Statement of Basis

Permit to Construct No. P-2011.0135
Project ID 61240

IFG Lewiston, LLC
Lewiston, Idaho

Facility ID 069-00003

Draft for Public Comment

January 22, 2014
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The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

acfm	actual cubic feet per minute
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
EF	emissions factor
EI	emissions inventory
EPA	U.S. Environmental Protection Agency
ESLP	Engelmann Spruce/Lodgepole Pine & other spruce
fps	feet per second
GHG	greenhouse gases
gr/dscf	grain per dry standard cubic feet
HAP	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
IFG	IFG Lewiston, LLC
km	kilometers
lb/hr	pounds per hour
LCP	Lewiston Cedar Products
LT	long term
m	meters
MACT	Maximum Achievable Control Technology
mbf	thousand board feet
MMbf/yr	million board feet per year
m/s	meter per second
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
ODEQ	Oregon Department of Environmental Quality
OSU	Oregon State University
PC	Permit Condition
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	*Rules for the Control of Air Pollution in Idaho*
SCC	standard classification codes
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
ST	short term
Tier I/T1	Tier I operating permit
Tier II/T2	Tier II operating permit

T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
TBD	to be determined
U.S.C.	United States Code
VOC	volatile organic compounds

FACILITY INFORMATION

Description

Debarker

Raw logs are debarked and cut to desired lengths before entering the main sawmill or small log line.

Bark is conveyed to the bark hog to be hogged, and then the hogged fuel is conveyed to off-site fuel pile.

Sawmill

Through main sawmill or small log line, the debarked logs are cut to maximize the amount of lumber obtained from each log.

The existing main sawmill is under a negative pressure resulting from the sawmill cyclones. Sawdust and wood residuals from the main sawmill are handled by the three sawmill cyclones (CY1, CY2A and CY2B). CY1 exhausts to one stack, and CY2A and CY2B exhaust to another stack.

The materials collected in the three sawmill cyclones are re-entrained and transported either to Bruks chipper cyclone as an intermediate cyclone (CY3) that vents to the chips baghouse (BH-2), or directly to the chips baghouse (BH-2).

The proposed additional saw line (small log line) will allow processing of smaller logs and will be housed in a new building or an addition to the existing main sawmill building, which will be under negative pressure from the cyclones and/or small log line baghouse (BH3). The small log line baghouse will transport sawdust and wood residuals from the small log line and will be located on the south side of the sawmill building(s).

Chips from the main sawmill and small log line drop to the Chip Conveyor and are conveyed to an off-site wood pile.

Drying kilns

The rough cut green lumber is stacked before being dried in the kilns. IFG currently has four double track kilns that are heated via indirect steam heating coils. IFG has proposed to install two additional kilns of similar design to increase production and to improve lumber quality. All kilns operate on steam obtained from the adjacent Clearwater Pulp and Paper facility. The emissions from the kilns are uncontrolled.

Planer mill

Dried lumber is removed from the kilns and either stored temporarily or sent to the planer mill building where the lumber is trimmed by saws, planed, sorted, stacked, strapped, and stored before shipment. IFG is considering equipment upgrades within the planer building.

A new planer shavings material handling cyclone (CY4) will be installed on top of the truck bins at the new location. Emissions from the planer shavings cyclone will be routed to an emissions control baghouse (BH-1.)

Planer chips are transported through Bruks chipper cyclone (CY3) that vents to the chips baghouse (BH-2). Chips collected by Bruks chipper cyclone (CY3) drop onto chip conveyor and are conveyed to an off-site wood pile.

Fuel Hog

The Fuel Hog is used to chop waste materials (e.g., wood waste) into smaller pieces for use as boiler fuel. The Fuel Hog emission point is a cyclone (CY5) which is used to pneumatically transfer the hogged fuel to an off-site

fuel pile.

Removed Cedar Products processing

Cedar Products processing (also referred to as the Profiling and Specialties Departments) has been shut down. Cedar Products processing consisted of obtaining dimensional lumber from the planer mill or outside suppliers. The lumber was planed, finger-jointed and glued, planed again if needed, and sanded. Dimensional trim board was either strapped for shipment or was profiled to a desired shape, and prepared for shipment. According to IFG, IFG closed Cedar Products processing effective in 2012. The emissions from the process are modeled as negative emissions sources for this permitting action.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

PTCs

PTCs prior to 2005 can be found in the initial Tier I issued on December 10, 2002.

August 16, 2005	PTC No. P-050200, Lumber drying kiln replacement project. PTC to construct four new lumber drying kilns to replace 32 existing lumber drying kilns. Increase annual lumber drying capacity from 237.6 MMbf/yr to 351.0 MMbf/yr. (S)
October 17, 2006	PTC No. P-060205, Fuel Hog ownership transfer. The Fuel Hog was formerly owned and operated by Potlatch Forest Products Corp., IPPD. It was purchased by Potlatch Forest Product Corp., Lewiston Wood Products and relocated to that facility (069-00001 to 069-00003). (S)
December 22, 2010	PTC No. P-2010.0103 PROJ 60557, PTC modification - allowing additional wood species (i.e., pine) to be dried in the kilns. No change to kiln throughput. Replacing PTC No. P-050200 issued August 16, 2005 (S)
January 17, 2012	PTC No. P-2010.0103 PROJ 60953 and P-2011.0135 PROJ 60954, Ownership change from Clearwater Paper Corporation – Wood Products Division, Idaho to IFG Lewiston, LLC, Permit status (S)
October 25, 2012	P-2011.0135 PROJ 61077, PTC revision - combining the kilns PTC and the fuel hog PTC to one single PTC and limiting VOC to 249 T/yr, Permit status (A, will be S after issuance of this permit)

Operating permits

August 22, 1984	T2-1140-0001, Initial Tier II (S)
December 10, 2002	Initial Tier I (S)
July 18, 2003	T1-030203, Administrative amendment - correcting an error (S)
August 18, 2006	T1-060206, Facility name change. Potlatch Corporation to Potlatch Forest Products Corporation (S)
January 23, 2008	T1-2007.0095, Tier I renewal (S)
December 23, 2008	T1-2008.0183 Project 0183, Facility name change, Potlatch Forest Products Corp., Lewiston Wood Products to Clearwater Paper Corporation – Wood Products Division, Idaho (S)
December 22, 2010	T1-2008.0183 Project 60652, Incorporating PTC No. P-2010.0103 Project 60953. (S)
January 17, 2012	T1-2008.0183 Project 60952, Ownership change from Clearwater Paper Corporation – Wood Products Division, Idaho to IFG Lewiston, LLC, Permit status (S)

July 24, 2013	T1-2012.0038, Project 61078, Tier I renewal and incorporating PTC No. P-2011.0135 Project 61077, Permit status (A)

Application Scope

This PTC is for a minor modification at an existing Tier I facility.

The applicant has proposed to:

- Keep the same VOC emissions limit as 249 T/yr.
- Install two additional drying kilns of similar design as the existing kilns to increase the lumber drying throughput from 351,009 to 470,000 thousand board feet per year.
- Add new sawmill equipment (i.e., small log line) that can process smaller diameter logs, located inside a building.
- Add a material handling baghouse (saw line baghouse, BH3) to collect sawdust from the small log line. The baghouse will create negative pressure in the building housing the small log line.
- Upgrade planer equipment within the planer building to improve production level.
- Remove three existing planer shavings material handling baghouses (IFGBH1, IFGBH2, and IFGBH3.)
- Eliminate the #4 splitter that has been associated with the planer mill and its cyclone (IFGCY1). Route the emissions from the Bruks chipper cyclone (IFGCY2, now CY-3) that handles the planer chips to a chips baghouse (BH-2).
- Eliminate the truck bin cyclones (IFGCY6, IFGCY7 and IFGCY8) and the truck bin baghouse (IFGBH4.)
- Move the truck bins from the current location to the west of the planer building.
- Add a planer shavings material handling cyclone (CY4) on top of the truck bins.
- Route the emissions from the planer shavings cyclone to the shavings baghouse (BH-1).
- Re-entrain the materials collected in the three existing sawmill cyclones (IFGCY3, IFGCY4A and IFGCY4B, now CY1, CY2A and CY2B) that are associated with the existing sawmill building and transport the materials either to Bruks chipper cyclone (IFGCY2, now CY-3) that vents to the new chips baghouse (BH-2), or directly to the new chips baghouse (BH-2).
- Switch ownership or operator of the bark hog from Clearwater Paper Corporation (T1-2010.0030, Facility ID 069-00001) to IFG Lewiston.
- Replace old drying kiln emission factors (EFs) for VOC and HAP with the new EFs provided by EPA Region 10 in December 2012.
- Model the emissions from the closed Cedar Products processing as negative emission sources (Note: Cedar Products processing will be removed from the Tier I operating permit when this PTC is incorporated into the Tier I.)
- Model to-be-removed emissions sources as negative emission sources.

Application Chronology

July 25, 2013	DEQ received an application.
July 26, 2013	DEQ received the application fee.
August 8, 2013	DEQ approved 15-day pre-permit construction.
August 19, 2013	DEQ determined that the application was incomplete.
September 8, 9, 10, & 11, 2013	

	DEQ received supplemental information from the applicant.
October 9, 2013	DEQ determined that the application was complete.
October 30 and November 21, 2013	DEQ received supplemental information from the applicant regarding the dying kiln $PM_{2.5}$ EF, revised EI, and revised modeling files.
November 14, 2013	DEQ made available the draft permit and statement of basis for peer and regional office review.
November 29, 2013	DEQ made available the draft permit and statement of basis for applicant review.
January 7, 2014	DEQ received forms on new drying kilns and baghouses and comments on the first draft permit.
January 10, 2014	DEQ made available the second draft permit and statement of basis for applicant review and peer and regional office review.
Month Day – Month Day, 2014	DEQ provided a public comment period on the proposed action and for EPA concurrent review.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
NA	Debarking, cutoff saws 27-inch, 35-inch, and 50-inch debarkers 27-inch, 35-inch cutoff saws	Reasonable control	NA
NA	Bark conveyor Conveying barks from the debarker to the bark hog	Reasonable control	NA
NA	Bark hog Hogging the barks from the debarker	Reasonable control	NA
NA	Hogged fuel conveyor Conveying the hogged fuel from the bark hog to the off-site fuel pile	Reasonable control	NA
CY5	Fuel hog cyclone Estimated Production: 10,000 tons/year at the proposed throughput of 470,000 mbf/yr The wood scraps from the site are hogged using fuel hog and pneumatically transported to the off-site fuel pile using fuel hog cyclone	None	CY5 (source name in dispersion model: IFGCY5) Exit height: 56 ft (17.1 m) Exit diameter: 6.6 ft (2.01 m) Exit temperature: ambient Stack orientation: horizontal
CY1, CY2A and CY2B	Sawmill cyclones Estimated Throughput: 396 T/yr for CY1 and 503 T/yr for CY2A and CY2B combined at the proposed throughput of 470,000 mbf/yr Sawmill cyclones collect ambient building air and wood residuals from the existing main sawmill. Cyclones CY2A and CY2B exhaust through a common stack.	None	CY1 (source name in dispersion model: IFGCY3) Exit height: 40 ft (12.2 m) Exit diameter: 2.5 ft (0.76 m) Exit temperature: ambient Stack orientation: horizontal CY2A and CY2B (source name in dispersion model: IFGCY4) Exit height: 40 ft (12.2 m)

Source ID No.	Sources	Control Equipment	Emission Point ID No.
			Exit diameter: 3 ft (0.91 m) Exit temperature: ambient Stack orientation: horizontal
NA	<u>Sawmill chip and planer mill chip conveyor</u> Chip conveyor belt conveys the chips from the sawmill and the chips dropped from Bruks chipper cyclone at planer mill to the off-site wood pile.	Reasonable control	NA
BH-3	<u>Small log line baghouse (Saw line baghouse)</u> Manufacturer: TBD Model: TBD Manufacture Date: TBD Max. production: TBD Type: TBD Number of bags: TBD Air to Cloth ratio: TBD PM_{10} emissions concentration: 0.003 gr/dscf or less Sawdust and chips collection from small log line	None	BH-3 (source name in dispersion model: HEWSAWBH) Exit height: 43 ft (13.1 m) Exit diameter: 3.5 ft (1.07 m) Velocity: 31 fps Exit flow rate: 17,655 acfm Exit temperature: ambient
IFGK1V1-IFGK4V5	<u>double-track kilns (existing)</u> Manufacturer: Wellons Manufacture Date: 2005	None	IFGK1V1- IFGK6V5 Parameters for each Kiln (For each kiln, dispersion model uses 5 sources to represent 20 vents.) Exit height: 27 ft (8.22 m) Exit diameter: 5.27 ft (1.605 m) Velocity: 2.3 fps (0.7 m/s) Exit flow rate: 15,000 acfm Exit temperature: 200 °F (93.3 ºC)
IFGK5V1-IFGK6V5	<u>Two double-track kilns (new)</u> Manufacturer: TBD Model: TBD Manufacture Date: TBD Max. production: TBD		
CY3	<u>Bruks chipper cyclone</u> Estimated cyclone throughput: 21,498 T/yr at the proposed throughput of 470,000 mbf/yr Estimated cyclone operating hours: 6,240 T/yr at the proposed throughput of 470,000 mbf/yr Transferring planer chips. In addition, the materials collected in three sawmill cyclones (CY1 and CY2A&2B) are re-entrained and transported either to Bruks chipper cyclone (CY3) as an intermediate cyclone that vents to the chips baghouse (BH-2) or directly to the chips baghouse (BH-2).	<u>Chips baghouse, BH-2:</u> Manufacturer: TBD Model: TBD Type: TBD Number of bags: TBD Air to Cloth ratio: TBD PM_{10} control: 0.003 gr/dscf or less	<u>BH-2</u> (source name in dispersion model: CHIPBH) Exit height: 40 ft (12.2 m) Exit diameter: 3 ft (0.91 m) Exit flow rate: 36,000 acfm Exit temperature: ambient Stack orientation: horizontal
CY4	<u>Planer shavings handling cyclone</u> Estimated cyclone throughput: 80,000 T/yr at the proposed throughput of 470,000 mbf/yr Estimated cyclone operating hours: 7,280 T/yr at the proposed throughput of 470,000 mbf/yr	<u>Planer shavings cyclone baghouse, BH-1:</u> Manufacturer: TBD Model: TBD Type: TBD Number of bags: TBD	<u>BH-1</u> (source name in dispersion model: SHAVEBH) Exit height: 43 ft (13.1 m) Exit diameter: 4.3 ft (1.31 m) Velocity: 47 fps (14.33 m/s)

Source ID No.	Sources	Control Equipment	Emission Point ID No.
	Transferring planer shavings	Air to Cloth ratio: TBD PM_{10} control: 0.003 gr/dscf or less.	Exit flow rate: 36,000 acfm Exit temperature: ambient

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Existing Facility Potential to Emit

The existing facility's potential to emit for criteria pollutants is summarized in Table 2. The PTE is taken from the statement of basis for the existing PTC No. P-2011.0135 Project 61077 issued on October 25, 2012.

Table 2 Existing Facility Potential to Emit

Source Description	PM	PM_{10}	SO_2	NOx	VOC	CO
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Kiln Vents	8.8	8.8	----	----	249	----
IFG-CY1	1.26	0.50	----	----	----	----
IFG-CY2	6.53	2.61	----	----	----	----
IFG-CY3	3.13	1.59	----	----	----	----
IFG-CY4A	14.83	7.56	----	----	----	----
IFG-CY4B	14.83	7.56	----	----	----	----
IFG-CY5	4.10	2.09	----	----	----	----
IFG-BH1	4.05	4.05	----	----	----	----
IFG-BH2	4.28	4.28	----	----	----	----
IFG-BH3	4.62	4.62	----	----	----	----
Dry Fuel Bin IFG-BH4(ownership transfer-source already exists at the site)	16.22	16.22	----	----	----	----
Total	**82.7**	**59.9**	**0.0**	**0.0**	**249**	**0.0**

Proposed Facility Potential to Emit

The potential to emit of the facility after the proposed changes is summarized in Table 3. DEQ has verified the $PM_{10}/PM_{2.5}$ emissions calculations. The estimation methods are acceptable. DEQ reviewed and revised the EFs for kiln VOC and HAP by using EFs provided by EPA Region 10 in December 2012. Detailed calculations are provided in Appendix A.

Table 3 Proposed Facility Potential to Emit

Source Description	PM_{10}	$PM_{2.5}$	SO_2	NOx	VOC	CO
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Kiln Vents	8.93	7.76	----	----	249	----
CY1 (was CY-26, then IFG-CY3)	0.033	0.016	----	----	----	----
CY2A (was CY-27A, then IFGCY4A)	0.196	0.098	----	----	----	----
CY2B (was CY-27B, then IFG-CY4B)			----	----	----	----

Source Description	PM_{10}	$PM_{2.5}$	SO_2	NOx	VOC	CO
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
CY5 (was PNP782, then IFG-CY5. called Trash Hog by Clearwater)	0.850	0.425	----	----	----	----
BH-1 (Shavings Cyclone Baghouse)	1.600	1.072	----	----	----	----
BH-2 (Chips Cyclone Baghouse)	0.014	0.009	----	----	----	----
BH-3 (Hew Saw Baghouse)	1.988	1.332	----	----	----	----
Total	**13.61**	**10.71**	**0.0**	**0.0**	**249** [1]	**0.0**

[1] IFG has requested to keep the VOC emissions limit at 249 T/yr.

Kiln emissions calculation

IFG provided the following kiln production data in the September 8, 2013 submittal.

Table 4 IFG Kiln Production Rate

Production Data	Hemlock/White Fir	Douglas Fir/Larch	Cedar
mbf/kiln/charge	230.4	230.4	161.28
hours/charge	31	23	21
mbf/hr/kiln	7.43	10.02 (max.)	7.68
mbf/kiln/yr	65,107	87,752	67,277
Total Potential mbf/yr using 4 kilns	260,426	351,009	269,107
Total Potential mbf/yr using 6 kilns	390,639	526,514	403,661
Proposed Permit Production (mbf/yr)	470,000	470,000	470,000

PM/PM_{10} emissions calculation

The kiln PM/PM_{10} EF of 0.051 lb/mbf was used for the existing PTC No. P-2011.0135 Project 61077 issued on October 25, 2012. IFG changed it to 0.038 lb/mbf in the 11/21/2013 submittal. This is because IFG takes an operating limit as "The permittee shall not dry Western Hemlock except for Western Hemlock in the Hem-Fir group that consists of Grand Fir, White Fir, Alpine Fir, and 10% or less by volume of Western Hemlock." and therefore, use the average PM/PM_{10} EF of 0.051 lb/mbf for Hemlock and 0.024 lb/mbf for Douglas Fir to estimate kiln PM/PM_{10} emissions.

The EF was originally from the November 16-20, 1998 source evaluation report by Horizon Engineering for Willamette Industries, Inc. performed at OSU using EPA method 5 and 202. The test was published in 2000.

Maximum hourly emissions from 6 kilns are calculated as: 10.02 mbf/kiln/hr * 0.038 lb/mbf * 6 kilns = 0.38 lb/hr. Annual emissions are calculated as: 470,000 mbf/yr * 0.038 lb/mbf / (2,000 lb/T) = 8.93 T/yr.

$PM_{2.5}$ emissions calculation

$PM_{2.5}$ fraction of the filterable PM (front half) is obtained from EPA PM Calculator that is 19% of the filterable PM (front half). All back-half PM is assumed to be $PM_{2.5.}$

$PM_{2.5}$ EF for Coastal Hemlock (also called Western Hemlock) is based on 1998 source test on Coastal Hemlock by Horizon Engineering for Willamette Industries, Inc. performed at OSU. It is calculated as: (0.051 lb/mbf) * [(92% (back-half) + 8% (front-half) *(19% $PM_{2.5}$ fraction of front half PM)] = (0.051 lb/mbf) * 93.5% = 0.048 lb/mbf.

$PM_{2.5}$ EF for Douglas Fir is based on 1998 source test on Douglas fir by Horizon Engineering for Willamette Industries, Inc. performed at OSU. It is calculated as: (0.024 lb/mbf)*[(70% (back-half) + 30% (front-half) *(19% $PM_{2.5}$ fraction of front half PM)] = (0.024 lb/mbf) * 75.7% = 0.018 lb/mbf.

For other wood species, the average of the above two EFs is used. The average EF is calculated as: (0.048 + 0.018) lb/mbf / 2 = 0.033 lb/mbf.

According to IFG's 10/30/2013 email: "*the IFG Lewiston mill describes their white wood group as hem-fir, as is the industry practice. At Lewiston, however, the hem-fir group contains only 2% mountain hemlock and the rest is grand fir and other white fir species. IFG could make a case that the Douglas-fir emission test results are much more representative of the central Idaho hem-fir species group….*" IFG has proposed to use EF of 0.033 lb/mbf for facility's $PM_{2.5}$ emissions calculation.

The hourly $PM_{2.5}$ emissions of six kilns are calculated as: 10.02 mbf/hr/kiln (production data from Table 4 of this document) * 6 kilns * 0.033 lb/mbf = 1.98 lb/hr. The annual $PM_{2.5}$ emissions are calculated as: 470,000 mbf/yr * 0.033 lb/mbf / (2,000 lb/T) = 7.76 T/yr.

VOC emissions calculation

DEQ is not able to approve IFG's VOC EF of 0.14 lb/mbf for Cedar that was based on 1996 study at University of Idaho because the newer data have been provided by EPA Region 10 in December 2012. The EPA EF for Cedar is 1.15 lb/mbf.

Please refer to Appendix A, "KILN VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS" page for information on VOC EFs and EPA VOC and HAP EFs.

The following table shows how to calculate a weighted EF using production data that is provided in the EI spreadsheet of the application.

Table 5 VOC Emissions Factors

Wood Species:		**VOC**	**Weighted**	**Reference**
	% of Total	**(lb/mbf)**	**(lb/mbf)**	
Cedar	10%	1.15	0.115	EPA Reg 10, Dec. 2012
Hem-Fir (Western Hemlock, Grand Fir, White Fir, Alpine Fir), use white fir	65%	1.09	0.709	EPA Reg 10, Dec. 2012
Douglas Fir and larch	25%	1.70	0.424	EPA Reg 10, Dec. 2012
Ponderosa Pine and Western White Pine	0%	4.43	0.000	EPA Reg 10, Dec. 2012
ESLP, use Lodgepole	0%	2.16	0.000	EPA Reg 10, Dec. 2012
Other (use ESLP)	0%	2.16	0.000	EPA Reg 10, Dec. 2012
Total	100%		**1.247**	

Cyclones emissions calculation

- Existing Sawmill Cyclones (cyclones for main sawmill)

According to the EI submitted on November 21, 2013, IFG has assumed that the throughput to the existing sawmill cyclones would increase in proportion to the overall increase in allowable production. Specifically, the cyclone throughputs are set to 396 T/yr for CY1 and 503 T/yr for CY2A and CY2B.

PM_{10} EFs for the cyclones are the same as those used in the EI for the 2005 PTC. These EFs are cyclone specific EFs. More discussions can be found in page 8 of the statement of basis for the 2005 PTC. The emissions estimation method and emissions rates are the same as that for 2005 PTC.

50% of PM_{10} emissions are assumed to be $PM_{2.5}$ for the cyclones based on the information from Oregon DEQ

(AQ-EF08, 8/1/2011) and from EPA PM Calculator for sawmill cyclones (SCC 30700804.)

- Fuel Hog Cyclone

According to IFG, the EF is cyclone specific. The footnote in the EI spreadsheet submitted on November 21, 2013 states that "the EF is 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". Emissions calculation method is the same as that in the previous analysis according to IFG. IFG has used 10,000 tons/yr as throughput for the cyclone. It appears a reasonable number after having checked 2010 and 2011 production data. The emissions estimation method is the same as that for the sawmill cyclones.

50% of PM_{10} emissions are assumed to be $PM_{2.5}$ for the cyclone based on the information from Oregon DEQ (AQ-EF08, 8/1/2011) and EPA PM Calculator for other cyclones of sawmill production (SCC 30700808.)

<u>Baghouses emissions calculation</u>

- Hew Sawmill Baghouse (BH-3, new sawmill baghouse/small log line baghouse)

This is a new baghouse for the new saw line (small log line). The throughput and corresponding operating hours of the new saw line are unknown. Therefore, the emissions from the baghouse are calculated using the baghouse maximum PM_{10} concentration in grain per cubic feet and the baghouse flowrate. Annual emissions are calculated using 8,760 hours per year. They are worst case values for both short-term and long-term emissions rates.

67% of PM_{10} emissions are assumed to be $PM_{2.5}$ based on the information from EPA PM Calculator for planing/trimming cyclone controlled by a baghouse (SCC 30700805).

- Shavings Cyclone Baghouse (BH-1) and Chips Cyclone Baghouse (BH-2)

IFG has proposed to use a baghouse (BH-1) to control emissions from the planer shavings handling cyclone located on the top of the truck bins. The emissions were estimated using EF of 0.04 lb/bone dry tons from ODEQ's AQ-EF02, the baghouse throughput and operating hours that were developed based on the 2010 and 2011 annual production data, and the proposed annual throughput of 470,000 mbf/yr.

IFG has proposed to use a baghouse to control emissions from the Bruks chipper cyclone that transports planer chips. The baghouse is sometimes used to re-entrain and to transport the materials captured by the three cyclones of the existing sawmill. The emissions were estimated using EF of 0.001 lb/bone dry tons from ODEQ's AQ-EF02, the baghouse throughput and operating hours that were developed based on the 2010 and 2011 annual production data, and the proposed annual throughput of 470,000 mbf/yr.

67% of PM_{10} emissions are assumed to be $PM_{2.5}$ based on the information from EPA PM Calculator for other cyclones for sawmill operation controlled by a baghouse (SCC 30700808).

<u>Change In Facility Potential to Emit</u>

The change in facility-wide potential to emit is used to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 6 Change in Facility Potential to Emit

Source Description	PM_{10}	SO_2	NOx	VOC	CO	HAP/TAP
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Existing PTE	59.9 (49.9 [2])	0.0	0.0	249	0.0	36.99 [1] (75.1 [2])
Proposed PTE	13.61	0.0	0.0	249	0.0	100.53
Change in PTE	**-43.29**	**0**	**0**	**0**	**0**	**63.5**

[1] Taken from the EI spreadsheet for the PTC No. P-2011.0135 Project 61077 issued on October 25, 2012
[2] Emissions calculated using new available EFs.

TAP Emissions

The lumber drying kilns are affected emission units by 40 CFR 63 Subpart DDDD (Plywood and Composite Wood Products NESHAP). Since the lumber drying kilns are affected emissions units and the TAPs (i.e., acetaldehyde, acrolein, formaldehyde, methanol phenol, and propionaldehyde) emitted from the kilns were specifically considered in developing the MACT standards, TAP preconstruction compliance is considered complete in accordance with IDAPA 58.01.01.210.20. IDAPA 58.01.01.210 specifies that, "If the owner or operator demonstrates that the toxic air pollutant from the source or modification is regulated by the Department at the time of permit issuance under 40 CFR Part 60, 40 CFR Part 61 or 40 CFR Part 63, no further procedures for demonstrating preconstruction compliance will be required under Section 210 for that toxic air pollutant as part of the application process."

HAP Emissions

Post project HAP emissions remain greater than 25 tons per year for all HAPs combined. There is not a regulatory change associated with any HAP emissions changes that may occur because emissions remain greater than 25 tons per year (also some individual HAP remain emitted over 10 tons per year). Calculation details can be found in Appendix A.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this project will not cause or significantly contribute to a violation of any ambient air quality standard.

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document will be part of the final permit package for this permitting action (see Appendix B**)**.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Nez Perce County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The facility classification codes are as follows:

A Actual or potential emissions of a pollutant are greater than or equal to the applicable major source threshold.

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

SM80 Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations and permitted emissions are 80% of the major source threshold.

B Uncontrolled potential to emit is less than major facility thresholds.

C Class is unknown.

Table 7 Regulated Air Pollutant Facility Classification

Pollutant	Uncontrolled PTE (T/yr)	PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM_{10}	> 100	13.61	100	SM
SO_2	0	0	100	B

Pollutant	Uncontrolled PTE (T/yr)	PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
NO_x	0	0	100	B
CO	0	0	100	B
VOC	>100	249	100	A
CO_2e	0	0	100,000	B
HAP (single)	>10	>10	10	A
HAP (Total)	>25	100.53	25	A

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for modified emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier I Operating Permit (IDAPA 58.01.01.300)

IDAPA 58.01.01.301..... Requirement to Obtain Tier I Operating Permit

IFG is currently operating with a Tier I operating permit (T1-2011.0135 project 61077). The permit to construct changes will be incorporated into the Tier I operating permit in accordance with IDAPA 58.01.01.209.05.c.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401..... Tier II Operating Permit

The facility is not subject to IDAPA 58.01.01.400, and the applicant did not apply for a Tier II operating permit in accordance with IDAPA 58.01.01.401.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

On February 6, 1997, during a time when the sawmill was owned by the same company as the adjacent Pulp Mill/ Consumer Products Divisions, the Idaho Office of Attorney General determined[1] that the Lumber Products Division (sawmill) is a separate facility from the adjacent Pulp Mill/Consumer Products Divisions even though the steam used to dry lumber at the sawmill comes entirely from the pulp mill. The two facilities have different primary SIC codes, and the lumber mill does not serve as a support facility for the Pulp Mill or Consumer Products Divisions.

The location of the facilities remains the same, but the sawmill is now owned by IFG, a different entity than owns the adjacent Pulp Mill/ Consumer Products Divisions which further supports that the sawmill is not to be grouped with the adjacent Pulp Mill/ Consumer Products Divisions. Additional support for the sawmill being a separate facility from the Pulp Mill/Consumer Products Divisions is published in the Federal Register, August 7, 1980, page 52695, "Where a single unit is used to support two otherwise distinct sets of activities, the unit is to be included within the source which relies most heavily on its support. For example, a boiler might be used to generate process steam for both a commonly controlled and located kraft pulp mill and a plywood manufacturing plant. If the yearly boiler output is used primarily by the pulp mill, then the total emissions of the boiler should be attributed to the mill." None of the boilers at the adjacent but separately owned Pulp Mill/Consumer Products Divisions sends 50% or more of the steam produced to the lumber drying kilns[2].

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1 IDEQ letter to Susan J. Flieder, Environmental Counsel for Potlatch Corporation, February 6, 1997 (IDEQ TRIM record reference # 2010AAG239)

2 Email from Susan Somers, Clearwater Paper Corporation, July 18, 2012 - No boiler at Clearwater Paper Corporation sends 50% or more of the steam produced to the IFG lumber drying kilns. (IDEQ TRIM record reference # 2012AAG2902)

The IFG sawmill is not a designated facility, and IFG has requested to limit its potential to emit below 250 tons per year for VOC, therefore it is not a major facility for PSD purposes.

NSPS Applicability (40 CFR 60)

The facility is not subject to any NSPS requirements in 40 CFR Part 60.

NESHAP Applicability (40 CFR 61)

The proposed source is not an affected source subject to NESHAP in 40 CFR 61, and this permitting action does not alter the applicability status of existing affected sources at the facility.

MACT Applicability (40 CFR 63)

The proposed changes to the facility do not change applicability of any MACT.

Permit Conditions Review

This section describes the permit conditions that have been added, revised, modified or deleted as a result of this permitting action. New text appears in bold, and deleted text appears as strikethrough text.

Permit Scope

Permit Condition 1.1

Permit Condition 1.1 states the purpose of this permitting action.

Permit Condition 1.3

Permit Condition 1.3 states that this PTC replaces Permit to Construct No. P-2011.0135 project 61077 issued on October 25, 2012.

Table 1.1

Revised Table 1.1 lists all sources of regulated emissions in the permit.

Table 1.1 Regulated Sources

Permit Section	Source	Control Equipment
2	4 Double-Track Kilns – manufactured by Wellons **2 Double-Track kilns – manufacturer to be determined**	None
3	~~Fuel Hog~~ ~~Maximum estimated throughput: 11,000 lb/hr~~	~~Cyclone~~
	Main sawmill	**Cyclones (process equipment)**
	Small log line	**Sawmill baghouse**
	Planer mill	**Chips cyclone (process equipment) followed by a chips baghouse**
		Shavings cyclone (process equipment) followed by a shavings baghouse
	Fuel hog	**Fuel hog cyclone (process equipment)**

The cyclones were determined to meet the definition of process equipment in the previous permitting action.

Lumber Drying Kilns

New Table 2.1

Following the current PTC template, new Table 2.1 is added to the permit.

Table 2.1 Emissions Unit description

Emissions Units / Processes	Control Devices	Emission Points
4 Double-Track kilns – manufactured by Wellons	**None**	**Each kiln has 20 vents**
2 Double-Track kilns –manufacturer to be determined		**Multiple vents**

Permit Condition 2.2

PC 2.2 is revised to reflect the addition of two new kilns. IFG has requested to keep the VOC limit as that has been in the existing permit (i.e., 249 T/yr). PC 2.2.1 reads as follows:

"**2.2.1** The combined VOC emissions from the **six** ~~four~~ dry**ing** kilns ~~vents~~ shall not exceed 249 tons per any consecutive 12- calendar month period."

For $PM_{10}/PM_{2.5}$, as stated in the modeling memo, maximum 24-hour averaged emissions from each drying kiln shall not be greater than 0.38 lb/hr for PM_{10} and 0.33 lb/hr $PM_{2.5}$. The $PM_{2.5}$ limit is included in the permit because the ambient impact of $PM_{2.5}$ emissions is 89% of the 24-hr NAAQS. A PM_{10} emissions limit is not included in the permit because the ambient impact of PM_{10} emissions is 62% of 24-hr NAAQS, and it is inherently limited by the $PM_{2.5}$ emissions limit.

In the 11/21/2013 EI spreadsheet, IFG used the maximum hourly charge rate of each kiln based on the production data in Table 4 of this document (i.e., 230.4 mbf/kiln/charge ÷ 23 hr/charge = 10.02 mbf/hr/kiln) and $PM_{2.5}$ EF of 0.033 lb/mbf to calculate the hourly $PM_{2.5}$ emissions rate for each kiln as: 10.02 mbf/hr/kiln * 0.033 lb/mbf = 0.33 lb/hr/kiln. That hourly rate was modeled for six kilns and 24 hr/day of kiln operation. IFG has certified that the maximum capacity of each kiln is or will be as represented in the compliance demonstration as discussed above in their 1/7/2014 email. Following DEQ's general approach for permitting, a throughput limit will not be included in the permit if the throughput is the maximum capacity of the operation. Therefore, 10.02 mbf/hr/kiln that was in the first draft permit is removed.

"**2.2.2 The maximum 24-hour averaged emissions from each drying kiln shall not exceed 0.33 lb/hr for $PM_{2.5}$.**"

Permit Condition 2.3

The annual kilns $PM_{10}/PM_{2.5}$ emissions at the annual throughput of 470,000 mbf/yr were modeled, and the impacts were less than the Significant Impact Levels. Therefore, a full modeling impact analysis was not required. The annual throughput of 470,000 mbf/yr is imposed in the permit to ensure compliance with annual $PM_{10}/PM_{2.5}$ NAAQS. PC 2.3 is revised and reads as follows:

"**2.3 Throughput Limit**

The throughput of lumber for the drying kilns shall not exceed **470,000** ~~351,009~~ thousand board feet (mbf) during any consecutive 12-month period."

New Permit Condition 2.4

PC 2.4 reads as follows:

"2.4 Operational Limit on Western Hemlock

The permittee shall not dry Western Hemlock except for Western Hemlock in the Hem-Fir group that consists of Grand Fir, White Fir, Alpine Fir, and 10% or less by volume of Western Hemlock.

New Permit Condition 2.4 is for compliance with the 24-hr $PM_{2.5}$ NAAQS. Because DEQ allows IFG to calculate $PM_{2.5}$ emissions rate using averaged $PM_{2.5}$ EF of 0.033 lb/mbf rather than the worst-case $PM_{2.5}$ EF for Western Hemlock (also called Coastal Hemlock), Western Hemlock is not allowed to be dried in the kilns except for the Western Hemlock in the Hem-Fir group that consists of Western Hemlock, Grand Fir, White Fir, and Alpine Fir. According to IFG, the Hem-Fir dried at IFG contains only 2% Western Hemlock, and the rest is grand fir and other white fir species. 10% of Western Hemlock by volume in Hem-Fir group is allowed in the permit. 10% is justifiable when the emissions were estimated using the average of 0.048 lb/mbf for Western Hemlock and 0.018 lb/mbf for Douglas Fir.

Permit Conditions 2.5 and 2.6

Old PCs 2.4 and 2.5 are re-numbered as PCs 2.5 and 2.6. PC 2.5 is the monitoring requirement to demonstration compliance with the annual throughput limit in PC 2.3. PC 2.6 is one of the monitoring requirements to demonstration compliance with VOC emissions limit in PC 2.2.1. No changes are made to these PCs.

Permit Condition 2.7 and New Table 2.2

Old PC 2.6 is re-numbered as PC 2.7. The VOC EFs are revised. The new VOC EFs provided by EPA Region 10 in December 2012 are used.

DEQ is not able to approve IFG's VOC EF of 0.14 lb/mbf for Cedar that was based on 1996 study at University of Idaho because the newer data have been provided by EPA Region 10 in December 2012. The EPA EF for Cedar is 1.15 lb/mbf.

Table 2.1 is re-numbered as Table 2.2. The Permit Condition 2.7 and Table 2.2 read as follows:

"2.7 In order to demonstrate compliance with VOC emission limit, each month the permittee shall calculate and record the amount of VOC emissions from the drying kilns during the previous consecutive 12-month period using the emission factors listed in Table **2.2** ~~2.1~~ or use a DEQ-approved alternative.

Table ~~2.~~1 **2.2** Emissions Factors

Lumber Type	VOC (lb/mbf)[1]
Ponderosa Pine & other species not listed below	**4.43** ~~2.46~~
Engelmann Spruce/Lodge Pole Pine & other spruce	**2.16** ~~1.32~~
Douglas Fir	**1.70** ~~1.21~~
Hem-Fir (Western Hemlock, Grand Fir, White Fir, Alpine Fir)	**1.09** ~~0.73~~
Cedar and Redwood	**1.15** ~~0.15~~

1) Pounds per thousand board feet.

New Permit Condition 2.8

New PC 2.8 is a monitoring requirement to ensure compliance with the operation requirement on Western Hemlock in PC 2.4. It reads as follows:

"2.7 **Each month, the permittee shall record the maximum volume percentage of Western Hemlock in Hem-Fir group and state in the records that the permittee complies with Permit Condition 2.4 Operational Limit on Western Hemlock for that month."**

Materials Handling Cyclones and Baghouses

Section 3 of the permit includes all the proposed changes for the material handling processes.

Permit Condition 3.1

PC 3.1 is revised to include all the changes for the materials handling processes. It reads as follows:

"3.1 Process Description

Sawmill

Through main sawmill or small log line, the debarked logs are cut to maximize the amount of lumber obtained from each log.

The existing main sawmill is under a negative pressure resulting from the sawmill cyclones. Sawdust and wood residuals from the main sawmill are handled by the three sawmill cyclones (CY1, CY2A and CY2B). CY1 exhausts to one stack, and CY2A and CY2B exhaust to another stack.

The materials collected in the three sawmill cyclones are re-entrained and transported either to Bruks chipper cyclone as an intermediate cyclone (CY3) that vents to the chips baghouse (BH-2), or directly to the chips baghouse (BH-2).

The proposed small log line will allow processing of smaller logs and will be housed in a new building or an addition to the existing main sawmill building, which will be under negative pressure from the cyclones

and/or small log line baghouse (BH3). The small log line baghouse will transport sawdust and wood residuals from the small log line and will be located on the south side of the sawmill building(s).

Chips from the main sawmill and small log line drop to the Chip Conveyor and are conveyed to an off-site wood pile.

Planer mill

Dried lumber is removed from the kilns and either stored temporarily or sent to the planer mill building where the lumber is trimmed by saws, planed, sorted, stacked, strapped, and stored before shipment. IFG is considering equipment upgrades within the planer building.

A new planer shavings material handling cyclone (CY-4) will be installed on top of the truck bins at the new location. Emissions from the planer shavings cyclone will be routed to an emissions control baghouse (BH-1.)

Planer chips are transported through Bruks chipper cyclone that vents to the chips baghouse (BH-2). Chips collected by Bruks chipper cyclone (CY3) drop onto chip conveyor and are conveyed to an off-site wood pile.

Fuel Hog

The Fuel Hog is used to chop waste materials (e.g., wood waste) into smaller pieces for use as boiler fuel. The Fuel Hog emission point is a cyclone which is used to pneumatically transfer the hogged fuel to an off-site fuel pile.

~~Emissions from the fuel hog are controlled by a cyclone.~~"

New Table 3.1

New Table 3.1 is added to the permit to be consistent with the current PTC template format.

Table 3.1. Emissions Unit Description

Emissions Units / Processes	Control Devices	Emission Points
Main sawmill	**Cyclones**	**CY1 stack** **Stack for CY2A and CY2B**
Small log line	**Sawmill baghouse**	**BH-3 stack**
Planer mill	**Chips cyclone followed by a chips baghouse**	**BH-2 stack**
	Shavings cyclone followed by a shavings baghouse	**BH-1 stack**
Fuel hog	**Fuel hog cyclone**	**CY5 stack**

Permit Condition 3.2

Old content in PC 3.2 is removed. As long as the materials are handled as proposed, each material handling process complies with the respective process weight rate limit. The new content in PC 3.2 reads as follows:

"3.2 **Main Sawmill**

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

~~3.2 Process Weight Rate Limits~~

~~The permittee shall not discharge PM to the atmosphere from any process or process equipment operating on or after October 1, 1979, in excess of the amount shown by the following equations, where E is the allowable emissions from the entire source in pounds per hour, and PW is the process weight in pounds per hour:~~

~~a. If PW is less than 9,250 lb/hr,~~

$$\cancel{E = 0.045(PW)^{0.6}}$$

~~b. If PW is equal to or greater than 9,250 lb/hr,~~

~~$E = 1.10(PW)^{0.25}$~~,,

Permit Condition 3.3

IFG is a major facility for Title V and has a Tier I operating permit that includes a facility-wide visible emissions requirement. Old content in PC 3.3 duplicates that requirement and is therefore removed. The new content in PC 3.3 reads as follows:

"3.3 **Small Log Line**

- **The permittee shall install and operate a baghouse (BH-3) at all times when the small log line is operated to control $PM_{10}/PM_{2.5}$ emissions from the small log line as described in Permit Condition 3.1.**
- **The PM_{10} emissions concentration from the small log line baghouse shall not exceed 0.003 grain per cubic feet.**

~~Visible Emissions~~

~~The permittee shall not discharge any air pollutant to the atmosphere from any point of emissions for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625. These provisions shall not apply when the presence of uncombined water, nitrogen oxides, and/or chlorine gas are the only reason(s) for the failure of the emissions to comply with the requirements of this condition.~~"

IFG has proposed to use a baghouse to control emissions from the proposed small log line. The emissions concentration of 0.003 gr/cf for PM_{10} was used to estimate PM_{10} emissions for the small log line baghouse. The fraction of the PM_{10} emissions as $PM_{2.5}$ was modeled. The modeled impact was 89% of the 24-hr $PM_{2.5}$ NAAQS. Therefore, this baghouse PM_{10} emissions concentration requirement is included in the permit.

Permit Condition 3.4

Old content in PC 3.4 duplicates that requirement in IFG's Tier I operating permit and is therefore removed. The new content in PC 3.4 reads as follows:

"3.4 **Chips Baghouse**

The permittee shall install and operate a baghouse (BH-2) at all times when the planer mill is operated to control $PM_{10}/PM_{2.5}$ emissions from the chips cyclone as described in Permit Condition 3.1.

~~Visible Emissions Observations~~

~~To demonstrate compliance with Permit Conditions 3.2 and 3.3, the permittee shall conduct a quarterly inspection consisting of a see/no see evaluation of visible emissions from the Fuel Hog Cyclone stack during daylight hours and under normal operating conditions. If any visible emissions are present from the stack, the permittee shall take appropriate corrective action as expeditiously as practicable, or perform a Method 9 visible emissions evaluation. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective actions and report the exceedance in accordance with IDAPA 58.01.01.130-136. The permittee shall maintain a record of the results of each visible emissions inspection. The record shall include, at a minimum, the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.~~"

IFG has proposed to use a baghouse to control emissions from the Bruks chipper cyclone that transports planer chips. The baghouse is sometime used to re-entrain and to transport the materials captured by the three cyclones of the existing sawmill (main sawmill). The emissions were estimated using ODEQ's EF, the baghouse throughput and operating hours that were developed based on 2010 and 2011 annual production data, and the proposed annual throughput of 470,000 mbf/yr. However, throughput and operating hour monitoring for the baghouse are not specifically required in the permit because they are inherently limited by the kiln throughput limit of 470,000 mbf/yr and because the emissions from this emissions point are low (0.007 T/yr and 0.002 lb/hr).

New Permit Condition 3.5

New PC 3.5 specifies IFG's proposed operation and reads as follows:

"3.5 **Shavings Baghouse**

The permittee shall install and operate a baghouse (BH-1) at all times when the planer is operated to control $PM_{10}/PM_{2.5}$ emissions from the shavings cyclone as described in Permit Condition 3.1.

IFG has proposed to use a baghouse to control emissions from the planer shavings handling cyclone located on the top of the truck bins. The emissions were estimated using ODEQ's EF, the baghouse throughput and operating hours that were developed based on 2010 and 2011 annual production data, and the proposed annual throughput of 470,000 mbf/yr. However, throughput and operating hour monitoring for the baghouse are not specifically required in the permit because they are inherently limited by the kiln throughput limit of 470,000 mbf/yr and because the emissions from this emissions point are relatively low (1.072 T/yr and 0.295 lb/hr).

New Permit Condition 3.6

New PC 3.6 follows the inspection requirements in DEQ's internal guidance for cyclones and reads as follows:

"3.6 **Sawmill Cyclones and Fuel Hog Cyclone**

The permittee shall inspect each cyclone as listed in Table 3.1 every six months. The inspection shall be to assure that the cyclone is not plugged, eroded or otherwise not functioning as designed. The permittee shall maintain records of the inspections and any maintenance conducted.

New Permit Condition 3.7

New PC 3.7 follows DEQ's internal guidance for baghouses and reads as follows:

"3.7 **Baghouse/Filter System Procedures**

For each baghouse (i.e., BH-1, BH-2, and BH-3), within 60 days of initial start-up, the permittee shall have developed a Baghouse System Procedures document for the inspection and operation of the baghouses/filter system which controls emissions from each respective emissions unit. The Baghouse/Filter System Procedures document shall be a permittee developed document independent of the manufacturer supplied operating manual but may include summaries of procedures included in the manufacturer supplied operating manual.

The Baghouse/Filter System Procedures document shall describe the procedures that will be followed to comply with General Provision 2 and shall contain requirements for weekly see-no-see visible emissions inspections of the baghouse. The inspection shall occur during daylight hours and under normal operating conditions.

The Baghouse/Filter System Procedures document shall also include a schedule and procedures for corrective action that will be taken if visible emissions are present from the baghouse at any time. At a minimum the document shall include:

- **Procedures to determine if bags or cartridges are ruptured; and**
- **Procedures to determine if bags or cartridges are not appropriately secured in place.**

The Permittee shall maintain records of the results of each baghouse/filter system inspection in accordance with General Provision 10. The records shall include, but not be limited to, the following:

- **Date and time of inspection;**
- **Equipment inspected (e.g. exterior housing of baghouse, fan motor, auger, inlet air ducting);**
- **Description of whether visible emissions were present, and if visible emissions were present a description of the corrective action that was taken.**
- **Date corrective action was taken.**

The Baghouse/Filter System Procedures document shall be submitted to DEQ within 60 days of permit issuance for review and comment and shall contain a certification by a responsible official. Any changes to the Baghouse/Filter System Procedures document shall be submitted within 15 days of the change.

The Baghouse/Filter System Procedures document shall also remain on site at all times and shall be made available to DEQ representatives upon request.

The operating, monitoring and recordkeeping requirements specified in the Baghouse/Filter System Procedures document are incorporated by reference to this permit and are enforceable permit conditions.

The permittee shall keep documentation (e.g., manufacturer's specifications) on-site showing that PM_{10} emissions concentration of the small log line baghouse is 0.003 grain per cubic feet or less.

New Permit Condition 3.8

The sources modeled as negative emissions sources are required to be elimnated. New PC 3.8 reads as follows:

"3.8 **The following emissions sources shall be eliminated:**

- **Three existing planer shavings material handling baghouses (IFGBH1, IFGBH2, and IFGBH3.)**
- **The cyclone (IFGCY1) associated with the #4 splitter with the planer mill**
- **The truck bin cyclones (IFGCY6, IFGCY7 and IFGCY8) and the truck bin baghouse (IFGBH4.)**
- **Cedar Products processing**"

General Provisions

General Provisions are updated to be consistent with current PTC template requirements.

PUBLIC REVIEW

Public Comment Period

A public comment period will be made available to the public in accordance with IDAPA 58.01.01.209.05.c.

APPENDIX A – EMISSIONS INVENTORIES

The following tables are from IFG's 11/21/2013 EI with the listed changes. Emissions for previous permit modeling in these tables are not reviewed and changed:

- Use EPA December 2012 EFs to calculate drying kiln HAP and TAP emissions.
- Use proposed throughput of 470,000 mbf/yr to calculate Kilns HAP emissions.
- Include EPA December 2012 EFs

	PTE			
	PM_{10} LT (T/yr)	**PM_{10} ST (lb/hr)**	**$PM_{2.5}$ LT (T/yr)**	**$PM_{2.5}$ ST (lb/hr)**
Point Sources				
Lumber Drying				
Kilns (KILN1V5 - KILN6-V5)	8.93	2.28	7.76	1.98
Cyclones				
CWCY1, was CY-1, Removed in 2012	0.000	0.000	0.000	0.000
CWCY2, was CY-2, Removed in 2012	0.000	0.000	0.000	0.000
CWCY3, was CY-3, Removed in 2012	0.000	0.000	0.000	0.000
CWCY4, was CY-4, Removed in 2012	0.000	0.000	0.000	0.000
CWCY6, was CY-6, Removed in 2012	0.000	0.000	0.000	0.000
IFGCY1, was CY-18, to be removed	0.000	0.000	0.000	0.000
CY-24, removed prior to 2012	0.000	0.000	0.000	0.000
IFGCY2, was CY-25, routed to baghouse	0.000	0.000	0.000	0.000
IFGCY3, was CY-26, now CY1 for this permitting action	0.033	0.012	0.016	0.006
IFGCY4, was CY-27A and CY-27B, now CY1A and CY2B for this permitting action	0.196	0.073	0.098	0.037
IFGCY5, Fuel Hog Cyc., was PNP782(1), now CY5 for this permitting action	0.850	0.340	0.425	0.170
Baghouses				
IFGBH1, BH-1, to be removed	0.000	0.000	0.000	0.000
IFGBH2, BH-2, to be removed	0.000	0.000	0.000	0.000
IFGBH3, BH-3, to be removed	0.000	0.000	0.000	0.000
CWBH4, BH-4, removed 2012	0.000	0.000	0.000	0.000
CWBH5, BH-5, removed 2012	0.000	0.000	0.000	0.000

CWBH6, BH-6, removed 2012	0.000	0.000	0.000	0.000
	PM10 LT (T/yr)	**PM10 ST (lb/hr)**	**PM2.5 LT (T/yr)**	**PM2.5 ST (lb/hr)**
CWBH7, BH-7, removed 2012	0.000	0.000	0.000	0.000
IFGBH4, to be removed	0.000	0.000	0.000	0.000
Hew Saw Baghouse, now BH-3 for this permitting action	1.988	0.454	1.332	0.304
Chip Cyclone Baghouse, now BH-2 for this permitting action	0.014	0.004	0.009	0.003
Shavings Cyclone Baghouse, now BH-1 for this permitting action	1.600	0.440	1.072	0.295
Point Source Totals	**13.611**	**3.608**	**10.708**	**2.798**

IDAHO FOREST GROUP, LEWISTON
Emission Inventory/Calculations
Production Information Supporting PTE Calculations

Lumber Production, Current Permit

Sawmill	351,009	mbdft/year
Dry Kilns	351,009	mbdft/year
Planer	351,009	mbdft/year
Logs Used	1,263,632	tons/year, based on std. ratio

Residuals Production. Based on specific equipment

	tons/year	**Ratio from typical mill production**	
Sawmill Chips to convey	263,000	0.75	GT chips/mbdft sawmill
Sawdust to convey	116,000	0.33	GT sawdust/mbdft sawmill
Fines to cyclones	5,033	from cyclone data	
Bark to fuel hog	105,000	0.3	GT bark/mbdft sawmill
Planer Chips	21,060	0.06	BDT chips/mbdft planer
Shavings	38,610	0.11	GT shavings/mbdft planer
Wood to Fuel Hog	7,200	estimated from production	

Sawmill and Planer	43,643	tons/year	to truck bins
LCP, When Operating	13,093	tons/year	to truck bins
	57,000	tons/year	to truck bins

Lumber Production, Proposed

Sawmill	470,000	mbdft/year, estimated based on dry kilns
Dry Kilns	470,000	mbdft/year, production level in permit
Planer	470,000	mbdft/year, estimated based on dry kilns
Logs Used	1,692,000	tons/year, based on std. ratio

Residuals Production. Based on specific equipment

	tons/year	**Ratio from typical mill production**	
Sawmill Chips to convey	353,000	0.75	GT chips/mbdft sawmill
Sawdust to convey	155,000	0.33	GT sawdust/mbdft sawmill
Fines to cyclones	28,785	from cyclone data	
Bark to fuel hog	141,000	0.3	GT bark/mbdft sawmill
Planer Chips	28,200	0.06	BDT chips/mbdft planer
Shavings	51,230	0.11	GT shavings/mbdft planer
Wood to Fuel Hog	10,000	estimated from production	

Total to Bins	80,015	tons/year	to truck bins
LCP, Now Closed	0	tons/year	to truck bins
	80,000	tons/year	to truck bins

LUMBER DRY KILN PARTICULATE EMISSIONS					
Current Emissions, PM10 Prevously Analyzed					
Current Annual Production PTE			351,009	Mbf/yr	
Max Daily PTE Production			962	Mbf/day	
		PM10 Emission Factor:	0.038	lbs/Mbf	Based on USO Source Test, HF
		Annual PM10 Emissions:	6.67	tons/year	PTE
		Annual PM10 Emissions per Kiln	1.67	tons/year/kiln	annual rate, 4 kilns
		Modeled Annual PM10:	0.381	lb/hr/kiln	annual rate, 4 kilns
			0.076	lb/hr/vent	KILN1V1-KILN4V5
		Daily PM10 Emissions:	1.52	lb/hr	daily rate, 4 kilns
		Modeled Daily PM10:	0.381	lb/hr/kiln	daily rate, 4 kilns
			0.076	lb/hr/vent	KILN1V1-KILN4V5
	PM2.5 (not previously modeled)				
		Emission Factor:	0.033	lbs/Mbf	As per DEQ email 10-29-13
		Annual PM2.5 Emissions:	5.79	tons/year	PTE
		Annual PM2.5 Emissions per Kiln	1.45	tons/year/kiln	annual rate, 4 kilns
		Modeled Annual PM2.5:	0.331	lb/hr/kiln	annual rate, 4 kilns
		Modeled Annual PM2.5:	0.066	lb/hr/vent	KILN1V1-KILN4V5
		Daily PM2.5 Emissions:	1.32	lb/hr	daily rate, 4 kilns
		Modeled Daily PM2.5:	0.331	lb/hr/kiln	daily rate, 4 kilns
			0.066	lb/hr/vent	KILN1V1-KILN4V5
Proposed Emissions, Analyzed in FIA Modeling					
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	Based on USO Source Test, HF
		Annual PM10 Emissions:	8.93	tons/year	PTE
		Annual PM10 Emissions per Kiln	1.49	tons/year/kiln	annual rate, 6 kilns
		Modeled Annual PM10:	0.340	lb/hr/kiln	annual rate, 6 kilns
		Modeled Annual PM10:	0.068	lb/hr/vent	KILN1V1-KILN6V5
		Daily PM10 Emissions:	2.28	lb/hr	daily rate, 6 kilns
		Modeled Daily PM10:	0.381	lb/hr/kiln	daily rate, 6 kilns
		Modeled Daily PM10:	0.076	lb/hr/vent	KILN1V1-KILN6V5

		PM25 Emission Factor:	0.033	lbs/Mbf	As per DEQ email 10-29-13
		Annual PM25 Emissions:	7.76	tons/year	PTE
		Modeled Annual PM25:	1.29	tons/year/kiln	annual rate, 6 kilns
		Modeled Annual PM25:	0.295	lb/hr/kiln	annual rate, 6 kilns
		Modeled Annual PM25:	0.059	lb/hr/vent	KILN1V1-KILN6V5
		Daily PM25 Emissions:	1.98	lb/hr	daily rate, 6 kilns
		Modeled Daily PM2.5:	0.331	lb/hr/kiln	daily rate, 6 kilns
		Modeled Daily PM2.5:	0.066	lb/hr/vent	KILN1V1-KILN4V5

KILN VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

Using EPA VOC factors for temperatures
greater than 200 F
Average Production 2008-2011: 17% cedar, 0% P.pine, 0% ESLP, 65% hem fir, 18% red fir-larch
VOC Emissions will be tracked to verify that emissions are below the permit limit of 249 tpy.

Annual Production Limit:	470,000	Mbf/yr	
Emission Factor:	1.248	lbs/Mbf	VOC Emissions based on mix shown below.
Emissions:	293	tons/year	

Wood Species:		% of Total	VOC (lb/Mbf)	Weighted (lb/Mbf)	Reference
Cedar	10%	**1.15**	0.115	U of Idaho, 1996	
Hem Fir (use white fir)	65%	1.09	0.709	EPA Reg 10, Dec. 2012	
Douglas Fir and larch	25%	1.70	0.424	EPA Reg 10, Dec. 2012	
Ponderosa Pine	0%	**4.43**	0.000	EPA Reg 10, Dec. 2012	
ESLP, use Lodgepole	0%	**2.16**	0.000	EPA Reg 10, Dec. 2012	
Other (use ESLP)	0%	**2.16**	0.000	EPA Reg 10, Dec. 2012	
Total	100%		**1.248**		

KILN HAZARDOUS AIR POLLUTANT (HAPS)

Total MBF processed	**470,000**		
% Douglas Fir	25%	117,500	*MBF/Yr by species*
% Hem-Fir	65%	305,500	
% Ponderosa Pine	0%	0	
% ESLP	0%	0	
% Cedar	10%	47,000	
% Other (name species**)**	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	22477.75	13747.5	505.25	8013.5	82.25	129.25
Western Hemlock	151405.8	128310	4979.65	16802.5	549.9	794.3
Ponderosa Pine	0	0	0	0	0	0
White Fir (white wood)	0	0	0	0	0	0
Cedar	27184.8	1400.6	75.2	1668.5	14.1	23.5
TOTAL, lb/yr	201068.4	143458.1	5560.1	26484.5	646.25	947.05
TOTAL, ton/yr	100.5342	71.72905	2.78005	13.24225	0.323125	0.473525

EPA Region 10 HAP and VOC Emission Factors for Lumber Drying, December 2012

This spreadsheet calculates and compiles volatile organic compound (VOC) and hazardous air pollutant (HAP) emission factors (EF) in units of pounds of pollutant per thousand board feet of lumber dried (lb/mbf) that are preferred by EPA Region 10 for estimating emissions from lumber drying kilns. The EFs are based on actual lab-scale emission test data when available; when not available, EFs for similar species are substituted. When there are more than one similar species, the highest of the EF for the similar species is substituted.

A summary of the EFs for each species of wood is included on this sheet. The sheets that follow present the original test data as well as the calculations for creating each EF. There are two sheets per lumber species: one for HAPs and one for VOCs. To assure adequate conservatism for use in applicability determinations and compliance assurance applications, the EFs represent the 90th percentile of the data when three or more test values are available and the maximum test value of the data when less than three test values are available.

Species	Maximum Kiln	WPP1 VOC[1]	Total HAP	Methanol[2]	Formaldehyde[2]	Acetaldehyde	Propionaldehyde	Acrolein
	Temperature (°F)	(lb/mbf)	(lb/mbf)	(lb/mbf)	(lb/mbf)	(lb/mbf)	(lb/mbf)	(lb/mbf)
Non-Resinous Softwood Species								
White Fir3	⩽200	0.8388	0.2107	0.1480	0.0034	0.0550	0.0018	0.0026
	>200	1.0902	0.4956	0.4200	0.0163			
Western Hemlock	⩽200	0.5253	0.2921	0.1484	0.0016	0.1378	0.0018	0.0026
	>200	0.6615	0.3661	0.2196	0.0044			
Western Red Cedar	⩽200	0.3631	0.2939	0.1484	0.0034	0.1378	0.0018	0.0026
	>200	**1.1453**	**0.5784**	0.4200	0.0163			
Resinous Softwood Species (Non-Pine Family)								
Douglas Fir	⩽200	1.1576	0.1409	0.0690	0.0019	0.0682	0.0007	0.0011
	>200	1.6969	0.1913	0.1170	0.0043			
Engelmann Spruce	⩽200	0.1775	0.0640	0.0250	0.0013	0.0360	0.0007	0.0010
	>200	0.2161	0.1201	0.0780	0.0044			
Larch	⩽200	1.1576	0.1409	0.0690	0.0019	0.0682	0.0007	0.0011
	>200	1.6969	0.1914	0.1170	0.0044			
Resinous Softwood Species (Pine Family)								
Lodgepole Pine	⩽200	2.1552	0.1640	0.0628	0.0041	0.0884	0.0034	0.0053
	>200	**2.1552**	0.1640	0.0628	0.0041			
Ponderosa Pine	⩽200	2.9399	0.1751	0.0734	0.0046	0.0884	0.0034	0.0053
	>200	**4.4346**	0.2503	0.1440	0.0092			
Western White Pine	⩽200	3.4772	0.1751	0.0734	0.0046	0.0884	0.0034	0.0053
	>200	4.4346	0.2503	0.1440	0.0092			

1 VOC emissions have been approximated consistent with EPA's Interim VOC Measurement Protocol for the Wood Products Industry - July 2007 (WPP1 VOC). Employing WPP1 VOC underestimates emissions when the mass-to-carbon ratio of unidentified VOC exceeds that of propane. Ethanol and acetic acid are examples of compounds that contribute to lumber drying VOC emissions (for some species more than others), and both have mass-to-carbon ratios exceeding that of propane.

2 Because methanol and formaldehyde emissions appear to be dependent upon drying temperature, separate values are calculated for low and high-temperature drying.

3 White fir in this context refers to any one of several species of true fir grown in the West. The collection of timber commonly referred to as "white fir" includes the following species: white fir, grand fir, noble fir and subalpine fir.

BAGHOUSES					
Removed Baghouses					
	rate	**Flow**	**PM10 e.f.**	**PM25 e.f.***	
Source	**(gr/cf)**	**cfm**	**lb/hr**	**lb/hr**	
BH-1, Surfacing Baghouse	0.003	36000	0.926	0.620	
BH-2, Surfacing Baghouse	0.003	38000	0.977	0.655	
BH-3, Surfacing Baghouse	0.003	41000	1.054	0.706	
IFGBH4, truck bin baghouse	0.003	72000	1.851	1.240	
BH-4, Specialties Baghouse	0.003	45000	1.157	0.775	
BH-5, Profiles Baghouse	0.003	43000	1.106	0.741	
BH-6, Profiles Baghouse	0.003	35000	0.900	0.603	
BH-7, Specialties Baghouse	0.003	33000	0.849	0.569	
Conversion of minutes to hours	60	min/hr			
Conversion of grains to lbs	7000	gr/lb			
* PM2.5 e.f. is set at 67% ofPM10 e.f.					
Added Baghouses					
	rate	**Flow**	**PM10 e.f.**	**PM25 e.f.***	
Source/Pollutants	**(gr/cf)**	**cfm**	**lb/hr**	**lb/hr**	
Hew Saw Baghouse, now BH-3 for this permitting action	0.003	17655	0.454	0.304	
	PM10 ef	**reference(1)**	**PM2.5 ef**	**reference**	
Source/Pollutants	**(lb/ton)**		**(lb/ton)**		
Chip Cyclone Baghouse, now BH-2 for this permitting action	0.001	AQ-EF02, chips	0.001	67% of PM10	
Shavings Cyclone Baghouse, now BH-1 for this permitting action	0.040	AQ-EF02, shavings	0.027	67% of PM10	
(1) Based on Oregon DEQ Wood Product Emission Factors, for cyclones with baghouse control					
BAGHOUSE EMISSIONS INCLUDED IN PREVIOUS PERMIT ANALYSIS					
	HOURS OF OPERATION	8760	HOURS PER YEAR		
	ANNUAL PLANER PRODUCTION	351,009	MBDFT/ YR		
	Emissions	Previously Analyzed Emissions (PM2.5 not modeled)			
	Basis	PM10	Daily PM10	PM2.5	PM2.5
Modeled Source Name/Status	(hrs/yr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
IFGBH1, BH-1, to be removed	8,760	4.055	0.926	2.717	0.620
IFGBH2, BH-2, to be removed	8,760	4.280	0.977	2.868	0.655

IFGBH3, BH-3, to be removed	8,760	4.618	1.054	3.094	0.706
CWBH4, BH-4, removed 2012	8,760	5.068	1.157	3.396	0.775
CWBH5, BH-5, removed 2012	8,760	4.843	1.106	3.245	0.741
CWBH6, BH-6, removed 2012	8,760	3.942	0.900	2.641	0.603
CWBH7, BH-7, removed 2012	8,760	3.717	0.849	2.490	0.569
IFGBH4, to be removed	8,760	8.109	1.851	5.433	1.240
BAGHOUSE EMISSIONS INCLUDED IN THIS MODELING					
	HOURS OF OPERATION	8760	HOURS PER YEAR		
	ANNUAL PLANER PRODUCTION	470,000	MBDFT/ YR		
	Emissions	Currently Analyzed Emissions			
	Basis	PM10	Daily PM10	PM2.5	PM2.5
Modeled Source Name/Status	(hrs/yr, ton/yr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
Hew Saw Baghouse, now BH-3 for this permitting action	8,760	1.988	0.454	1.332	0.304
Chip baghouse, tons per year	27,886	0.014		0.009	
Chip baghouse, hours per year	6,240		0.004		0.003
Shavings Cyc/BH, tons per year	80,000	1.600		1.072	
Shavings Cyc/BH, hours per year	7,280		0.440		0.295

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) (1)**	**PM2.5 e.f. (lb/ton) (2)**	**Status**		
CY-1, Specialties Gang Rip Cyclone	0.778	0.389	REMOVED		
CY-2, Specialties Gang Rip Cyc.	0.164	0.082	REMOVED		
CY-3, Specialties GRECON	0.164	0.082	REMOVED		
CY-4, Specialties NULOC	0.522	0.261	REMOVED		
CY-6, Specialties	0.164	0.082	REMOVED		
CY-18, Surfacing, #4 Splitter	0.600	0.300	IFG-CY1		
CY-24, Surfac., Brooks Chip., Fines	0.778	0.389	REMOVED IN PAST		
CY-25, Surfac., Brooks Chip., Chips (3)	0.062	0.031	IFG-CY2		
CY-26, Sawmill, All Machine Ctrs	0.165	0.082	IFG-CY3		
CY-27A, Sawmill, All Machine Ctrs	0.780	0.390	IFG-CY4A		
CY-27B, Sawmill, All Machine Ctrs	0.780	0.390	IFG-CY4B		
CY-FH, Complex, Fuel Hog	0.170	0.085	IFG-CY5		
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) Revised as required in DEQ August 19, 2013 lettter.					
CYCLONE EMISSIONS INCLUDED IN PREVIOUS PERMIT ANALYSIS					
HOURS OF OPERATION	4000	used inprevious analysis			
ANNUAL SAWMILL PRODUCTION	351,009	MBDFT/YR			
	Current	Previously Analyzed Emissions (PM2.5 not modeled)			
	Throughput	PM10	Daily PM10	PM2.5	PM2.5
Modeled Source Name/Status	tons	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
CWCY1, was CY-1, Removed in 2012	354	0.138	0.069	0.069	0.034
CWCY2, was CY-2, Removed in 2012	354	0.029	0.015	0.015	0.007
CWCY3, was CY-3, Removed in 2012	773	0.063	0.032	0.032	0.016
CWCY4, was CY-4, Removed in 2012	1,324	0.345	0.173	0.173	0.086
CWCY6, was CY-6, Removed in 2012	2,582	0.212	0.106	0.106	0.053
IFGCY1, was CY-18, to be removed	53	0.016	0.008	0.008	0.004

CY-24, removed prior to 2012	0	0.000	0.000	0.000	0.000
IFGCY2, was CY-25, routed to baghouse	20,826	0.640	0.320	0.320	0.160
IFGCY3, was CY-26, now CY1 for this permitting action	296	0.024	0.012	0.012	0.006
IFGCY4, was CY-27A and CY-27B, now CY1A and CY2B for this permitting action	376	0.147	0.073	0.073	0.037
IFGCY5, Fuel Hog Cyc., was PNP782[(1),] now CY5 for this permitting action	8,000	0.680	0.340	0.340	0.170
(1) CW called this the Trash Hog, and it was modeled at a high emission rate, apparently in error. Values shown are what should have been modeled					
CYCLONE EMISSIONS INCLUDED IN THIS MODELING					
HOURS OF OPERATION	5356	hours per year, consistent with production inc.			
ANNUAL SAWMILL PRODUCTION	470,000	MBDFT/YR			
	Current	Emissions Modeled for This Application			
	Throughput	PM10	Daily PM10	PM2.5	PM2.5
Modeled Source Name/Status	tons	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
CWCY1, was CY-1, Removed in 2012	0	0.000	0.000	0.000	0.000
CWCY2, was CY-2, Removed in 2012	0	0.000	0.000	0.000	0.000
CWCY3, was CY-3, Removed in 2012	0	0.000	0.000	0.000	0.000
CWCY4, was CY-4, Removed in 2012	0	0.000	0.000	0.000	0.000
CWCY6, was CY-6, Removed in 2012	0	0.000	0.000	0.000	0.000
IFGCY1, was CY-18, to be removed	0	0.000	0.000	0.000	0.000
CY-24, removed prior to 2012	0	0.000	0.000	0.000	0.000
IFGCY2, was CY-25, routed to baghouse(1)	27,886	0.000	0.000	0.000	0.000
IFGCY3, was CY-26, now CY1 for this permitting action	396	0.033	0.012	0.016	0.006
IFGCY4, was CY-27A and CY-27B, now CY1A and CY2B for this permitting action	503	0.196	0.073	0.098	0.037
IFGCY5, was PNP782, now CY5 for this permitting action	10,000	0.850	0.340	0.425	0.170
(1) IFGCY2 routed to baghouse. IFGCY3 and -4 output re-routed to baghouse.					

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

(Note: provided in a separate file)

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on January 7, 2014.

Comments on the first draft permit.

Facility Comment: Table 1.1, line 2: change 2 Double-Track kilns to "manufacturer to be determined". Table 1.1, line 3: change to "Main Sawmill", and "Small Log Line". Take out all reference to buildings. IFG is trying to remove the term "new" throughout the permit.

DEQ Response: The requested changes have been made.

Facility Comment: Permit Condition 2.1, Table 2.1. "2 Double-Track kilns – manufacturer to be determined". "Each kiln has ~~20~~ multiple vents."

DEQ Response: The requested changes have been made.

Facility Comment: Permit Condition 2.2: "… six dry kilns…" (not six drying kiln vents).

DEQ Response: The requested changes have been made.

Facility Comment: PC 2.3 (IFG's action item). IFG will explain and certify that 10.02 mbf/hr is the maximum capacity of each kiln. DEQ will then remove PC 2.3 based on the information provided by IFG.

A letter from the Responsible Official is attached certifying that the maximum capacity of each kiln is or will be as represented in the compliance demonstration.

IFG preferred final language for PC 2.3: "The permittee shall not exceed the throughput of 44 million board feet per month and 470 million board feet per year."

DEQ Response: 10.02 mbf/hr/kiln is removed from the draft permit. Related discussions can be found under Permit Condition Review for PC 2.2.2. 470,000 mbf/yr is included in the permit for compliance with the annual $PM_{10}/PM_{2.5}$ NAAQS. Monthly limit is not included in the permit because there is no monthly limit to comply with, and monthly throughput limit does not ensure compliance with the 24-hr NAAQS for $PM_{2.5}/PM_{10}$.

Facility Comment: PCs 2.7 through 2.9 (DEQ's action item). Once PC 2.3 is removed based on IFG's explanation and certification, PCs 2.7 through 2.9 will be removed.

DEQ Response: PCs 2.7 through 2.9 were monitoring requirements for compliance with 10.02 mbf/hr/kiln limit. Once the limit is removed, the monitoring requirements are no longer needed and removed.

Facility Comment: PC 2.10 (DEQ's action item). DEQ will change weight % to volume %.

DEQ Response: The change has been made.

Facility Comment: PC 3.6 (DEQ's action item). DEQ will put content of PC 3.6 into PC 3.8 and remove PC 3.6.

DEQ Response: The change has been made.

Facility Comment: Planer Mill description strike redundant wording: "… and stored before shipment." ~~as final dimensional lumber product~~.

DEQ Response: The change has been made.

Comments on the first draft SOB.

Facility Comment: IFG requested to change sawmill description to " The existing sawmill building is under negative pressure resulting from the sawmill cyclones. The proposed additional saw line will allow processing of smaller logs and will be housed in a new building or an addition to the existing building, which will be under negative pressure from the cyclones and/or Saw line baghouse (BH3). The saw line baghouse will transport sawdust and wood residuals from the small log saw line and will be located on the south side of the sawmill building (s)."

DEQ Response: The paragraphs are modified to reflect that the negative pressure is due to the use of cyclones for existing sawmill and the baghouse for the new Saw line (i.e., small log line). “A negative air system” is not a best way to describe the operation and is replaced with “under negative pressure resulting from...”

Facility Comment: IFG requested that for Planer Mill description, strike redundant wording: as final dimensional lumber product.

DEQ Response: “as final dimensional lumber product” is removed.

Facility Comment: Under Application Scope, second bullet, revise to "Install two additional drying kilns of similar design as the existing kilns..." Delete the note in parenthesis about the VOC limit. The VOC emission may be revised downward in the future and the calculations would change.

Third bullet: "Add new sawmill equipment that can process smaller diameter logs, located inside a building."

Fourth bullet: "Add a material handling baghouse (saw line baghouse, BH3) to collect sawdust from the small log saw line. The baghouse will create negative air in the sawmill building(s)."

Seventh bullet: Strike "new”.

Strike bullet item 15, this was an error in application materials not in the previous permit.

DEQ Response: The requested changes have been made.

Facility Comment: Table 1 asks for information on existing equipment that has been included in the Tier I permit since it was originally issued. IFG does not have access to this historical data, much of the equipment is field erected. The manufacturer of the proposed equipment has not been identified because the permittee cannot purchase this equipment until the permit is final. IFG asks that this table be pared down and included in the Tier I permit as needed.

DEQ Response: The table is pared down to focus on new equipment for this permitting action.

Facility Comment: Table 2 (mean Table 3??), page 9 and 10. The values listed in this table were based on emission factors used in the October 25, 2012 permitting process. DEQ has since changed the emission factors for this equipment. Also, IFG corrected the method used to calculate emissions from the existing cyclones. The values in this table should be updated based on the values in Appendix A of the Statement of Basis.

DEQ Response: Total PM_{10} and $PM_{2.5}$ have been changed to 13.61 T/yr and 10.71 T/yr in Table 3. No changes are made to Table 2 as it was from the SOB for the previous permit.

Facility Comment: Table 5, footnote, page 12. Please delete the comment about the 249 tpy VOC limit limiting production to 400 million board feet. Someone will be confused by this, and future changes to VOC emission factors could render this comment false.

DEQ Response: Removed.

Facility Comment: Page 12, Existing Sawmill Cyclones. Please replace the paragraph with the following:

"According to the EI submitted November 21, 2013, IFG has assumed that the throughput to the existing sawmill cyclones would increase in proportion to the overall increase in allowable production. Specifically, the cyclone throughputs are set to 396 T/yr for CY1 and 503 T/yr for CY2A and CY2B."

DEQ Response: The requested changes have been made.

Facility Comment: Page 13, Table 6. This table compares calculations using old emission factors to calculations using new emission factors. Please update to be consistent with Appendix A.

DEQ Response: The emissions rates using new EFs are added in the parentheses next to the old rates that were from the SOB for the previous permit issued on October 25, 2012.

Facility Comment: Page 13, TAP emissions: Remove reference to Methyl Ethyl Ketone and Phenol and replace with acrolein and propionaldehyde.

DEQ Response: The requested changes have been made.

Facility Comment: Page 17, first paragraph. 0.035 should be 0.038. 0.351 should be 0.38.

DEQ Response: The requested changes have been made.

APPENDIX D – PROCESSING FEE

Emissions Changes			
Pollutant	**Pre-project PTE Emissions (T/yr)**	**Post-project PTE Emissions (T/yr)**	**Emissions Change (T/yr)**
NO_X	0.0	0.00	0.0
SO_2	0.0	0.00	0.0
CO	0.0	0.00	0.0
PM_{10}	59.9 [1]	13.61	-46.3
VOC	249.0	249.00	0.0
TAPS/HAPS	36.99 [2]	100.53	63.5
Total:	345.9	366.1	20.2
Fee Due	**$ 5,000.00**		
[1] Taken from the statement of basis for PTC No. P-2011.0135 Project 61077 issued on October 25, 2012			
[2] Taken from the EI spreadsheet for the PTC No. P-2011.0135 Project 61077 issued on October 25, 2012			

M E M O R A N D U M DRAFT

DATE: December 16, 2013

TO: Shawnee Chen, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT: P-2011.0135 PROJ61240 PTC Application for the Idaho Forest Group, Permit to Construct for new Drying Kilns

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs)

1.0 Summary

Idaho Forest Group (IFG) submitted a Permit to Construct (PTC) application for two new lumber drying kilns, located at IFG's sawmill in Lewiston, Idaho. Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the proposed project were submitted to DEQ to demonstrate that the proposed plant would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 and 203.03 [Idaho Air Rules Section 203.02 and 203.03]). IFG submitted the analyses and applicable information and data enabling DEQ to evaluate potential impacts to ambient air.

IFG submitted project-specific air quality impact analyses to demonstrate compliance of the proposed project with air quality standards. The DEQ review and analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air pollutant dispersion modeling analyses used to demonstrate that the estimated emissions associated with operation of the proposed facility or modification will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. This modeling review also did not evaluate the accuracy of emissions estimates. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the Statement of Basis.

The submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project do not result in increased ambient air impacts exceeding allowable TAP increments. Table 1 presents key assumptions and results to be considered in the development of the permit.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	**Explanation/Consideration**
Sources labeled as IFGBH1, IFGBH2, IFGBH3, IFGBH4, IFGCY1, and IFGCY2 will be removed at the time the new kilns are put into operation.	Compliance with NAAQS was demonstrated with the assumption that these sources would be removed. NAAQS compliance has not been demonstrated for a scenario where these sources are not removed.
Maximum 24-hour averaged emissions from each drying kiln are not greater than 0.38 lb/hr PM_{10} and 0.33 lb/hr $PM_{2.5}$.	NAAQS compliance was only assured for a limited number of receptors where the project showed an impact exceeding the SIL. It is critical to compliance that maximum daily emissions from the kilns were not underestimated.
Emissions rates used in the modeling analyses, as listed in this memorandum, represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.

The proposed project involves the following: 1) construction of two new lumber dry kilns; 2) upgrades to equipment at the mill.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses, in combination with DEQ's verification analyses, demonstrated to the satisfaction of the Department that operation of the proposed facility or modification will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality standards and analyses used to demonstrate compliance with air quality standards.

2.1.1 Area Classification

The proposed dry kiln project is a modification to the existing IFG stationary facility. The facility is located near Lewiston, Idaho, in Nez Perce County. The area is designated as attainment or unclassifiable for all pollutants.

2.1.2 Modeling Applicability for Criteria Pollutants

Idaho Air Rules Section 203.02 state that a PTC cannot be issued unless the application demonstrates to the satisfaction of DEQ that the new source or modification will not cause or significantly contribute to a NAAQS violation. Atmospheric dispersion modeling is used to evaluate the potential impact of a proposed project to ambient air and demonstrate NAAQS compliance. However, if the emissions associated with a project are very small, project-specific modeling analyses may not be necessary.

If the emissions increase associated with a project are below modeling applicability thresholds established in the *Idaho Air Quality Modeling Guideline* (State of Idaho Guideline for Performing Air Quality Impact Analyses. Doc. ID AQ-011 {rev. 2, July 2011} http://www.deq.idaho.gov/media/355037-modeling-guideline.pdf), then a project-specific analysis is not required. Modeling applicability emissions thresholds were developed by DEQ based on modeling of a hypothetical source designed to reasonably assure that impacts are below the applicable Significant Impact Level (SIL). DEQ has established two threshold levels: Level 1 thresholds are unconditional thresholds, requiring no approval for use by DEQ; Level 2 thresholds are conditional upon DEQ approval, which depends on evaluation of the project and the site, including emissions quantities, stack parameters, number of sources emissions are distributed amongst, distance between the sources and the ambient air boundary, and the presence of sensitive receptors near the ambient air boundary.

Section 3.2.1 provides results of the modeling applicability analysis.

2.1.3 Significant and Cumulative NAAQS Impact Analyses

If modeled maximum pollutant impacts to ambient air from the emissions sources associated with a new facility or the emissions increase associated with a modification exceed the SILs of Idaho Air Rules Section 006 (referred to as a significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis may also be required for permit revisions driven by compliance/enforcement actions, any correction of emissions limits or other operational parameters that may affect pollutant impacts to ambient air, or other cases where DEQ believes NAAQS may be threatened by the emissions associated with the proposed project.

The SIL analyses for a facility modification involves modeling the increase in allowable or potential emissions that results from the proposed modification. Any decreases in emissions are modeled as negative values to account for the reduction in impacts to ambient air.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. If the SIL analysis indicates the facility/modification has an impact exceeding the SIL, there might not be a significant contribution to a violation if impacts are below the SIL at the specific receptor showing the violation during the time periods when a modeled violation occurred.

Compliance with Idaho Air Rules Section 203.02 is demonstrated if : a) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) modeled design values of the cumulative NAAQS impact analysis (modeling all

emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or c) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit [c] ($\mu g/m^3$)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 1st highest[j]
	Annual	0.3	15[k]	Mean of maximum 1st highest[j]
Carbon monoxide (CO)	1-hour	2,000	40,000[l]	Maximum 2nd highest[m]
	8-hour	500	10,000[l]	Maximum 2nd highest[m]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[n] (7.8 $\mu g/m^3$)	75 ppb[o] (196 $\mu g/m^3$)	Mean of maximum 4th highest[p]
	3-hour	25	1,300[l]	Maximum 2nd highest[m]
	24-hour	5	365[l]	Maximum 2nd highest[m]
	Annual	1.0	80[q]	Maximum 1st highest[m]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb[r] (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	Mean of maximum 8th highest[t]
	Annual	1.0	100[q]	Maximum 1st highest[m]
Lead (Pb)	3-month[u]	NA	0.15[q]	Maximum 1st highest[m]
	Quarterly	NA	1.5[q]	Maximum 1st highest[m]

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year average of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 1st highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. The monitoring design value is used for background concentrations for $PM_{2.5}$ analyses. This approach is also used for the significant impact analysis.
k. 3-year average of annual concentration. The NAAQS was revised to12 $\mu g/m^3$ on December 14, 2012. However, this standard will not be applicable for permitting purposes in Idaho until it is incorporated by reference *sine die* into Idaho Air Rules (Spring 2014).
l. Not to be exceeded more than once per year.
m. Concentration at any modeled receptor.
n. Interim SIL established by EPA policy memorandum.
o. 3-year average of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
p. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year average of maximum modeled 1-hour impacts for each year is used.
q. Not to be exceeded in any calendar year.
r. 3-year average of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
s. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year average of maximum modeled 1-hour impacts for each year is used.
t. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year average of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.

NO_2 and SO_2 short-term standards have recently been promulgated by EPA. The standards became applicable for permitting purposes in Idaho when they were incorporated by reference *sine die* into Idaho Air Rules (Spring 2011).

The $PM_{2.5}$ annual standard was changed from 15 µg/m^3 to 12 µg/m^3 on December 14, 2012. The revised standard will not become applicable for permitting purposes until it is incorporated *sine die* into Idaho Air Rules (Spring 2014).

2.1.4 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Cumulative NAAQS analyses were only submitted for $PM_{2.5}$. Results from DEQ verification analyses performed for 24-hour PM_{10} indicated the SIL could be exceeded, thereby requiring a cumulative NAAQS impact analysis. A 24-hour PM_{10} background value was needed for the cumulative NAAQS analysis. There were no other criteria pollutant emissions increases estimated for the proposed modification.

Recent monitoring data are not available in the area that could be considered as reasonably representative of the IFG site. $PM_{2.5}$ data were available from the Sunset Park location between the city center and the IFG facility, and the 24-hour design value was calculated at 18.6 µg/m^3. A beta version of a background concentration tool was developed by the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) and provided through Washington State University (located at http://lar.wsu.edu/nw-airquest/lookup.html). The tool uses regional scale modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data. Using the background concentration tool, the 24-hour design value was 19 µg/m^3. This modeled value somewhat accounts for the emissions from the IFG and Potlatch facility, and can be considered as conservative.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration (µg/m^3)[a]
$PM_{2.5}$[b]	24-hour	18.6[c]
PM_{10}[d]	24-hour	85[e]

a. micrograms per cubic meter.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. 98th percentile of annual distributions of 24-hour concentrations.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. 2nd high monitored value for May 1, 2006 through April 30, 2007.

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate preconstruction compliance with applicable air quality standards.

3.1.1 Overview of Analyses

IFG submitted project-specific air impact analyses that were determined by DEQ to be reasonably representative of the proposed kiln project. DEQ performed verification analyses to correct several errors in the submitted analyses and to evaluate compliance by using more-conservative assumptions on emissions rates from existing sources. Results of the submitted analyses and DEQ verification analyses demonstrated compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 4 provides a brief description of parameters used in the modeling analyses.

3.1.2 Modeling protocol and Methodology

A modeling protocol was submitted to DEQ prior to the application. The protocol was submitted by Lorenzen Engineering, Inc. (Lorenzen) on behalf of IFG. DEQ provided an electronic protocol approval letter. Project-specific modeling was generally conducted using data and methods described in the protocol and in the *Idaho Air Quality Modeling Guideline*. However, the protocol did not describe in detail how emissions changes at existing sources would be assessed in the SIL analyses.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**
General Facility Location	Lewiston	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 12345.
Meteorological Data	Lewiston – on site	1992-1995 and 1997. See Section 3.1.6 of this memorandum.
Terrain	Considered	Receptor, building, and emissions source elevations were determined using USGS 1/3 arc second NAD83 National Elevation Dataset (NED) files.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility.
Receptor Grid	Grid 1	25-meter spacing along the roadway bisecting the facility
	Grid 2	100-meter spacing in a grid 1,900 meters by 1,100 meters containing the IFG facility.

3.1.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD was used for the modeling analyses to evaluate impacts of the facility.

3.1.4 Meteorological Data

Meteorological data are collected from a tower on the Potlatch facility.

A five-year meteorological database was constructed from the following data:

- Surface data from an onsite 100-meter tower (wind speed, wind direction, and temperature from 10 meters, 50 meters, and 100 meters; and solar radiation at 2 meters).
- Surface observations of cloud cover from the Lewiston Airport.
- Twice daily soundings from Spokane, Washington.

The meteorological data used were collected for January 1992 through December 1995, and for all of 1997. Data from 1996 were not used because EPA data recovery goals were not met.

Meteorological data were prepared for input to AERMOD using the preprocessor AERMET. These data were prepared by CH2M-Hill, Potlatch's consultant, for preparing the Mill Viability Permit Application modeling protocol back in the early 2000s. Several site-specific geophysical surface characteristics must be input to AERMET to estimate surface energy fluxes and construct boundary layer profiles. These include surface roughness length, albedo, and Bowen ratio. These are assigned on a sector-by-sector and seasonal basis using guidance provided in the AERMET User's Guide. Assessment of the area surrounding Potlatch suggested that land use is most appropriately categorized as "desert shrubland" for all sectors.

3.1.5 Terrain Effects

Lorenzen used 1/3 arc second National Elevation Dataset (NED) files, in the NAD83 datum, to calculate elevations of receptors. The terrain preprocessor AERMAP was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. The model AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

3.1.6 Building Downwash

Potential downwash effects on the emissions plume were accounted for in the model by using building parameters (locations of building corners, base elevation, and building heights). The building parameters for existing buildings were taken directly from pervious dispersion modeling analyses and were not reverified in this project's application. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and release parameters for input to AERMOD.

3.1.7 Ambient Air Boundary

Lorenzen indicated in the application that the IFG property boundary was used as the ambient air boundary. The property is fenced at public access points, but it is not fenced along the boarder with the Clearwater facility. The application indicates the Clearwater employees will be precluded from accessing the IFG facility as per methods specified in the *Idaho Air Modeling Guideline*, which requires general discouragement of access and reasonable patrol of the area.

3.1.8 Receptor Network

Table 4 describes the receptor network used in the submitted modeling analyses. DEQ contends that the receptor network was adequate to reasonably assure compliance with applicable air quality standards at all ambient air locations.

The receptor grid used by Lorenzen was not extensive. It only extended 300 meters from the kilns northward, 700 meters southward, 1,200 meters eastward, and 600 meters westward. DEQ determined the grid was still adequate because the nature of the sources modeled for the SIL analyses, with short release heights, low temperatures, and low velocities, result in maximum impacts located very near to the emissions sources.

3.2 Emission Rates

Emissions rates of criteria pollutants and TAPs for the proposed project were provided by the applicant for various applicable averaging periods. The DEQ permit writer reviewed the emissions calculations, focusing primarily on the emissions from the kilns and other modified sources that will remain in operation at the facility. Review of emissions from sources removed from the facility, which were modeled as negative values in the SIL analyses to offset project emissions increases, was performed by

the DEQ modeler and are described in Attachment 1 of this memorandum. DEQ modeling review also included verification that the application's potential emissions rates were properly used in the model.

3.2.1 Criteria Pollutant Emissions Rate

Table 5 lists criteria pollutant emissions rates used in the project-specific modeling analyses for all applicable averaging periods. Emissions reates are listed for both the analyses submitted with the application and DEQ verification analyses. The rates listed represent the maximum allowable rate as averaged over the specified period. Table 6 lists criteria pollutant emissions rates used in the cumulative NAAQS analyses for the neighboring Clearwater Paper Corporation facility.

The only criteria pollutants emitted as a result of the new kiln project will be $PM_{2.5}$, PM_{10}, and VOCs (regulate VOCs as a control of ozone). Modeling analyses of $PM_{2.5}$ and PM_{10} were required because emissions from the project exceeded modeling thresholds listed in the *Idaho Air Quality Modeling Guideline*. Ozone modeling was not required because VOC emissions are well below a 100 ton/year emissions threshold used as a screening analysis trigger for ozone impacts.

Submitted SIL analyses included the emissions increases associated with the new kilns, other proposed changes at the mill, and some changes made at earlier times. DEQ determined that the submitted SIL analyses did not adequately account for certain emissions increases that occurred contemporaneously with claimed emissions decreases that were modeled. DEQ performed verification analyses using conservatively recalculated emissions increases and decreases for specific sources, using a January 2012 DEQ PM_{10} 24-hour impact analysis for the facility as a base. The January 2012 analysis was largely based on emissions rates and modeling described in the August 8, 2005, DEQ Statement of Basis for the PTC (P-050200) granting the construction of the now-existing kilns at the IFG facility (owned by Potlatch Corporation at that time).

3.2.2 TAP Emissions Rates

The IFG facility is a major source of TAPs and emissions from the kilns are subject to the requirements of the Plywood and Composite Wood Products (PWCP) NESHAP. Because the kilns are regulated by a NESHAP, they are not subject to regulation by Idaho TAP rules, as explained in Section 2.1.4 of this memorandum.

Table 5. IFG CRITERIA POLLUTANT EMISSIONS USED IN ANALYSES						
Emissions Point in Model	**Analysis**	**$PM_{2.5}$[a] 24-Hour**		**$PM_{2.5}$ Annual**	**PM_{10}[b] 24-Hour**	
		SIL	**NAAQS**	**SIL**	**SIL**	**NAAQS**
KILN5V1 - KILN6V5 – new kilns (10 vent sources)	Submitted	0.0660[c]	0.0660[c]	0.05900[c]	0.0760[c]	
	DEQ	0.06613[c]	0.06613[c]	0.05902[c]	0.07615[c]	0.07615[c]
KILN1V1 - KILN4V5 – existing kilns (30 vent sources)	Submitted	0.0[c]	0.0660[c]	-0.007078[c]	0.0[c]	
	DEQ	0.0[c]	0.06613[c]	-0.007090[c]	0.00042[c]	0.07615[c]
CWCY1	Submitted	-0.0340	0.0	-0.01575	-0.0690	
	DEQ	-0.03470	0.0	-0.01572	-0.06939	0.0
CWCY2	Submitted	-0.0070	0.0	-0.003425	-0.0150	
	DEQ	-0.007310	0.0	-0.003312	-0.01462	0.0
CWCY3	Submitted	-0.0160	0.0	-0.007306	-0.0320	
	DEQ	-0.01599	0.0	-0.007231	-0.03198	0.0
CWCY4	Submitted	-0.0860	0.0	-0.03950	-0.1730	
	DEQ	-0.08700	0.0	-0.03943	-0.1740	0.0
CWCY6	Submitted	-0.0530	0.0	-0.02420	-0.1060	
	DEQ	-0.05350	0.0	-0.02416	-0.1070	0.0
CWBH4	Submitted	-0.7753	0.0	-0.7753	-1.157	
	DEQ	-0.7753	0.0	-0.7753	-1.157	0.0
CWBH5	Submitted	-0.7409	0.0	-0.7410	-1.106	
	DEQ	-0.7409	0.0	-0.7408	-1.106	0.0
CWBH6	Submitted	-0.6030	0.0	-0.6030	-0.9000	
	DEQ	-0.6030	0.0	-0.6030	-0.9000	0.0
CWBH7	Submitted	-0.5685	0.0	-0.5690	-0.8490	
	DEQ	-0.5685	0.0	-0.5685	-0.8492	0.0
IFGBH1	Submitted	-0.620	0.0	-0.6203	-0.926	
	DEQ	-0.6202	0.0	-0.6202	-0.9257	0.0
IFGBH2	Submitted	-0.655	0.0	-0.6548	0.977	
	DEQ	-0.6547	0.0	-0.6547	-0.9771	0.0
IFGBH3	Submitted	-0.706	0.0	-0.7060	-1.054	
	DEQ	-0.7064	0.0	-0.7064	-1.054	0.0
IFGBH4	Submitted	-1.240	0.0	-1.240	-1.851	
	DEQ	0.0	0.0	0.0	0.0	0.0
IFGCY1	Submitted	-0.0040	0.0	-0.001826	-0.0080	
	DEQ	-0.001984	0.0	-0.001826	-0.003968	0.0
IFGCY2	Submitted	-0.160	0.0	-0.07306	-0.320	
	DEQ	-0.0785	0.0	-0.07306	-0.157	0.0
HEWSAWBH	Submitted	0.3040	0.3040	0.3041	0.4540	
	DEQ	0.3040	0.3040	0.3040	0.4540	0.4540
CHIPBH	Submitted	0.0030	0.0030	0.002055	0.0040	
	DEQ	0.002994	0.002994	0.002133	0.004469	0.004469
SHAVEBH	Submitted	0.2950	0.2950	0.2450	0.4400	
	DEQ	0.2945	0.2945	0.2447	0.4396	0.4396
IFGCY3	Submitted	0.0	0.00600	0.0	0.0	
	DEQ	0.003074	0.006090	0.0009406	0.006148	0.01218
IFGCY4	Submitted	0.0	0.0370	0.0	0.0	
	DEQ	0.01865	0.03667	0.005655	0.03732	0.07335
IFGCY5	Submitted	0.0	0.170	0.01941	0.0	
	DEQ	0.0	0.170	0.01941	0.34[e]	0.34
IFGCY5OLD	DEQ	0.0	0.0	0.0	-1.375[e]	0.0

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
c. Values listed are for each emissions point in the model (5 vents per kiln).
d. Values in parentheses are those used in the SIL analysis.
e. Previous PM10 analyses were performed using a different release velocity than what was submitted for this permit application. Therefore, the SIL analysis was performed by modeling the previous rate as a negative value from source IFGCY5OLD, using the previous exit velocity, and modeling the future allowable rate as a positive value from IFGCY5, using the new exist velocity.

Table 6. CLEARWATER CRITERIA POLLUTANT EMISSIONS USED IN CUMULATIVE NAAQS ANALYSES		
Emissions Point in Model	**$PM_{2.5}$[a] 24-Hour**	**PM_{10}[b] 24-Hour**
PNP189	32.50	40.63
PNP774	2.633	5.267
PNP775	2.633	5.267
PNP157	4.138	8.276
PNP721	46.40	58.00
PNP204	5.200	10.40
PNP709	0.08867	0.1108
PNP2009	0.08867	0.1108
PNP511	4.160	5.200
PNP512	4.160	5.200
PNP43	0.975	1.950
PNP106	0.0240	0.0300
PNP250	2.281	2.852
PNP253	22.07	27.59
PNP781	72.32	90.40
CPD29	0.1211	0.2421
CPD52	1.317	2.634
CPD39	0.4932	0.9864
CPD82	0.7520	0.9400
CPD83	0.7519	0.9499
CPD12	0.700	1.400
PNP464	0.03015	0.04500
PNP465	0.02814	0.04200
PNP466	0.02814	0.04200
PNP513	0.3865	0.7730
PNP514	0.3865	0.7730
PNP1030	0.7500	1.500
PNP1119	0.7500	1.500
PNP47	1.152	1.720
PNP324	0.08640	0.1080
PNP103	0.08800	0.1100
CPD28A	0.06000	0.1200
CPD2	0.7500	1.500
CPD56	0.3700	0.7400

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

3.3 Emission Release Parameters and Plant Criteria

Table 7 lists emissions release parameters for sources modeled. Parameters appeared to be within normally expected ranges for the kilns modeled. Lorenzen modeled sources with capped and horizontal releases by setting the exit velocity to 0.01 meters/second rather than using the AERMOD Beta option for capped/horizontal releases. DEQ verification analyses were performed by modeling these sources with a 0.001 meter/second exit velocity because guidance material suggested that use of 0.01 meter/second may still result in vertical plume momentum flux that can affect modeling results.

The modeling report submitted with the application indicated the fuel hog cyclone has an emissions release height of 17.1 meters. The model input files submitted indicate a release height of 56.1 meters was actually used in the model runs. DEQ verification analyses were performed using a release height of 17.1 meters, which is consistent with previous modeling analyses of the source.

Previous modeling of the fuel hog cyclone (IFGCY5) used a stack exit velocity of 7.3 meters/second. This application assumed a 0.01 meters/second velocity, claiming the source is a capped or horizontal release. DEQ verification analyses were performed by modeling the source as two separate sources: IFGCY5OLD is the existing source as previously modeled with the 7.3 meters/second exit velocity, modeled as negative emissions; IFGCY5 is the revised source, modeled at the negligible exit velocity and with the revised positive-valued emissions rate.

Table 7. EMISSIONS RELEASE PARAMETERS

Release Point /Location	Source Type	Stack Height (m)[a]	Modeled Diameter (m)	Stack Gas Temp. (K)[b]	Stack Gas Flow Velocity (m/sec)[c]
KILN5V1 through KILN6V5 – new kilns	Point	8.22	1.605	366.5	0.7
KILN1V1 through KILN4V5, – existing kilns	Point	8.22	1.605	366.5	0.7
CWCY1	Point	12.2	1.22	0.0	0.01 (0.001)[d]
CWCY2	Point	12.2	0.91	0.0	0.01 (0.001)[d]
CWCY3	Point	12.2	0.91	0.0	0.01 (0.001)[d]
CWCY4	Point	12.2	0.91	0.0	0.01 (0.001)[d]
CWCY6	Point	12.2	0.76	0.0	0.01 (0.001)[d]
CWBH4	Point	2.7	1.22	0.0	0.01 (0.001)[d]
CWBH5	Point	2.7	1.22	0.0	0.01 (0.001)[d]
CWBH6	Point	2.7	1.22	0.0	0.01 (0.001)[d]
CWBH7	Point	2.7	1.22	0.0	0.01 (0.001)[d]
IFGBH1	Point	13.1	1.31	0.0	12.50
IFGBH2	Point	5.5	1.31	0.0	13.41
IFGBH3	Point	13.1	1.31	0.0	14.33
IFGBH4	Point	6.7	3.05	0.0	0.01 (0.001)[d]
IFGCY1	Point	12.2	0.91	0.0	0.01 (0.001)[d]
IFGCY2	Point	7.6	0.91	0.0	0.01 (0.001)[d]
HEWSAWBH	Point	13.1	1.07	0.0	9.32
CHIPBH	Point	12.2	0.91	0.0	0.01 (0.001)[d]
SHAVEBH	Point	13.1	1.31	0.0	14.33
IFGCY3	Point	12.2	0.76	0.0	0.7(0.001)[d,e]
IFGCY4	Point	12.2	0.91	0.0	0.01 (0.001)[d]
IFGCY5	Point	56.10[f] (17.1)	2.01	0.0	0.01 (0.001)[d]
IFGCY5OLD	Point	17.1	2.01	0.0	7.3

a. Meters.
b. Kelvin.
c. Meters/second.
d. Modeled at 0.01 m/sec or 0.001 m/sec to negate plume vertical momentum flux. This was needed because the emissions point is horizontal or has a rain-cap.
e. The modeling report indicates 0.01 m/sec was used, but modeling files submitted used a value of 0.7 m/sec.
f. The application indicated a release height of 17.1 m, but the modeling files used 56.1 m. DEQ verification modeling used 17.1 m, which is consistent with previous modeling.

3.4 Results for Significant Impact Level and Cumulative NAAQS Analyses

Lorenzen performed SIL analyses for 24-hour $PM_{2.5}$, annual $PM_{2.5}$, and 24-hour PM_{10} to evaluate whether the proposed modification of the IFG facility would significantly contribute to concentrations of criteria pollutants in ambient air. Table 8 summarizes results for the SIL analyses. Lorenzen conservatively modeled each year of the meteorological data separately and then compared the maximum 24-hour and annual results to the applicable SILs. This is the required approach for 24-hour PM_{10} analyses. DEQ allows use of 5-year mean of maximum modeled impacts on a receptor-by-receptor basis for 24-hour and annual $PM_{2.5}$.

Cumulative impact analyses were performed for those pollutants where results of the SIL analyses indicated impacts could exceed the SIL or where DEQ determined the proposed project could have consequential impacts to a modeled NAAQS violation. Cumulative impact analyses involved modeling the entire IFG facility, co-contributing sources of the adjacent Clearwater Paper facility, and then adding a background concentration value to the result.

$PM_{2.5}$ 24-hour impacts above the SIL were predicted by the submitted SIL analysis at a small group of receptors along or near the IFG property boundary directly south of the kilns. When the increase in emissions just from the new kilns is assessed, impacts exceeding the SIL are limited to the area north of the IFG facility, on the neighboring Clearwater facility. DEQ's 24-hour $PM_{2.5}$ SIL verification analysis showed impacts that were very close to what was estimated by the submitted analysis, with some additional receptors exceeding the SIL along the northern boundary of the IFG facility.

The submitted 24-hour PM_{10} SIL analysis showed maximum impacts in the same general location as was predicted for the 24-hour $PM_{2.5}$ SIL analysis. However, impacts predicted by the submitted analysis did not exceed the SIL. DEQ's verification analysis showed similar impacts, although it showed that the SIL was exceeded at two receptors along the IFG boundary near the hog fuel cyclone. The two receptors were on property owned by the neighboring Clearwater facility.

Table 8. RESULTS FOR SIL ANALYSES

Pollutant	Averaging Period	Max Modeled Concentration ($\mu g/m^3$)[a]	SIL[b] ($\mu g/m^3$)	Cumulative NAAQS[c] Required
$PM_{2.5}$[d]	24-hour	3.12[e] (2.64)[f]	1.2	Yes
	annual	<0.0[e] (<0.0)[f]	0.3	No
PM_{10}[g]	24-hour	4.63 (6.92)[f]	5	No (Yes)

a. Micrograms per cubic meter.
b. Significant Impact Level.
c. National Ambient Air Quality Standard.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
e. The submitted analysis used the maximum value for all five years modeled, although modeling guidance allows the use of the 5-year average of the maximum 24-hour and annual concentrations for each year. DEQ verification analyses used the 5-year average value.
f. Values in parentheses are results from DEQ's verification analyses.
g. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

Table 9 provides results for the submitted cumulative NAAQS impact analyses. The neighboring Clearwater facility is considered to be ambient air to the IFG facility; however, emissions from the Clearwater facility are not considered in the NAAQS analysis for receptors that are on Clearwater's property. DEQ's verification analysis was performed for all receptors, but the results listed are only for those receptors where the DEQ SIL analyses indicated there was an impact exceeding the SIL.

Table 9. RESULTS FOR CUMULATIVE IMPACT ANALYSES

Pollutant	Averaging Period	Max Modeled Design Value Concentration[a] ($\mu g/m^3$)[b]	Background Concentration ($\mu g/m^3$)	Total Ambient Impact ($\mu g/m^3$)	NAAQS[c] ($\mu g/m^3$)	Percent of NAAQS
$PM_{2.5}$[d]	24-hour	13.40[e] (12.62)[f]	18.6	32.0 (31.2)[f]	35	91 (89)[f]
PM_{10}[g]	24-hour	(8.54)[f]	85	(93.5)[f]	150	(62)[f]

a. Design values are the modeled values to compare to the applicable NAAQS after adding an appropriate background value. For 24-hour $PM_{2.5}$, the design value is the 5-year average of the 8th highest 24-hour average concentration for each year modeled. Lorenzen conservatively used the maximum of the 8th highest modeled value across all years modeled.

b. Micrograms per cubic meter.

c. National ambient air quality standards.

d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

e. This value is the maximum of 8th highest values from five years modeled individually, which is a conservative estimate of the design value. Concentrations were only evaluated for receptors where the SIL analysis indicated an impact above the SIL.

f. DEQ verification analysis results. Impacts on Clearwater Paper property do not consider emissions from Clearwater Paper.

g. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

4.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the proposed IFG kiln project will not cause or significantly contribute to a violation of any ambient air quality standard.

The modeling review performed by DEQ assures NAAQS and TAP compliance on a project specific basis, as required by Idaho Air Rules Section 203.02 and 203.03. Permitting rules applicable to this project do not require a demonstration of NAAQS compliance on a facility-wide basis, and the analyses performed in support of this permitting action cannot be interpreted as demonstrating that combined impacts of IFG and the neighboring Clearwater facility are below or above NAAQS.

APPENDIX A

MODELED EMISSIONS USED IN DEQ VERIFICATION ANALYSES FOR IFG SOURCES

1.0 New Kilns

1.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.076 lb/hr·vent (Nov 2013); Value in EI spreadsheet = 0.07615 lb/hr·vent (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.076 lb/hr·vent (Nov 2013)

Existing Emissions for Source(s) = 0.0 lb/hr·vent; Future Emissions for Source(s) = 0.07615 lb/hr·vent
Change in Emissions = 0.07615 – 0.0 = 0.07615 lb/hr·vent

1.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.066 lb/hr·vent (Nov 2013); Value in EI spreadsheet = 0.06613 lb/hr·vent (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.066 lb/hr·vent (Nov 2013)

Existing Emissions for Source(s) = 0.0 lb/hr·vent; Future Emissions for Source(s) = 0.06613 lb/hr·vent
Change in Emissions = 0.06613 – 0.0 = 0.06613 lb/hr·vent

1.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.059 lb/hr·vent (Nov 2013); Value in EI spreadsheet = 0.05902 lb/hr·vent (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.059 lb/hr·vent (Nov 2013)

Existing Emissions for Source(s) = 0.0 lb/hr·vent; Future Emissions for Source(s) = 0.05902 lb/hr·vent
Change in Emissions = 0.05902 – 0.0 = 0.05902 lb/hr·vent

2.0 Existing Kilns

2.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.076 lb/hr·vent (Nov 2013); Value in EI spreadsheet = 0.07615 lb/hr·vent (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr·vent (Nov 2013)

Existing Emissions for Source(s) = 0.07573 lb/hr·vent; Future Emissions for Source(s) = 0.07615 lb/hr·vent
Change in Emissions = 0.07615 – 0.07573 = 0.00042 lb/hr·vent
Existing emissions based on DEQ PM_{10} modeling of facility in January 2012.

2.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.066 lb/hr·vent (Nov 2013); Value in EI spreadsheet = 0.06613 lb/hr·vent (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr·vent (Nov 2013)

Existing Emissions for Source(s) = 0.06613 lb/hr·vent; Future Emissions for Source(s) = 0.06613 lb/hr·vent
Change in Emissions = 0.06613 – 0.06613 = 0.0 lb/hr·vent
No throughput change for the existing kilns, and there were no previous modeling analyses for $PM_{2.5}$

2.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = Annual facility-wide modeling not performed (Nov 2013);
Value in EI spreadsheet = 0.05902 lb/hr·vent (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.007078 lb/hr·vent (Nov 2013)

Existing Emissions for Source(s) = 0.06611 lb/hr·vent; Future Emissions for Source(s) = 0.05902 lb/hr·vent
Change in Emissions = 0.05902 – 0.06611 = -0.007090 lb/hr·vent

3.0 CWCY1

3.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0690 lb/hr(Nov 2013) ; Value in EI spreadsheet = -0.06884 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.06939 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.06939 = -0.06939 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

3.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0340 lb/hr (Nov 2013); Value in EI spreadsheet = 0.03442 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.03470 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.03470 = 0.03470 lb/hr
Emissions based on 50% of the DEQ PM_{10} modeling value in January 2012.

3.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.01575 lb/hr (Nov 2013); Value in EI spreadsheet = 0.01572 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.01572 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.01572 = -0.01572 lb/hr
Emissions based on EI spreadsheet

4.0 CWCY2

4.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.015 lb/hr (Nov 2013); Value in EI spreadsheet = -0.01451 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.01462 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.01462 = -0.01462 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

4.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0070 lb/hr (Nov 2013); Value in EI spreadsheet = -0.07253 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.007310 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.007310 = -0.007310 lb/hr
Emissions based on 50% of the DEQ PM_{10} modeling value in January 2012.

4.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.003425 lb/hr (Nov 2013); Value in EI spreadsheet = 0.003312 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.003312 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.003312 = -0.003312 lb/hr
Emissions based on EI spreadsheet

5.0 CWCY3

5.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.032 lb/hr (Nov 2013); Value in EI spreadsheet = -0.03167 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.03198 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.03198 = -0.03198 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

5.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0160 lb/hr(Nov 2013) ; Value in EI spreadsheet = -0.01584 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.01599 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.01599 = -0.01599 lb/hr
Emissions based on 50% of the DEQ PM_{10} modeling value in January 2012.

5.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.007306 lb/hr (Nov 2013); Value in EI spreadsheet = 0.007231 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.007231 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.007231 = -0.007231 lb/hr
Emissions based on EI spreadsheet

6.0 CWCY4

6.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.173 lb/hr (Nov 2013); Value in EI spreadsheet = -0.1727 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.1740 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.1740 = -0.1740 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

6.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0860 lb/hr (Nov 2013); Value in EI spreadsheet = -0.08636 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.08700 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.08700 = -0.08700 lb/hr
Emissions based on 50% of the DEQ PM_{10} modeling value in January 2012.

6.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.03950 lb/hr (Nov 2013); Value in EI spreadsheet = 0.03943 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.03943 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.03943 = -0.03943 lb/hr
Emissions based on EI spreadsheet

7.0 CWCY6

7.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.106 lb/hr (Nov 2013); Value in EI spreadsheet = -0.1058 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.1070 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.1070 = -0.1070 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

7.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0530 lb/hr (Nov 2013); Value in EI spreadsheet = -0.05290 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.05350 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.05350 = -0.05350 lb/hr
Emissions based on 50% of the DEQ PM_{10} modeling value in January 2012.

7.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.02420 lb/hr (Nov 2013); Value in EI spreadsheet = 0.02416 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.02416 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.02416 = -0.02416 lb/hr

8.0 CWBH4

8.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -1.157 lb/hr (Nov 2013); Value in EI spreadsheet = -1.157 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 1.157 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 1.157 = -1.1157 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

8.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.7753 lb/hr (Nov 2013); Value in EI spreadsheet = -0.7753 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.7753 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.7753 = -0.7753 lb/hr
Emissions based on EI spreadsheet

8.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.7753 lb/hr (Nov 2013); Value in EI spreadsheet = 0.7753 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.7753 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.7753 = -0.7753 lb/hr
Emissions based on EI spreadsheet

9.0 CWBH5

9.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -1.106 lb/hr (Nov 2013); Value in EI spreadsheet = -1.106 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 1.106 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 1.106 = -1.106 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

9.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.7409 lb/hr (Nov 2013); Value in EI spreadsheet = -0.7408 lb/hr

Existing Emissions for Source(s) = 0.7409 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.7409 = -0.7409 lb/hr
Emissions based on submitted modeling and spreadsheet

9.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.7410 lb/hr (Nov 2013); Value in EI spreadsheet = 0.7408 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.7408 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.7408 = -0.7408 lb/hr
Emissions based on EI spreadsheet

10.0 CWBH6

10.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.900 lb/hr (Nov 2013); Value in EI spreadsheet = -0.9000 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.9000 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.9000 = -0.9000 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

10.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.6030 lb/hr (Nov 2013); Value in EI spreadsheet = -0.6030 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.6030 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.6030 = -0.6030 lb/hr
Emissions based on EI spreadsheet

10.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.6030 lb/hr (Nov 2013); Value in EI spreadsheet = 0.6030 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.6030 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.6030 = -0.6030 lb/hr
Emissions based on EI spreadsheet

11.0 CWBH7

11.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.849 lb/hr (Nov 2013); Value in EI spreadsheet = -0.8486 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.8492 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.8492 = -0.8492 lb/hr
Emissions based on DEQ PM_{10} modeling of facility in January 2012.

11.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.5685 lb/hr (Nov 2013); Value in EI spreadsheet = -0.5685 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.5685 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.5685 = -0.5685 lb/hr
Emissions based on EI spreadsheet

11.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = source was removed in 2012

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.5690 lb/hr (Nov 2013); Value in EI spreadsheet = 0.5685 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.5685 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.5685 = -0.5685 lb/hr
Emissions based on EI spreadsheet

12.0 IFGBH1

12.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.9260 lb/hr (Nov 2013); Value in EI spreadsheet = -0.9257 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.926 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.926 = -0.9257 lb/hr
Emissions based on spreadsheet. DEQ PM_{10} modeling of facility in January 2012 = 0.926 lb/hr.

12.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.620 lb/hr (Nov 2013); Value in EI spreadsheet = -0.6202 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.6202 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.6202 = -0.6202 lb/hr
Emissions based on EI spreadsheet

12.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.6203 lb/hr (Nov 2013); Value in EI spreadsheet = 0.6202 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.6202 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.6202 = -0.6202 lb/hr
Emissions based on EI spreadsheet

13.0 IFGBH2

13.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.977 lb/hr (Nov 2013); Value in EI spreadsheet = 0.9771 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.9771 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.9771 = -0.9771 lb/hr
Emissions based on spreadsheet. DEQ PM_{10} modeling of facility in January 2012 = 0.977 lb/hr.

13.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.655 lb/hr (Nov 2013); Value in EI spreadsheet = -0.6547 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.6547 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.6547 = -0.6547 lb/hr
Emissions based on EI spreadsheet

13.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.6548 lb/hr (Nov 2013); Value in EI spreadsheet = 0.6547 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.6547 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.6547 = -0.6547 lb/hr
Emissions based on EI spreadsheet

14.0 IFGBH3

14.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -1.054 lb/hr; Value in EI spreadsheet = same

Existing Emissions for Source(s) = 1.054 lb/hr (Nov 2013); Future Emissions for Source(s) = 0.0 lb/hr (Nov 2013)
Change in Emissions = 0.0 – 1.054 = -1.054 lb/hr
Emissions based on spreadsheet. DEQ PM_{10} modeling of facility in January 2012 = 1.054 lb/hr.

14.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.706 lb/hr (Nov 2013); Value in EI spreadsheet = -0.7064 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.7064 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.7064 = -0.7064 lb/hr
Emissions based on EI spreadsheet

14.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.706 lb/hr (Nov 2013); Value in EI spreadsheet = 0.7064 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.7064 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.7064 = -0.7064 lb/hr
Emissions based on EI spreadsheet

15.0 IFGBH4

15.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -1.851 lb/hr (Nov 2013); Value in EI spreadsheet = -1.851 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.0 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.0 = 0.0 lb/hr

DEQ PM_{10} modeling of facility in January 2012 = 0.0 lb/hr. Source was transferred from Clearwater Paper to IFG by Oct 2012 permitting action. Was PNP432 and PNP383. Application for 2012 permit lists emissions at PM10 = 3.70 lb/hr; PM2.5 = 1.85 lb/hr, 8.11 ton/yr. There was not modeling for transfer of ownership of the source. January 2012 modeling did not include the source for IFG, but DEQ included PNP432 and PNP383 as co-contributing sources at 3.70 lb/hr and 2.72 lb/hr, respectively.

15.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -1.240 lb/hr (Nov 2013); Value in EI spreadsheet = -1.240 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.0 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.0 = 0.0 lb/hr

See explanation above for PM10.

15.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -1.240 lb/hr (Nov 2013); Value in EI spreadsheet = -1.240 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.0 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.0 = 0.0 lb/hr

See explanation above for PM10.

16.0 IFGCY1

16.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0080 lb/hr (Nov 2013); Value in EI spreadsheet = -0.007945 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.003968 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.003968 = -0.003968 lb/hr

Emissions based DEQ PM_{10} modeling of facility in January 2012 = 0.003968 lb/hr. Submitted emissions were based on a PM10 emissions factor of 0.600 lb/ton and a throughput of 53 ton/yr over 4,000 hours. The application for P-2011.0135 Project 61077 indicated the 0.600 lb/ton emissions factor was for total particulate, and the PM10 emissions factor is 0.240 lb/ton. The August 8, 2005 DEQ Statement of Basis for P-050200 lists PM10 annual emissions at 0.02 ton/yr and PM10 hourly at 0.004 lb/hr for the source (labeled as CY18). The 2005 Statement of Basis also conservatively assumed that PM=PM10. Data in the application for the source indicate that 0.00076% of the throughput is particulate $\leq 10\ \mu g/m^3$and the cyclone has a 20% removal efficiency for those particulates. This results in the following emissions factor: (1 ton throughput)(0.00076% / 100)(1-0.20)(2,000 lb/ton) = 0.122 lb PM10/ton. The total control efficiency for all PM was listed at 99.97%, and this results in an emissions factor of 0.60 lb PM/ton. Since the last modeling analyses used emissions of 0.003968 lb/hr, this rate is the most appropriate value to use in the analyses.

16.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.0040 lb/hr (Nov 2013); Value in EI spreadsheet = -0.003972 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.001984 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.001984 = -0.001984lb/hr

DEQ requested that PM2.5 = 0.5 PM10. 0.003968 lb/hr PM10 (0.5) = 0.001984 lb/hr PM2.5

16.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.001826 lb/hr (Nov 2013); Value in EI spreadsheet = 0.001814 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.001826 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.001826 = -0.001826 lb/hr

October 2012 application states annual emissions at 0.07 ton/yr and annual PM10 at 0.50 ton/yr. The 2005 DEQ statement of basis lists PM10 at 0.016 ton/yr. DEQ conservatively used (0.016 ton PM10/yr)(0.5) = (0.003653 lb PM10/hr)(0.5) = 0.001826 lb/hr PM2.5.

17.0 IFGCY2

17.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.320 lb/hr (Nov 2013); Value in EI spreadsheet = -0.3228 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.157 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.157 = -0.157 lb/hr
DEQ PM_{10} modeling of facility in January 2012 = 0.157 lb/hr.

17.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.160 lb/hr (Nov 2013); Value in EI spreadsheet = -0.1614 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.0785 lb/hr (Nov 2013); Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.0785 = -0.0785 lb/hr
See explanation above for PM10 and use 50% PM10 = PM2.5.

17.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling 0.0 lb/hr source to be removed

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = -0.07306 lb/hr (Nov 2013); Value in EI spreadsheet = -0.07374 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.07306 lb/hr; Future Emissions for Source(s) = 0.0 lb/hr
Change in Emissions = 0.0 – 0.07306 = -0.07306 lb/hr
October 2012 application states annual emissions at 0.88 ton/yr and PM10 at 6.53 ton/yr. 2005 statement of basis lists PM10 at 0.640 ton/yr. If use (0.640 ton/yr PM10)(0.5 PM2.5/PM10) = 0.07306 lb/hr

18.0 IFGCY3

Source CY1 in EI, was CY26 in earlier permitting

18.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.012 lb/hr (Nov 2013); Value in EI spreadsheet = 0.01218 lb/hr (Nov 2013)
Value in modeling report = 0.005 lb/hr (Sept 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr increase (Nov 2013); Value in EI spreadsheet = 0.01218 lb/hr (Nov 2013)

Existing Emissions for Source(s) = 0.006032 lb/hr; Future Emissions for Source(s) = 0.01218 lb/hr
Change in Emissions = 0.01218 – 0.006032 = 0.006148 lb/hr

DEQ PM_{10} modeling of facility in January 2012 = 0.006032 lb/hr. 2005 modeled emissions from CY26 = 0.00597 lb/hr and statement of basis lists throughput at 128 ton/yr and 0.036 ton/hr. emissions factor of 0.16 lb/ton was used. Current statement of basis lists throughput at 296 ton/yr.

18.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.0060 lb/hr (Nov 2013); Value in EI spreadsheet = 0.006090 lb/hr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr increase (Nov 2013); Emissions in Sept 8, 2013 modeling report = 0.0 lb/hr

Existing Emissions for Source(s) = 0.003016 lb/hr; Future Emissions for Source(s) = 0.006090 lb/hr
Change in Emissions = 0.006090 – 0.003016 = 0.003074 lb/hr

See explanation above for PM10 and use 50% PM10 = PM2.5. 0.006032 lb/hr (0.5) = 0.003016 lb/hr

18.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Annual NAAQS analyses not required Value in EI spreadsheet = 0.01630 ton/yr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr (Nov 2013); Emissions in Sept 8, 2013 modeling report = 0.002 ton/yr

Existing Emissions for Source(s) = 0.01218 ton/yr; Future Emissions for Source(s) = 0.01630 ton/yr
Change in Emissions = 0.01630 – 0.01218 = 0.004120 ton/yr → 0.0009406 lb/hr

October 2012 application states annual PM10 emissions at 0.024 ton/yr. If 50% PM10 = PM2.5 then PM2.5 = 0.012 ton/yr. 2005 statement of basis lists PM10 = 0.024 ton/yr. EI spreadsheet for current application lists existing emissions at 0.01218 ton/yr.

19.0 IFGCY4

Source CY2A and CY2B in EI and was CY27a and CY27b in earlier permitting.

19.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.073 lb/hr (Nov 2013); Value in EI spreadsheet = 0.07335 lb/hr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr increase (Nov 2013); Emissions in Sept 8, 2013 modeling report = 0.037 lb/hr

Existing Emissions for Source(s) = 0.03603 lb/hr; Future Emissions for Source(s) = 0.07335 lb/hr
Change in Emissions = 0.07335 – 0.03603 = 0.03732 lb/hr

DEQ PM_{10} modeling of facility in January 2012 = 0.03603 lb/hr. 2005 modeled emissions = 0.0179 lb/hr. It appears this value should have been doubled because of CY2A and CY2B. throughput 2 X 188 ton/yr, 2 X 0.023 ton/hr. EI factor = 0.78 lb/ton. Current application lists throughput at 376 ton/yr. Hourly throughput = 376 ton/yr / 4000 hr/yr = 0.0940 ton/hr.

19.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.037 lb/hr (Nov 2013); Value in EI spreadsheet = 0.03667 lb/hr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr (Nov 2013); Emissions in Sept 8, 2013 modeling report = 0.0 lb/hr

Existing Emissions for Source(s) = 0.01802 lb/hr; Future Emissions for Source(s) = 0.03667 lb/hr
Change in Emissions = 0.03667 – 0.01802 = 0.01865 lb/hr

See explanation above for PM10 and use 50% PM10 = PM2.5. Past allowable = 0.03603 lb/hr PM10 (0.5 PM2.5/PM10) = 0.01802 lb/hr.

19.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Annual NAAQS analyses not required Value in EI spreadsheet = 0.09812 ton/yr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr (Nov 2013); Emissions in Sept 8, 2013 modeling report = 0.014 ton/yr

Existing Emissions for Source(s) = 0.07335 ton/yr; Future Emissions for Source(s) = 0.09812 ton/yr
Change in Emissions = 0.09812 – 0.07335 = 0.02477 ton/yr → 0.005655 lb/hr

2005 statement of basis 2 X 0.073 ton/yr PM10 = 0.146 ton/yr PM10. If 50% PM10 = PM2.5, then PM2.5 = 0.073 ton/yr. EI spreadsheet for current application lists existing emissions at 0.07335 ton/yr.

20.0 IFGCY5

Source CY5 was PNP782 in earlier permitting. Was previously modeled with an exit velocity of 7.3 m/sec. New exit velocity is 0.001 m/sec to account for capped/horizontal release.

20.1 24-Hour PM_{10}

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.34 lb/hr (Nov 2013); Value in EI spreadsheet = 0.3400 lb/hr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr increase;

Existing Emissions for Source(s) = 1.375 lb/hr; Future Emissions for Source(s) = 0.34 lb/hr
Change in Emissions = 0.34 – 1.375 = -1.035 lb/hr

DEQ PM_{10} modeling of facility in January 2012 = 1.375 lb/hr. 2005 modeled emissions = 11.0 lb/hr. Because of the difference in release parameters, existing was modeled at -1.375 lb/hr and new at 0.34 lb/hr

20.2 24-Hour $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Value in Submitted Modeling = 0.170 lb/hr (Nov 2013); Value in EI spreadsheet = 0.170 lb/hr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0 lb/hr;

Existing Emissions for Source(s) = 0.170 lb/hr; Future Emissions for Source(s) = 0.170 lb/hr
Change in Emissions = 0.170 – 0.170 = 0.0 lb/hr

See explanation above for PM10 and use 50% PM10 = PM2.5. 0.34 lb/hr PM10 (0.5 PM2.5/PM10) = 0.170 lb/hr

20.3 Annual $PM_{2.5}$

Potential/Allowable Emissions from Source(s)

Annual NAAQS analyses not required Value in EI spreadsheet = 0.425 ton/yr → 0.09703 lb/hr (Nov 2013)

Change in Potential/Allowable for SIL Analysis

Value in Submitted Modeling = 0.0194 lb/hr (Nov 2013); Value in EI spreadsheet = 0.340 ton/yr for existing

Existing Emissions for Source(s) = 0.340 ton/yr; Future Emissions for Source(s) = 0.4250 ton/yr
Change in Emissions = 0.4250 – 0.34 = 0.0850 ton/yr → 0.01941 lb/hr

Application for October 2012 PTC = 0.62 ton/yr