



SYNTHETIC MINOR ORDER PRELIMINARY DETERMINATION

Olympic Region Clean Air Agency

Issued to:	International Paper Olympia	County:	67
Location:	7727 Union Mills RD SE	Source:	824
	Olympia, WA 98503	RC:	RC1
Application #	21SMO1535	File:	849
Prepared on:	February 4, 2022		

1. Background

International Paper is an existing containerboard facility in Lacey that has been registered with the Olympic Region Clean Air Agency (ORCAA) since 1992. Air pollution emitted by the facility includes combustion emissions from a gas fired boiler, particulate emissions from container board fabrication operations and volatile organic compound (VOC) emissions from printing operations. International Paper maintains emissions below “Major Source” emissions thresholds in accordance with voluntary, plant-wide limits on emissions as outlined by their synthetic minor order 06SMO472. As a result of these voluntary limits, ORCAA regulates International Paper as a “Minor Source” of air pollution. International Paper is requesting a modification to their voluntary synthetic minor order 06SMO472. The requested modification is to update emission factors for the corrugator and the trim system cyclone handling waste paper emissions, and to add the starch silo as a source of PM emissions.

The International Paper containerboard facility in Lacey was originally owned by the Weyerhaeuser Company, and has been registered as an air contaminant source with ORCAA since 1992. In 2006, International Paper requested and ORCAA approved voluntary limits on plant-wide emissions to effectively limit International Paper’s potential emissions below the “Major Source” emissions thresholds. This action established the emissions limits requested by International Paper as permit limits that can be enforced by ORCAA, thus making International Paper an effective “Minor Source” of emissions. Facilities operating under such limits are referred to as “Synthetic Minor” sources of air pollution. The consequences of these actions are that International Paper avoids being regulated as a major source and is not subject to the federal Air Operating Permit program under Title V of the Federal Clean Air Act.

International Paper received ORCAA’s approval for several different replacements and other modifications at the facility since initially registering with ORCAA. The following is a history of permits approved by ORCAA for International Paper:

Summary of Previous Construction Permits

- 20NOC1436: Application requesting approval to modify the ‘grandfathered’ corrugator machine by installing a new stacker and conveyor system. Equipment modification resulted in debottlenecking and increasing associated corrugator production PTE by 10%.
- 15NOC1110: Application requesting approval to replace a ‘grandfathered’ 5164 Flexo Folder/ Gluer with a Latitude 3 Color Flexo Folder/ Gluer machine.
- 13NOC979: Application requesting approval to replace Bobst Diecutter 2524, 4-color machine with an Apstar H61632 Rotary Diecutter.
- 12NOC909: Approval to install a Marquip 5144 Flexo Folder/ Gluer, four-color printing press.
- 09NOC718: Approval to install a Bobst SPO 1600 die cutter and Flexo Folder/ Gluer 1600 four-color printing press.
- 06SMO472: Established voluntary limits to be considered a synthetic minor.
- 98NOC024: Approval to replace two 1961 Cleaver Brooks firetube boilers with one Cleaver Brooks firetube boiler that runs on natural gas and propane.



Figure 1: “International Paper.” Image taken from Google Maps. Imagery ©2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021

2. Synthetic Minor Order

A “Synthetic Minor” source is any source where potential to emit (PTE) is greater than the major source thresholds and requires a voluntary limit on emissions to be considered a minor source: A minor source where PTE is less than 100 tons per year (tpy) of any criteria pollutant, 10 tpy of any Hazardous Air Pollutant (HAP), and 25 tpy of total HAPs. A voluntary limit must be federally enforceable to establish a source as a synthetic minor source and is accomplished through a conditional Synthetic Minor Order (SMO) issued under ORCAA Rule 6.1.12 and WAC 173-400-091. A SMO is issued when a stationary source is a major source based on PTE, but the owner or operator wishes to be regulated as a minor source by maintaining actual emissions below the major source thresholds.

To ensure International Paper’s emissions are less than the major source thresholds, International Paper requested the following voluntary emission limits per 12-consecutive month period.

Pollutant	Emission Limit (ton/12-mo)
Particulate Matter (PM)	20.0
Sulfur Dioxide (SO ₂)	10.0
Nitrogen Oxides (NO _x)	20.0
Carbon Monoxide (CO)	20.0
Volatile Organic Compounds (VOC)	20.0
Total Hazardous Air Pollutants (HAPs)	20.0
Individual Hazardous Air Pollutants (HAP)	9.0

The request triggers ORCAA Rule 6.1.12, which requires the following:

1. Public noticing per ORCAA 6.1.3;
2. Enforceable emission limits on PM, SO₂, NO_x, CO, VOC, HAP, and any individual HAP applying to any 12-consecutive month period;
3. Continuous monitoring and compliance with the limit;
4. Annual Compliance certification by a Responsible Official; and,
5. Compliance assurance certifications forwarded to both EPA Region 10 and ORCAA.

3. Emission Units

The stationary emission units currently located at International Paper are listed below in Table 1. Additionally, it is important to note that the Conditions of Approval from the associated Notices of Construction (NOC) for each emission unit listed below will still be in effect after issuance of the SMO (#21SMO1535).

Table 1: Emission Units

Emission Unit	Associated NOC
Corrugator	20NOC1436
Waste Scrap Paper Cyclone	None
Latitude 3 color Flexo Folder/Gluer	15NOC1110

Flexo 1600 Four-color Printing Press	09NOC718
Marquip Flexo 5144 Flexo folder gluer	12NOC909
Apstar H61632 Rotary Die Cutter	13NOC979
1600 Bobst Die Cutter	09NOC718
Steam Boiler	98NOC024
Starch Silo	None

4. Potential to Emit

Pollutants that are emitted by International Paper include emissions from combustion of natural gas and propane including criteria pollutants, greenhouse gases, and hazardous air pollutants. Facility-wide Potential to Emit (PTE) was conservatively calculated by International Paper staff in 2006 (owned and operated by Weyerhaeuser Company at the time) to document and confirm International Paper as a minor source for CO, PM, SO₂, VOC, Total HAP and Individual HAP. ORCAA staff conservatively calculated facility-wide PTE using the same methodology and including equipment installed since 2006. PTE is defined as the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit an air pollutant (including air pollution control equipment, restrictions on hours of operation or on the type or amount of material combusted, stored, or processed) may be treated as part of its operational design, provided the limitation is enforceable by ORCAA.

PTE for all equipment was estimated by assuming maximum production rate for each unit and 8760 hours of operation per year. For the boiler, the highest emission factor for either propane or natural gas from EPA’s *Compilation of Air Pollutant Emissions Factors (AP-42)* Section 1.4 was used for each pollutant. For the starch silo, the uncontrolled particulate emission factors for grain elevators-straight truck from AP-42 Table 9.9.1-1 were used. Emissions for the folder gluers, printing presses, and die cutters were based on material balance for materials used.

For the waste scrap paper cyclone the 0.1 grain/dscf limit in WAC 173-400-060 was used for determining Title V PTE applicability and establishing 12-month SMO limits for PM, PM10 and PM2.5. For the purpose of demonstrating compliance with these SMO limits, PM, PM10, and PM2.5 factors derived from the 2019 study by NCASI (National Council for Air and Stream Improvement), Plant E were used. [*Interim Report on Particulate Testing of Trim and Scrap Handling Cyclones at Corrugating/Converting Plants D & E, June 2020*]. The NCASI report provides emissions factors from emission sampling conducted using EPA Method 201A and 202 in a section of straight ductwork at a location downstream of a trim cyclone and upstream of a baghouse. Emission factors from Plant E are most representative of standalone cyclone operations because tests were conducted without dust recirculation from the baghouse. (21SMO1535 application)

For determining PTE of the corrugator, the highest emission factor for single-wall, double-wall, or triple-wall corrugation was used for each pollutant. The corrugator VOC emission factors originated from stack tests at similar Weyerhaeuser facilities and was submitted in the 2006

SMO permit application. The Corrugator PM emission factors includes secondary PM formed from VOC emissions. An estimated 75% of VOC emissions by mass was assumed to form PM in the 2006 SMO permit. This same assumption is carried on in for this SMO. Triple wall HAP emission factors came from the National Council for Air & Stream Improvement, Inc. (NCASI), "NCASI Corrugator Sheet Plant testing for NMTOG and Select HAPs - May 2018 Update." May 17, 2018. Single-wall and double-wall Acetaldehyde, Acrolein, Formaldehyde, Methanol, and Propionaldehyde EF's provided by International Paper in their 21SMO1535 application. The emission factors were calculated by International Paper from the NCASI data. ORCAA reviewed International Paper's calculations and concludes they better represent International Paper's emissions than the emission factors calculated by NCASI using the same data because of the conservative assumptions used by International Paper like averaging non-detect values at the detection limit.

Table 3: Facility-wide PTE

Emission Unit	PM (tpy)	SO2 (tpy)	NOx (tpy)	CO (tpy)	VOC (tpy)	Total HAP (tpy)
Corrugator	12.6				12.4	7.0
Waste Scrap Paper Cyclone	37.5					
Latitude 3 color Flexo Folder/Gluer					104	6.8
Flexo 1600 four-color printing press					54.5	3.6
Marquip Flexo 5144 Flexo folder gluer					105.6	7
Apstar H61632 Rotary Die cutter					96.2	7.7
1600 Bobst Die Cutter					13.0	1.0
Steam Boiler	0.5	0.04	12.5	4.9	0.3	0
Starch Silo	0.1					
FACILITY TOTAL	50.7	0.04	12.5	4.9	386.0	33.1

5. SEPA Review

Enacted by the Washington Legislature in 1971, the State Environmental Policy Act (SEPA) helps state and local agencies in Washington identify possible environmental impacts that could result from governmental decisions such as issuing permits for private projects, adopting regulations, policies, or plans, or constructing public facilities such as new schools or highways. The SEPA review process helps agency decision-makers, applicants, and the public understand how the project proposal will affect the environment. In this case, ORCAA staff determined the project is exempt from SEPA requirements per WAC 197-11-800(13)(i) since it involves "the renewal or reissuance of a license regulating any present activity or structure so long as no material changes are involved."

6. Title V Air Operating Permit (AOP)

The State of Washington program pursuant to Title V of the federal Clean Air Act is governed under Chapter 173-401 WAC, the Washington Air Operating Permit Program. Chapter 173-401

WAC requires existing major stationary sources of air pollution to operate in compliance with an approved Air Operating Permit (AOP). An AOP (also known as a “Title V Permit” or “Part 70 Permit”) combines into one document, all air-related requirements for operation of a “Major Source” of air pollution. Major Sources of air pollution are those that emit, or have the potential to emit, 100 tons per year or more of any criteria air pollutant, 10 tons per year or more of a hazardous air pollutant or 25 tons per year or more of combined hazardous air pollutants.

Review and Determination of AOP Applicability

ORCAA staff determined the Potential to Emit (PTE) exceeds major source thresholds: Facility-wide Potential to Emit (PTE) for VOC, Total HAP, and Individual HAP exceeds the regulatory threshold requiring an Air Operating Permit. **However, ORCAA staff determined an AOP is not required since the applicant requested a voluntary limit on emissions making them a synthetic minor for VOC, Total HAP, and Individual HAP.** Additionally, PTE was conservatively calculated by ORCAA staff to document International Paper as a natural minor source for CO, PM, SO₂, and NO_x (see Table 3 above).

7. Public Involvement

A public notice of ORCAA’s receipt of the NOC application, pursuant to ORCAA 6.1.3(a), was issued on February 4, 2022. **<Comments/No comments were received during the comment period.>**

ORCAA’s Preliminary Recommendation was noticed for a 30-day public comment period in accordance with ORCAA Rule 6.1.3(c). The notice was posted on ORCAA’s website on February 4, 2022 and in The Olympian on February 8, 2022. ORCAA also submitted notice to the Washington State Permit Register and notified affected states, our interested parties list, and EPA Region 10. **<ORCAA did/did not receive any written comments on the proposal.>**

Per WAC 173-401-300(7)(d), ORCAA will notice the issuance of any order or permit which limits a source’s potential to emit to be published in the permit register pursuant to WAC 173-401-805(2)(e).

8. Conditions of Approval

The following conditions of approval are necessary for establishing and for monitoring the compliance of the federally enforceable voluntary limit requested by International Paper through this permitting action 21SMO1535:

- 1. Emission Limits:** Facility-wide emissions during any 12-consecutive month period must not exceed the amounts in the following table, to be calculated using methods stated in Condition 3 below, or other methods approved by ORCAA:

Pollutant	Emission Limit (ton/12-mo)
Particulate Matter (PM)	20.0

Sulfur Dioxide (SO ₂)	10.0
Nitrogen Oxides (NO _x)	20.0
Carbon Monoxide (CO)	20.0
Volatile Organic Compounds (VOC)	20.0
Total Hazardous Air Pollutants (HAPs)	20.0
Individual Hazardous Air Pollutants (HAP)	9.0

[Regulatory Basis: WAC 173-400-091; ORCAA 6.1.12]

- 1) **RECORDKEEPING:** The following is required:
 - a) The information listed below and any other data used in performing the emission calculations required under Condition 3 must be compiled monthly and retained for at least five years:
 - i) The quantity of corrugated board produced, in thousands of square feet per month (Msf/mo).
 - ii) The quantity of scrap paper processed, in tons per month (ton/mo).
 - iii) The amount of fuel burned in the boiler:
 - (1) Natural gas, expressed in millions of cubic feet per month (MMft³/mo).
 - (2) Propane, expressed in thousands of gallons (1000 gal).
 - iv) The amount of VOC and HAP-containing materials purchased in gallons or pounds per month (lb/mo) based on material purchase invoices and corresponding Safety Data Sheets (SDS).
 - v) Certificates of Analysis or Safety Data Sheets (SDS) for VOC and HAP-containing materials used at the facility.
 - vi) Actual, cumulative amount of VOC and HAP-containing materials applied or used by the owner or operator during the previous month and 12-consecutive month period in terms of gallons or pounds;
 - b) The facility owner or a designated facility manager shall certify any records submitted to ORCAA to demonstrate compliance with this Approval Order as true and accurate.
 - c) Emissions from small quantity product uses, for example janitorial or office supplies, are not required to be accounted for in emissions calculations and are not subject to these recordkeeping requirements.

2. Calculating Emissions:

- a. A. Unless otherwise required by Condition #3, the owner or operator must calculate facility-wide actual emissions on a monthly basis as follows:
 - i. The quantity of corrugated board produced, in thousands of square feet per month (Msf/mo).
 - ii. The quantity of scrap paper processed, in tons per month (ton/mo).
 - iii. The amount of fuel burned in the boiler:
 1. Natural gas, expressed in millions of cubic feet per month (MMft³/mo).
 2. Propane, expressed in thousands of gallons (1000 gal/mo).

- iv. The amount of VOC and HAP-containing materials associated with printing or gluing operations purchased in gallons or pounds per month (lb/mo) based on material purchase invoices and corresponding Safety Data Sheets (SDS).
 - v. Certificates of Analysis or Safety Data Sheets (SDS) for VOC and HAP-containing materials used at the facility associated with printing or gluing operations.
 - vi. Actual, cumulative amount of VOC and HAP-containing materials associated with printing or gluing operations applied or used by the owner or operator during the previous month and 12-consecutive month period in terms of gallons or pounds; and,
 - vii. Starch silo throughput (in tons of starch/month).
- b. The facility owner or a designated facility manager must certify any records submitted to ORCAA to demonstrate compliance with this Approval Order as true and accurate.
 - c. Emissions from small quantity product uses, for example janitorial or office supplies, are not required to be accounted for in emissions calculations and are not subject to these recordkeeping requirements.

[Regulatory Basis: WAC 173-400-091; ORCAA 6.1.12]

3. Emission Calculations: The following emission factors and methods must be used to calculate actual emissions on a monthly basis to demonstrate compliance with the emission limits established under Condition 1 above:

Emission Unit/Pollutant	Emission Factor/Method		
Corrugator	Single Wall lb/ thousand square feet (MSF)	Double Wall lb/ thousand square feet (MSF)	Triple Wall lb/ thousand square feet (MSF)
PM	0.0081	0.0081	0.0081
PM10/PM2.5	0.006	0.006	0.006
VOC	0.008	0.008	0.008
Acetaldehyde	0.00017	0.00022	0.000225
Acrolein	0.000082	0.000083	0.000006
Formaldehyde	0.00012	0.00016	0.000108
Methanol	0.002	0.0033	0.0039
Propionaldehyde	0.000065	0.00013	0.000002
Scrap Paper Collection	Emission Factor		
PM	2.1 lb/ton of scrap		
PM10	0.36 lb/ton of scrap		
PM2.5	0.006 lb/ton of scrap		

Printing Operations: VOC, Individual HAPs, Total HAPs	Material balance	
Starch Silo	Emission Factor	
PM	0.0005 lb/ton of starch	
PM10	0.0003 lb/ton of starch	
PM2.5	0.0001 lb/ton of starch	
Boiler	When burning:	
	Natural Gas	Propane
PM/PM10/PM2.5	7.6 lb/MMft ³	0.6 lb/1000 gal
SO2	0.6 lb/MMft ³	0.016 lb/1000
NOx	100 lb/MMft ³	19 lb/1000
CO	84 lb/MMft ³	3.2 lb/1000
VOC	5.5 lb/MMft ³	0.5 lb/1000

[Regulatory Basis: WAC 173-400-091; ORCAA 6.1.12]

- 4. Reporting- Annual Inventory Report.** No later than March 1st of each year, the Permittee must submit an inventory of the actual amount of pollutants emitted during the previous calendar year. The inventory must be submitted to ORCAA on standard inventory reporting forms and be accompanied by associated calculations, data or other information used in calculating the reported emissions. A request for an extension may be considered if a request from the Responsible Official is received by ORCAA prior to February 25th. The request must include a statement of the unexpected circumstances that occurred, how this affected the Permittee's ability to submit the report on time, and the number of additional days needed.

[Regulatory Basis: WAC 173-400-105(1), ORCAA 4.3(c); ORCAA 8.11]

- 5. Excess Emissions Reporting:** The permittee must notify ORCAA within 30 days of discovering an exceedance of any emission limit outlined in Condition #1.

[Regulatory Basis: ORCAA 6.1.12(c)]

ATTACHMENTS

- APPLICABLE AIR REGULATIONS AND STANDARDS
- LIST OF ABBREVIATIONS AND ACRONYMS
- EMISSION CALCULATIONS
- AMBIENT AIR QUALITY ANALYSIS
- AIR TOXICS ANALYSIS
- OTHER SUPPORTING INFORMATION

Attachment 1

Abbreviations and Acronyms

Abbreviations and Acronyms

AOP	Air Operating Permit
AP-42	Compilation of Emission Factors, AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources – Published by EPA
ASIL	Acceptable Source Impact Level pursuant to Chapter 173-460 WAC
BACT	Best Available Control Technology
CAM	Compliance assurance monitoring (40 CFR 64)
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	United States Environmental Protection Agency
FCAA	Federal Clean Air Act
GACT	Generally Achievable Control Technology
HAP	Hazardous air pollutant listed pursuant to Section 112 FCAA
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standard
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NOC	Notice of Construction application
NO _x	Nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
ORCAA	Olympic Region Clean Air Agency
PM	Total particulate matter (includes both filterable particulate matter measured by EPA Method 5 and condensable particulate matter measured by EPA Method 202)
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
PM _{2.5}	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LEAR Clearinghouse
RCW	Revised Code of Washington
SO ₂	Sulfur Dioxide
SQER	Small Quantity Emission Rate listed in Chapter 173-460 WAC
TAP	Toxic Air Pollutant pursuant to Chapter 173-460 WAC
T-BACT	Best Available Control Technology for toxic air pollutants
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

Units of Measurement

'	minute (measurement of angle)
"	second (measurement of angle)
°	degree
acfm	actual cubic feet per minute
atm	atmosphere
Bhp	Brake horsepower
Btu	British thermal units
cfm	cubic feet per minute
dscfm	dry standard cubic feet per minute
°F	degree Fahrenheit
ft	feet
g	grams
g/s	grams per second
gal	gallon
gr	grain
hp	horsepower
hr	hour
in	inches
K	degree Kelvin
kg	kilograms
km	kilometers
kW	kilowatt
L	liter
lb	pounds
µg	micrograms
m	meters
M	thousand
Mbf	thousand board feet
min	minute
MM	million
MMbf	million board feet
MMBtu	million British thermal units
mmHg	millimeters of mercury
mph	miles per hour
MW	megawatts
ppb	parts per billion
ppm	parts per million
ppmvd	parts per million, dry volume
psi	pounds per square inch
s	second
scfm	standard cubic feet per minute
tpy	tons per year

