_

A quality control and quality assurance analysis, consistent with EPA guidelines, should be included for any on site data used other than that supplied by the National Weather Service (NWS). Contact DEQ regarding the adequacy of this data before use.

NWS Data Representative of the Site \_\_\_\_\_

Screening (Worst Case) Data \_\_\_\_\_

Use DEQ approved Screening Met. data

10. Urban \_\_\_\_\_ Rural X (DEQ can be contacted for further guidance on source classification)

Justification: City of Moyie Springs, population 415 (1996); Boundary County, area 1277 sq. mi., population 9,977 (2000 census)

Completeness Determination Questions:

- Was a modeling protocol approved by DEQ prior to permit application? Negotiating a modeling protocol with DEQ assures the applicant that their modeling approach will be accepted.
- Is a justification given explaining why a particular dispersion model was used?
- Did you document and justify input parameters and model settings (please include written justification)?
- Were grid receptors placed 100 to 500 m apart for the initial modeling analysis in order to find the area of maximum impact?
- Were grid receptors placed 25 to 50 m apart in the area of maximum impact?
- What ambient air quality standards apply? (i.e. NAAQS, significance standards, AAC, AACC, PSD increment standards)
- Were DEQ approved background concentrations included in the modeling analysis (attainment and unclassified areas only)?

Considerations for major pollution sources and sources subject to PSD regulations:

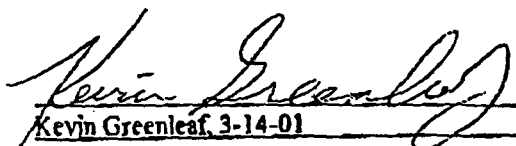
- Was DEQ contacted regarding the need for (and quality control of) preconstruction monitoring data?
- Was a visibility analysis performed?
- Was the area of significant impact documented?
- Were impacts included (on disk) at all integral UTM coordinates within the significant impact area?

03/16/01

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- If a major facility (as defined in IDAPA 58.01.01.006.55), was cumulative increment consumption analyzed?

Signature of modeler (please print and sign name)

  
Kevin Greenleaf, 3-14-01

Telephone Number

(208) 267-3166

Name of DEQ Modeling Contact

Mary Anderson

Telephone Number

(208) 373-0202

**Appendix C**

**Louisiana-Pacific Corporation, Moyie Springs  
Sawmill Equipment Modifications, P-000121  
Permit Limit Calculations**



- BASED ON THE MODELING ANALYSIS (REFER TO APPENDIX B), THE MAXIMUM FORMALDEHYDE EMISSIONS INCREASE THAT CAN BE ALLOWED, WITHOUT VIOLATING THE AACC, IS 0.045 lb/hr.
- IN ORDER TO BACK-CALCULATE THE PERMITTED EMISSIONS RATE, THE CURRENT, ACTUAL EMISSIONS RATE OF FORMALDEHYDE WAS CALCULATED AND ADDED TO THE INCREMENTAL INCREASE ABOVE.

1) CURRENT, ACTUAL EMISSIONS

$$145 \frac{\text{MMBtu}}{\text{yr}} (0.004 \frac{\text{lb}}{\text{MMBtu}}) \left( \frac{1000 \text{ MMBtu}}{\text{MMBtu}} \right) \left( \frac{\text{yr}}{8760 \text{ hr}} \right) = 0.66 \frac{\text{lb}}{\text{hr}}$$

2) INCREASED EMISSIONS

$$0.66 \frac{\text{lb}}{\text{hr}} + 0.045 \frac{\text{lb}}{\text{hr}} = \underline{0.11 \frac{\text{lb}}{\text{hr}}}$$

$$\therefore \text{ANNUAL RATE: } 0.11 \frac{\text{lb}}{\text{hr}} \left( \frac{\text{yr}}{8760 \text{ hr}} \right) = \underline{0.49 \frac{\text{lb}}{\text{yr}}}$$