YAKIMA REGIONAL CLEAN AIR AGENCY

Order of Approval Permit No NSRP-18-KS-17

New Source Review (NSR) Order of Approval for KapStone Container Corporation for a Baghouse (OhioBlowPipe) with an Airflow Capacity of 67,300 Actual Cubic Feet Per Minute (ACFM)

IN THE MATTER OF approving a project which establishes an increase in air contaminants at KapStone Container Corporation, at Yakima, WA. THIS ORDER OF APPROVAL IS HEREBY ISSUED TO:

Applicant/Permittee: KapStone Container Corporation
Cardboard Box Plant
Responsible Official: Anthony L. Garcia

Located at: 2001 Longfibre Ave,
Yakima, WA 98903

Contact: KapStone Container Corporation
Creighton O. Shaul
2001 Longfibre Ave, P.O. Box 9060
Yakima, WA 98903
(509)-248-4241

IN COMPLIANCE WITH THE PROVISIONS OF THE STATE OF WASHINGTON CLEAN AIR ACT (Revised Code of Washington (RCW)) CHAPTER 70.94.152, WASHINGTON ADMINISTRATIVE CODE (WAC) 173-400-110:

ISSUE DATE: January 25, 2018

THIS ORDER OF APPROVAL PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:

Construction and installation of the equipment must be conducted in compliance with all data and specifications submitted with the New Source Review (NSR) application under which this Order of Approval (Order/Permit) is issued unless otherwise specified herein. The conditions and limitations of this NSR Order are attached as follows:

1.0 FINDING OF FACTS / DESCRIPTION OF THE SOURCE

1.1 KapStone Container Corporation hereafter, referred to as the Permittee, KS, Facility or Source is the owner and operator of a corrugated packaging plant, located at 2001 Longfibre Avenue, Yakima, WA.

1.2 The Permittee submitted a New Source Review (NSR) application for installation of a baghouse with a capacity of 68,000 actual cubic feet per minute of airflow. The baghouse will be installed after the current cyclone which has an actual airflow capacity of 67,300 ACFM. The baghouse and the cyclone are used to control air emissions from the two corrugating lines, four flexo folder gluer lines, three rotary die cutters and the hogger line as shown in Figures 1 and 2 below (the only difference is that the baghouse stack configuration will vent vertically) which also indicates the airflow from each line.

1.3 The specifications of the baghouse are shown in Figure 3 and Table 1 below. These specification and drawing shall be part of this New Source Review (NSR) Order of Approval (Order/Permit) as provided by the Permittee. Air emissions from this installation passed the air dispersion modeling at the boundary line. Stacks are expected to exhaust vertically not horizontally. It is also known as good engineering practice, vertical stacks have a better atmospheric dispersion conditions in contrast to horizontal one. The Facility may vent back (from baghouse outlet) back inside the facility, if desired.

1.4 Air emissions from this installation are mainly in the form of small Particulate Matters (PM_{10} and $PM_{2.5}$) in accordance with the Federal Clean Air Act (FCAA) or Washington Administrative Code (WAC) 173-400, respectively.

1.5 City of Yakima exempted this project from the State Environment Policy Act (SEPA) review process as signed by the City dated May 6, 2016.

1.6 The most recent issued Orders/Permits to the Facility and are related to this installation are as follows: NSRP-07-KCC-14, NSRP-03-KS-15, and NSRP-07-KS-16 which were issued May 2, 2014, April 30, 2015, and August 22, 2016, respectively. Order number NSRP-07-KCC-14 is for a new rotary die cutter and a shredder. Order number NSRP-03-KS-15 issued for a new flexo folder gluer. Order number NSRP-07-KS-16 is for Corrugator 101 dry end upgrade. In addition, the Facility is a Synthetic Minor Source.

2.0 DETERMINATIONS

In relation to the above installation, YRCAA determines that the Facility shall comply with all federal, state and local laws and regulations including but not limited to the following determination:

2.1 The Source is located in an area that is in attainment with all criteria pollutants and is under a limited maintenance plan for PM_{10};

2.2 The Facility is classified as a Synthetic Minor Source;

2.3 This modification is subject to the NSR Requirements of WAC 173-400-110 and WAC 173-460-040;

2.4 In addition to the limits indicated in this Order, the Facility is subject to WAC 173-400-040; and

2.5 The Facility is subject to WAC 173-400-099 – Registration Program and YRCAA Regulation 1.

THEREFORE, it is hereby ordered that the equipment as described above, in the NSR application, and in the detailed plans, specifications and other information submitted in reference thereto, is **APPROVED** for operation, **PROVIDED** the specification submitted with the application and the following conditions are met:

3.0 OPERATING APPROVAL CONDITIONS

3.1 This Order is for the baghouse manufactured by Ohio Blow Pipe at Kapstone Container Corporation, located at 2001 Longfibre Ave. in Yakima, WA. in accordance with the plan and specifications submitted with the NSR application to YRCAA and specified in Table 1 of this Order.

3.2 Pursuant to RCW 70.94.152 and WAC 173-400-113, Best Available Control Technology (BACT) shall be satisfied for any proposed new facility or modified air emission source to control air emissions. YRCAA finds BACT to be satisfied as follows:

3.2.1 Installation of the baghouse as specified in the drawing and specification submitted to YRCAA with the application and downstream of the current cyclone. YRCAA recommends stacks to be as shown in Appendix B based on good engineering practice for better dispersion;

3.2.2 The Operation and Maintenance (O&M) plan for the Facility shall be updated to include this modification as specified in this Order and the manufacturer's recommended standards;

3.2.3 The baghouse must be operated as per manufacturer's specifications and certification;

3.2.4 The baghouse efficiency was submitted by the manufacturer (Ohio Blow Pipe) through the NSR application to guarantee at minimum 99.9% efficiency for $PM_{2.5}$;

3.2.5 Particulate emissions from the baghouse shall be less than or equal to 0.002 grains per dry standard cubic foot (gr/dscf) and opacity limit of five percent (5%) based on EPA 40 CFR Part 60 (Appendices) -Standards of Performance for New Stationary Sources- Appendix A-Method 9; and

3.2.6 Air emissions from this unit shall meet the Acceptable Source Impacts Level (ASIL) of WAC 173-460 and the National Ambient Air Standards (NAAQs) of 40 CFR 50 as specified in this Order all the times.

3.3 An Operation and Maintenance (O&M) plan for this installation and the site-specific shall be updated and shall be part of the BACT for the installation of this baghouse. The O&M plan shall contain at least four sections: the general information, operation plan (i.e., key operating parameters, etc.), maintenance plan, and any other additional information. If an O&M is not developed yet, a plan must be completed within 90 days of the issuance of this Order and shall also include at minimum, but not be limited to the following:

3.3.1 Scheduled inspection and maintenance check;

3.3.2 Monitor the physical conditions of the cyclone, baghouse, and log any repairs and replacement at least monthly; and

3.3.3 Specification of the pressure drop gauges of the baghouse and cyclone;

3.4 Install and maintain gauges to measure the appropriate pressure drop across the exhaust filters of the baghouse and cyclone according to the manufacturer or industry specifications or good engineering practice standards.

3.5 The Permittee must check and log the pressure drop reading from the installed gauge of the baghouse weekly while in operation.

3.6 The range of the pressure drop of the baghouse while in operation shall not be exceeded based on manufacturer recommendation.

3.7 The air volume to the baghouse shall not exceed the manufacture's specification.

3.8 Any of the two corrugating lines, four flexo folder gluer lines, three rotary die cutters and the hogger line shall not operate unless, the cyclone and the baghouse, as control equipment, are operating unless the conditions meets the unavoidable excess emissions pursuant to WAC 173-400-107 and 109;

3.9 If and when the cyclone and the baghouse cannot run under the unavoidable conditions, the Permittee shall notify the agency as soon as possible, but no later than 48 hours and shall demonstrate to the agency that excess emissions are unavoidable for that event as specified in WAC 173-400-107 and 109;

3.10 In accordance with WAC 173-400-075 the permitting authority may require source test to determine compliance with the emissions limits of this Order. Source test may be conducted every five years from the date of issuance this Order or at the initial startup or when deemed necessary to determine compliance with the emission limits. A source test for fine particulate matter ($PM_{2.5}$) for the baghouse when required, shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 5 to demonstrate compliance pursuant to WAC 173-400-105(4). The source test protocol shall be submitted to YRCAA at least 30 days prior to the source test date. Results of the source test must be submitted to the YRCAA within 30 days after the source test date.

3.11 The Permittee must conduct visible emission inspections of the baghouse exhaust at least once per quarter. Inspections are to be performed while the facility is in operation during daylight hours. If during a the quarterly visible emissions inspection, visible emissions other than combined water (water vapor) are observed from the unit or activity, the Permittee must as soon as practicable but within 24 hours of the initial observation do the following:

3.11.1 Take corrective action, which may include shutting down the unit or activity until it can be repaired, and until there are no visible emissions (or until the unit or activity is demonstrated to be in compliance with all applicable opacity limitations in the permit); or

3.11.2 Alternatively, Conduct opacity reading using 40 CFR Part 60 Appendix A, Method 9 within 72 hours until the unit is within the specified limit. All observations using the opacity reference test method including the monthly inspection must be kept on-site and made available to YRCAA staff during inspection or upon request. If no certified opacity reader is available on site, YRCAA should be notified and the source will be advised accordingly.

3.11 Opacity as measured by 40 CFR Part 60, Appendix A, Method 9 must not exceed five percent (5%).

3.12 The O&M plan and all records including this Order and other Permits must be maintained at the Facility's site or accessible place and be made available to the Air Pollution Control Officer (APCO) of the YRCAA or his designated staff during inspections or upon request in accordance with RCW 70.94.200 and YRCAA regulation 1.

3.13 There must be no fallout or any fugitive emissions from the baghouse and the Facility beyond the property boundary in a quantity that interferes unreasonably with the use and enjoyment of the property owner upon which the material is deposited, or is detrimental to the health, safety or welfare of any person, or causes damage to any property or business.

3.14 This Order of Approval authorizes the installation of the following equipment/units:

Table 1: Authorized equipment list

Unit No	Unit Type	# of Unit	Manufacturer and Model Number	Capacity	Efficiency
1	Baghouse	1	Ohio Blow Pipe Gold Series 72	68,000 cfm	99.9% $PM_{2.5}$

4.0 GENERAL APPROVAL CONDITIONS

4.1 Installation of the baghouse must comply with all applicable Federal, State, and Local laws and regulations, including, but not limited to RCW 70.94 (Washington Clean Air Act), WAC 173-400 (General Regulations for Air Pollution Sources), and YRCAA Regulation 1.

4.2 All plans, specifications, other information and any further authorizations or approvals or denials in relation to this project, shall be incorporated herein and made a part of YRCAA file.

4.3 Except as specified in this Order, any new or additional construction, modifications or alterations not covered in this review process which will affect air emissions are subject to a NSR permitting process before it takes place as required by RCW 70.94.152, WAC 173-400-110 and WAC 173-460-040.

4.4 The APCO of the YRCAA or his authorized staff shall be allowed to inspect the Facility site at reasonable times to inspect equipment and/or records specific to the control, recovery, or release of air contaminants into the atmosphere, in accordance with RCW 70.94.200 and YRCAA Regulation 1.

4.5 Nothing in this approval shall be construed as preventing compliance with any requirement(s) of law including those imposed pursuant to the federal and state Clean Air Acts (CAA), and rules and regulations thereunder. Any violation(s) of such rules and regulations are subject to enforcement and penalty action in accordance with RCW 70.94.430 and YRCAA Regulation 1, Article 5.

4.6 This Order may be modified, suspended or revoked in whole or part for cause including, but not limited to, the following:

4.6.1 Violation of any terms or conditions of this authorization; or

4.6.2 If this authorization has been obtained by misrepresentation or failure to disclose fully all relevant facts.

4.7 The provisions of this authorization are severable and, if any provision or application of any provision of this authorization to any circumstance is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

4.8 Deviations from these conditions are violations subject to penalties in accordance with RCW 70.94.430 and 431, WAC 173-400-230 and YRCAA Regulation 1, Article 5, Section 5.02.

4.9 The requirements of this Order apply to the Facility owner and/or operator(s) and any contractor or subcontractor performing any activity authorized under this Order. Any person(s), including contractor(s) and subcontractor(s), not in compliance with the applicable Order requirements are in violation of State and Local laws and subject to appropriate civil and criminal penalties. The Facility owner and/or operator, and all contractor(s) or subcontractor(s) are liable for the actions and violations of their employee(s). Any violation committed by a contractor or subcontractor shall be considered a violation by the Facility owner and/or operator, and is also a violation by the contractor and/or any subcontractor(s).

4.10 Applicable laws and regulations may be superseded or revised without notice. It is the Permittee's responsibility to stay current with, laws, rules and regulations governing their business and therefore is expected to comply with all new rules and regulations immediately upon their effective date. Rules and Regulations updates will be incorporated into existing permits or upon renewal of said permits.

4.11 Pursuant to RCW 70.94.152, this Order shall be void without full payment of all actual YRCAA cost within thirty days after the issuance date.

5.0 EMISSION LIMITS

5.1 The annual amount of PMs from the installation must not exceed the allowable emissions shown in Appendix A of this Order. The allowable air emissions are based on the potential to emit.

5.2 In addition to those limits imposed by this Order, the Permittee shall comply with all other applicable general standards for maximum air emissions as specified in WAC 173-400-040, WAC 173-460 and WAC 173-400-075.

5.3 Opacity from the baghouse shall not exceed five percent as indicated above.

6.0 MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

6.1 The Permittee shall keep all records including this Order on site at all times. Records shall include, at minimum, the monthly number of hours of operation of cyclone, and baghouse, and the O&M items performed. Forms for record keeping must be designed by the Permittee and shall include the date, and maintenance performed and the operator's name, at least.

6.2 The O&M plan shall be updated to reflect any changes in operating procedures and such changes shall routinely be implemented.

6.3 Records shall be maintained and kept at the site for any of the previous three years from any current date, and be made available to the APCO of the YRCAA or his designated staff during inspections or upon request.

6.4 Any application form, report, or compliance certification, monthly record and the annual consumption report submitted to YRCAA pursuant to this Order must be signed by a responsible official.

6.5 Total air emissions including those from this installation (PMs) must be calculated and reported to YRCAA annually as specified in the annual registration provided by YRCAA to the Facility.

6.6 This Order and its conditions shall remain in effect in the event of any change in control or ownership of the Facility. In the event of any such change in control or ownership of the subject Facility, the Permittee shall notify the succeeding owner of this Order and conditions and shall notify the YRCAA of the change in control or ownership by filing an "Ownership or Name Change" form within fifteen (15) days of that change. The form can be obtained from our website or requested from the agency.

Any person feeling aggrieved by this NSR Order of Approval may obtain review thereof by application, within thirty (30) days of receipt of this NSR order to the Pollution Control Hearings Board, P.O. Box 40903, Olympia, WA, 98504-0903. Concurrently, a copy of the application must be sent to the YRCAA, 329 N 1st St., Yakima, WA 98901. These procedures are consistent with the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

DATED at Yakima, Washington this 25th day of January, 2018.

PREPARED BY:

Hasan M. Tahat, Ph.D.
Compliance, Engineering and Planning Division Supervisor
Yakima Regional Clean Air Agency

REVIEWED BY:

Norman Hepner, P.E.
Nth Degree Engineering Solutions

ISSUED BY:

Keith M. Hurley
Air Pollution Control Officer
Yakima Regional Clean Air Agency

Air emission from Corrugator 101/3311 Dry End Upgrade at 1200 ft/min with 98.4 inches wide at 6240 hours per year

Air emission from the Flexo Folder Gluer (Model: Bobst 8.20)
Sun Rotary Die Cutter (Sun 625)

PMs emissions		
Cyclone emissions (Source test 09/24/2015)	**emission factor (lbs/ mSF)**	
PM_{10}	**0.0039**	
$PM_{2.5}$	**0.00139**	
Potential Corrugator 101 Upgrade	3,684,096	mSF per year
Existing Corrogartor 101 (Actual ave '14 n '15)	1,695,657	mSF per year
Proposed increase in production	468,000	mSF per year
Potential Increase in Production	1,988,439	mSF per year
Actual production	**1,695,657**	**mSF per year**
Potential production	**3,684,096**	**mSF per year**

* Estimated number from Kapstone

TOTAL PMs Emissions

	Trims (Tons/yr) **	PM10 (TPY)	PM2.5 (TPY)
Actual	7529	3.31	1.18
Potential	16357	7.18	2.56

*** 148 lbs = 1mSF, 6% waste*

*

PMs emissions		
Cyclone emissions (Source test 09/24/2015)	**emission factor (lbs/ mSF)**	
PM_{10}	**0.0039**	
$PM_{2.5}$	**0.00139**	
Flexo-gluer (Bobst 8.2) actual production *	522,000	mSF per year
Die Cutter (Sun 625) actual production *	250,000	mSF per year
Flexo-gluer (Bobst 8.2) potential production	600,000	mSF per year
Die Cutter (Sun 625) potential production	302,000	mSF per year
Actual production	**772,000**	**mSF per year**
Potential production	**902,000**	**mSF per year**

* Estimated number from Kapstone

TOTAL PMs Emissions

	Trims (Tons/yr) **	PM10 (TPY)	PM2.5 (TPY)
Actual	3428	1.51	0.54
Potential	4005	1.76	0.63

*** 148 lbs = 1mSF, 6% waste*

PMs emissions				
Production Ratio %		**Total Air Emissions**		
14.2	460512			
14.7	460512			
30.2	460512			
15.2	460512			
45.5	211957.125			
24.5	460512			

			Total Air Emissions	
	PM10 (TPY)	PM2.5 (TPY)	PM10 (TPY)	PM2.5 (TPY)
	0.41	0.15	6.61	2.36
	0.90	0.32	14.37	5.12
Allowable after control baghouse 99.9%			**1.4E-02**	**5.1E-03**

Modeling

Parameters:
urban (population 92,000)
1 g/s
volume source: lateral dimension =185.32 /4.3 = 43.1 m, vertical = 8.05/2.15 = 3.74 m

release height = 4.02 m
default aerscreen meteorological conditions
distance = 93.7 m (center of volume soure + 10ft)
urban and average moisture

Results:
At 94 m, 24-hour concentration is **133 ug/m3**

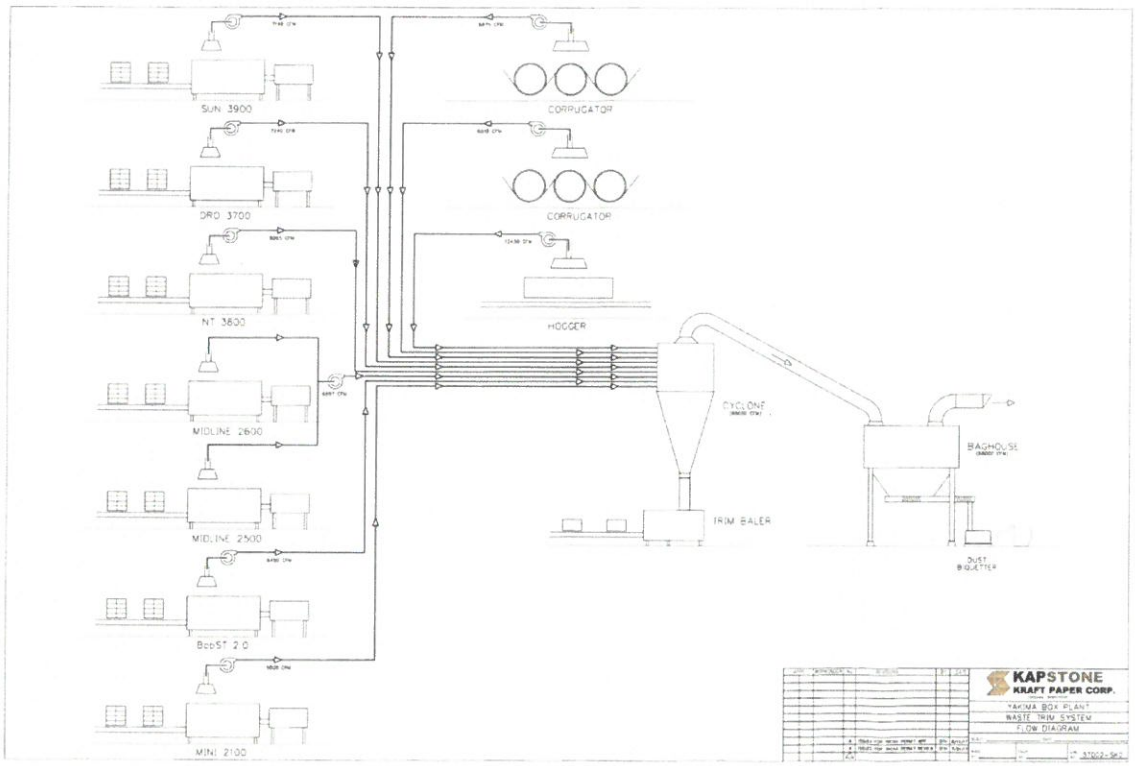
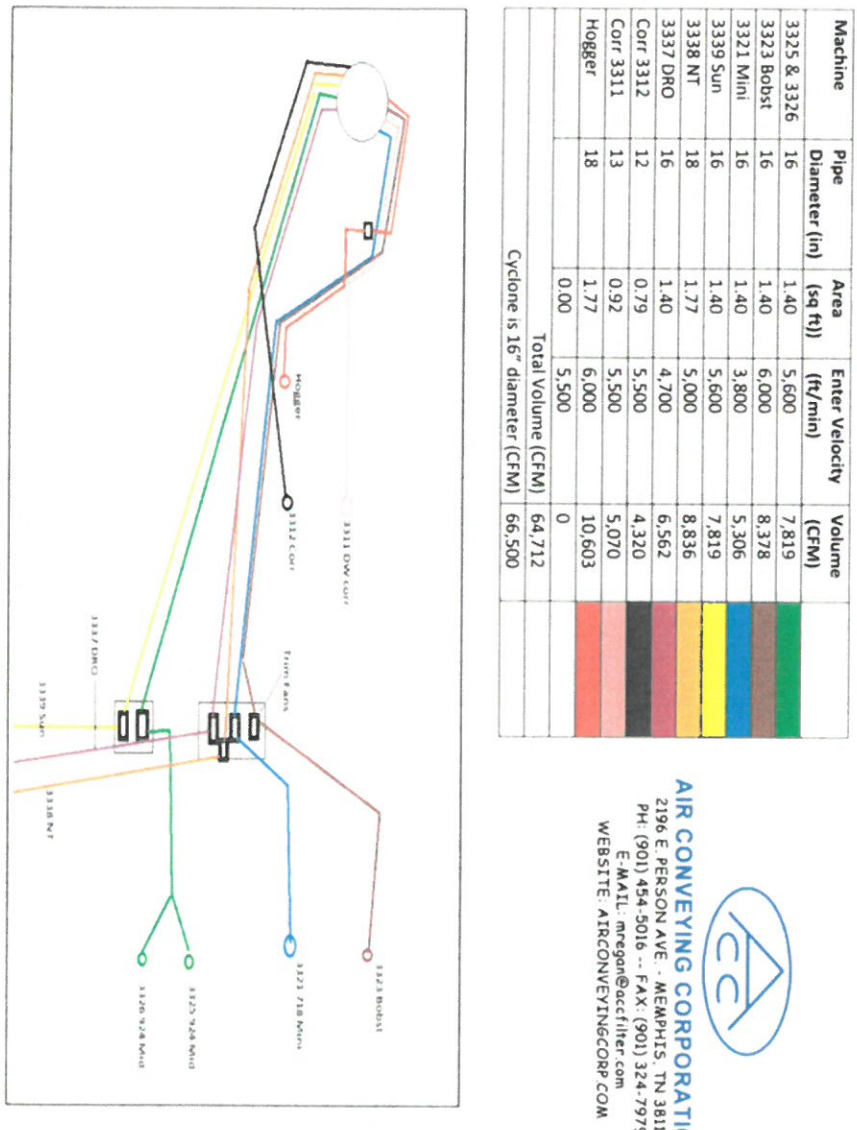


Figure 1. The airflow from each line that vent to the cyclone



Machine	Pipe Diameter (in)	Area (sq ft)	Enter Velocity (ft/min)	Volume (CFM)
3325 & 3326	16	1.40	5,600	7,819
3323 Bobst	16	1.40	6,000	8,378
3321 Mini	16	1.40	3,800	5,306
3339 Sun	16	1.40	5,600	7,819
3338 NT	18	1.77	5,000	8,836
3337 DRO	16	1.40	4,700	6,562
Corr 3312	12	0.79	5,500	4,320
Corr 3311	13	0.92	5,500	5,070
Hogger	18	1.77	6,000	10,603
		0.00	5,500	0
			Total Volume (CFM)	64,712
			Cyclone is 16" diameter (CFM)	66,500

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Figure 2. Air conveying system with the capacity to the cyclone

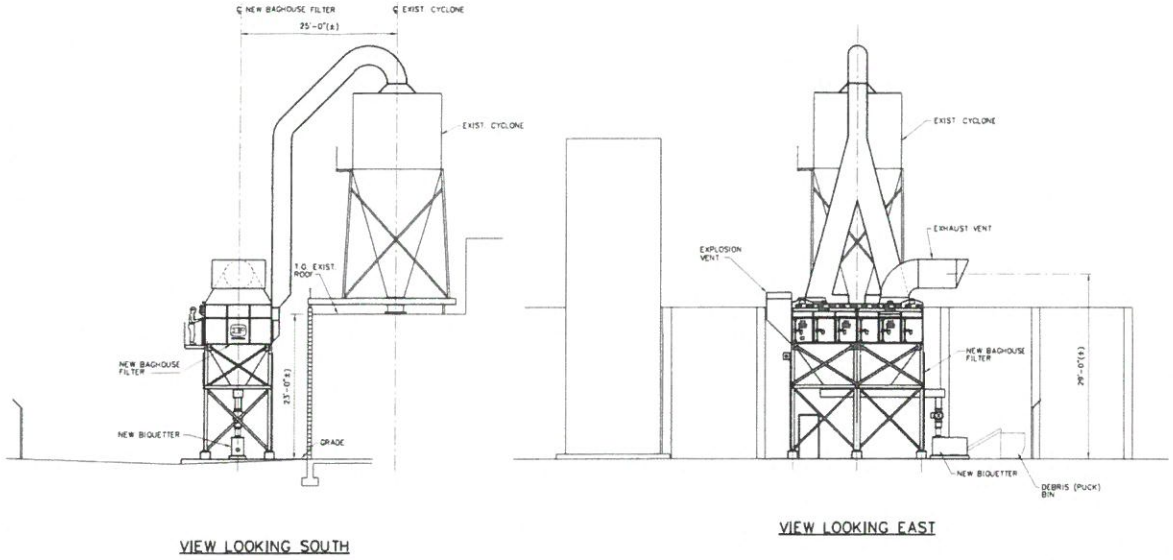

Figure 3. Drawing showing the cyclone and the baghouse.

APPENDIX B: GENERAL REQUIREMENTS FOR RAIN CAPS AND EXHAUST STACKS

1. RAIN CAPS: Good engineering design for vertically oriented exhaust stacks in the Pacific Northwest generally includes some type of rain protection device or rain cap. These devices are designed to keep rain, moisture and animals (birds and squirrels) out of the stack. Exhaust stacks are part of most equipment that has an air discharge to the environment. Good air pollution practices require that any air discharge be directed in a vertical fashion to facilitate good dispersion of air and potential contaminants (including odorous substances). Including any type of device at the end of a stack that redirects the discharge air back toward the ground defeats the purpose of having an exhaust stack. Typical types of equipment that discharge air from facilities includes: paint spray booths or similar operations, combustion sources like boilers, internal combustion engines, roof vents, baghouses and cyclone separators. Moisture can have a detrimental effect on processes and machinery if allowed to enter the top of the stack. Therefore, proper design of rain caps should take into account not only protection of processes and equipment but also not hinder the vertical discharge of air from this equipment. There are many different types of rain caps provided by many different vendors. Examples of acceptable configurations are provided below in Figure 4. Many variations of these configurations exist and may be acceptable as well.

2. EXHAUST STACKS: Exhaust stacks shall be vertically discharged to the atmosphere. The discharge point of the exhaust system shall be located at least three feet above the peak height of surrounding roofs (six feet is preferable). There shall be no flow obstruction at the point of discharge that inhibits vertical dispersion (i.e., rain cap, elbow, etc.). Exhaust stack configurations designed to prevent rain infiltration are generally acceptable provided the configuration does not obstruct vertical discharge. Good Engineering Practice (GEP) shall be utilized when designing and installing stacks. Examples of acceptable rain cap configurations are provided below in Figure 4.

Figure 4. Acceptable types of weatherproof exhaust systems: