PERMIT TO CONSTRUCT
APPROVAL APPLICATION
(Updated in Response to DEQ Incompleteness Letters)

PNEUMATIC SYSTEM IMPROVEMENTS

IDAHO FOREST GROUP – LEWISTON
LEWISTON, IDAHO

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1.0 INTRODUCTION

Idaho Forest Group (IFG) owns and operates a lumber facility in Lewiston, Idaho. Processes at the mill include the sawmill, planer mill, dry kilns and various types of wood handling equipment. IFG purchases steam from the Clearwater Paper mill located on adjacent property. IFG does not operate any boilers on the Lewiston sawmill property.

The Lewiston mill is regulated under PTC P-2011.0135 issued March 18, 2014 and Tier I operating permit T1-2012.0038 issued March 26, 2014. In 2014, IFG amended the air quality permit to increase kiln capacity, add a small-log line, move the truck bins and change the material handling systems. During the process of implementing the permitted changes, IFG has identified additional improvements to the material handling systems.

IFG is submitting this PTC application to allow a number of permit and equipment changes to improve the pneumatic material handling systems. The changes will not affect the kilns or the production capacity of the facility. Most of the changes are related to pneumatic equipment that will be designed differently than described in the previous permit application. The pneumatic equipment transports wood residuals such as sawdust, planer shavings and chips.

1.1 Site Description

The entrance to the Lewiston sawmill is located on Sycamore Drive in Lewiston, Idaho. The mill site is located in S½ Section 28, the N½ Section 33 and NW1/4 Section 34, Township 36 North, Range 5 West, Boise Meridian, Nez Perce County, Idaho. **Figure 1** provides United States Geological Survey (USGS) 7.5-minute quadrangle map showing the plant site and surrounding area. The air quality classification for the IFG sawmill area is "Unclassifiable or Better than National Standards" (40 CFR 81.327) for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. The land-use classification for the area surrounding the IFG source is unchanged by this project and is on file at DEQ.

1.2 Process Description

The primary processes at the IFG-Lewiston facility are the sawmill, planer mill, dry kilns and materials handling equipment. IFG purchases steam to heat the dry kilns from Clearwater Paper, and does not have any boilers at the site. **Figure 2** is a revised flow diagram for the Lewiston sawmill facility, showing the proposed equipment configuration.

Logs are debarked, then cut to dimension in the sawmill. Bark from the debarker is shredded in a hog and transferred to Clearwater Paper for use as boiler fuel. Green lumber from the sawmill is dried in the dry kilns then planed in the planer mill. Finished lumber is packaged and shipped by truck or rail.

The sawmill includes the original sawmill and the small-log line, which was permitted in 2014. Sawmill operations produce sawdust and wood scraps, which are cut into marketable chips using a chipper. The sawdust and marketable chips from both sawmill lines are transported offsite by conveyor to the pulp mill. The large log line is equipped with pneumatic collection systems which pick up fine particulate and transport it to the sawmill cyclones. The small log line is equipped with

a pneumatic collection system that uses a baghouse to separate the collected material from the air stream.

The Lewiston facility dries green lumber in six dry kilns that are heated via indirect steam heating coils. Initial moisture content of the lumber is in the range of 40-60%. The final moisture content varies depending on species and product, and generally ranges from 15-10%. Moisture that is driven out of the lumber is released from the dry kilns through multiple roof vents. The vents are opened and closed as needed to control the temperature and moisture within the kiln. Kiln emissions include particulate matter, VOC, and HAP/TAP. The dry kilns are unchanged by this permit application.

The planers and associated equipment are located in the planer mill building, and planer shavings are transported pneumatically via the shavings collection system. The pneumatic shavings handling system includes a cyclone primary separator and a baghouse secondary separator. Material collected from both separators is transported by high-pressure blower into the shavings bin. A bin vent baghouse is proposed to filter the air that exhausts from the shavings bin when shavings are deposited. The bin vent baghouse is integral to the design of the new shavings bin and that is the reason IFG is adding it to the permit. The emissions unit number for the bin vent baghouse is BH1A.

This application also proposes the addition of a vacuum system around the shavings bin to clean up spilled shavings and return them to the bin. The vacuum system would use a baghouse to separate the shavings from the pneumatic vacuum air stream. This baghouse is not required for the equipment to operate, and no offsetting emissions are used in the permit application. Therefore, IFG can use the clean-up baghouse as needed. The emissions unit number for the clean-up baghouse is BH1B.

Planer operations produce large wood pieces that are chipped in the planer chipper. Planer chips are transported pneumatically to the chip conveyor. The planer chips pneumatic system was originally permitted using an existing cyclone with a baghouse added downstream to clean the emissions. IFG has instead specified an integrated cyclone/baghouse separator for use in the planer chip transport system. The emissions unit for the planer chip integrated separator is still BH2. The emissions are not changed.

2.0 PROPOSED PERMITTING ACTION

Figure 3 is a satellite photo of the site with the locations of the IFG point sources indicated. The IFG point sources are listed below along with the changes included in this permit application. These equipment names are used in the required emissions tables in the Section 3 of this application.

IFG Point Source Equipment List

Source ID	Source Description	Proposed Changes in this Application
KILNS	Kiln Vents	No change
CY1	Sawmill Cyclone	No change to equipment, modified permit language
CY2AB	Sawmill Cyclones, common stack	
CY5	Fuel Hog Cyclone	No change
BH1	Planer Shavings Baghouse	No change
BH1A	Shavings Bin Vent Baghouse	Additional permitted source
BH1B	Shavings Area Clean-up Baghouse	Additional permitted source
BH2	Planer Chip Baghouse	Permit changed to allow integrated separator
BH3	HewSaw Baghouse	No change

2.1 Sawmill Sawbox Cyclones

IFG is requesting a change to the permit language to make it more applicable to the equipment being used. Equipment at the main sawmill includes sawboxes located above the machine centers. The sawbox fans pull air away from the sawmill machinery to collect fine particulate and prevent sawdust build-up inside the equipment. The sawboxes are connected to pull-through cyclones which separate the entrained dust from the exhaust stream. The sawmill cyclones are located in a three-sided concrete structure known as the chip vault.

Each cyclone receives material from separate machine centers, so operating all the cyclones when only individual machine centers are running is a waste of energy. IFG has installed interlock controls so each cyclone blower can be operated separately when the associated machine is operating. This improvement ensures that:

1. The cyclones blowers will be on when associated process equipment is operating.

2. The cyclone blowers will not be operated when related mill operations are not running, thereby will not be wasting energy.

The sawbox cyclones are identified as cyclones CY1, CY2A and CY2B and are regulated under Condition 3.2 of the PTC and Condition 5.3 of the Tier I permit. IFG proposes the following modification to Condition 3.2 of the PTC and Condition 5.3 of the Tier I permit:

The permittee shall install and operate the cyclones (CY1 and CY2A and CY2B) at all times when the associated sawmill equipment is operating to control emissions from sawmill equipment as described in Permit Condition 3.1.

IFG proposes to change the second and third paragraphs in Section 3.1 of the PTC, under the Sawmill heading, and Section 5 of the Tier I permit. Suggested wording is as follows:

Chips and sawdust from the large log sawmill are transported via conveyor to an offsite location. Negative air systems above the machine centers can be used as needed to collect entrained sawdust and transport it to the sawmill cyclones (CY1, CY2A and CY2B). The materials collected in the three sawmill cyclones are collected within the chip vault and transported to an offsite location.

2.2 Planer Shavings Baghouse and Bin Vent Baghouse

The planer shavings handling system will be built as described in the current permit, but the flow diagram has been improved to clarify the system. Shavings collected by the cyclone and baghouse will be blown into the shavings bin, and a bin vent baghouse will be added to filter the exhaust from the shavings bin. The bin vent baghouse has been labeled BH1A to show that it is affiliated with the planer shavings baghouse, BH1. Emissions from BH1A have been included in the emissions estimates.

2.3 Truck Bin Clean-up System Baghouse

IFG is proposing a vacuum system to collect any spillage around the new planer shavings bins. The system will exhaust to a baghouse to separate the captured material from the vacuum stream and return the capture to the bin. The clean-up baghouse is identified as BH1B on the flow diagram and in the emissions inventory. Emissions are estimated based on the maximum amount of material collected per day.

2.4 Planer Chip Baghouse

The permitted emissions unit identified for planer chips is a *chips cyclone followed by a chips baghouse*. This is based on the addition of a baghouse downstream of the existing cyclone. IFG has learned that more modern separator systems use an integrated cyclone/baghouse unit or a baghouse alone which serves as the primary separator.

IFG would like to change the language in Table 5.1 of the Tier I permit and Table 3.1 of the PTC to provide more flexibility in the equipment specification. The suggested language is as follows:

Baghouse or equivalent pneumatic separator for planer chips.

2.5 Additional Baghouse on the Small Log Line

This initial request from the original permit application has been withdrawn. No changes are proposed to the pneumatic systems on the small log line.

3.0 EMISSIONS INVENTORY

Plant-wide emissions from the IFG-Lewiston facility have been estimated based on the proposed mill changes as shown on the facility-wide emissions spreadsheet in **Appendix A**. The emissions spreadsheet contains detailed information about the emission calculations used for each source. Detailed descriptions of the emissions estimation methodology for the new sources is included in this permit application section.

According to DEQ guidance, applicants proposing to modify an existing minor facility must submit the following emission inventories for emission units associated with the project:

- Pre-Project PTE for NSR Regulated Pollutants for emission unit associated with the project. For permitted emissions units provide the PTE under the existing permit conditions, for unpermitted emissions units provide the PTE based on the operational design capacity of the sources that are part of the project.

- Post-Project PTE for NSR Regulated Pollutants for emission unit associated with the project. Provide the requested permitted emission rates as the PTE.

Templates tables which are required to be completed and submitted with the application for the project are provided below (Tables 1-3). Table 1 lists the potential emissions from each point source under the current permit. Table 2 lists the proposed potential emissions from each point source. Table 3 lists the increase in emissions as a result of the project.

The DEQ Emission Inventory Guidance requires listing all NSR regulated pollutants. Since this is not a PSD major source, there are no regulations that apply to total particulate matter (PM). Therefore, PM has not been included in the tables. The Lewiston mill does not include any combustion sources, so there are no emissions of gaseous criteria pollutants, lead or greenhouse gases. These columns have been retained in the tables to meet the DEQ formatting specifications.

Table 1 PRE-PROJECT POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	**PM10**	**PM2.5**	**VOC**	**CO, NOx,SO2**	**Lead**	**GHG**
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
KILNS	8.93	7.76	249	0.00	0.00	0.00
CY1	0.033	0.016	0.00	0.00	0.00	0.00
CY2AB	0.196	0.098	0.00	0.00	0.00	0.00
CY5	0.850	0.425	0.00	0.00	0.00	0.00
BH1	1.025	0.686	0.00	0.00	0.00	0.00
BH1A	0.00	0.00	0.00	0.00	0.00	0.00
BH1B	0.00	0.00	0.00	0.00	0.00	0.00
BH2	0.014	0.0094	0.00	0.00	0.00	0.00
BH3	1.988	1.332	0.00	0.00	0.00	0.00
Fugitive Sources The Sawmill is not a Listed Source, so Fugitive Emissions have Not Been Included						
XXX	0.00	0.00	0.00	0.00	0.00	0.00
Totals	**13.036**	**10.323**	**249**	**0.00**	**0.00**	**0.00**

Table 2. POST-PROJECT POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	PM10[a]	PM2.5	VOC	CO, NOx,SO2	Lead	GHG
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
KILNS	8.93	7.76	249	0.00	0.00	0.00
CY1	0.033	0.016	0.00	0.00	0.00	0.00
CY2AB	0.196	0.098	0.00	0.00	0.00	0.00
CY5	0.850	0.425	0.00	0.00	0.00	0.00
BH1	1.025	0.686	0.00	0.00	0.00	0.00
BH1A	0.0018	0.0012	0.00	0.00	0.00	0.00
BH1B	0.011	0.0073	0.00	0.00	0.00	0.00
BH2	0.014	0.0094	0.00	0.00	0.00	0.00
BH3	1.988	1.332	0.00	0.00	0.00	0.00
Fugitive Sources The Sawmill is not a Listed Source, so Fugitive Emissions have Not Been Included						
XXX	0.00	0.00	0.00	0.00	0.00	0.00
Totals	**13.049**	**10.331**	**249**	**0.00**	**0.00**	**0.00**

Table 3 CHANGES IN POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	PM10	PM2.5	VOC	CO, NOx,SO2	Lead	GHG
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
KILNS	0.00	0.00	0.00	0.00	0.00	0.00
CY1	0.00	0.00	0.00	0.00	0.00	0.00
CY2AB	0.00	0.00	0.00	0.00	0.00	0.00
CY5	0.00	0.00	0.00	0.00	0.00	0.00
BH1	0.00	0.00	0.00	0.00	0.00	0.00
BH1A	0.0018	0.0012	0.00	0.00	0.00	0.00
BH1B	0.011	0.0073	0.00	0.00	0.00	0.00
BH2	0.00	0.00	0.00	0.00	0.00	0.00
BH3	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Sources						
XXX	0.00	0.00	0.00	0.00	0.00	0.00
Totals	**0.013**	**0.0085**	**0.00**	**0.00**	**0.00**	**0.00**

3.1 Bin Vent Baghouse (BH1A) Emissions Calculations

Comments from DEQ requested that more specific equipment and emissions information be used to support the emission calculations in the permit application. In pursuing more specific emissions information, IFG has found that the original application over-estimated the bin vent baghouse (BH1A) emissions. The initial emission estimates used outdated emissions factors and calculation methods. The emissions calculations over-estimated the BH1A emissions and did not give credit for the tremendous advances that have been made in filtration technology. The revised emission estimates are fully documented. The accompanying documentation is included in Appendix A.

The amount of dust emitted from the shavings bin through the bin vent depends on the amount of shavings produced, which in turn depends on the amount of lumber planed. DEQ has requested that the daily emissions of PM_{10} and $PM_{2.5}$ be tied directly to the daily capacity of the equipment being used. This was accomplished in the original application by dividing the annual production by the

number of actual work days. This methodology caused confusion, so IFG has replaced it with the daily production capacity of the planer for the BH1A emissions calculation.

Planer Daily Production Capacity

The new planer shavings handling system will be attached a new Gilbert planer. The amount of lumber planed depends on the processing speed and the board size and length. Planer short-term capacity is calculated based on a processing speed of 300 pieces per minute with a piece being defined as a 2x4, 8 feet long. The production rate needs to be converted from pieces to board feet (bdft). A board foot is defined as "Nominally, a rough-sawn, green board 1 in. x 12 in. x 1 ft., or equivalent." (Conversion Factors for the Pacific Northwest Forest Industry, UW, 1981).

The board footage of an 8' 2x4 is calculated below:

2 in./1 in. x 4 in./12 in. x 8 ft./1ft = 5.33 bdft

With the planer processing 300 pieces per minute, the amount of production is calculated as shown below:

300 pieces/min * 5.33 bdft/piece * 60 min/hr = 96,000 bdft/hr
Using units of thousand board feet (mbf), the hourly capacity is 96 mbf/hr

96 mbf/hr * 24 hr/day = 2,304 mbf/day.

Emissions calculations for 24-hour periods are based on 2,304 mbf/day.

Annual and Daily Shavings Production

IFG has tracked shavings production and lumber production for years and has developed the ratio of 0.109 tons of shavings per thousand board feet of lumber planed (ton/mbf). Emissions calculations for annual periods are based on 470,000 mbf/yr, the permit limit.

470,000 mbf/yr * 0.109 tons/mbf = 51,230 tons of shavings per year
2,304 mbf/day * 0.109 ton/mbf = 251 tons of shavings per day

Emissions Calculations

Bin vent baghouse emissions are calculated based on the amount of emissions generated and the control efficiency of the baghouse. A brochure is attached showing the specified bin vent baghouse, the Model 96AVS64 (qty 64 x 96" bags). The next brochure shows the available filter media for the bin vent baghouse, which can use either cartridge or pleated filter media. As shown in the brochure, the available filter media has been tested for $PM_{2.5}$ filtration efficiency, and the emissions ranged from 0.00004 to 0.00012 mass out/mass in. This corresponds to an efficiency range of 99.988% to 99.996%.

IFG has researched the uncontrolled emission factor for PM_{10} emissions from shavings bin vents. The uncontrolled emission factor was found to be 0.58 pounds per ton of shavings processed (0.58 lb/ton) as shown in the reference included in Appendix A (EPA PM_{10} Emission Factor Listing

AIRS Source Classification Codes, 1989). The PM_{10} emission factor for wood waste storage bin vent, AIRS 3-07-030-01, is 0.58 lb/ton.

EPA has not published $PM_{2.5}$ emission factors, so that leads to some difficulties in providing adequate documentation for permit applications. IFG worked with DEQ during development of the Lewiston 2014 permit and agreed to use the assumption that 67% of PM_{10} emissions from baghouses is $PM_{2.5}$. This method has been applied here. The letter from DEQ to IFG is available in the DEQ project files or can be provided by IFG upon request.

Daily PM_{10} and $PM_{2.5}$ Emission Calculations:

251 tons/day * 0.58 lb/ton = 146 lb PM_{10} per day, uncontrolled

Using the lowest documented baghouse control efficiency, the controlled PM_{10} emissions are calculated as follows:

146 lb/day * (100 – 99.988)/100 = 0.0175 lb/day
0.0175 lb/day ÷ 24 hr/day = 0.00073 lb/hr

As per DEQ practice, the controlled $PM_{2.5}$ estimated emission rate is:

0.000728 lb/hr * 0.67 = 0.00049 lb/hr

Annual PM_{10} and $PM_{2.5}$ Emission Calculations:

51,230 tons * .58 lb/ton ÷ 2000 lb/ton = 14.86 tons/yr uncontrolled
14.86 tons/yr * (100 – 99.988)/100 = 0.00178 tons/yr PM_{10}

0.00178 tons/yr PM_{10} * 0.67 = 0.00119 tons/yr $PM_{2.5}$

The emissions from BH1A have been carefully calculated and fully documented. IFG believes these calculations are an excellent representation of the bin vent baghouse emissions.

3.2 Clean-up Baghouse (BH1B) Emissions Calculations

IFG is proposing to install a vacuum cleanup system around the planer shavings bin. This system will be used as needed to vacuum up any spilled shavings and return them to the bin. A baghouse will be used to filter the vacuum stream. If there is no cleanup taking place, the vacuum system will be turned off. IFG has used a conservatively high estimate of the amount of shavings that might be picked up in order to provide a conservative emissions estimate for the source.

The vacuum system emissions estimates are based on picking up 1.5 tons of shavings per hour. This is equivalent to 250 cubic feet of shavings or enough to fill 40 wheelbarrows. The 24-hour

estimates are based on 1.5 tons of shavings being picked up every hour for 24 hours. The annual emissions are based on 25 tons of shavings being picked up every day, 365 days per year.

IFG has researched an applicable uncontrolled emission factor for PM_{10} emissions from shavings pickup, and has determined that the closest fit activity is shavings bin loadout, AIRS 3-07-030-02. The uncontrolled emission factor was found to be 1.20 pounds per ton of shavings processed (1.20 lb/ton) as shown in the reference included in Appendix A (EPA PM10 Emission Factor Listing AIRS Source Classification Codes, 1989).

1.5 ton/hr * 24 hr/day * 1.20 lb/ton = 43.2 lb PM_{10} per day, uncontrolled emissions

The proposed baghouse (BH1B) is a baghouse that the mill already owns but is not in use at this time. BH1B is not expected to be as efficient as BH1A. For BH1B, IFG has referred to the EPA Control Cost Manual Section 6, Particulate Matter Controls, Chapter 1 Baghouses and Filters, available on the EPA website at: https://www3.epa.gov/ttn/ecas/cost_manual.html.

According to the EPA Control Cost Manual, a properly designed and well run baghouse will generally have an extremely high particulate matter (PM) collection efficiency (i.e., 99.9+ percent). Baghouses are particularly effective for collecting small particles. For example, tests of baghouses have shown efficiencies of 99.8 percent for particles 10 µm in diameter and 99.6 percent to 99.9 percent for particles 2.5 µm.

IFG has chosen to use the documented PM_{10} control efficiency of 99.8% for BH1B. The controlled PM_{10} emissions are calculated as follows:

43.2 lb/day * (100 – 99.8)/100 = 0.0864 lb/day
0.0864 lb/day ÷ 24 hr/day = 0.0036 lb/hr

As per DEQ practice, the controlled $PM_{2.5}$ estimated emission rate is:

0.0036 lb/hr * 0.67 = 0.0024 lb/hr.

Annual emission calculations are calculated as follows:

25 tons per day * 365 days per year = 9,125 tons per year
9,125 tons per year * 1.2 lb/ton ÷ 2000 lb/ton = 5.475 tons/yr PM_{10} uncontrolled
5.475 tons/yr * (100 – 99.8)/100 = 0.011 tons/yr PM_{10} controlled

0.011 tons/yr PM_{10} * 0.67 = 0.007 tons/yr $PM_{2.5}$ controlled

The emissions from BH1B have been carefully calculated and fully documented. IFG believes these calculations are an excellent representation of the vacuum system baghouse emissions.

4.0 REGULATORY ANALYSIS

The Minor Source Permit to Construct Application Completeness Checklist requires that each applicable regulation be cited. This analysis has been done and is included in a four-page table in **Appendix B.** This section of the application contains additional information related to the regulations affected by this permit application.

4.1 Permit Requirements

Under Idaho air quality regulations (IDAPA 58.01.01.201) an application for a permit modification is required because additional emitting units will be constructed. IFG has complied with all the application procedures contained in IDAPA 58.01.01.202. The application materials also show that the facility will comply with all the conditions of IDAPA 58.01.01.203

IFG consulted with DEQ representatives about this project via conference call on October 7, 2015. The required Idaho permit application forms are included in **Appendix C**. IFG has already submitted the required permit application fee for this project and a copy of the check is also included in **Appendix C**.

4.2 PSD Status and Class I Area Impacts

The proposed changes to the Lewiston sawmill will not increase the mill capacity beyond the level that was previously evaluated. The mill does not have the potential to emit any regulated pollutant in amounts greater than 250 tons per year (tpy). Therefore, the Prevention of Significant Deterioration (PSD) regulations do not apply to this application. The permit modification does not have the potential to impact any Class I airshed.

4.3 Visible Air Contaminants and Process Weight Rule

IFG will continue to comply with the visible emission standard of IDAPA 58.01.01.625. No visible emission shall exceed 20% opacity for any aggregate 3-minute period during any 60-minute period from any point source. Point source emissions and fugitive emissions material handling sources will comply with the emission limits contained in Idaho's Process Weight Rule.

4.4 Toxic Air Pollutants

The IFG Lewiston mill is a major source of HAPs from the dry kilns, and is subject to the requirements of the Plywood and Composite Wood Products (PWCP) NESHAPS. The HAPs that are regulated by the PCWP NESHAPS include methanol, formaldehyde, acrolein, acetaldehyde, phenol and propionaldehyde. This list encompasses all the HAP emissions from the dry kilns. The wood residuals handling equipment only emits wood particulate, so the current permit does not include HAP emissions.

4.5 Modeling Applicability

Idaho's modeling guidance includes emissions thresholds to determine whether modeling would be required. Idaho DEQ has established modeling thresholds for criteria pollutants below which modeling is generally not required. DEQ has developed two levels of modeling thresholds: Level I – a modeling analysis will not be required, except in unique situations, if facility-wide or project-wide emissions are below these levels. Level I thresholds may be used without thorough justification in most instances. These modeling thresholds are based on non-

site-specific modeling analyses performed by DEQ. The proposed PTE increases are compared to the Level I modeling thresholds in **Table 4** below. The table shows that modeling is not required for this permit application.

Table 4: Point Source Emission Increases Compared to Modeling Thresholds

Pollutant	Proposed PTE	Current PTE(1)	Change in Emissions	Level I Threshold
CO	0	0	0	15 lb/hr
NO_x	0	0	0	1.2 tpy
NO_x	0	0	0	0.20 lb/hr
SO_2	0	0	0	1.2 tpy
SO_2	0	0	0	0.21 lb/hr
PM_{10}	3.570 lb/hr	3.565 lb/hr	0.005 lb/hr	0.22 lb/hr
$PM_{2.5}$	10.331 tpy	10.323 tpy	0.008 tpy	0.35 tpy
$PM_{2.5}$	2.777 lb/hr	2.774 lb/hr	0.003 lb/hr	0.054 lb/hr

(1) The current PTE emissions have been determined using the same methodology as the potential PTE emissions.

The emissions calculations are shown in detail in the spreadsheet in Appendix A. The summary page of the calculation spreadsheet in Appendix A shows the emissions for each point source at the Lewiston sawmill. IFG is ready to answer any questions DEQ has about the emissions spreadsheet.

Figures

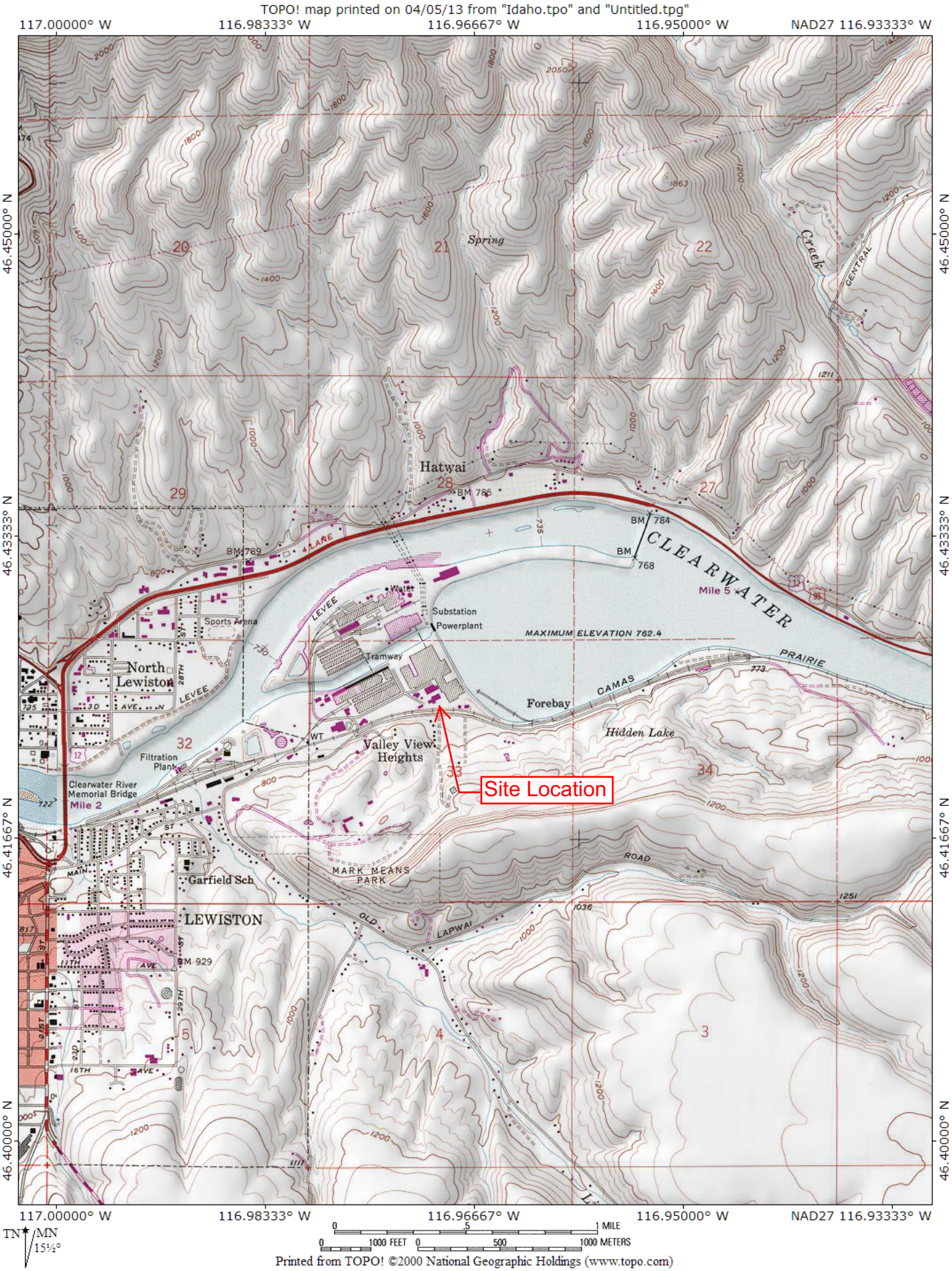
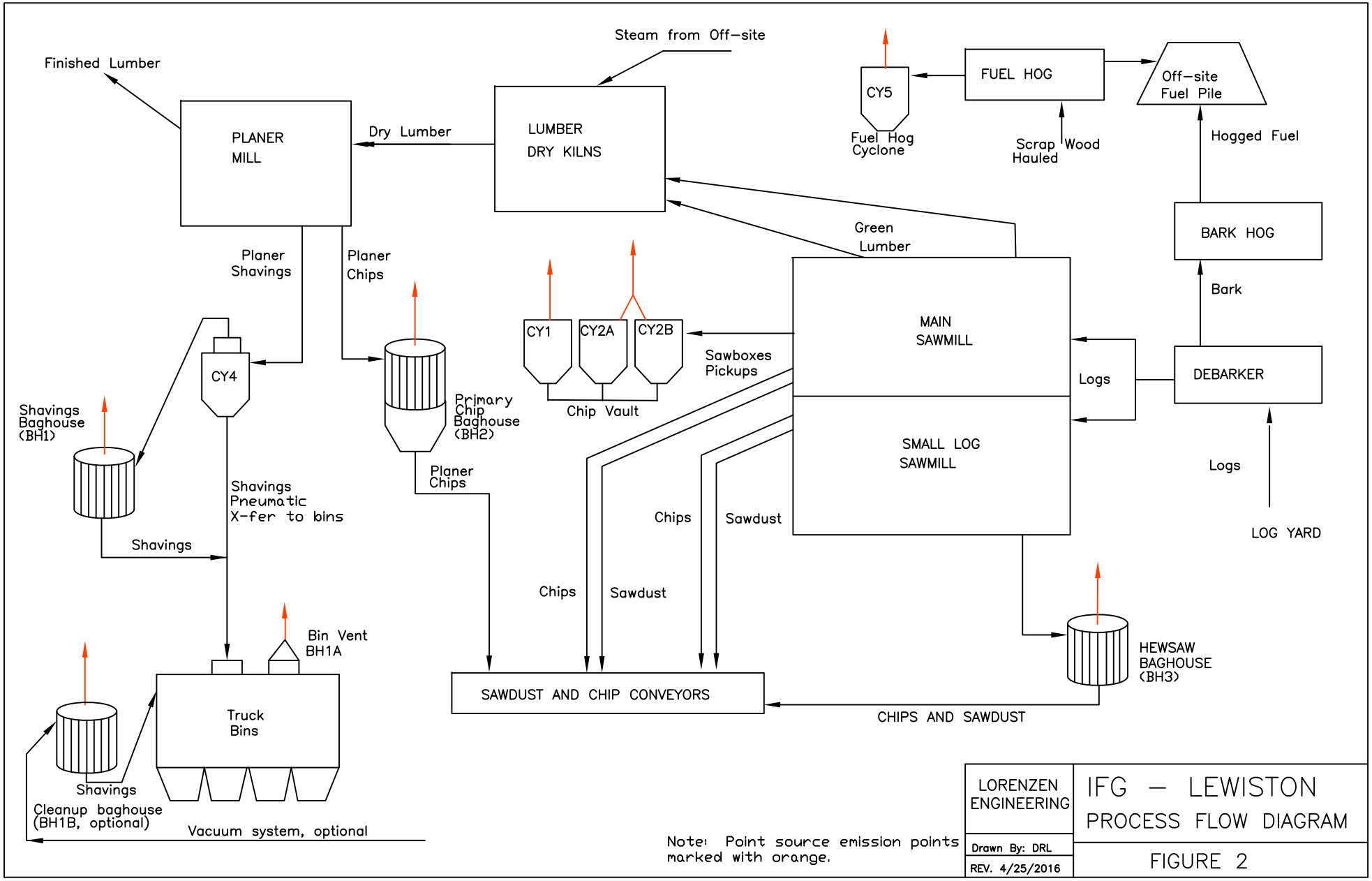


Figure 1: Site Location Map


Finished Lumber
PLANER MILL
Dry Lumber
LUMBER DRY KILNS
Steam from Off-site
CY5
Fuel Hog Cyclone
FUEL HOG
Scrap Wood Hauled
Off-site Fuel Pile
Hogged Fuel
BARK HOG
Bark
DEBARKER
Logs
LOG YARD
Green Lumber
MAIN SAWMILL
SMALL LOG SAWMILL
Sawboxes Pickups
CY1
CY2A
CY2B
Chip Vault
Planer Shavings
Planer Chips
CY4
Primary Chip Baghouse (BH2)
Shavings Baghouse (BH1)
Shavings
Shavings Pneumatic X-fer to bins
Planer Chips
Chips
Sawdust
Chips
Sawdust
HEWSAW BAGHOUSE (BH3)
CHIPS AND SAWDUST
SAWDUST AND CHIP CONVEYORS
Bin Vent BH1A
Truck Bins
Shavings
Cleanup baghouse (BH1B, optional)
Vacuum system, optional
Note: Point source emission points marked with orange.
LORENZEN ENGINEERING
Drawn By: DRL
REV. 4/25/2016
IFG – LEWISTON
PROCESS FLOW DIAGRAM
FIGURE 2

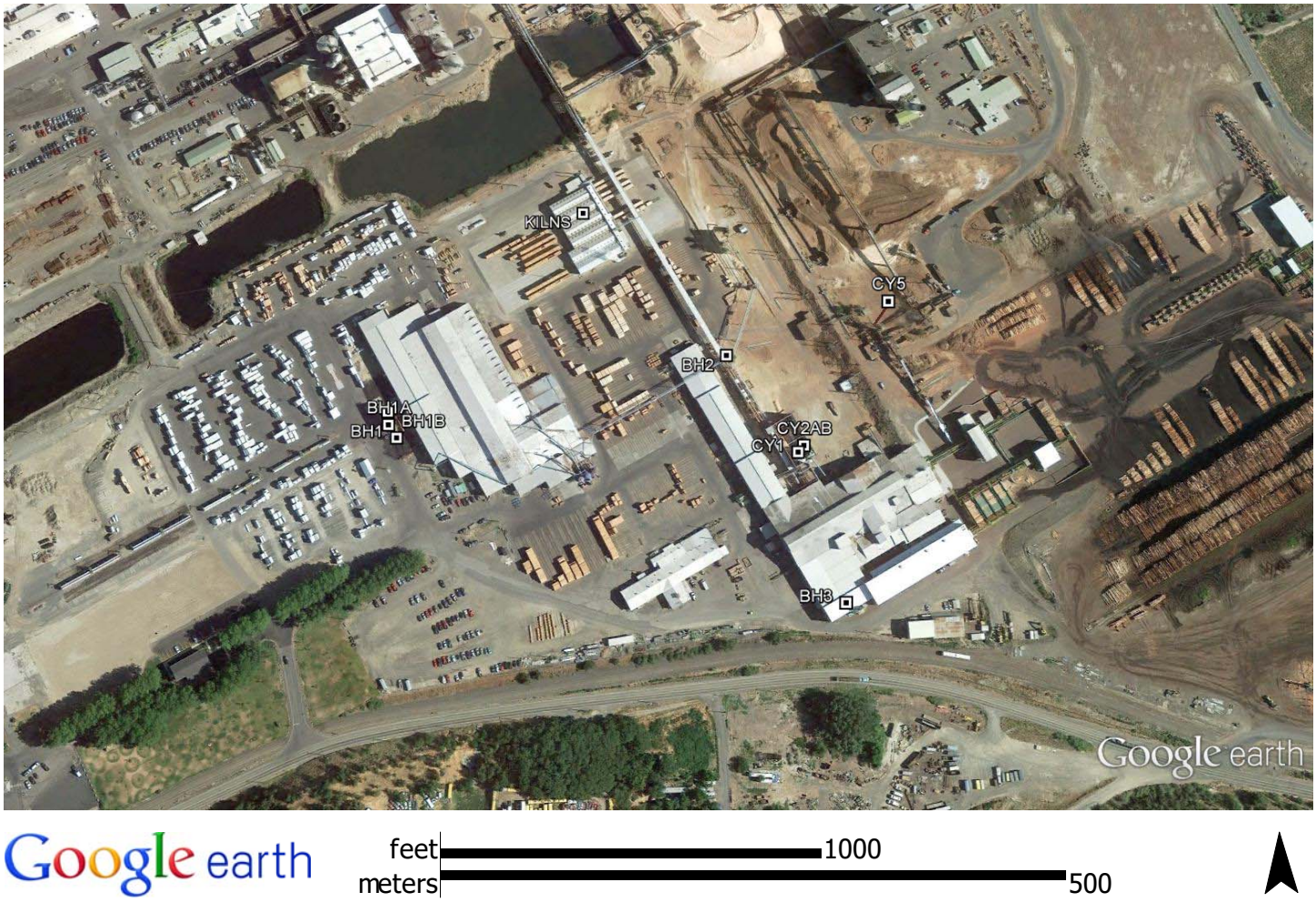


Figure 3: IFG Point Source Emission Points

Appendix A

Emission Calculation Spreadsheets and Documentation

IFG - Lewiston
Permitted Emission Rates for Comparison
Differences between Current Inventory and Proposed Inventory

	Current Emissions				Proposed Emissions			
	PM10 LT (ton/yr)	PM10 ST (lb/hr)	PM2.5 LT (ton/yr)	PM2.5 ST (lb/hr)	PM10 LT (ton/yr)	PM10 ST (lb/hr)	PM2.5 LT (ton/yr)	PM2.5 ST (lb/hr)
Point Sources								
Lumber Drying								
Dry Kilns	8.93	2.28	7.76	1.98	8.93	2.28	7.76	1.98
Cyclones								
CY1, Sawmill Machine Center Cyclone	0.033	0.011	0.016	0.005	0.033	0.011	0.016	0.005
CY2A&B, Sawmill Machine Center Cyclones	0.196	0.065	0.098	0.033	0.196	0.065	0.098	0.033
CY3 is integrated with Planer Chip Baghouse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CY4 vents to the Planer Shavings Baghouse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CY5, Fuel Hog Cyclone	0.850	0.283	0.425	0.142	0.850	0.283	0.425	0.142
Baghouses								
BH1, Shavings Baghouse	1.025	0.418	0.686	0.280	1.025	0.418	0.686	0.280
BH1A, Bin Vent Baghouse	0.000	0.000	0.000	0.000	1.78E-03	7.28E-04	1.19E-03	4.88E-04
BH1B, Bin Cleanup System Baghouse (optional)	0.000	0.000	0.000	0.000	1.10E-02	3.60E-03	7.34E-03	2.41E-03
BH2, Planer Chip Baghouse	1.41E-02	5.75E-03	9.45E-03	3.85E-03	1.41E-02	5.75E-03	9.45E-03	3.85E-03
BH3, Hew Saw Baghouse 1	1.988	0.454	1.332	0.304	1.988	0.454	1.332	0.304
Point Source Totals	**13.036**	**3.522**	**10.323**	**2.752**	**13.049**	**3.527**	**10.331**	**2.755**

	PM10 LT (ton/yr)	PM10 ST (lb/hr)	PM2.5 LT (ton/yr)	PM2.5 ST (lb/hr)
Difference	0.013	0.004	0.009	0.003
Level I Modeling Threshold		0.22	0.35	0.054
Level II Modeling Threshold		2.6	4.1	0.63

IDAHO FOREST GROUP, LEWISTON
Emission Inventory/Calculations

Production Information is based on permit limit and equipment capacity
Steam for this mill is provided from pulp mill, no boiler emissions

Lumber Production

Sawmill	470,000	mbdft/year	permit limit
	2,106	mbdft/day	equipment limit
Dry Kilns	470,000	mbdft/year	permit limit
	1,443	mbdft/day	equipment limit
Planer	470,000	mbdft/year	permit limit
	2,304	mbdft/day	equipment limit
Logs Used	1,692,000	tons/year	based on std. ratio
	7582	tons/day	based on std. ratio

Residuals Production

	tons/year	tons/day	**Ratio from data**	
Sawmill Chips to convey	353,000	1580	0.75	GT chips/mbdft sawmill
Sawdust to convey	155,000	695	0.33	GT sawdust/mbdft sawmill
Fines to cyclones	900	3.6	from cyclone data	
Bark to fuel hog	141,000	632	0.3	GT bark/mbdft sawmill
Planer Chips	28,200	138	0.06	BDT chips/mbdft planer
Shavings	51,230	251	0.11	GT shavings/mbdft planer
Wood to Fuel Hog	10,000	40	estimated from data	

LUMBER DRY KILN PARTICULATE EMISSIONS

Current and Future Emissions, no change at the dry kilns

Proposed Annual Production PTE	470,000	Mbf/yr
Max Daily PTE Production	1,443	Mbf/day

Daily compliance based on equipment potential, not limited by permit.

PM10 Emission Factor:	0.038	lbs/Mbf	As per DEQ email 10-29-13
Annual PM10 Emissions:	8.93	tons/year	PTE
Annual Emission Rate per Vent:	0.3435	tpy/vent	26 vents
Daily PM10 Emissions:	2.28	lb/hr	daily rate, 6 kilns
24-hour Emission Rate per Vent:	0.0879	lb/hr/vent	26 vents
PM25 Emission Factor:	0.033	lbs/Mbf	As per DEQ email 10-29-13
Annual Emission Rate per Vent:	7.76	tons/year	PTE
	0.2983	tpy/vent	26 vents
Daily PM25 Emissions:	1.98	lb/hr	daily rate, 6 kilns
24-hour Emission Rate per Vent:	0.0763	lb/hr/vent	26 vents

KILN VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

Factors from Table 4.2 of T1-2012.0038

VOC Emissions will be tracked to verify that emissions are below the permit limit of 249 tpy.

Virtually entire production has been white fir in recent years, marketed as HemFir.

Annual Production Limit:	470,000	Mbf/yr	
Emission Factor:	1.060	lbs/Mbf	VOC Emissions based on
Emissions:	249	tons/year	mix shown below.

Wood Species:	% of Total	VOC (lb/Mbf)	Weighted (lb/Mbf)	Reference
Cedar	0%	1.15	0.000	Permit Table 4.2
Hem Fir (use white fir)	100%	1.06	1.060	Permit Table 4.2
Douglas Fir and larch	0%	1.70	0.000	Permit Table 4.2
Ponderosa Pine	0%	4.43	0.000	Permit Table 4.2
ESLP, use Lodgepole	0%	2.16	0.000	Permit Table 4.2
Other (use P Pine)	0%	4.43	0.000	Permit Table 4.2
Total	100%		**1.060**	

KILN HAZARDOUS AIR POLLUTANT (HAPS)

Total MBF processe	**470,000**		
% Douglas Fir	0%	0	*MBF/Yr by species*
% Hem-Fir	100%	470,000	
% Ponderosa Pine	0%	0	
% ESLP	0%	0	
% Cedar	0%	0	
% Other (name speci	0%	0	
	100%	470,000	

EMISSION FACTORS:	EPA 12/12, except cedar					
Pollutant	Total HAP	Methanol	Formal-dehyde	Acetal-dehyde	Propion-aldehyde	Acrolein
Douglas Fir	0.1913	0.1170	0.0043	0.0682	0.0007	0.0011
Hem Fir (HF, WW)	0.4956	0.4200	0.0163	0.0550	0.0018	0.0026
Ponderosa Pine	0.2029	0.1440	0.0092	0.0420	0.0032	0.0045
ESLP	0.1166	0.0628	0.0041	0.0420	0.0032	0.0045
Cedar	0.5784	0.0298	0.0016	0.0355	0.0003	0.0005

EMISSIONS — Emission lb/Yr

Species	Total HAP	Methanol	Formal-dehyde	Acetal-dehyde	Propion-aldehyde	Acrolein
Douglas Fir	0	0	0	0	0	0
Western Hemlock	232932	197400	7661	25850	846	1222
Ponderosa Pine	0	0	0	0	0	0
White Fir (white wood	0	0	0	0	0	0
Cedar	0	0	0	0	0	0
TOTAL, lb/yr	232,932	197,400	7,661	25,850	846	1,222
TOTAL, ton/yr	116.47	98.70	3.83	12.93	0.42	0.61

BAGHOUSES

CURRENT PTE BAGHOUSE EMISSIONS

Process Equipment Baghouses Source	Emission (gr/cf)	Flow cfm	PM10 e.f. lb/hr	PM25 e.f. lb/hr
BH3, Hew Saw Baghouse	0.003	17655	0.454	0.304

Control Equipment Baghouses Source	PM10 ef (lb/ton)	reference	PM2.5 ef (lb/ton)	reference
BH1, Shavings Handling Baghouse	0.040	AQ-EF02, shavings	0.027	67% of PM10(1)
BH2, Planer Chip Baghouse	0.001	AQ-EF02, chips	0.001	67% of PM10(1)

(1) DEQ determined that baghouse PM2.5 should be calculated as 67% of PM10.

Source	Basis	Production Units	Current PTE			
			PM10 (ton/yr)	Daily PM10 (lb/hr)	PM2.5 (ton/yr)	PM2.5 (lb/hr)
BH1, Shavings Baghouse	51,230	tons/yr	1.025		0.686	
BH1, Shavings Baghouse	251	tons/day		0.418		0.280
BH2, Planer Chip Baghouse	28,200	tons/yr	0.014		0.009	
BH2, Planer Chip Baghouse	138	tons/day		0.006		0.004
BH3, Hew Saw Baghouse(2)	8,760	hours/yr	1.988	0.454	1.332	0.304

(2) Hew Saw emissions are based on continual operation at full capacity. This results in annual and short-term emission rates being equal.

PROPOSED PTE BAGHOUSE EMISSIONS

Process Equipment Baghouses Source	rate (gr/cf)	Flow cfm	PM10 e.f. lb/hr	PM25 e.f. lb/hr
BH3, Hew Saw Baghouse	0.003	17655	0.454	0.304

Control Equipment Baghouses Source	PM10 ef (lb/ton)	reference	PM2.5 ef (lb/ton)	reference
BH1, Shavings Handling Baghouse	0.040	AQ-EF02, shavings	0.027	67% of PM10(1)
BH2, Planer Chip Baghouse	0.001	AQ-EF02, chips	0.001	67% of PM10(1)
BH1A, Shavings Bin Vent Baghouse	0.000070	Manufacturer Specifications	0.000047	67% of PM10(1)
BH1B, Shavings Bin Housekeeping	0.0024	Baghouse Eff. 99.8%	0.0016	67% of PM10(1)

(1) DEQ determined that baghouse PM2.5 should be calculated as 67% of PM10.

Source	Basis (hr/yr) or (tons/yr)	Production Units	Proposed Emissions			
			PM10 (ton/yr)	Daily PM10 (lb/hr)	PM2.5 (ton/yr)	PM2.5 (lb/hr)
BH1, Planer Shavings Baghouse	51,230	tons/yr	1.025		0.686	
BH1, Shavings Baghouse	251	tons/day		0.418		0.280
BH1A, Shavings Bin Vent Baghouse	51,230	tons/yr	1.78E-03		1.19E-03	
BH1A, Shavings Bin Vent Baghouse	251	tons/day		7.28E-04		4.88E-04
BH1B, Housekeeping Baghouse(3)	9,125	tons/yr	1.10E-02		7.34E-03	
BH1B, Housekeeping Baghouse	36	tons/day		3.60E-03		2.41E-03
BH2, Planer Chip Baghouse	28,200	tons/yr	0.014		0.009	
BH2, Planer Chip Baghouse	138	tons/day		0.006		0.004
BH3, Hew Saw Baghouse	8,760	hours/yr	1.988	0.454	1.332	0.304
Conversion of minutes to hours	60		min/hr			
Conversion of grains to lbs	7000		gr/lb			

(3) Annual worst-case shavings pickup: 25 tons per day, 365 days per year. Hourly, 1.5 tons/hr

CYCLONE EMISSION FACTORS

Potlatch developed cyclone emission factors for PM. IFG is using those emissions factors where possible, with corresponding factors for PM10 and PM2.5.

Source	PM10 e.f. (lb/ton)		PM2.5 e.f. (lb/ton)
CY1, Sawmill Machine Center Cyclone(1)(2)	0.165		0.082
CY2A&B, Sawmill Macine Center Cyclones(1)(2)	0.780		0.390
CY5, Fuel Hog Cyclone(1)(2)	0.170		0.085

Notes:

(1) Original note from Potlatch said: Calculated using cyclone and dust parameters per Rex. M. Robbins, Pollution Engineering, March, 1988 , with number of turns (Ne) calc. According to Wark and Warner, 1981

(2) $PM_{2.5}$ is 67% of PM_{10}, as per IDEQ August 19, 2013 lettter.

(3) Based on ODEQ AQ-EF02 and AQ-EF03. HIgh efficiency cyclone. IFG plans to install a baghouse on this cyclone when a baghouse becomes available after the planer changes are complete. The baghouse will have lower emissions, so the modeling is conservative by using the cyclone.

CYCLONE EMISSIONS ARE UNCHANGED IN THIS ANALYSIS

Calculation methodology for short term emissions have been changed to make it more clear that the hour operation represents equipment capacity.

CYCLONE EMISSIONS INCLUDED IN CURRENT APPLICATION

HOURS OF OPERATION	5356	hours per year, consistent with operations
ANNUAL SAWMILL PRODUCTION	470,000	MBDFT/YR

	Annual Throughput	Daily Throughput	Proposed Emissions			
			PM10	Daily PM10	PM2.5	PM2.5
Source	tons	tons	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
CY1, Sawmill Machine Center Cyclone	396	1.584	0.033	0.011	0.016	0.005
CY2A&B, Sawmill Machine Center Cyclones	503	2.012	0.196	0.065	0.098	0.033
CY5, Fuel Hog Cyclone	10,000	40	0.850	0.283	0.425	0.142

macprocess
schenckprocess group

Air Vent Square (AVS/AVSC) Filter

- **Suited for low headroom applications**
- **Side door access to bottom load filter media**
- **Can be fitted with either bags or pleated cartridges, depending on efficiency requirements**
- **Part of the ProPulse® portfolio of industrial air filtration products**

Application
Typically used as a nuisance dust collector for heavy dust-loads. Because the AVS filter offers bottom bag replacement through side doors, it's well suited for applications with low headroom. The AVS can also be fitted with pleated cartridge media to improve efficiencies. When fitted with cartridges, the unit is designated as AVSC.

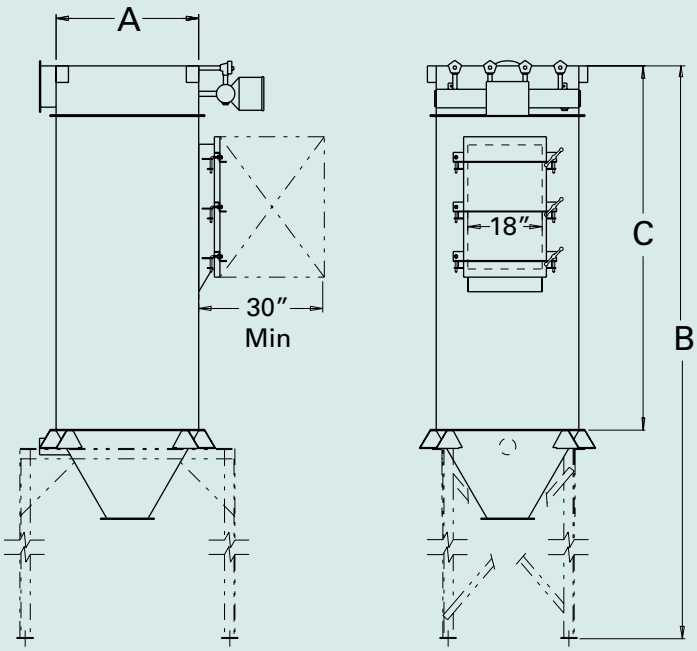
Equipment
Electronically timed compressed air is released into a row of filter bags during operation. These pulses dislodge the captured dust and allow the filter to clean itself without shutting down the operation. Mac Process offers this filter in two styles: with and without a hopper.

Without the hopper (Style II) the filter is ideally suited as a bin vent filter for storage tanks, work bins and surge hoppers.

With a 60° hopper (Style III) the filter receives dust through a hopper entry inlet and discharges the collected dust through an airlock for dust disposal or recycling.

Standard Specifications

- Unit stressed for 17" W.C. and 200º F standard temperature. AVS Filters can also be customized for higher operating static pressures to meet specific application requirements.
- Carbon steel construction:
  - Top plenum and baghouse: 12 ga.
  - Hopper AVS9 and 16: 10 ga.
  - Hopper AVS25 and larger: 7 ga.
- Full welded exterior and skip welded interior
- 36 bag units and larger have reinforced housing and tubesheet
- Broke lip flange on top plenum, baghouse, and hopper
- Hopper discharge flange: 1/4" x 1 1/2" flat bar
- Arrangement:
  - Service door and header @ 3:00
  - Exhaust @ 9:00
  - Inlet @ 9:00
  - (Flanged hopper does allow for rotating hopper relative to housing on 90º increments)



Model	Cloth Area	Number of Bags	A (inches)	B (inches)	C (inches)
18AVS9	17	9	26	82 5/8	40 1/8
36AVS9	38			94 5/8	52 1/8
54AVS9	60			112 5/8	70 1/8
72AVS9	81			130 5/8	88 1/8
18AVS16	30	16	34 1/2	90 5/8	40 1/8
36AVS16	69			102 5/8	52 1/8
54AVS16	107			120 5/8	70 1/8
72AVS16	145			138 5/8	88 1/8
96AVS16	196			162 5/8	112 1/8
18AVS25	48	25	43	98 5/8	40 1/8
36AVS25	108			110 5/8	52 1/8
54AVS25	167			128 5/8	70 1/8
72AVS25	227			146 5/8	88 1/8
96AVS25	307			170 5/8	112 1/8
36AVS36	155	36	51 1/2	118 5/8	52 1/8
54AVS36	241			136 5/8	70 1/8
72AVS36	327			154 5/8	88 1/8
96AVS36	442			178 5/8	112 1/8
36AVS49	211	49	60	126 5/8	52 1/8
54AVS49	328			144 5/8	70 1/8
72AVS49	445			162 5/8	88 1/8
96AVS49	602			186 5/8	112 1/8
36AVS64	276	64	68 1/2	134 5/8	52 1/8
54AVS64	429			152 5/8	70 1/8
72AVS64	582			170 5/8	88 1/8
96AVS64	786			194 5/8	112 1/8

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Web site: www.macprocessinc.com

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DYNA-MAC Felt Filter Media

- **Lower operating costs**
- **Higher filter efficiencies**
- **Reduced consumption of compressed air**
- **Highest filtration efficiency of any non-membrane filter felt**

Overview

Ever tightening environmental restrictions are placing new demands on the fabric filtration industry. Fortunately, the answer to tighter restrictions can be found today in DYNA-MAC felt.

DYNA-MAC felts are engineered with micro-denier fibers which provide the highest filtration efficiency of any non-membrane filter felt. Tests run by an independent environmental testing agency show that when compared to the industry standard, polyester felt, the DYNA-MAC filter media:

- Improved efficiency 67% (ASTM D6830-02; PM 2.5)
- Lowered ΔP 45%
- Required 46% fewer pulses to maintain a set ΔP

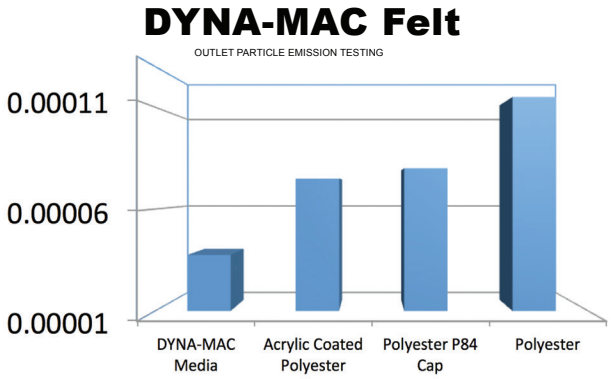
Available fibers for DYNA-MAC felt:

- Polyester - Homopolymer Acrylic
- PPS (Ryton)
- Aramid (Nomex)
- P-84
- Kermeltech

PM 2.5 efficiency tests compared DYNA-MAC felt to polyester felt, acrylic coated polyester felt and polyester felt with a P-84 cap.

DYNA-MAC felt was 53% more efficient than polyester felt with a P-84 cap, which has for several years been the “high efficiency” felt of choice for many difficult applications.

PM 2.5 Efficiency Testing



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Operating principle

Increased surface area of the micro-denier fibers keep the dust particles on the surface of a DYNA-MAC felt filter bag.

The improvement in surface filtration provides outstanding cake release in addition to the excellent filtration efficiency. The improved cake release and lower ΔP leads to lower fan horsepower requirements and fewer pulses to maintain production demand.

Less cleaning means reduced consumption of compressed air. Therefore, switching from regular felt bags to DYNA-MAC felt lowers operating costs and increases profits.

DYNA-MAC 0.7 denier polyester fiber

2.25 denier polyester fiber

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EPA-450/4-89-022

PM10 EMISSION FACTOR LISTING DEVELOPED BY TECHNOLOGY TRANSFER

AND

AIRS SOURCE CLASSIFICATION CODES

WITH DOCUMENTATION

By

Engineering Science
Cary, NC 27511

EPA Contract No. 68-02-4398

EPA Project Officer: Archibald A. MacQueen

Office Of Air Quality Planning And Standards
Office Of Air And Radiation
U. S. Environmental Protection Agency
Research Triangle Park, NC 27711

November 1989

Page Number	SCC	Process	PM_{10} Factor lbs/unit	Units	Reference Number
70	3-07-007-15	Southern Pine Plywood Veneer dryer	2.15	10^4 Sq. Ft. 3/8" Plywood	390
		Sawmill Operations - 2421, 2426, 2429			
70	3-07-008-01	Log Debarking	0.011	Tons of Logs Processed	391
70	3-07-008-02	Log Sawing	0.20	Tons of Logs Processed	392
70	3-07-008-03	Sawdust Pile Handling	0.36	Tons of Sawdust	393
70	3-07-008-04	Sawing: Cyclone Exhaust	0.90	SCFM Average Airflow	394
70	3-07-008-05	Planing/ Trimming: Cyclone Exhaust	0.90	SCFM Average Airflow	395
70	3-07-008-06	Sanding: Cyclone Exhaust	2.00	SCFM Average Airflow	396
70	3-07-008-07	Sanderdust: Cyclone Exhaust	2.50	Hours of Operation	397
70	3-07-008-08	Other Cyclones: Exhaust	0.80	Hours of Operation	398
		Miscellaneous Woodworking Operations - 2421, 2426, 2429, 2431, 2434, 2439			
71	3-07-030-01	Wood Waste Storage Bin Vent	0.58	Tons Wood Waste	399
71	3-07-030-02	Wood Waste Storage Bin Loadout	1.20	Tons Wood Waste	400
		Drum Cleaning/Reclamation - 5085			
74	3-09-025-01	Drum Burning Furnace	0.02	Drums Burned	401
		Oil & Gas Production - Fuel Fired Equipment			
		Process Heaters			
76	3-10-004-01	Distillate Oil	1.0	10^3 Gal. Burned	402

Appendix B

List of Applicable Regulations

Citation Under IDAPA 58.01.01	Description of Requirements or Standards	Applicability/ Compliance Method	Emission Unit Affected
123	CERTIFICATION OF DOCUMENTS General Applicability	IFG will include required certification with affected submittals.	Facility wide
130	STARTUP, SHUTDOWN, SCHEDULED MAINTENANCE, SAFETY MEASURES, UPSET AND BREAKDOWN	IFG will record events as required.	Facility wide
131	EXCESS EMISSIONS	IFG will report excess emissions events as required.	Facility wide
132	CORRECTION OF CONDITION	IFG will corrected conditions causing excess emissions events as quickly as practicable.	Facility wide
133	STARTUP, SHUTDOWN AND SCHEDULED MAINTENANCE REQUIREMENTS	IFG will record events as required.	Facility wide
134	UPSET, BREAKDOWN AND SAFETY REQUIREMENTS	IFG will record events as required.	Facility wide
135	EXCESS EMISSIONS REPORTS	Recordkeeping and reporting will constitute on-going compliance.	Facility wide
136	EXCESS EMISSIONS RECORDS	Recordkeeping and reporting will constitute on-going compliance.	Facility wide
155	CIRCUMVENTION	General applicability.	Facility wide
156	TOTAL COMPLIANCE	General applicability.	Facility wide
157	TEST METHODS AND PROCEDURES	General applicability.	NA
160	PROVISIONS GOVERNING SPECIFIC ACTIVITIES AND CONDITIONS General Applicability	General Applicability	NA
161	TOXIC SUBSTANCES	Recordkeeping and reporting will constitute on-going compliance.	Facility Wide
162	MODIFYING PHYSICAL CONDITIONS	General Applicability	NA
163	SOURCE DENSITY	General Applicability	NA
164	POLYCHLORINATED BIPHENYLS (PCBs) Burning and sales prohibited.	IFG will continue to comply with this regulation.	Facility Wide
176-181	FACILITY EMISSIONS CAP (FEC) Regulations related permitting based on FEC.	IFG is not applying for coverage under the FEC regulations	NA
200	PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT	IFG is filing a PTC application for the proposed project.	BH1A, BH4, CY6
201	PERMIT TO CONSTRUCT REQUIRED	PTC is required because of kiln construction.	BH1A, BH4, CY6

Citation Under IDAPA 58.01.01	Description of Requirements or Standards	Applicability/ Compliance Method	Emission Unit Affected
202	APPLICATION PROCEDURES	IFG has submitted an application that meets the application procedures.	BH1A, BH4, CY6
203	PERMIT REQUIREMENTS FOR NEW AND MODIFIED STATIONARY SOURCES	The Lewiston mill is a stationary source.	Facility Wide
204	PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN NONATTAINMENT AREAS	This does not apply to the Lewiston mill because it is not a PSD major facility.	NA
205	PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN ATTAINMENT OR UNCLASSIFIABLE AREAS	This does not apply to the Lewiston mill because it is not a PSD major facility.	NA
206	OPTIONAL OFFSETS FOR PERMITS TO CONSTRUCT Allows use of emission offsets in permitting.	IFG has included ambient impact reductions resulting from removal of the Specialties and Profiling cyclones and baghouses.	Facility Wide
207-208	REQUIREMENTS FOR EMISSION REDUCTION CREDIT	IFG is not applying for emissions reduction credits.	
209	PROCEDURE FOR ISSUING PERMITS	Applies to DEQ	NA
210	DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS 20. NSPS and NESHAPS Sources exempted.	Mill TAP emissions are regulated under the Federal NESHAPS Subpart DDDD so IFG is exempted from IDEQ toxics analysis.	NA
211	CONDITIONS FOR PERMITS TO CONSTRUCT	IFG will comply with applicable notification and testing requirements.	Facility Wide
212	OBLIGATION TO COMPLY	IFG will comply with applicable requirements.	Facility Wide
213	PRE-PERMIT CONSTRUCTION	IFG is not applying under the pre-permit construction regulation.	Facility Wide
214	DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE FOR NEW AND RECONSTRUCTED MAJOR SOURCES OF HAZARDOUS AIR POLLUTANTS	The mill is subject to the MACT requirements under NESHAPS Subpart DDDD.	Facility Wide
215	MERCURY EMISSION STANDARD FOR NEW OR MODIFIED SOURCES	The Lewiston mill does not include any mercury emission sources.	NA
220-223	EXEMPTION CRITERIA FOR PERMIT TO CONSTRUCT EXEMPTIONS	IFG is not invoking the exemption criteria.	NA
224	PERMIT TO CONSTRUCT APPLICATION FEE	A check is included for the PTC application fee.	Facility Wide

Citation Under IDAPA 58.01.01	Description of Requirements or Standards	Applicability/ Compliance Method	Emission Unit Affected
225	PERMIT TO CONSTRUCT PROCESSING FEE	IFG will pay the PTC processing fee when assessed by DEQ.	Facility Wide
300 *et seq*	PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS	A Tier I permit is in place for the mill. The PTC changes will be included in the Tier I permit as per DEQ processes.	Facility Wide
400 *et seq*	PROCEDURES AND REQUIREMENTS FOR TIER II OPERATING PERMITS	The Lewiston mill does not have a Tier II permit.	NA
440 – 441	REQUIREMENTS FOR ALTERNATIVE EMISSION LIMITS (BUBBLES)	IFG is not applying under this regulation.	NA
460	REQUIREMENTS FOR EMISSION REDUCTION CREDIT	The modeling demonstration in this application incorporates reductions from removed sources, as described in the DEQ modeling protocol review.	Facility Wide
461	REQUIREMENTS FOR BANKING EMISSION REDUCTION CREDITS (ERCs)	IFG is not applying to bank ERCs	NA
500	REGISTRATION PROCEDURES AND REQUIREMENTS FOR PORTABLE EQUIPMENT	IFG is not proposing any portable equipment.	NA
510-516	STACK HEIGHTS AND DISPERSION TECHNIQUES	All stack heights comply.	Facility Wide
510	STACK HEIGHTS AND DISPERSION TECHNIQUES	None Required	NA
590	NEW SOURCE PERFORMANCE STANDARDS (NSPS)	Not applicable to any equipment at the mill.	NA
591	NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)	NESHAPS Subpart DDDD applies to the mill. IFG is in compliance.	Facility Wide
600	RULES FOR CONTROL OF OPEN BURNING	General applicability.	Facility Wide
601	FIRE PERMITS, HAZARDOUS MATERIALS AND LIABILITY	General applicability.	NA
602	NONPREEMPTION OF OTHER JURISDICTIONS	General applicability.	NA
603	GENERAL RESTRICTIONS	General applicability.	NA
608	WEED CONTROL FIRES	General applicability.	NA
625	VISIBLE EMISSIONS	Recordkeeping and reporting will constitute on-going compliance.	Facility Wide
650	RULES FOR CONTROL OF FUGITIVE DUST	Recordkeeping and reporting will constitute on-going compliance.	Facility Wide
651	GENERAL RULES	General applicability.	NA
675	FUEL BURNING EQUIPMENT - PARTICULATE MATTER	The mill does not have fuel burning equipment.	NA

Citation Under IDAPA 58.01.01	Description of Requirements or Standards	Applicability/ Compliance Method	Emission Unit Affected
700	PARTICULATE MATTER - PROCESS WEIGHT LIMITATIONS	General applicability.	
701	PARTICULATE MATTER – NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS	Recordkeeping and reporting will constitute on-going compliance.	CY1, CY2AB, CY4,CY6, BH1,BH1A, BH2,BH3,BH4
702	PARTICULATE MATTER – EXISTING EQUIPMENT PROCESS WEIGHT LIMITATIONS	Recordkeeping and reporting will constitute on-going compliance.	NA
775	RULES FOR CONTROL OF ODORS	General applicability.	Facility Wide
776	GENERAL RULES	General applicability.	Facility Wide
785-786	RULES FOR CONTROL OF INCINERATORS	IFG does not operate any incinerators.	NA
808	FUGITIVE DUST CONTROL	Recordkeeping and reporting will constitute on-going compliance.	Facility Wide

Appendix C

Permit Application Forms

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

General Information **Form GI**
Revision 7
6/29/12

Please see instructions on back page before filling out the form. All information is required. If information is missing, the application will not be processed.

Identification

1. Facility name Idaho Forest Group LLC - Lewiston

2. Existing facility identification number 069-00003

☐ **Check if new facility (not yet operating)**

3. Brief project description PTC revision for changes to pneumatic material handling systems.

Facility Information

4. Primary facility permitting contact name Jim Miller **Contact type** Facility permitting contact

Telephone number 208-848-2322 **E-mail** jdmiller@idfg.com

5. Alternate facility permitting contact name Jesse Short **Alternate contact type** Responsible official

Telephone number 208-762-2999 **E-mail**

6. Mailing address where permit will be sent (street/city/county/state/zip code) 280 Sycamore Drive Lewiston, ID 83501

7. Physical address of permitted facility (if different than mailing address) (street/ city/county/state/zip code) 280 Sycamore Drive Lewiston, ID 83501

8. Is the equipment portable? ☐ **Yes*** ☒ **No** ***If yes, complete and attach PERF; see instructions.**

9. NAICS codes: Primary NAICS 321113 **Secondary NAICS**

10. Brief business description and principal product produced Sawmill

11. Identify any adjacent or contiguous facility this company owns and/or operates NA

12. Specify type of application ☒ **Permit to construct (PTC); application fee of $1,000 required. See instructions.**

☐ **Tier I permit** ☐ **Tier II permit** ☐ **Tier II/Permit to construct**

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.

☐ **Co-process Tier I modification and PTC** ☒ **Incorporate PTC at the time of Tier I renewal** ☐ **Administratively amend the Tier I permit to incorporate the PTC upon applicant's request (IDAPA 58.01.01.209.05.a, b, or c)**

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.

13. Responsible official's name Jesse Short **Official's title** Mill Manager

Official's address 280 Sycamore Drive Lewiston, ID 83501

Telephone number 208-762-2999 **E-mail** jshort@idfg.com

Official's signature **Date**

☒ **14. Check here to indicate that you want to review the draft permit before final issuance.**

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	Idaho Forest Group LLC		
2. Facility Name	IFG – Lewiston	3. Facility ID No.	069-00003
4. Brief Project Description - One sentence or less	Modify PTC to allow installation of additional pneumatic material handling equipment.		

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.:_____ Date Issued:_____
☐ 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-CP1 - EI-CP4– Emissions Inventory– criteria pollutants	(Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan		☐
☐	☒	Forms MI1 – MI4 – Modeling		☐
☒	☐	Form FRA – Federal Regulation Applicability		☐

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
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:
Idaho Forest Group LLC	Idaho Forest Group - Lewiston
3. Brief Project Description:	Modify PTC to allow intallation of additional pneumatic material handling equipment.

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): **NESHAP Subpart DDDD – Plywood and Composite Wood Products MACT** . The facility does not have any emergency or non-emergency SI or CI RICE units.
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.

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.

IFG - Lewiston
Permitted Emission Rates for Comparison
Differences between Current Inventory and Proposed Inventory

	Current Emissions				Proposed Emissions			
	PM10 LT (ton/yr)	PM10 ST (lb/hr)	PM2.5 LT (ton/yr)	PM2.5 ST (lb/hr)	PM10 LT (ton/yr)	PM10 ST (lb/hr)	PM2.5 LT (ton/yr)	PM2.5 ST (lb/hr)
Point Sources								
Lumber Drying								
Dry Kilns	8.93	2.28	7.76	1.98	8.93	2.28	7.76	1.98
Cyclones								
CY1, Sawmill Machine Center Cyclone	0.033	0.011	0.016	0.005	0.033	0.011	0.016	0.005
CY2A&B, Sawmill Machine Center Cyclones	0.196	0.065	0.098	0.033	0.196	0.065	0.098	0.033
CY3 is integrated with Planer Chip Baghouse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CY4 vents to the Planer Shavings Baghouse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CY5, Fuel Hog Cyclone	0.850	0.283	0.425	0.142	0.850	0.283	0.425	0.142
Baghouses								
BH1, Shavings Baghouse	1.025	0.418	0.686	0.280	1.025	0.418	0.686	0.280
BH1A, Bin Vent Baghouse	0.000	0.000	0.000	0.000	1.78E-03	7.28E-04	1.19E-03	4.88E-04
BH1B, Bin Cleanup System Baghouse (optional)	0.000	0.000	0.000	0.000	1.10E-02	3.60E-03	7.34E-03	2.41E-03
BH2, Planer Chip Baghouse	1.41E-02	5.75E-03	9.45E-03	3.85E-03	1.41E-02	5.75E-03	9.45E-03	3.85E-03
BH3, Hew Saw Baghouse 1	1.988	0.454	1.332	0.304	1.988	0.454	1.332	0.304
Point Source Totals	**13.036**	**3.522**	**10.323**	**2.752**	**13.049**	**3.527**	**10.331**	**2.755**

	PM10 LT (ton/yr)	PM10 ST (lb/hr)	PM2.5 LT (ton/yr)	PM2.5 ST (lb/hr)
Difference	0.013	0.004	0.009	0.003
Level I Modeling Threshold		0.22	0.35	0.054
Level II Modeling Threshold		2.6	4.1	0.63

IDAHO FOREST GROUP, LEWISTON
Emission Inventory/Calculations

Production Information is based on permit limit and equipment capacity
Steam for this mill is provided from pulp mill, no boiler emissions

Lumber Production

Sawmill	470,000	mbdft/year	permit limit
	2,106	mbdft/day	equipment limit
Dry Kilns	470,000	mbdft/year	permit limit
	1,443	mbdft/day	equipment limit
Planer	470,000	mbdft/year	permit limit
	2,304	mbdft/day	equipment limit
Logs Used	1,692,000	tons/year	based on std. ratio
	7582	tons/day	based on std. ratio

Residuals Production

	tons/year	tons/day	**Ratio from data**	
Sawmill Chips to convey	353,000	1580	0.75	GT chips/mbdft sawmill
Sawdust to convey	155,000	695	0.33	GT sawdust/mbdft sawmill
Fines to cyclones	900	3.6	from cyclone data	
Bark to fuel hog	141,000	632	0.3	GT bark/mbdft sawmill
Planer Chips	28,200	138	0.06	BDT chips/mbdft planer
Shavings	51,230	251	0.11	GT shavings/mbdft planer
Wood to Fuel Hog	10,000	40	estimated from data	

LUMBER DRY KILN PARTICULATE EMISSIONS

Current and Future Emissions, no change at the dry kilns

Proposed Annual Production PTE	470,000	Mbf/yr
Max Daily PTE Production	1,443	Mbf/day

Daily compliance based on equipment potential, not limited by permit.

PM10 Emission Factor:	0.038	lbs/Mbf	As per DEQ email 10-29-13
Annual PM10 Emissions:	8.93	tons/year	PTE
Annual Emission Rate per Vent:	0.3435	tpy/vent	26 vents
Daily PM10 Emissions:	2.28	lb/hr	daily rate, 6 kilns
24-hour Emission Rate per Vent:	0.0879	lb/hr/vent	26 vents
PM25 Emission Factor:	0.033	lbs/Mbf	As per DEQ email 10-29-13
Annual Emission Rate per Vent:	7.76	tons/year	PTE
	0.2983	tpy/vent	26 vents
Daily PM25 Emissions:	1.98	lb/hr	daily rate, 6 kilns
24-hour Emission Rate per Vent:	0.0763	lb/hr/vent	26 vents

KILN VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

Factors from Table 4.2 of T1-2012.0038

VOC Emissions will be tracked to verify that emissions are below the permit limit of 249 tpy.

Virtually entire production has been white fir in recent years, marketed as HemFir.

Annual Production Limit:	470,000	Mbf/yr	
Emission Factor:	1.060	lbs/Mbf	VOC Emissions based on
Emissions:	249	tons/year	mix shown below.

Wood Species:	% of Total	VOC (lb/Mbf)	Weighted (lb/Mbf)	Reference
Cedar	0%	1.15	0.000	Permit Table 4.2
Hem Fir (use white fir)	100%	1.06	1.060	Permit Table 4.2
Douglas Fir and larch	0%	1.70	0.000	Permit Table 4.2
Ponderosa Pine	0%	4.43	0.000	Permit Table 4.2
ESLP, use Lodgepole	0%	2.16	0.000	Permit Table 4.2
Other (use P Pine)	0%	4.43	0.000	Permit Table 4.2
Total	100%		**1.060**	

KILN HAZARDOUS AIR POLLUTANT (HAPS)

Total MBF processe	**470,000**		
% Douglas Fir	0%	0	*MBF/Yr by species*
% Hem-Fir	100%	470,000	
% Ponderosa Pine	0%	0	
% ESLP	0%	0	
% Cedar	0%	0	
% Other (name speci	0%	0	
	100%	470,000	

EMISSION FACTORS:	EPA 12/12, except cedar					
Pollutant	Total HAP	Methanol	Formal-dehyde	Acetal-dehyde	Propion-aldehyde	Acrolein
Douglas Fir	0.1913	0.1170	0.0043	0.0682	0.0007	0.0011
Hem Fir (HF, WW)	0.4956	0.4200	0.0163	0.0550	0.0018	0.0026
Ponderosa Pine	0.2029	0.1440	0.0092	0.0420	0.0032	0.0045
ESLP	0.1166	0.0628	0.0041	0.0420	0.0032	0.0045
Cedar	0.5784	0.0298	0.0016	0.0355	0.0003	0.0005

EMISSIONS — Emission lb/Yr

Species	Total HAP	Methanol	Formal-dehyde	Acetal-dehyde	Propion-aldehyde	Acrolein
Douglas Fir	0	0	0	0	0	0
Western Hemlock	232932	197400	7661	25850	846	1222
Ponderosa Pine	0	0	0	0	0	0
White Fir (white wood	0	0	0	0	0	0
Cedar	0	0	0	0	0	0
TOTAL, lb/yr	232,932	197,400	7,661	25,850	846	1,222
TOTAL, ton/yr	116.47	98.70	3.83	12.93	0.42	0.61

BAGHOUSES

CURRENT PTE BAGHOUSE EMISSIONS

Process Equipment Baghouses Source	Emission (gr/cf)	Flow cfm	PM10 e.f. lb/hr	PM25 e.f. lb/hr
BH3, Hew Saw Baghouse	0.003	17655	0.454	0.304

Control Equipment Baghouses Source	PM10 ef (lb/ton)	reference	PM2.5 ef (lb/ton)	reference
BH1, Shavings Handling Baghouse	0.040	AQ-EF02, shavings	0.027	67% of PM10(1)
BH2, Planer Chip Baghouse	0.001	AQ-EF02, chips	0.001	67% of PM10(1)

(1) DEQ determined that baghouse PM2.5 should be calculated as 67% of PM10.

Source	Basis	Production Units	Current PTE			
			PM10 (ton/yr)	Daily PM10 (lb/hr)	PM2.5 (ton/yr)	PM2.5 (lb/hr)
BH1, Shavings Baghouse	51,230	tons/yr	1.025		0.686	
BH1, Shavings Baghouse	251	tons/day		0.418		0.280
BH2, Planer Chip Baghouse	28,200	tons/yr	0.014		0.009	
BH2, Planer Chip Baghouse	138	tons/day		0.006		0.004
BH3, Hew Saw Baghouse(2)	8,760	hours/yr	1.988	0.454	1.332	0.304

(2) Hew Saw emissions are based on continual operation at full capacity. This results in annual and short-term emission rates being equal.

PROPOSED PTE BAGHOUSE EMISSIONS

Process Equipment Baghouses Source	rate (gr/cf)	Flow cfm	PM10 e.f. lb/hr	PM25 e.f. lb/hr
BH3, Hew Saw Baghouse	0.003	17655	0.454	0.304

Control Equipment Baghouses Source	PM10 ef (lb/ton)	reference	PM2.5 ef (lb/ton)	reference
BH1, Shavings Handling Baghouse	0.040	AQ-EF02, shavings	0.027	67% of PM10(1)
BH2, Planer Chip Baghouse	0.001	AQ-EF02, chips	0.001	67% of PM10(1)
BH1A, Shavings Bin Vent Baghouse	0.000070	Manufacturer Specifications	0.000047	67% of PM10(1)
BH1B, Shavings Bin Housekeeping	0.0024	Baghouse Eff. 99.8%	0.0016	67% of PM10(1)

(1) DEQ determined that baghouse PM2.5 should be calculated as 67% of PM10.

Source	Basis (hr/yr) or (tons/yr)	Production Units	Proposed Emissions			
			PM10 (ton/yr)	Daily PM10 (lb/hr)	PM2.5 (ton/yr)	PM2.5 (lb/hr)
BH1, Planer Shavings Baghouse	51,230	tons/yr	1.025		0.686	
BH1, Shavings Baghouse	251	tons/day		0.418		0.280
BH1A, Shavings Bin Vent Baghouse	51,230	tons/yr	1.78E-03		1.19E-03	
BH1A, Shavings Bin Vent Baghouse	251	tons/day		7.28E-04		4.88E-04
BH1B, Housekeeping Baghouse(3)	9,125	tons/yr	1.10E-02		7.34E-03	
BH1B, Housekeeping Baghouse	36	tons/day		3.60E-03		2.41E-03
BH2, Planer Chip Baghouse	28,200	tons/yr	0.014		0.009	
BH2, Planer Chip Baghouse	138	tons/day		0.006		0.004
BH3, Hew Saw Baghouse	8,760	hours/yr	1.988	0.454	1.332	0.304
Conversion of minutes to hours	60		min/hr			
Conversion of grains to lbs	7000		gr/lb			

(3) Annual worst-case shavings pickup: 25 tons per day, 365 days per year. Hourly, 1.5 tons/hr

CYCLONE EMISSION FACTORS

Potlatch developed cyclone emission factors for PM. IFG is using those emissions factors where possible, with corresponding factors for PM10 and PM2.5.

Source	PM10 e.f. (lb/ton)		PM2.5 e.f. (lb/ton)
CY1, Sawmill Machine Center Cyclone(1)(2)	0.165		0.082
CY2A&B, Sawmill Macine Center Cyclones(1)(2)	0.780		0.390
CY5, Fuel Hog Cyclone(1)(2)	0.170		0.085

Notes:

(1) Original note from Potlatch said: Calculated using cyclone and dust parameters per Rex. M. Robbins, Pollution Engineering, March, 1988 , with number of turns (Ne) calc. According to Wark and Warner, 1981

(2) $PM_{2.5}$ is 67% of PM_{10}, as per IDEQ August 19, 2013 lettter.

(3) Based on ODEQ AQ-EF02 and AQ-EF03. HIgh efficiency cyclone. IFG plans to install a baghouse on this cyclone when a baghouse becomes available after the planer changes are complete. The baghouse will have lower emissions, so the modeling is conservative by using the cyclone.

CYCLONE EMISSIONS ARE UNCHANGED IN THIS ANALYSIS

Calculation methodology for short term emissions have been changed to make it more clear that the hour operation represents equipment capacity.

CYCLONE EMISSIONS INCLUDED IN CURRENT APPLICATION

HOURS OF OPERATION	5356	hours per year, consistent with operations
ANNUAL SAWMILL PRODUCTION	470,000	MBDFT/YR

	Annual Throughput	Daily Throughput	Proposed Emissions			
			PM10	Daily PM10	PM2.5	PM2.5
Source	tons	tons	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
CY1, Sawmill Machine Center Cyclone	396	1.584	0.033	0.011	0.016	0.005
CY2A&B, Sawmill Machine Center Cyclones	503	2.012	0.196	0.065	0.098	0.033
CY5, Fuel Hog Cyclone	10,000	40	0.850	0.283	0.425	0.142

PTC Prcessing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:	**IFG Lewiston**
Address:	**280 Sycamore Drive**
City:	**Lewiston**
State:	**Idaho**
Zip Code:	**83501**
Facility Contact:	**Jim Miller**
Title:	**Permitting Contact**
AIRS No.:	**069-00003**

N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.013	0	0.013
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**0.0**
Fee Due	**$ 1,000.00**		

Comments: