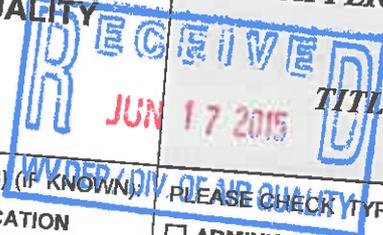


6/1



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF AIR QUALITY

601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
(304) 926-0475  
www.dep.wv.gov/dag



APPLICATION FOR NSR PERMIT  
AND  
TITLE V PERMIT REVISION  
(OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN)

- CONSTRUCTION
- MODIFICATION
- RELOCATION
- CLASS I ADMINISTRATIVE UPDATE
- CLASS II ADMINISTRATIVE UPDATE
- TEMPORARY
- AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF APPLICABLE)

- ADMINISTRATIVE AMENDMENT
- SIGNIFICANT MODIFICATION
- MINOR MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office):  
Kuraray America, Inc.

2. Federal Employer ID No. (FEIN):  
13-4119995

3. Name of facility (if different from above):  
Kuraray Washington Works

4. The applicant is the:  
 OWNER  OPERATOR  BOTH

5A. Applicant's mailing address:  
8480 DuPont Road  
State Route 892  
Washington, WV 26181

5B. Facility's present physical address:  
8480 DuPont Road  
State Route 892  
Washington, WV 26181

6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia?  YES  NO  
- If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A.  
- If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A.

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: Kuraray Co., Ltd  
8. Does the applicant own, lease, have an option to buy or otherwise have control of the proposed site?  YES  NO  
- If YES, please explain: Kuraray owns the site.

- If NO, you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.):  
Polymer resin / water slurry drying operation

10. North American Industry Classification System (NAICS) code for the facility:  
325211

Id. No. 107-00181 Reg. R13-1230A  
County: Kuraray Washington Works  
City: Washington Works 2 Region  
F. J.C. Legg

11A. DAQ Plant ID No. (for existing facilities only):  
107-00181

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):  
R13-1230  
R13-2380E

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates or Temporary permits** at an existing facility, please provide directions to the present location of the facility from the nearest state road;
- For **Construction or Relocation permits**, please provide directions to the proposed new site location from the nearest state road. include a **MAP** as Attachment B.

Three and one-fourth miles west along DuPont Road (SR-892) from the intersection of DuPont Road and SR-68.

12.B. New site address (if applicable):  
N/A

12C. Nearest city or town:  
Washington, WV

12D. County:  
Wood

12.E. UTM Northing (KM): 4346.84

12F. UTM Easting (KM): 442.40

12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:  
Install a second dewatering, drying, and truck loading operation for polyvinyl butyral (PVB) / water slurry.

14A. Provide the date of anticipated installation or change: 11/01/2015  
- If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: N/A

14B. Date of anticipated Start-Up if a permit is granted:  
8/01/2017

14C. Provide a **Schedule** of the planned **Installation of/Change to and Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:  
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved?  YES  NO

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see [www.epa.gov/ceppo](http://www.epa.gov/ceppo)), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (if known). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (if known). Provide this information as Attachment D.

### Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP - Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**).

- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.  
- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable)  
*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.  
- For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:
- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Bulk Liquid Transfer Operations                              | <input type="checkbox"/> Haul Road Emissions     | <input type="checkbox"/> Quarry  |
| <input checked="" type="checkbox"/> Chemical Processes                                | <input type="checkbox"/> Hot Mix Asphalt Plant   | <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities |
| <input type="checkbox"/> Concrete Batch Plant   | <input type="checkbox"/> Incinerator             | <input type="checkbox"/> Storage Tanks   |
| <input type="checkbox"/> Grey Iron and Steel Foundry                                  | <input type="checkbox"/> Indirect Heat Exchanger |  |
| <input checked="" type="checkbox"/> General Emission Unit, specify Cyclone, Bagfilter |  |  |

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Absorption Systems        | <input checked="" type="checkbox"/> Baghouse        | <input type="checkbox"/> Flare                 |
| <input type="checkbox"/> Adsorption Systems        | <input type="checkbox"/> Condenser                  | <input type="checkbox"/> Mechanical Collector  |
| <input type="checkbox"/> Afterburner               | <input type="checkbox"/> Electrostatic Precipitator | <input type="checkbox"/> Wet Collecting System |
| <input type="checkbox"/> Other Collectors, specify |   |  |

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.

> Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?  
 YES     NO

> If YES, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "Precautionary Notice - Claims of Confidentiality" guidance found in the **General Instructions** as **Attachment Q**.



**FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:**

- Forward 1 copy of the application to the Title V Permitting Group and:**
- For Title V Administrative Amendments:**
  - NSR permit writer should notify Title V permit writer of draft permit,**
- For Title V Minor Modifications:**
  - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,**
  - NSR permit writer should notify Title V permit writer of draft permit.**
- For Title V Significant Modifications processed in parallel with NSR Permit revision:**
  - NSR permit writer should notify a Title V permit writer of draft permit,**
  - Public notice should reference both 45CSR13 and Title V permits,**
  - EPA has 45 day review period of a draft permit.**

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**

ATTACHMENT A  
BUSINESS REGISTRATION CERTIFICATE

WEST VIRGINIA  
STATE TAX DEPARTMENT  
**BUSINESS REGISTRATION  
CERTIFICATE**

ISSUED TO:  
KURARAY AMERICA INC  
2625 BAY AREA BLVD 300  
HOUSTON, TX 77058-1551

BUSINESS REGISTRATION ACCOUNT NUMBER: 2227-4638

This certificate is issued on: 06/15/2011

*This certificate is issued by  
the West Virginia State Tax Commissioner  
in accordance with Chapter 11, Article 12, of the West Virginia Code.*

*The person or organization identified on this certificate is registered  
to conduct business in the State of West Virginia at the location above.*

*This certificate is not transferrable and must be displayed at the location for which issued.  
This certificate shall be permanent until cessation of the business for which the certificate of registration  
was granted or until it is suspended, revoked or canceled by the Tax Commissioner.  
Change in name or change of location shall be considered as cessation of the business and a new  
certificate shall be required.*

*TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them  
CONTRACTORS, DRILLING OPERATORS, TIMBER LOGGING OPERATIONS: Must have a copy of  
this certificate displayed at every job site within West Virginia.*

## ATTACHMENT B

### DRIVING DIRECTIONS TO - 8480 DUPONT RD

From Interstate 77 Northbound:

Take the US-50 exit, **EXIT 176**, toward 7th Street.  
Turn left onto US-50 W.

0.3 mi.

8.8 mi.

0.5 mi.

1.4 mi.

**Do not get off at the exit for "DuPont Rd/Ravenswood."**  
Take the WV-892/Dupont Rd exit toward Washington.

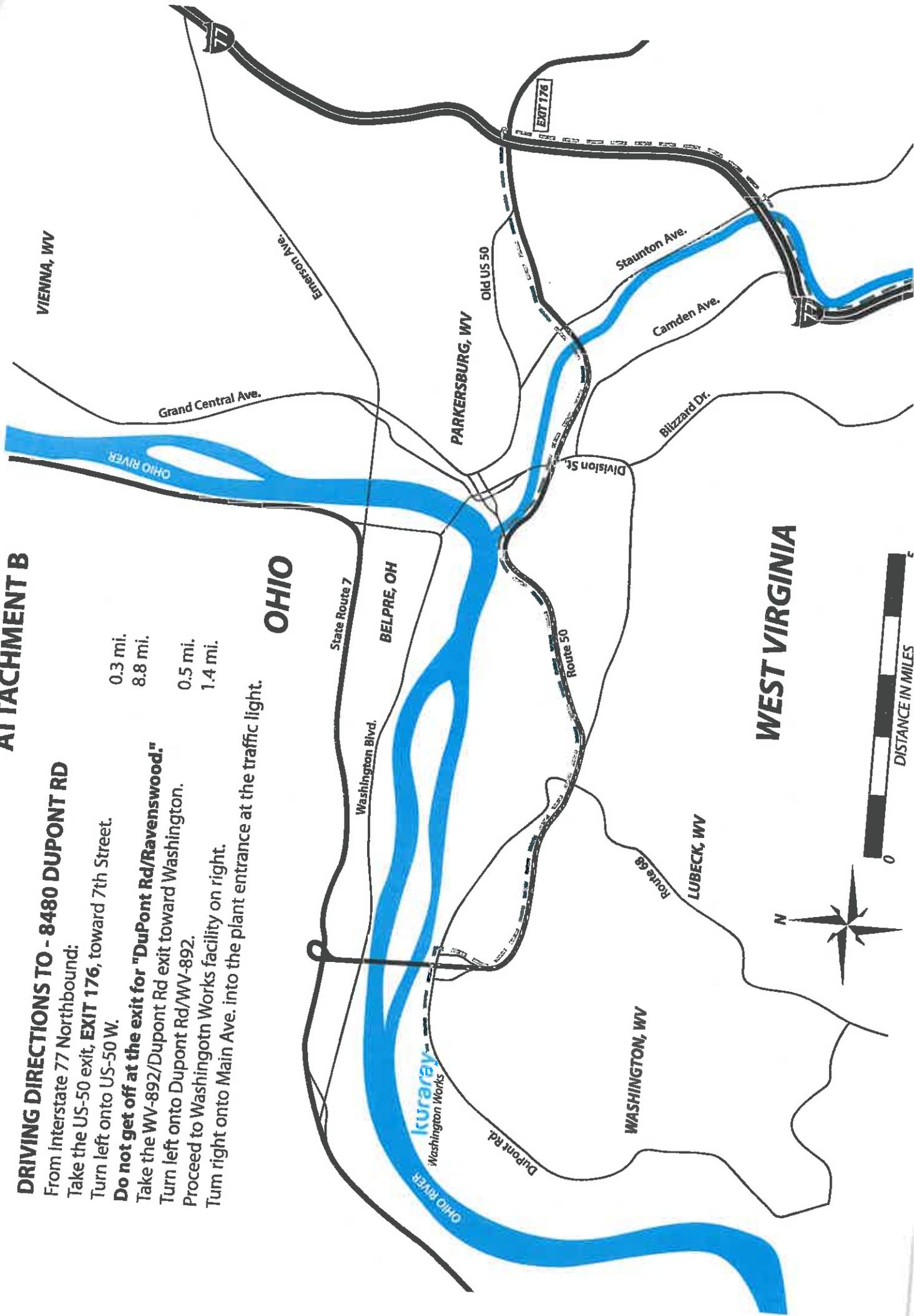
Turn left onto Dupont Rd/WV-892.

Proceed to Washington Works facility on right.

Turn right onto Main Ave. into the plant entrance at the traffic light.

# OHIO

# WEST VIRGINIA



**ATTACHMENT C  
START-UP SCHEDULE**

- Planned start Dismantle & Removal (D&R) of abandoned equipment and site preparation 10/01/15
- Planned construction start date: 11/01/2015
- Planned mechanical completion date: 4/01/17
- Planned check-out/commissioning complete date: 4/20/17
- Planned start-up date: 8/01/2017

**ATTACHMENT D  
APPLICABLE FEDERAL AND STATE AIR REGULATIONS**

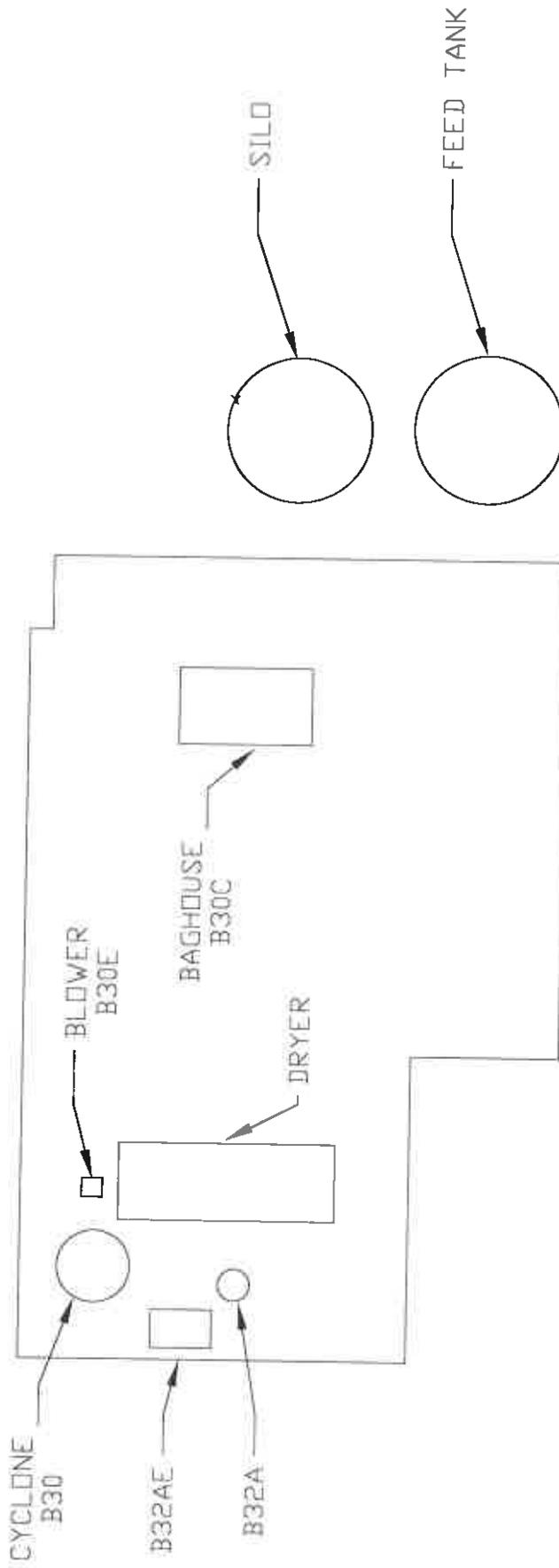
This facility has been found to be subject to the following applicable rules:

<b>Federal and State:</b>	45 CSR 6	Open burning prohibited
	45 CSR 7	Particulate matter from process operations
	45 CSR 11	Standby plans for emergency operations
	45 CSR 13 – Permit R13-2380 <sup>(1)</sup>	Minor New Source Review
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting
	40 CFR Part 61	Asbestos inspection and removal
	40 CFR Part 63 <sup>(1)</sup>	MON-MACT
<b>State only:</b>	45 CSR 4	No objectionable odors

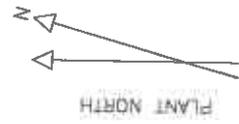
(1) The facility is divided into two areas, the PVB resin manufacturing area and the PVB resin drying area. These rules are applicable to the PVB resin manufacturing area only. This permit application affects the PVB resin drying area only.

**ATTACHMENT E**  
**PLOT PLAN**

PLOT PLAN  
LINE #1



BUILDING 229



10° 38'

CONFIDENTIAL  
1/14/92

UTM COORDINATES

NORTHING 4346.940 kilometers  
EASTING 442.402 kilometers  
(Northwest corner of building)

SCALE: 1" = 15'

**KURARAY AMERICA  
WASHINGTON WORKS FACILITY**

**PLOT PLAN**  
SCALE: 1" = 30'

UTM-17 COORDINATES (km)  
NORTHING: 4346.824  
EASTING: 442.414  
ELEVATION: 623'

**AVENUE L (P)**

BLOWER  
B33E

BAGHOUSE  
B33C

DRYER

REWORK  
FILTER  
B34

CYCLONE  
B33

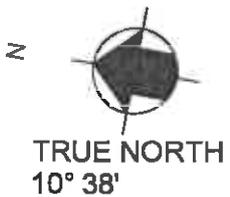
SLURRY TANK

**RESIN DRYING LINE 2**

REWORK  
EXHAUST  
BLOWER  
B34E

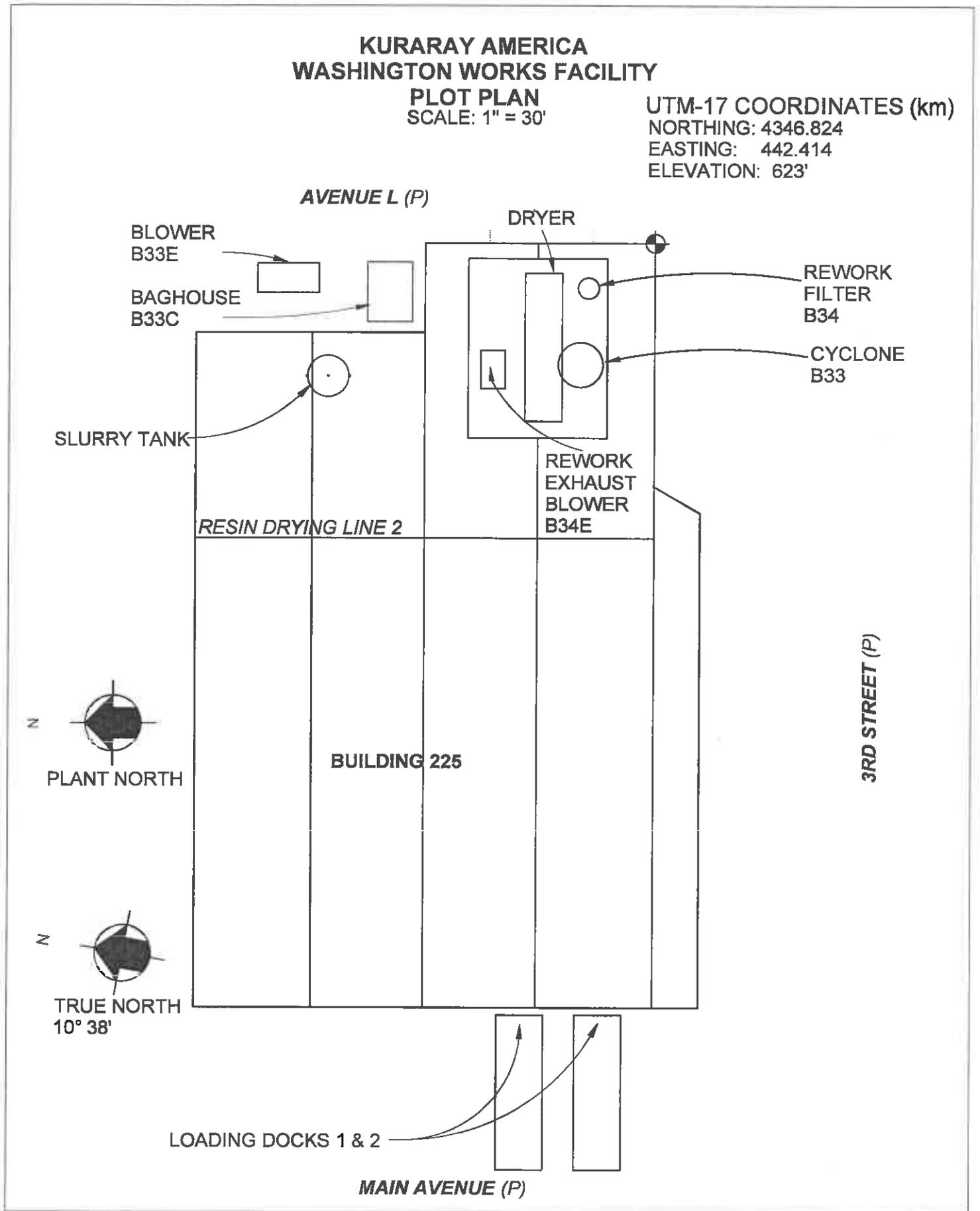
**BUILDING 225**

**3RD STREET (P)**

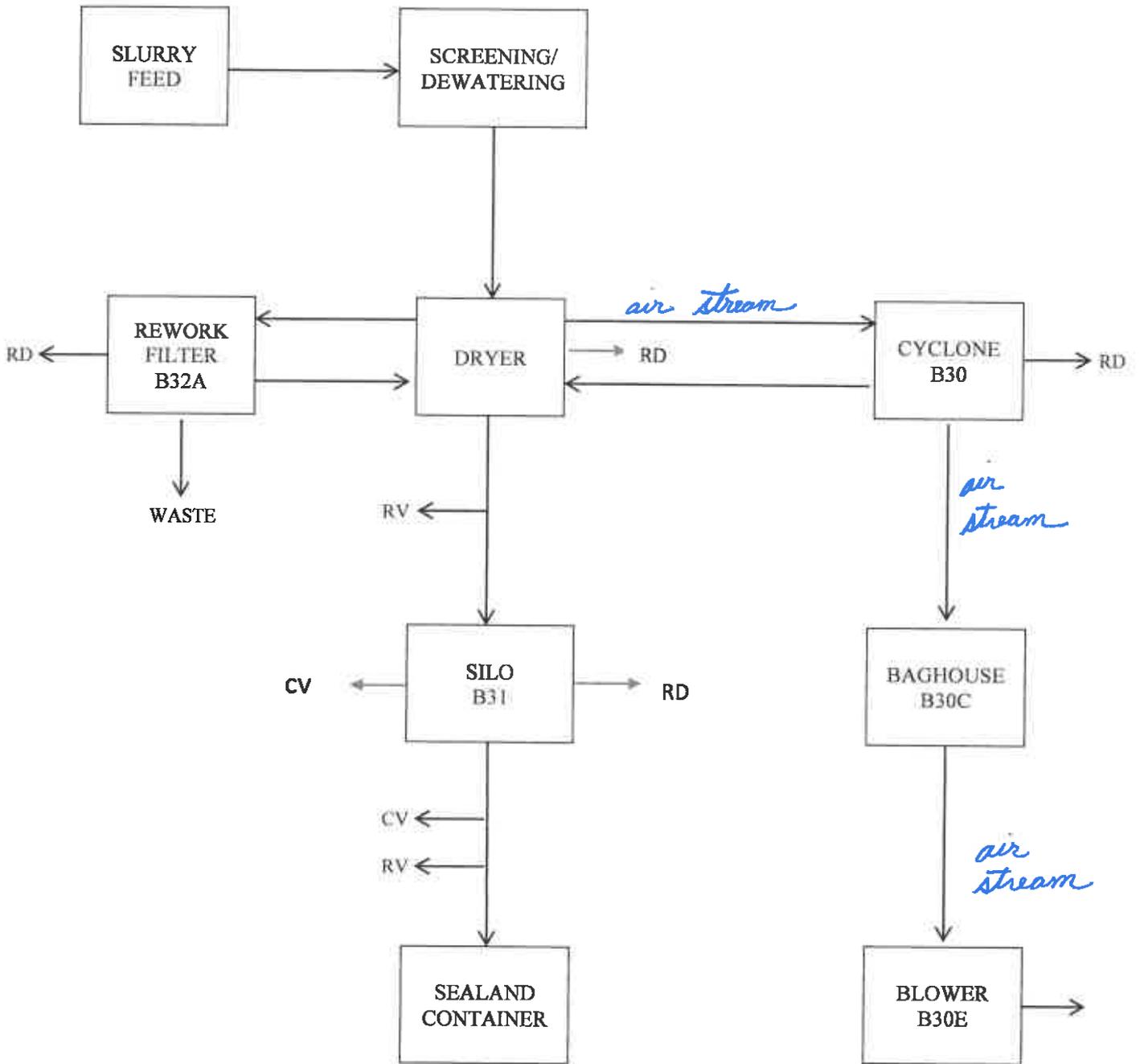


LOADING DOCKS 1 & 2

**MAIN AVENUE (P)**



**ATTACHMENT F  
PROCESS FLOW DIAGRAM – LINE #1**

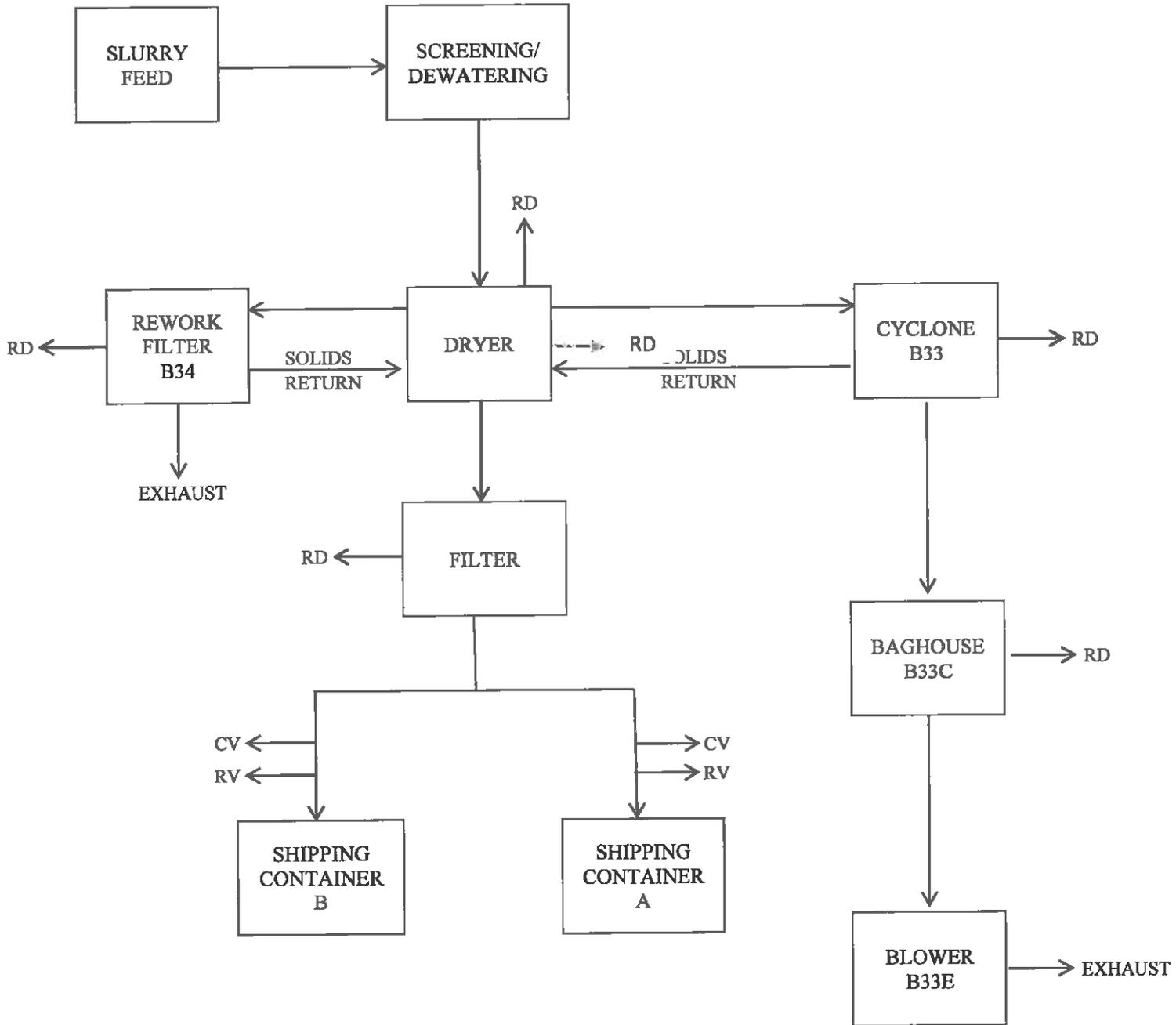


CV = CONSERVATION VENT

RD = RUPTURE DISK

RV = RELIEF VALVE

**ATTACHMENT F  
PROCESS FLOW DIAGRAM – LINE #2**



CV = CONSERVATION VENT

RD = RELIEF DEVICE

RV = RELIEF VALVE

## ATTACHMENT G PROCESS DESCRIPTION

Polyvinyl butyral (PVB), a solid polymeric material is produced by the upstream resin plant as granular solid particles dispersed in water. This slurry is then dewatered, dried, and loaded into Sealand containers in two drying lines. The two lines function as described below and have the same configuration, except where noted otherwise.

The PVB/water slurry from the resin plant flows into the process feed tank and circulates in the feed tank - head tank recirculating loop. The slurry is pumped from the head tank to a screener where coarse particles are removed. In both Line #1 and Line #2 the oversize particles flow to a waste bin. In Line #2 the option exists to route the oversize particles through a mill for size reduction. If this option is used, the smaller sized fraction rejoins the stream from the screener and the remaining coarse fraction continues to the waste bin.

The slurry from the coarse screener then flows to a centrifuge for dewatering. Final drying is accomplished in a fluidized bed dryer using steam-heated air.

The air stream leaving the dryer passes through a cyclone where most of the entrained fines are removed and returned to the dryer. The air stream then passes through a baghouse which removes most of the remaining fines. The air stream then vents to the atmosphere through a blower.

The rework system allows material to be removed from the process equipment during shutdowns or to be recirculated back through the dryer. Material is vacuumed up with pick-up wands and is collected in a bag filter and hopper. The solid material is later packed out as waste material or is returned to the dryer.

In Line #1 the dry solid is transported from the dryer outlet *via* entrainment in a closed pneumatic loop. The material is removed from the air stream by a bagfilter and drops into a storage silo. A second closed pneumatic loop then transfers the material from the storage silo to a Sealand container for shipment.

In Line #2, the dry solid is transported from the dryer outlet *via* entrainment in a closed pneumatic loop. The material is removed from the air stream by a bag filter. The material then exits into a second closed pneumatic loop with two branches, each to a Sealand container filling station. While a container is being filled at one station, the full container at the other station is readied for shipment and moved out, and the next empty container is spotted and prepared for filling.

In Line #1, the silo has a relief device, specifically a conservation vent that protects against generation of pressure and vacuum from silo filling and emptying. This CV is shown in this application in Attachment L, in the chemical process EUDS. Due to the way this relief device was treated in the original 1990 application, it was included in permit R13-1230 as an emission point with an emission limit. With this application for a modification to R13-1230, it is requested that this relief device be deleted as an emission point with emission limits.

**ATTACHMENT H**  
**MATERIAL SAFETY DATA SHEETS**

**Status of MSDS for Polyvinyl Butyral Resin**

On June 1<sup>st</sup> 2014 Kuraray America Inc. acquired the GLS-Vinyls business from the DuPont Company. Currently the facilities involved in the acquisition operate in the same manner and produce the same products with the same chemical and physical properties under Kuraray ownership as they did under DuPont ownership.

At this time Kuraray is still in the process of converting the DuPont MSDS sheets for the products produced at these facilities to Kuraray MSDS sheets. Therefore the latest DuPont MSDS sheet for Polyvinyl Butyral resin as produced at this facility is being provided.



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

-----  
BUT010 "BUTACITE" PVB FLAKE  
Revised 27-AUG-2003  
-----

-----  
CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
-----

Material Identification

"BUTACITE" is a registered trademark of DuPont.

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont Packaging & Industrial Polymers  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-(800)-441-7515  
Transport Emergency : 1-(800)-424-9300  
Medical Emergency : 1-(800)-441-3637

-----  
COMPOSITION/INFORMATION ON INGREDIENTS  
-----

Components

Material	CAS Number	%
POLYVINYL BUTYRAL RESIN	63148-65-2	100

Components (Remarks)

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

-----  
HAZARDS IDENTIFICATION  
-----

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

-----  
FIRST AID MEASURES  
-----

# First Aid

INHALATION

## (FIRST AID MEASURES - Continued)

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation at ambient temperatures. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

## SKIN CONTACT

The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. Protect skin from contact with molten polymer or heated, molded parts by wearing chemical and heat-resistant gloves. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn.

## EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

## INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

-----  
FIRE FIGHTING MEASURES  
-----

## # Flammable Properties

## Fire and Explosion Hazards:

UNUSUAL FIRE, EXPLOSION HAZARDS The solid polymer can be combusted only with difficulty. An electrostatic charge can potentially build up when pouring pellets. Grounding of equipment is recommended.

Hazardous gases/vapors produced in fires may include carbon monoxide, carbon dioxide, and hydrocarbon oxidation products including acrolein, butyraldehyde, formic acid, acetic acid, and methanol, oxides of nitrogen.

## # Extinguishing Media

Water, Foam, Dry Chemical, CO2.

## # Fire Fighting Instructions

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus (SCBA) and full protective equipment.

-----  
ACCIDENTAL RELEASE MEASURES  
-----

## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

## # Spill Clean Up

Recover undamaged and minimally contaminated material for reuse and reclamation.

## Accidental Release Measures

Pick up dropped resin to prevent slipping hazard.

-----  
HANDLING AND STORAGE  
-----

## # Handling (Personnel)

See FIRST AID and PERSONAL PROTECTIVE EQUIPMENT SECTIONS.

## # Storage

Store in a clean, dry place.

-----  
EXPOSURE CONTROLS/PERSONAL PROTECTION  
-----

## # Engineering Controls

Use only with adequate ventilation.

## # Personal Protective Equipment

## EYE/FACE PROTECTION

Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material.

## RESPIRATORS

A. NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge with a dust/mist filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

## PROTECTIVE CLOTHING

## (EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

## OTHER

Local exhaust should be used during process operations at elevated temperatures.

## Exposure Guidelines

## Exposure Limits

"BUTACITE" PVB FLAKE

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established

-----  
PHYSICAL AND CHEMICAL PROPERTIES  
-----

## Physical Data

Boiling Point	: Not Applicable
% Volatiles	: <1 %
Solubility in Water	: Insoluble
Odor	: Odorless.
Form	: Granular material.
Specific Gravity	: 1

-----  
STABILITY AND REACTIVITY  
-----

## # Chemical Stability

Stable at normal temperatures and storage conditions.

## # Conditions to Avoid

Temperatures above 250 C (482 F)

## # Incompatibility with Other Materials

None reasonably foreseeable.

## # Decomposition

Decomposes with heat.

Hazardous gases/vapors produced in fires may include carbon monoxide, carbon dioxide, and hydrocarbon oxidation products including acrolein, butyraldehyde, formic acid, acetic acid, and methanol, oxides of nitrogen.

## Polymerization

Polymerization will not occur.

-----  
TOXICOLOGICAL INFORMATION  
-----

## Animal Data

## INGESTION

Low toxicity LD50 11,000 mg/kg, rats.

## SKIN

Mild skin irritation.

## INHALATION

During a fire or autoclave operations fumes are evolved which may cause irritation to the eyes and upper respiratory tract.

-----  
ECOLOGICAL INFORMATION  
-----

## Ecotoxicological Information

## AQUATIC TOXICITY:

No information is available. Do not discharge to streams, ponds, lakes or sewers.

-----  
DISPOSAL CONSIDERATIONS  
-----

## # Waste Disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

-----  
TRANSPORTATION INFORMATION  
-----

## # Shipping Information

## DOT/IMO/IATA

Not Regulated.

-----  
REGULATORY INFORMATION  
-----

## U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.





## Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date 10/28/2014

Reviewed on 10/28/2014

### 1: Identification

- **1.1 Product identifier**
  - Trade name: ThermalStar Heat Transfer Fluid
  - Article number: SF-0100
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.
- **Application of the substance / the mixture** Heat transfer fluid
- **1.3 Details of the supplier of the Safety Data Sheet**
  - **Manufacturer/Supplier:**

Thermal Fluids Inc.  
P.O. Box 1071  
Easton, MA 02334  
Phone: (508) 238-9660
- **1.4 Emergency telephone number:**

ChemTel Inc.  
(800)255-3924, +1 (813)248-0585

### 2: Hazard(s) identification

- **2.1 Classification of the substance or mixture**
  - **Classification according to Regulation (EC) No 1272/2008**

The product is not classified as hazardous according to OSHA GHS regulations within the United States.  
The product is not classified as hazardous according to the CLP regulation.
  - **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Not applicable.
  - **Information concerning particular hazards for human and environment:**

The product does not have to be labeled due to the calculation procedure of international guidelines.
  - **Classification system:**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.  
The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.
- **2.2 Label elements**
  - **Labelling according to Regulation (EC) No 1272/2008**

This product does not have a classification according to the CLP regulation.  
The product is not classified as hazardous according to OSHA GHS regulations within the United States.
  - **Hazard pictograms** Not Regulated
  - **Signal word** Not Regulated
  - **Hazard-determining components of labeling:** None.
  - **Hazard statements** Not Regulated

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**Safety Data Sheet**  
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Trade name: ThermalStar Heat Transfer Fluid

- **Hazard description:**
- **WHMIS-symbols:** Not hazardous under WHMIS.
- **Classification system:**

(Contd. of page 1)

- **HMS Long Term Health Hazard Substances**

None of the ingredients is listed.

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**3: Composition/information on ingredients**

- **3.2 Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.
- **Dangerous components:**  
None in reportable quantities.

CAS: 57-55-6 EINECS: 200-338-0	Propylene Glycol	95%
	Inhibitor Package - Non-hazardous	< 5%
CAS: 7732-18-5 EINECS: 231-791-2	water, distilled, conductivity or of similar purity	< 5%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

**4: First-aid measures**

- **4.1 Description of first aid measures**
- **General Information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Immediately rinse with water.  
If skin irritation is experienced, consult a doctor.
- **After eye contact:**  
Remove contact lenses if worn.  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
Rinse out mouth and then drink plenty of water.  
Do not induce vomiting  
If symptoms persist consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed**  
No further relevant information available.

(Contd. on page 3)

**Safety Data Sheet**  
 according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and  
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Trade name: ThermalStar Heat Transfer Fluid

- **4.3 Indication of any immediate medical attention and special treatment needed**  
 No further relevant information available.

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**5: Fire-fighting measures**

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
 CO2, extinguishing powder or water spray. Fight larger fire with alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** None.
- **5.2 Special hazards arising from the substance or mixture**  
 Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:**  
 Wear self-contained respiratory protective device.  
 Wear fully protective suit.
- **Additional Information** Use large quantities of foam as it is partially destroyed by the product.

**6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures**  
 Ensure adequate ventilation.  
 Particular danger of slipping on leaked/spilled product.  
 Wear protective equipment. Keep unprotected persons away.  
 For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
- **6.2 Environmental precautions:**  
 Do not allow to enter sewers/ surface or ground water.  
 Dilute with plenty of water.
- **6.3 Methods and material for containment and cleaning up:**  
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
 Ensure adequate ventilation.  
 Dispose contaminated material as waste according to item 13.
- **6.4 Reference to other sections**  
 See Section 7 for information on safe handling.  
 See Section 8 for information on personal protection equipment.  
 See Section 13 for disposal information.

**7: Handling and storage**

- **7.1 Precautions for safe handling**  
 Prevent formation of aerosols.  
 Avoid splashes or spray in enclosed areas.  
 Use only in well ventilated areas.
- **Information about protection against explosions and fires:** Protect from heat.

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## Safety Data Sheet

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- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Avoid storage near extreme heat, ignition sources or open flame.  
Protect from humidity and water.
- **Information about storage in one common storage facility:**  
Store away from foodstuffs.  
Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:**  
Store in cool, dry conditions in well sealed receptacles.  
Keep receptacle tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

### 8: Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

#### · 8.1 Control parameters

- **Components with limit values that require monitoring at the workplace:**

#### 57-55-6 Propylene Glycol

WEEL (USA)	Long-term value: 10 mg/m <sup>3</sup>
EV (Canada)	Long-term value: 155* 10** mg/m <sup>3</sup> , 50* ppm *vapour and aerosol; **aerosol only

- **Additional information:** The lists that were valid during the creation were used as basis.

#### · 8.2 Exposure controls

- **Personal protective equipment:**
- **General protective and hygienic measures:**  
The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes.  
Avoid close or long term contact with the skin.
- **Breathing equipment:**  
Use suitable respiratory protective device when high concentrations are present.  
Use suitable respiratory protective device when aerosol or mist is formed.  
For spills, respiratory protection may be advisable.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
(Contd. on page 5)

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Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment** No special requirements.

### 9: Physical and chemical properties

#### · 9.1 Information on basic physical and chemical properties

##### · General Information

##### · Appearance:

Form:

Liquid

Color:

Colorless

##### · Odor:

Odorless

##### · Odor threshold:

Not determined.

##### · pH-value:

Not determined.

##### · Change in condition

Melting point/Melting range:

Undetermined.

Boiling point/Boiling range:

370° F / 188 °C (698° F / 370 °F)

##### · Flash point:

215° F / 102 °C (419° F / 216 °F)

##### · Flammability (solid, gaseous):

Not applicable.

##### · Auto-ignition temperature:

Not determined.

##### · Decomposition temperature:

Not determined.

##### · Auto igniting:

Product is not self-igniting.

##### · Danger of explosion:

Product does not present an explosion hazard.

##### · Explosion limits:

Lower:

2.6 Vol %

Upper:

12.5 Vol %

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· Vapor pressure at 20 °C (68 °F):	0.3 hPa
· Density at 20 °C (68 °F):	1.05 g/cm <sup>3</sup> (8.762 lbs/gal)
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· 9.2 Other information	No further relevant information available.

**10: Stability and reactivity**

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.  
To avoid thermal decomposition do not overheat.
- **10.3 Possibility of hazardous reactions**  
Reacts with strong acids and oxidizing agents.  
Toxic fumes may be released if heated above the decomposition point.
- **10.4 Conditions to avoid**  
Store away from oxidizing agents.  
Keep away from heat and direct sunlight.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide

**11: Toxicological information**

- **11.1 Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Slight irritant effect on eyes.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product is not subject to classification according to internally approved calculation methods for preparations.  
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

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- **Carcinogenic categories**

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

**12: Ecological information**

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** The product is partially biodegradable. Significant residuals remain.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation:**  
Contact waste processors for recycling information.  
Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14: Transport information**

- **14.1 UN-Number**
- **DOT, ADR, ADN, IMDG, IATA**

Not Regulated

(Contd. on page 8)

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· 14.2 UN proper shipping name · DOT, ADR, ADN, IMDG, IATA	Not Regulated
· 14.3 Transport hazard class(es) · DOT, ADR, ADN, IMDG, IATA · Class	Not Regulated
· 14.4 Packing group · DOT, ADR, IMDG, IATA	Not Regulated
· 14.5 Environmental hazards: · Marine pollutant:	No
· 14.6 Special precautions for user	Not applicable.
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	-

**15: Regulatory information**

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA

- Section 355 (extremely hazardous substances):

None of the ingredients is listed.

- Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

- TSCA (Toxic Substances Control Act):

All ingredients are listed.

- Proposition 65 (California)

- Chemicals known to cause cancer:

None of the ingredients are listed.

- Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

- Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

- Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

- Carcinogenic categories

- EPA (Environmental Protection Agency)

None of the ingredients is listed.

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- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

- **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **State Right to Know Listings**

None of the ingredients is listed.

- **Canada**

- **Canadian substance listings:**

- **Canadian Domestic Substances List (DSL)**

All ingredients are listed.

- **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

- **Canadian Ingredient Disclosure list (limit 1%)**

57-55-6 | Propylene Glycol

- **Other regulations, limitations and prohibitive regulations**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16: Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 DNEL: Derived No-Effect Level (REACH)  
 PNEC: Predicted No-Effect Concentration (REACH)

- **Sources**

SDS Prepared by:  
 ChemTel Inc.  
 1305 North Florida Avenue

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according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and  
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**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (mg/M <sup>3</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
B30E	Horiz. stack	B30	Cyclone	B30C	Baghouse	C	8760	Polyvinyl Butyral 63148-65-2	2.4	11	0.0024	0.011	Solid	EE	0.016
B32AE	Vert. stack with goose neck end	B32A	Bagfilter	N/A	N/A	1 hr/day 1 day/mo	8760	Polyvinyl Butyral 63148-65-2	0.40	1.75	0.40	1.75	Solid	EE	223
B33E	Vert. Stack	B33	Cyclone	B33C	Baghouse	C	8760	Polyvinyl Butyral 63148-65-2	3.4	15	0.0034	0.015	Solid	EE	0.013
B34E	Vert. stack.	B34	Bagfilter	N/A	N/A	1 hr/day 1 day/mo	8760	Polyvinyl Butyral 63148-65-2	0.56	2.45	0.56	2.45	Solid	EE	150

*concentration no longer confidential*

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**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (mg/M <sup>3</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
B30E	Horiz. stack	B30	Cyclone	B30C	Baghouse	C	8760	Polyvinyl Butyral 63148-65-2	2.4	11	0.0024	0.011	Solid	EE	Redacted
B32AE	Vert. stack with goose neck end	B32A	Bagfilter	N/A	N/A	1 hr/day 1 daymo	8760	Polyvinyl Butyral 63148-65-2	0.40	1.75	0.40	1.75	Solid	EE	Redacted
B33E	Vert. Stack	B33	Cyclone	B33C	Baghouse	C	8760	Polyvinyl Butyral 63148-65-2	3.4	15	0.0034	0.015	Solid	EE	Redacted
B34E	Vert. stack.	B34	Bagfilter	N/A	N/A	1 hr/day 1 day/mo	8760	Polyvinyl Butyral 63148-65-2	0.56	2.45	0.56	2.45	Solid	EE	Redacted

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**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**  
Table 1 Footnotes

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

1. Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
2. Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
3. List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
4. Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
5. Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
6. Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).
7. Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 2: Release Parameter Data**

Emission Point ID (Must match Emission Units Table)	Inner Diameter (ft)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km) Zone #17	
		Temp (°F)	Volumetric Flow <sup>1</sup> (ACFM) At operating conditions	Velocity (ft/s)	Ground Level (Height above mean seal level)	Stack Height <sup>2</sup> (Release height of emissions above ground level)	Northing	Easting
B30E	2.1 x 3.5	125	41,000	93	628	80	4346.94	442.43
B32AE	0.334	100	460	88	628	63	4346.93	442.41
B33E	4.0	125	67,500	90	628	56	4346.85	442.40
B34E	0.5	100	1000	85	628	82	4346.83	442.40

<sup>1</sup> Give at operating conditions. Include inerts.

<sup>2</sup> Release height of emissions above ground level.

*Inner Diameter  
Volumetric flow  
no longer  
confidential*

*Page revised 7/15/2015*

## Attachment K

### FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS	
1.) Will there be haul road activities?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."	

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS <sup>1</sup>	Maximum Potential Uncontrolled Emissions <sup>2</sup>		Maximum Potential Controlled Emissions <sup>3</sup>		Est. Method Used <sup>4</sup>
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	N/A	N/A	N/A	N/A	N/A	N/A
Unpaved Haul Roads	N/A	N/A	N/A	N/A	N/A	N/A
Storage Pile Emissions	N/A	N/A	N/A	N/A	N/A	N/A
Loading/Unloading Operations	N/A	N/A	N/A	N/A	N/A	N/A
Wastewater Treatment Evaporation & Operations	N/A	N/A	N/A	N/A	N/A	N/A
Equipment Leaks	Propylene glycol 57-55-6	Does not apply	0.39	Does not apply	0.39	EE
General Clean-up VOC Emissions	N/A	N/A	N/A	N/A	N/A	N/A
Other - Closed loop cooling system with propylene glycol-water brine	N/A	N/A	N/A	N/A	N/A	EE

<sup>1</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>2</sup> Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

<sup>3</sup> Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

<sup>4</sup> Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

**Attachment L  
EMISSIONS UNIT DATA SHEET  
CHEMICAL PROCESS**

For chemical processes please fill out this sheet and all supplementary forms (see below) that apply. Please check all supplementary forms that have been completed.

- Emergency Vent Summary Sheet*
- Leak Sources Data Sheet*
- Toxicology Data Sheet*
- Reactor Data Sheet*
- Distillation Column Data Sheet*

1. Chemical process area name and equipment ID number (as shown in *Equipment List Form*)  
PVB Resin Drying. B30, B32A, B33, B34

2. Standard Industrial Classification Codes (SICs) for process(es)  
2821

3. List raw materials and  attach MSDSs  
Polyvinyl butyral  
Propylene glycol (ancillary use only)

4. List Products and Maximum Production and  attach MSDSs

Description and CAS Number	Maximum Hourly (lb/hr)	Maximum Annual (ton/year)
Polyvinyl butyral - L#1 63148-65-2	Redacted	Redacted
Polyvinyl butyral - L#2 63148-65-2	Redacted	Redacted

5. Complete the *Emergency Vent Summary Sheet* for all emergency relief devices.

6. Complete the *Leak Source Data Sheet* and describe below or attach to application the leak detection or maintenance program to minimize fugitive emissions. Include detection instruments, calibration gases or methods, planned inspection frequency, and record-keeping, and similar pertinent information. If subject to a rule requirement (e.g. 40CFR60, Subpart VV), please list those here.

See attached sheet.

7. Clearly describe below or attach to application Accident Procedures to be followed in the event of an accidental spill or release.

The facility executes field patrols each shift to check for spills and leaks, and other abnormal situations. Any spilled PVB solid will be vacuumed up using the rework vacuum system and conveyed to a waste bin. Any spilled brine will be contained with absorbent mats or pigs, and will be diverted to the site WWTP. Project design will also include provision to divert and contain spilled brine to a sump for subsequent proper disposal.

- 8A. Complete the *Toxicology Data Sheet* or attach to application a toxicology report (an up-to-date material safety data sheets (MSDS) may be used) outlining the currently known acute and chronic health effects of each compound or chemical entity emitted to the air. If these compounds have already been listed in Item 3, then a duplicate MSDS sheet is not required. Include data such as the OSHA time weighted average (TWA) or mutagenicity, teratogenicity, irritation, and other known or suspected effects should be addressed. Indicate where these are unknown, and provide references.
- 8B. Describe any health effects testing or epidemiological studies on these compounds that are being or may be conducted by the company or required under TSCA, RCRA or other federal regulations. Discuss the persistence in the environment of any emission (e.g. pesticides, etc.).

9. **Waste Products** - Waste products status: (If source is subject to RCRA or 45CSR25, please contact the Hazardous Waste Section of WVDEP, OAQ at (304) 926-3647.)

9A. Types and amounts of wastes to be disposed:

9B. Method of disposal and location of waste disposal facilities: 1600 TPY of polyvinyl butyral resin, maximum to Northwestern Landfill, Parkersburg, WV

9C. Check here if approved USEPA/State Hazardous Waste Landfill will be used

10. Maximum and Projected Typical Operating Schedule for process or project as a whole (circle appropriate units).

circle units:	(hrs/day) (hr/batch)	(days), (batches/day), (batches/week)	(days/yr), (weeks/year)
10A. Maximum	24 hr/day		365 day/yr
10B. Typical	24 hr/day		350 day/yr

11. Complete a *Reactor Data Sheet* for each reactor in this chemical process.

12. Complete a *Distillation Column Data Sheet* for each distillation column in this chemical process.

13. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**  
See Attachment O

**RECORDKEEPING**  
See Attachment O

**REPORTING**  
See Attachment O

**TESTING**  
See Attachment O

**MONITORING.** Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment operation or air pollution control device.  
**RECORDKEEPING.** Please describe the proposed recordkeeping that will accompany the monitoring.  
**REPORTING.** Please describe the proposed frequency of reporting of the recordkeeping.  
**TESTING.** Please describe any proposed emissions testing for this process equipment or air pollution control device.

14. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty  
See the EUD Sheets and the APCD sheets for the specific equipment items.

## **INFORMATION REQUIRED FOR CHEMICAL PROCESSES**

The notes listed below for chemical processes are intended to help the applicant submit a complete application to the OAQ; these notes are not intended to be all inclusive. The requirements for a complete application for a permit issued under 45CSR13 are designed to provide enough information for a permit reviewer to begin a technical review. Additional information beyond that identified may be required to complete the technical review of any individual application.

### **Process Description**

Please keep these points in mind when completing your process description as part of this permit application.

1. Provide a general process overview. This brief, but complete, process description should include chemical or registered trademark names of chemical products, intermediates, and/or raw materials to be produced or consumed, and the ultimate use(s) of the product(s). A list of the various chemical compounds is helpful.
2. Describe each process step. Include the process chemistry and stoichiometrically balanced reaction equation or material mass balance on all components.
3. Describe the methods and equipment used to receive, store, handle, and charge raw materials.
4. Describe the methods and equipment used to handle, store, or package final products and intermediates.
5. Provide process flow diagrams or equipment layout drawings which clearly show the process flow relationships among all pieces of process and control equipment. Identify all air emission discharge points. Discuss instrumentation and controls for the process.
6. Discuss the possibilities of process upsets, the duration and frequency of upsets, and consequences (including air emissions) of these upsets. Include a description of rupture discs, pressure relief valves, and secondary containment systems.
7. Discuss any fugitive emissions and the methods used to minimize them.
8. Include the following plans for the process if available:
  - a. preventative maintenance and malfunction abatement plan (recommended for all control equipment).
  - b. continuous emissions (in-stack) monitoring plan
  - c. ambient monitoring plan
  - d. emergency response plan

### **Regulatory Discussion**

The following state and federal air pollution control regulations may be applicable to your chemical process. You should review these regulations carefully to determine if they apply to your process. Please summarize the results of your review in your permit application along with any other regulations you believe are applicable.

- Title 45 Legislative Rule Division of Environmental Protection, Office of Air Quality contains West Virginia's air pollution control regulations, including the following promulgated rules which may require emissions reductions or control technologies for your chemical process:
  - a. 45CSR27 - Best Available Technology (BAT) for Toxic Air Pollutants (TAPs)
  - b. 45CSR21 - VOC emissions controls for ozone maintenance in Kanawha, Cabell, Putnam, Wayne, and Wood counties.
  - c. 45CSR13 (Table 45-13A) - plantwide emission thresholds for permitting for certain pollutants.
- Federal Guidelines for case-by-case MACT determinations under section 112(g) of the 1990 CAAA for individual and total HAPs greater than 10 and 25 tons per year, respectively.
- There are also subparts of the federal Standards of Performance for New Stationary Sources (NSPS), 40CFR60, 60, and the National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40CFR61 and 40CFR63, which apply to various chemical and nonchemical processes. These subparts are too numerous to list here, but these areas of the federal regulations should be consulted carefully to determine applicability to your process.

### **Emissions Summary and Calculations**

Please keep these points in mind when submitting your emissions calculations as part of this permit application.

1. For each pollutant, provide the basis for the emissions estimate and for all emission reduction(s) or control efficiency(ies) claimed.
2. For all batch processes provide the following
  - a. Emissions of each pollutant in pound(s) per batch, from each process step
  - b. Annual emissions based on number of batches requested per year
  - c. The total time for each process step and the duration of the emissions during the process step
  - d. Total batch time, total emissions per batch (or per day), and annual emissions based on the number of batches requested per year.

## EMERGENCY VENT SUMMARY SHEET

List below all emergency relief devices, rupture disks, safety relief valves, and similar openings that will vent only under abnormal conditions.

Emission Point ID <sup>1</sup>	Equipment to Relief Vent (type, ID if available) <sup>2</sup>	Relief Vents (type) & Set Pressure (psig)	Name of Chemical(s) or Pollutants Controlled	Worst Case Emission per Release Event (lbs)
N/A	L#1 Dryer	RD (2) 1.45	Dust explosion	3000
B30E	Cyclone B30	RD 1.5	PVB*, Dust expl.	1000
B30E	Baghouse B30C	Braxton Doors	Dust explosion	500
B32AE	Rework Filter B32A	RD 2.5	PVB, Dust expl.	100
N/A	Silo Inlet Bagfilter	RD 2.9	PVB, Dust expl.	100
N/A	Silo Inlet Loop	RV 8.5	Air**	10 (PVB)
N/A	L#1 Silo	CV 0.25	Air**	0.1 (PVB)
N/A	L#1 Silo	Expl. Panels (2) 1.45	Dust explosion	1000
N/A	L#1 Silo Out. Bagfilter	RD 2.9	PVB, Dust expl.	100
N/A	L#1 Silo Outlet Loop	RV 4.0	Air**	20 (PVB)
N/A	L#1 Silo Outlet Loop	CV 0.8	Air**	50 (PVB)
N/A	L#2 Dryer	RD***	Dust explosion	4000
B33E	Cyclone B33	RD	PVB, Dust expl.	1000
B33E	Baghouse B33C	Braxton Doors	Dust explosion	500
B34E	Rework filter B34	RD	PVB, Dust expl.	100
N/A	L#2 Loop 1	RV	Air**	100
N/A	L#2 Bagfilter	RD	PVB, Dust expl.	100 (PVB)
N/A	L#2 Loop 2A	RV	Air**	20 (PVB)
N/A	L#2 Loop 2A	CV	Air**	50 (PVB)
N/A	L#2 Loop 2B	RV	Air**	20 (PVB)
N/A	L#2 Loop 2B	CV	Air**	50 (PVB)
			* Polyvinyl butryal	
			** Unless major upset	
			*** Number TBD	

All routine vents (non-emergency) should be listed on the *Emission Points Data Summary Sheet*.

<sup>1</sup> Indicate the emission point, if any, to which source equipment normally vents. Do not assign emission point ID numbers to each emergency relief vent or device.

<sup>2</sup> List all emergency relief devices next to the piece of equipment from which they control releases.

## LEAK SOURCE DATA SHEET

Source Category	Pollutant	Number of Source Components <sup>1</sup>	Number of Components Monitored by Frequency <sup>2</sup>	Average Time to Repair (days) <sup>3</sup>	Estimated Annual Emission Rate (lb/yr) <sup>4</sup>
Pumps <sup>5</sup>	light liquid VOC <sup>6,7</sup>	0	N/A	N/A	N/A
	heavy liquid VOC <sup>8</sup>	7	0	2	138
	Non-VOC <sup>9</sup>	0	N/A	N/A	N/A
Valves <sup>10</sup>	Gas VOC	0	N/A	N/A	N/A
	Light Liquid VOC	0	N/A	N/A	N/A
	Heavy Liquid VOC	63	0	1	583
	Non-VOC	0	N/A	N/A	N/A
Safety Relief Valves <sup>11</sup>	Gas VOC	0	N/A	N/A	N/A
	Non VOC	0	N/A	N/A	N/A
	VOC	1	0	N/A	17
Open-ended Lines <sup>12</sup>	Non-VOC	0	N/A	N/A	N/A
	VOC	0	N/A	N/A	N/A
	Non-VOC	0	N/A	N/A	N/A
Sampling Connections <sup>13</sup>	VOC	0	N/A	N/A	N/A
	Non-VOC	0	N/A	N/A	N/A
	VOC	0	N/A	N/A	N/A
Compressors	VOC	0	N/A	N/A	N/A
	Non-VOC	0	N/A	N/A	N/A
	VOC	150	0	1	46
Flanges	Non-VOC	0	N/A	N/A	N/A
	VOC	0	N/A	N/A	N/A
	Non-VOC	0	N/A	N/A	N/A
Other	VOC	N/A	N/A	N/A	N/A
	Non-VOC	2	0	7	<20

1 - 13 See notes on the following page.

## Notes for Leak Source Data Sheet

1. For VOC sources include components on streams and equipment that contain greater than 10% w/w VOC, including feed streams, reaction/separation facilities, and product/by-product delivery lines. Do not include certain leakless equipment as defined below by category.
2. By monitoring frequency, give the number of sources routinely monitored for leaks, using a portable detection device that measures concentration in ppm. Do not include monitoring by visual or soap-bubble leak detection methods. "M/Q(M)/Q/SA/A/O" means the time period between inspections as follows:  
  
Monthly/Quarterly, with Monthly follow-up of repaired leakers/Quarterly/Semi-annual/Annually/Other (specify time period)  
  
If source category is not monitored, a single zero in the space will suffice. For example, if 50 gas-service valves are monitored quarterly, with monthly follow-up of those repaired, 75 are monitored semi-annually, and 50 are checked bimonthly (alternate months), with non checked at any other frequency, you would put in the category "valves, gas service:" 0/50/0/75/0/50 (bimonthly).
3. Give the average number of days, after a leak is discovered, that an attempt will be made to repair the leak.
4. Note the method used: MB - material balance; EE - engineering estimate; EPA - emission factors established by EPA (cite document used); O - other method, such as in-house emission factor (specify).
5. Do not include in the equipment count sealless pumps (canned motor or diaphragm) or those with enclosed venting to a control device. (Emissions from vented equipment should be included in the estimates given in the Emission Points Data Sheet.)
6. Volatile organic compounds (VOC) means the term as defined in 40 CFR §51.100 (s).
7. A light liquid is defined as a fluid with vapor pressure equal to or greater than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if 20% w/w or more of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a light liquid.
8. A heavy liquid is defined as a fluid with a vapor pressure less than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if less than 20% w/w of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a heavy liquid.
9. LIST CO, H<sub>2</sub>S, mineral acids, NO, NO<sub>2</sub>, SO<sub>3</sub>, etc. DO NOT LIST CO<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
10. Include all process valves whether in-line or on an open-ended line such as sample, drain and purge valves. Do not include safety-relief valves, or leakless valves such as check, diaphragm, and bellows seal valves.
11. Do not include a safety-relief valve if there is a rupture disk in place upstream of the valve, or if the valve vents to a control device.
12. Open-ended lines include purge, drain and vent lines. Do not include sampling connections, or lines sealed by plugs, caps, blinds or second valves.
13. Do not include closed-purge sampling connections.



**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): B30

<p>1. Name or type and model of proposed affected source:</p> <p>Cyclone Fisher-Klosterman, Inc.</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>Polyvinyl Butyral                  Redacted</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>Polyvinyl Butyral                  Redacted</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>None</p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

*Page revised 7/15/2015*

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*name of material no longer redacted*

6. Combustion Data (if applicable):					
(a) Type and amount in appropriate units of fuel(s) to be burned:					
N/A					
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:					
N/A					
(c) Theoretical combustion air requirement (ACF/unit of fuel):					
N/A	@	N/A	°F and	N/A	psia.
(d) Percent excess air: N/A					
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:					
N/A					
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:					
N/A					
(g) Proposed maximum design heat input: N/A × 10 <sup>6</sup> BTU/hr.					
7. Projected operating schedule:					
Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	Redacted	°F and	Redacted	psia
a. NO <sub>x</sub>		N/A lb/hr	N/A	grains/ACF
b. SO <sub>2</sub>		N/A lb/hr	N/A	grains/ACF
c. CO		N/A lb/hr	N/A	grains/ACF
d. PM <sub>10</sub>		0 lb/hr	0	grains/ACF
e. Hydrocarbons		N/A lb/hr	N/A	grains/ACF
f. VOCs		N/A lb/hr	N/A	grains/ACF
g. Pb		N/A lb/hr	N/A	grains/ACF
h. Specify other(s)				
PM	2.4	lb/hr	0.0068	grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

page revised 7/15/2015

*concentration no longer redacted*

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

See Attachment O

**RECORDKEEPING**

See Attachment O

**REPORTING**

See Attachment O

**TESTING**

See Attachment O

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty  
Inspections during planned outages to ensure mechanical integrity

*page revised 7/15/2015*

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*no change*

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

See Appendix O

**RECORDKEEPING**

See Appendix O

**REPORTING**

See Appendix O

**TESTING**

See Appendix O

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

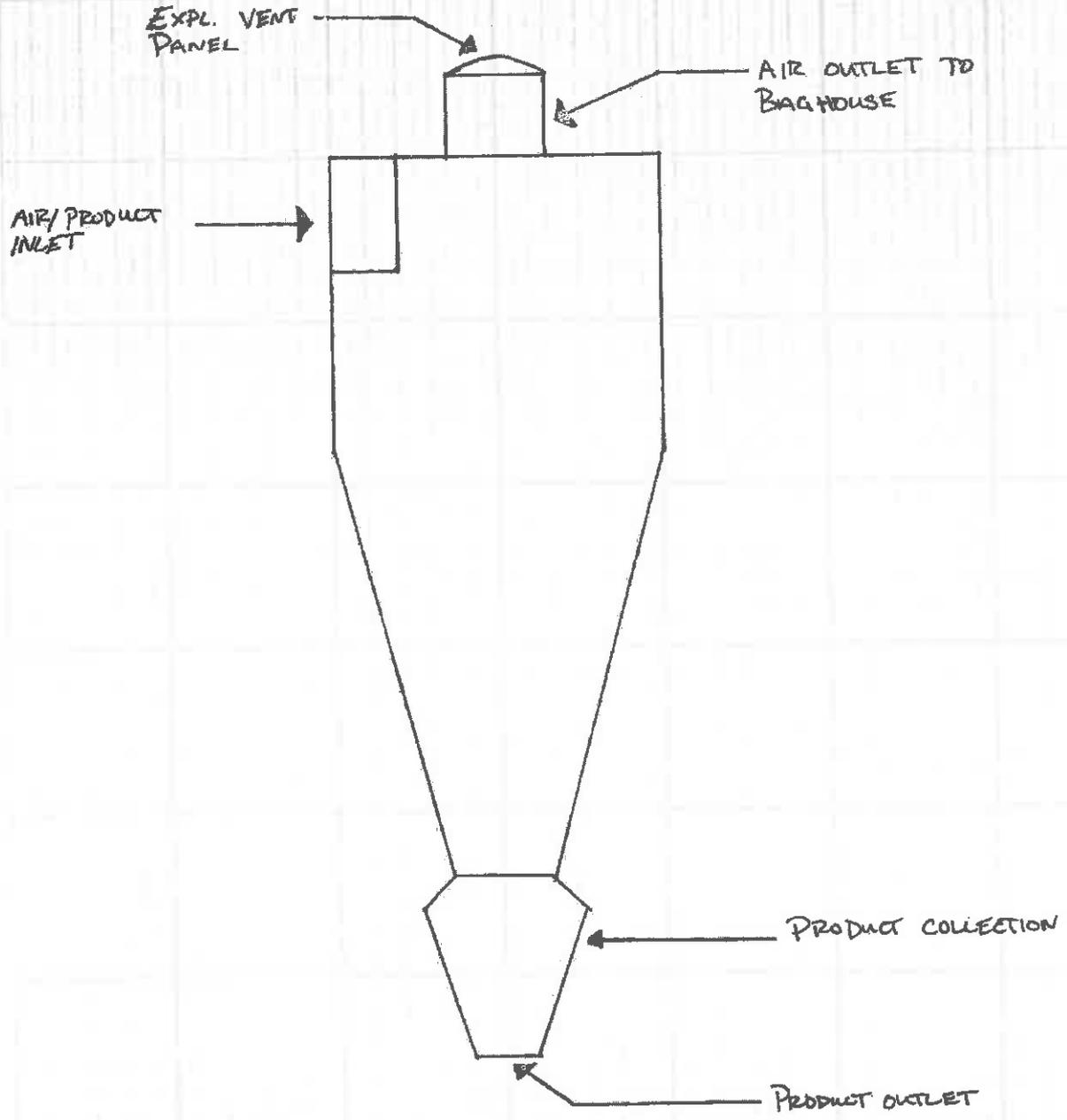
Inspections during planned outages to ensure mechanical integrity



Architects • Engineers • Surveyors

CLIENT KURARAY SHEET NO. \_\_\_\_\_  
 PROJECT \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 SUBJECT ATTACHMENT L - CYCLONE B30 DATE \_\_\_\_\_  
 BY/CHKD. JPF

2. AN AIR/PRODUCT MIXTURE ENTERS THE TOP OF THE CYCLONE FROM THE DRYER. THE AIR/PRODUCT STREAM GOES THROUGH THE BODY OF THE CYCLONE UNTIL IT REACHES THE BOTTOM OF THE CONE WHEN THE AIR CONTINUES OUT THE TOP SECTION AND ONTO THE BAGHOUSE. THE PRODUCT EXITS OUT OF THE BOTTOM OF THE COLLECTOR AND RETURNS TO THE DRYER.



2099 E.State St. Suite B  
 Athens, OH 45701  
 740.593.3327

11283 Emerson Ave.  
 Parkersburg, WV 26104  
 304.464.5365

326 3rd Street, Suite 3  
 Marietta, OH 45750  
 740.374.2396

[www.pickeringusa.com](http://www.pickeringusa.com)

**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): B32A

<p>1. Name or type and model of proposed affected source:</p> <p>Vacuum Bag Filter</p> <p>Young Industries Inc. VC48-16-40</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>Polyvinyl butyral</p> <p>Redacted</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>Polyvinyl butyral</p> <p>Redacted (return to dryer or to waste bin) 0.4 lb/hr (exhaust to atmosphere)</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>N/A</p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

<b>6. Combustion Data (if applicable):</b>			
<b>(a) Type and amount in appropriate units of fuel(s) to be burned:</b>			
None			
<b>(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:</b>			
N/A			
<b>(c) Theoretical combustion air requirement (ACF/unit of fuel):</b>			
N/A	@	N/A	°F and N/A psia.
<b>(d) Percent excess air:</b>			
<b>(e) Type and BTU/hr of burners and all other firing equipment planned to be used:</b>			
N/A			
<b>(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:</b>			
N/A			
<b>(g) Proposed maximum design heat input:</b>			
		N/A	× 10 <sup>6</sup> BTU/hr.
<b>7. Projected operating schedule:</b>			
Hours/Day	1	Days/Week	1
		Weeks/Year	12

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	Redacted	°F and	Redacted	psia
a. NO <sub>x</sub>		N/A lb/hr	N/A	grains/ACF
b. SO <sub>2</sub>		N/A lb/hr	N/A	grains/ACF
c. CO		N/A lb/hr	N/A	grains/ACF
d. PM <sub>10</sub>		0 lb/hr	0	grains/ACF
e. Hydrocarbons		N/A lb/hr	N/A	grains/ACF
f. VOCs		N/A lb/hr	N/A	grains/ACF
g. Pb		N/A lb/hr	N/A	grains/ACF
h. Specify other(s)				
PM		0.4 lb/hr	0.097	grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

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*concentration not confidential*

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

See Attachment O

**RECORDKEEPING**

See Attachment O

**REPORTING**

See Attachment O

**TESTING**

See Attachment O

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

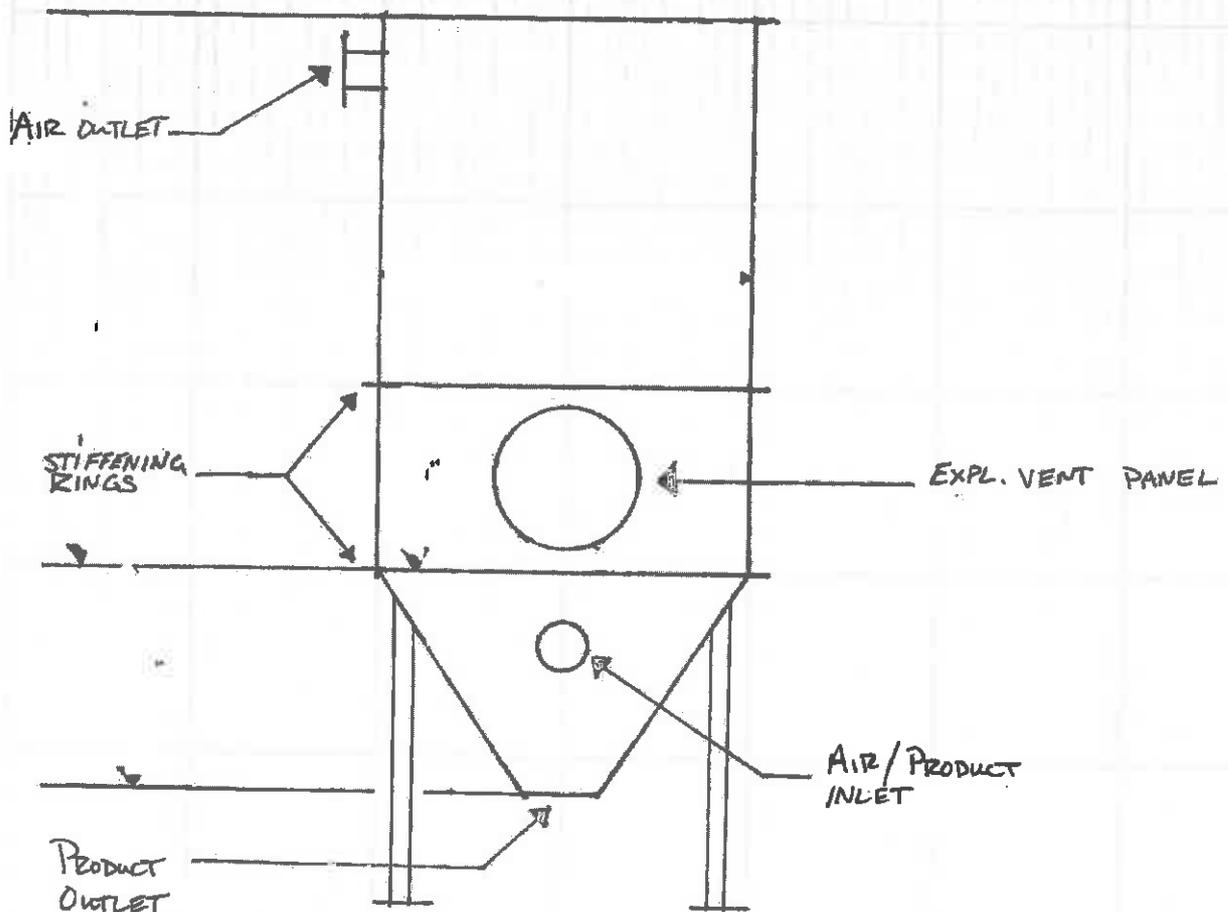
Change filter bags during routine outages, currently scheduled every 12 to 18 months.

*no change*

CLIENT KURABAY SHEET NO. \_\_\_\_\_  
 PROJECT \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 SUBJECT ATTACHMENT L- REWORK BAG FILTER SKETCH BY/CHKD. JPF  
 DATE \_\_\_\_\_

B32A

2. THE AIR/PRODUCT MIXTURE ENTERS THE LOWER SECTION OF THE BAG FILTER. THE AIR IS THEN DRAWN THROUGH THE FILTER MEDIA AND EXHAUSTED THROUGH THE OUTLET BLOWER (NOT SHOWN). THE PRODUCT THEN EXITS THE BOTTOM OF THE FILTER INTO A ROTARY VALVE (NOT SHOWN) FOR FURTHER PROCESSING.



**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): B33

<p>1. Name or type and model of proposed affected source:</p> <p>Cyclone</p> <p>Manufacturer to be determined</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>Polyvinyl Butyral      Redacted</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>Polyvinyl Butyral      Redacted</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>None</p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

page revised 7/15/2015

56 R

Page 1 of 4

Revision 03/2007

chemical name not confidential

6. Combustion Data (if applicable):					
(a) Type and amount in appropriate units of fuel(s) to be burned:					
N/A					
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:					
N/A					
(c) Theoretical combustion air requirement (ACF/unit of fuel):					
N/A	@	N/A	°F and	N/A	psia.
(d) Percent excess air: N/A					
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:					
N/A					
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:					
N/A					
(g) Proposed maximum design heat input: N/A × 10 <sup>6</sup> BTU/hr.					
7. Projected operating schedule:					
Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	Redacted	°F and	Redacted	psia
a. NO <sub>x</sub>	N/A	lb/hr	N/A	grains/ACF
b. SO <sub>2</sub>	N/A	lb/hr	N/A	grains/ACF
c. CO	N/A	lb/hr	N/A	grains/ACF
d. PM <sub>10</sub>	0	lb/hr	0	grains/ACF
e. Hydrocarbons	N/A	lb/hr	N/A	grains/ACF
f. VOCs	N/A	lb/hr	N/A	grains/ACF
g. Pb	N/A	lb/hr	N/A	grains/ACF
h. Specify other(s)				
PM	3.4	lb/hr	0.0058	grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

*page revised 7/15/2015*

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

See Attachment O

**RECORDKEEPING**

See Attachment O

**REPORTING**

See Attachment O

**TESTING**

See Attachment O

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

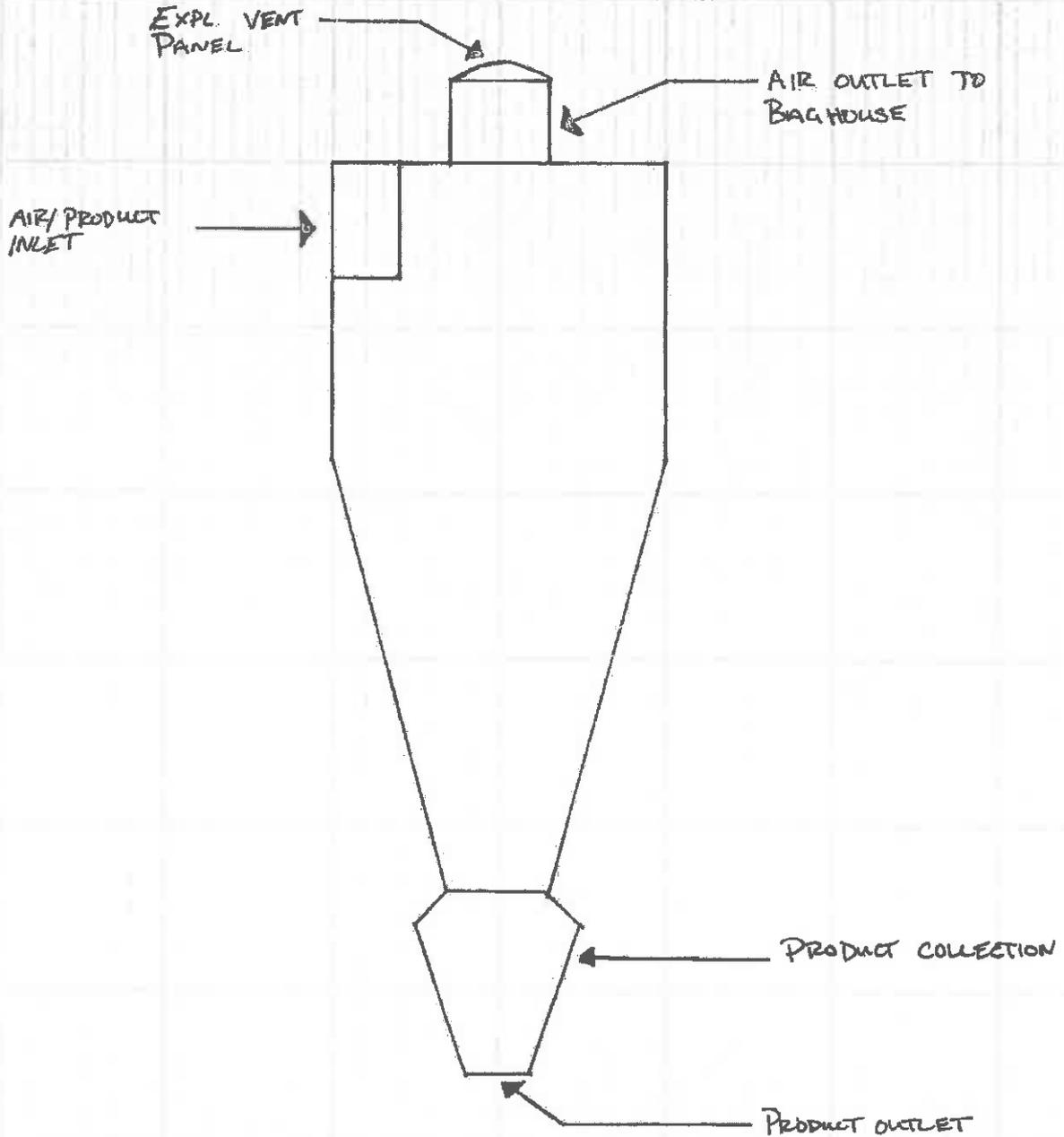
Inspections during planned outages to ensure mechanical integrity



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CLIENT KURABAY SHEET NO. \_\_\_\_\_  
 PROJECT \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 SUBJECT ATTACHMENT L - CYCLONE B33 DATE \_\_\_\_\_  
 BY/CHKD. JPF

2. AN AIR/PRODUCT MIXTURE ENTERS THE TOP OF THE CYCLONE FROM THE DRYER. THE AIR/PRODUCT STREAM GOES THROUGH THE BODY OF THE CYCLONE UNTIL IT REACHES THE BOTTOM OF THE CONE WHEN THE AIR CONTINUES OUT THE TOP SECTION AND ONTO THE BAGHOUSE. THE PRODUCT EXITS OUT OF THE BOTTOM OF THE COLLECTOR AND RETURNS TO THE DRYER.



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 740.374.2396

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**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): B34

<p>1. Name or type and model of proposed affected source:</p> <p>Vacuum Bag Filter Young Industries, Inc.</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>Polyvinyl butyral Redacted</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>Polyvinyl butyral Redacted (return to dryer or to waste bin) 0.56 lb/hr (exhaust to atmosphere)</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>None</p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

• 11L

6. Combustion Data (if applicable):					
(a) Type and amount in appropriate units of fuel(s) to be burned:					
N/A					
(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:					
N/A					
(c) Theoretical combustion air requirement (ACF/unit of fuel):					
N/A	@	N/A	°F and	N/A	psia.
(d) Percent excess air:					
(e) Type and BTU/hr of burners and all other firing equipment planned to be used:					
N/A					
(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:					
N/A					
(g) Proposed maximum design heat input:					
			N/A	× 10 <sup>6</sup> BTU/hr.	
7. Projected operating schedule:					
Hours/Day	1	Days/Week	1	Weeks/Year	12

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	Redacted	°F and	Redacted	psia
a. NO <sub>x</sub>		N/A lb/hr	N/A	grains/ACF
b. SO <sub>2</sub>		N/A lb/hr	N/A	grains/ACF
c. CO		N/A lb/hr	N/A	grains/ACF
d. PM <sub>10</sub>		0 lb/hr	0.0	grains/ACF
e. Hydrocarbons		N/A lb/hr	N/A	grains/ACF
f. VOCs		N/A lb/hr	N/A	grains/ACF
g. Pb		N/A lb/hr	N/A	grains/ACF
h. Specify other(s)				
PM		0.56 lb/hr	0.065	grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF
		lb/hr		grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

page revised 7/15/2015

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

See Attachment O

**RECORDKEEPING**

See Attachment O

**REPORTING**

See Attachment O

**TESTING**

See Attachment O

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

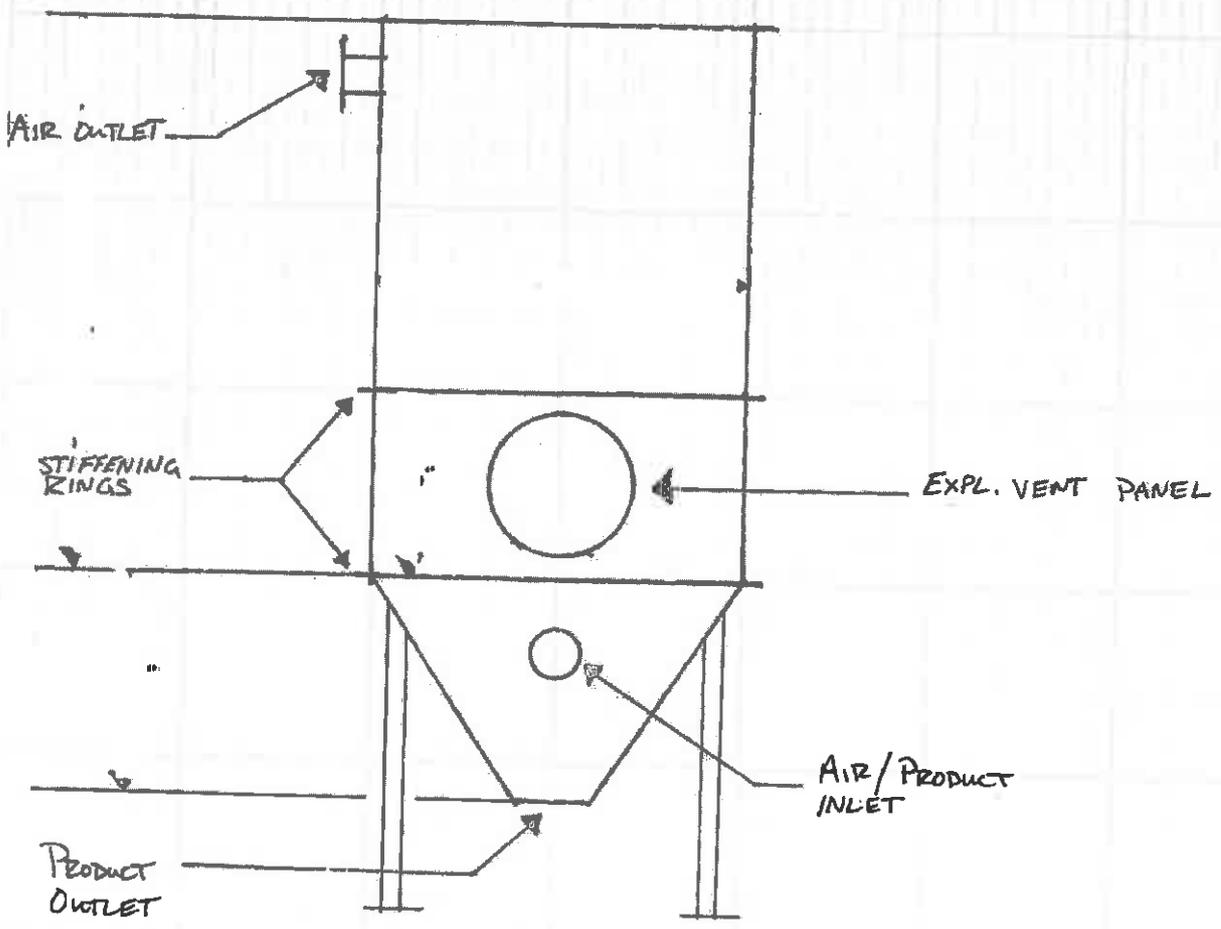
10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty  
Change filter bags during routine outages, currently scheduled every 12 to 18 months.



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CLIENT KURABAY SHEET NO. \_\_\_\_\_  
PROJECT \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
SUBJECT ATTACHMENT L- REWORK BAG FILTER SKETCH BY/CHKD. JPF DATE \_\_\_\_\_  
B34

2. THE AIR/PRODUCT MIXTURE ENTERS THE LOWER SECTION OF THE BAG FILTER. THE AIR IS THEN DRAWN THROUGH THE FILTER MEDIA AND EXHAUSTED THROUGH THE OUTLET BLOWER (NOT SHOWN). THE PRODUCT THEN EXITS THE BOTTOM OF THE FILTER INTO A ROTARY VALVE (NOT SHOWN) FOR FURTHER PROCESSING.



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22. Type of Pollutant(s) to be collected (if particulate give specific type):  
PM

23. Is there any SO<sub>3</sub> in the emission stream?  No  Yes SO<sub>3</sub> content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

Pollutant	IN		OUT	
	lb/hr	grains/acf	lb/hr	grains/acf
PM	2.4	0.0068	0.0024	6.8 x 10 <sup>-6</sup>

25. Complete the table:

Particulate Size Range (microns)	Particle Size Distribution at Inlet to Collector		Fraction Efficiency of Collector	
	Weight % for Size Range		Weight % for Size Range	
0 - 2	PS Dist'n redacted		min 99.9	
2 - 4			for all extant ranges	
4 - 6				
6 - 8				
8 - 10				
10 - 12				
12 - 16				
16 - 20				
20 - 30				
30 - 40				
40 - 50				
50 - 60				
60 - 70				
70 - 80				
80 - 90				
90 - 100				
>100				

67R

concentration not confidential

26. How is filter monitored for indications of deterioration (e.g., broken bags)?

- Continuous Opacity
- Pressure Drop
- Alarms-Audible to Process Operator
- Visual opacity readings, Frequency: Calendar month, 45 day max.
- Other, specify:

27. Describe any recording device and frequency of log entries:  
Process historian on a continuous basis

28. Describe any filter seeding being performed:  
N/A

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):  
N/A

30. Describe the collection material disposal system:  
Redacted.

31. Have you included **Baghouse Control Device** in the Emissions Points Data Summary Sheet? Yes

**32. Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

See Attachment O

RECORDKEEPING:

See Attachment O

REPORTING:

See Attachment O

TESTING:

See Attachment O

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

**33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.**  
Assumed at 100% for a hard-piped connection to the control device.

**34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.**

The manufacturer has provided a performance expectation to meet or exceed 99.9% removal efficiency with a particle size of 2.0 microns or larger. This expectation is not be construed as a guarantee.

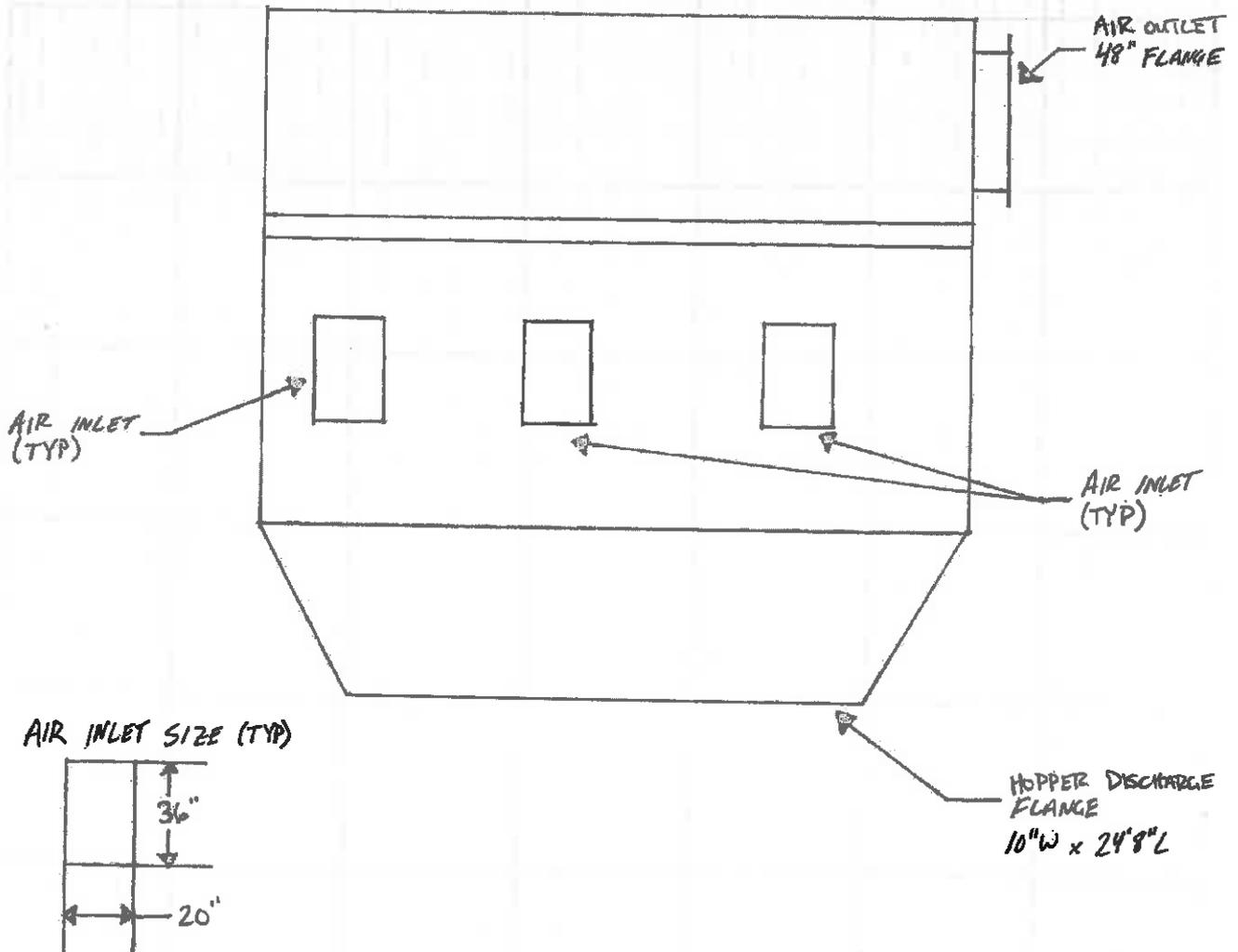
**35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.**  
N/A

*no change*

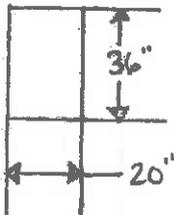
CLIENT KURARAY SHEET NO. \_\_\_\_\_  
 PROJECT \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 SUBJECT ATTACHMENT M - BAGHOUSE SKETCH DATE \_\_\_\_\_  
 BY/CHKD. JPF

4. AIR (WITH SMALL AMOUNT OF FINES) ENTERS THE BAGHOUSE THROUGH ONE OF THREE INLET DUCTS. THE AIR THEN PASSES THROUGH THE FILTER MEDIA BEFORE BEING DISCHARGED TO THE ATMOSPHERE BY THE BLOWER (NOT SHOWN). THE SOLIDS COLLECTED ARE DISPOSED OF AS NON-HAZARDOUS SOLID WASTE.

\* DISCHARGE BLOWER = 200 HP



AIR INLET SIZE (TYP)



page revised 7/15/2015



22. Type of Pollutant(s) to be collected (if particulate give specific type):  
PM

23. Is there any SO<sub>3</sub> in the emission stream?  No  Yes SO<sub>3</sub> content: ppmv

24. Emission rate of pollutant (specify) into and out of collector at maximum design operating conditions:

Pollutant	IN		OUT	
	lb/hr	grains/acf	lb/hr	grains/acf
PM	3.4	0.0058	0.0034	5.8 x10 <sup>-6</sup>

25. Complete the table:

Particulate Size Range (microns)	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
	Weight % for Size Range	Weight % for Size Range
0 - 2	PS Dist'n redacted	Min 99.9
2 - 4	0	For all extant ranges
4 - 6	0	
6 - 8	0	
8 - 10	0	
10 - 12	0	
12 - 16	0	
16 - 20	0	
20 - 30	0	
30 - 40	0	
40 - 50	0	
50 - 60	0	
60 - 70	0.11	99.9
70 - 80	0.28	99.9
80 - 90	0.475	99.9
90 - 100	0.59	99.9
>100	>99	99.9

26. How is filter monitored for indications of deterioration (e.g., broken bags)?

- Continuous Opacity
- Pressure Drop
- Alarms-Audible to Process Operator
- Visual opacity readings, Frequency: Calendar month, 45 days/max
- Other, specify:

27. Describe any recording device and frequency of log entries:  
 Process historian on a continuous basis

28. Describe any filter seeding being performed:

N/A

29. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

N/A

30. Describe the collection material disposal system:

Collected in bins and disposed of as non-hazardous solid waste.

31. Have you included **Baghouse Control Device** in the Emissions Points Data Summary Sheet? Yes

*nothing redacted*  
*redacted*

**32. Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

See Attachment O

RECORDKEEPING:

See Attachment O

REPORTING:

See Attachment O

TESTING:

See Attachment O

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

**33. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.**

Assume at 100% for a hard-piped connection to the control device.

**34. Manufacturer's Guaranteed Control Efficiency for each air pollutant.**

The manufacturer has provided a performance expectation to meet or exceed 99.9% removal efficiency with a particle size of 2.0 microns or larger. This expectation is not be construed as a guarantee.

**35. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.**

N/A



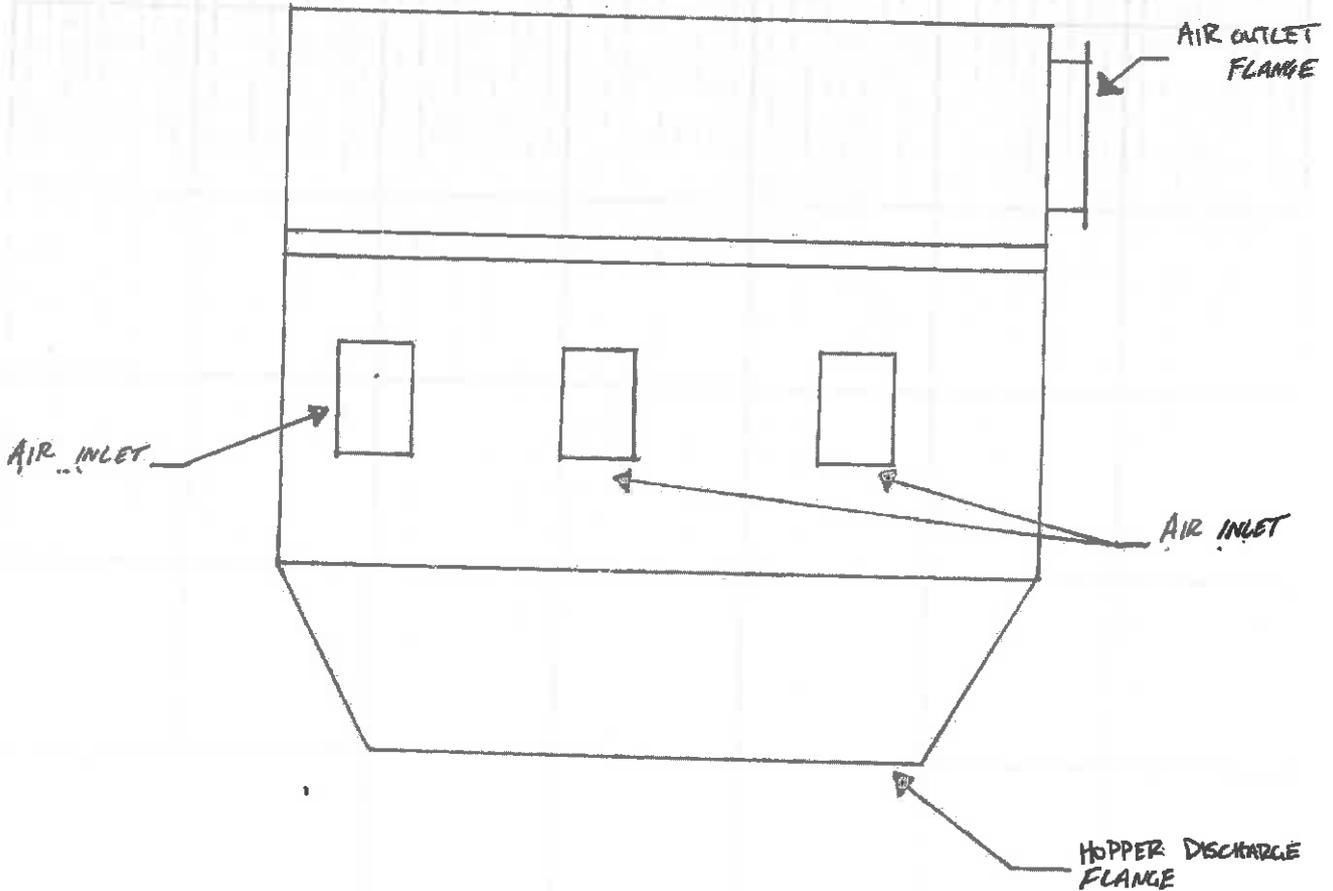
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B 33 C

CLIENT KURARAY SHEET NO. \_\_\_\_\_  
 PROJECT \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 SUBJECT ATTACHMENT M - BAGHOUSE SKETCH DATE \_\_\_\_\_  
 BY/CHKD. JPF

4. AIR (WITH SMALL AMOUNT OF FINES) ENTERS THE BAGHOUSE THROUGH ONE OF THREE INLET DUCTS. THE AIR THEN PASSES THROUGH THE FILTER MEDIA BEFORE BEING DISCHARGED TO THE ATMOSPHERE BY THE BLOWER (NOT SHOWN). THE SOLIDS COLLECTED ARE DISPOSED OF AS NON-HAZARDOUS SOLID WASTE.

\* DISCHARGE BLOWER = 200 HP



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**ATTACHMENT N  
SUPPORTING CALCULATIONS**

**Line #1 Dryer – Cyclone Operational Testing**

Item	Value
Ratio of fines to cyclone to dryer throughput with no return from cyclone to dryer	REDACTED
Ave # times fines particles recirculate dryer > cyclone > dryer with normal operation	REDEACTED

**EMISSION CALCULATIONS**

**Uncontrolled Emissions – Line #1 Cyclone (B30)**

Line #1 max thruput = REDACTED

Stream, fines to cyclone = REDACTED x REDACTED x REDACTED = REDACTED

Minimum expected cyclone efficiency = REDACTED

Stream, fines to bag house = REDACTED x (1 – REDACTED) = 2.4 lb/hr Hourly uncontrolled emissions  
 $2.4 \times 8760/2000 = 11 \text{ ton/yr Annual uncontrolled emissions}$

**Controlled Emissions - Line #1 Cyclone (B30)**

Minimum expected bag house efficiency = 99.9%

Stream, fines to atmos. =  $2.4 \times (1 - 0.999) = 0.0024 \text{ lb/hr Hourly controlled emissions}$   
 $0.0024 \times 8760/2000 = 0.011 \text{ ton/yr Annual controlled emissions}$

**Uncontrolled Emissions – Line #2 Cyclone (B33)**

Line # is being designed with a 40% capacity increase vs Line#1, but otherwise uses the same design.  
 Assume the dryer-cyclone recirculation behaves the same as in Line#1

Line #2 max thruput = REDACTED

Fines to cyclone (Line #2) = REDACTED x REDACTED x REDACTED = REDACTED

Minimum expected cyclone efficiency = REDACTED

Stream, fines to bag house = REDACTEDx (1 – REDACTED) = 3.36 lb/hr Hourly uncontrolled emissions  
 $3.36 \times 8760/2000 = 15 \text{ ton/yr Annual uncontrolled emissions}$

76-1R

*confidential* page revised 7/15/2015

*• Calculations no longer ~~confidential~~*

B33

**Controlled Emissions - Line #2 Cyclone (B30)**

Minimum expected bag house efficiency = 99.9%

Stream, fines to atmos. =  $3.36 \times (1 - 0.999) = 0.0034$  lb/hr Hourly controlled emissions

$0.00336 \times 8760/2000 = 0.015$  ton/yr Annual controlled emissions

**Emissions - Line #1 Rework Bagfilter (B32A)**

Max inlet stream to rework filter occurs when the max dryer output stream is recirculated to the dryer feed via the rework bag filter = REDACTED

Minimum expected Bagfilter efficiency = REDACTED

Stream, fines to atmos. = REDACTED  $\times (1 - \text{REDACTED}) = 0.4$  lb/hr Hourly emissions

$0.4 \times 8760/2000 = 1.75$  ton/yr Annual emissions

**Emissions - Line #2 Rework Bagfilter (B34)**

Max inlet stream to rework filter occurs when the max dryer output stream is recirculated to the dryer feed via the rework bag filter = REDACTED

Minimum expected Bagfilter efficiency = REDACTED

Stream, fines to atmos. = REDACTED  $\times (1 - \text{REDACTED}) = 0.56$  lb/hr Hourly emissions

$0.56 \times 8760/2000 = 2.45$  ton/yr Annual emissions

76-2R

calculations no longer confidential

Page revised 7/15/2015

## CONCENTRATION CALCULATIONS

### Line #1 Bag House (B30C)

Air flow through bag house = 41,000 ft<sup>3</sup>/min

Inlet particulate flow = 2.4 lb/hr

Inlet conc. = (2.4/60) / 41000 =  $9.76 \times 10^{-7}$  lb/ft<sup>3</sup> = 16 mg/M<sup>3</sup> = 0.0068 grains/ft<sup>3</sup>

Outlet particulate flow = 0.0024 lb/hr

Outlet conc. = (0.0024/60)/41000 =  $9.76 \times 10^{-10}$  lb/ft<sup>3</sup> = 0.016 mg/M<sup>3</sup> =  $6.8 \times 10^{-6}$  grains/ft<sup>3</sup>

### Line #2 Bag House (B33C)

Air flow through bag house = 67,500 ft<sup>3</sup>/min

Inlet particulate flow = 3.36 lb/hr

Inlet conc. = (3.36/60) / 67500 =  $8.30 \times 10^{-7}$  lb/ft<sup>3</sup> = 13 mg/M<sup>3</sup> = 0.0058 grains/ft<sup>3</sup>

Outlet particulate flow = 0.00336 lb/hr

Outlet conc. = (0.00336/60)/67500 =  $8.30 \times 10^{-10}$  lb/ft<sup>3</sup> = 0.013 mg/M<sup>3</sup> =  $5.8 \times 10^{-6}$  grains/ft<sup>3</sup>

### Line #1 Rework Bagfilter (B32A)

Air flow through bagfilter = 480 ft<sup>3</sup>/min

Inlet particulate flow = 4000 lb/hr

Inlet conc. = (4000/60) / 480 = 0.139 lb/ft<sup>3</sup> = 972 grains/ft<sup>3</sup>

Outlet particulate flow = 0.4 lb/hr

Outlet conc. = (0.4/60)/480 =  $1.39 \times 10^{-5}$  lb/ft<sup>3</sup> = 223 mg/M<sup>3</sup> = 0.0972 grains/ft<sup>3</sup>

### Line #2 Rework Bagfilter (B34)

Air flow through bagfilter = 1000 ft<sup>3</sup>/min

Inlet particulate flow = 5600 lb/hr

Inlet conc. = (5600/60) / 1000 = 0.093 lb/ft<sup>3</sup> = 653 grains/ft<sup>3</sup>

Outlet particulate flow = 0.56 lb/hr

Outlet conc. = (0.56/60)/1000 =  $9.33 \times 10^{-6}$  lb/ft<sup>3</sup> = 150 mg/M<sup>3</sup> = 0.0653 grains/ft<sup>3</sup>

76-3R

● calculations

page revised 7/15/201

## ATTACHMENT O MONITORING, RECORDKEEPING, REPORTING, AND TESTING PLANS

### Monitoring

To determine compliance with the opacity limits of 45CSR7 visible emission checks and / or opacity monitoring and recordkeeping shall be conducted for emission points B30E, B32AE, B33E, and B34E, the emission points from the four emission sources subject to an opacity limit.

- a. The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 C.F.R. 60, Appendix A, Method 22.
- b. Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each emission point for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of normal facility operation and appropriate weather conditions.
- c. If visible emissions are present at a source(s) for three (3) consecutive monthly checks, an opacity reading at that source(s) shall be conducted using the procedures and requirements of 45CSR7A as soon as practicable, but within seventy-two (72) hours of the final visual emission check. A 45CSR7A observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

To demonstrate compliance of the closed loop brine system with 45CSR21 Section 37, field patrols will be conducted twice per day. Any equipment leaks from pumps or valves detected by AVO (audible, visual, olfactory) will be repaired and the repair verified per 45CSR 21 Section 37.7.

Operations personnel continuously monitor the cyclones and other key process equipment by a closed circuit TV system with video displays in the Control Room. Key process equipment are also included in the field patrols.

### Recordkeeping

Records shall be maintained of all filter bag changes and other maintenance on the two bag houses (B30C and B33C) for five (5) years.

Records of leaks from the brine system, repairs, and verification of repairs shall be maintained for five (5) years, as per 45CSR21 Sec 37.10.

### Reporting

Not applicable.

### Testing Plans

No testing is proposed, given operating experience with no opacity detection from the Line #1 emission points, since the EPA Method 21 monthly monitoring program began, about ten years ago.

**ATTACHMENT P  
PUBLIC NOTICE**

Following is the text of the Class I Legal Advertisement that will be run in the Parkersburg News and Sentinel on Wednesday, 6/17/2015.

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Notice is given that Kuraray America, Inc has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification to their existing 1990 R13 Permit for a product drying expansion. The plant is located on 8480 DuPont Road, in Washington, in Wood County, West Virginia. The latitude and longitude coordinates are: 39.2350 degrees north latitude, 81.6677 degrees west longitude.

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

PM (particulate)                      4.0 tons/yr

VOC (propylene glycol)            0.39 ton/yr

Startup of operation is planned to begin on or about the first day of August 2017. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the 17<sup>TH</sup> day Of June, 2015.

By: Kuraray America, Inc  
Mark H. Gaston  
Sr. Environmental Consultant  
8480 DuPont Road  
Washington, WV 26181

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A revision to this Attachment P containing the Affidavit of Publication will be mailed to the WV-DAQ after the advertisement has run.

**ATTACHMENT Q**  
**CONFIDENTIAL BUSINESS INFORMATION**

Two versions of this application are being provided. The one on white paper is suitable for public disclosure. The one on yellow paper is the complete application including business confidential information.

In the public disclosure version, data that are considered confidential information are noted "redacted". In the CBI version, pages containing confidential information are noted "CLAIMED CONFIDENTIAL June 14, 2015", at the top of the page. For convenience, the CBI version is "stand-alone"; it contains all the pages of the application. Pages with and without CBI can be distinguished by the presence or absence of the "CONFIDENTIAL" note in the page header.

A letter, M. H. Gaston to J. P. Fedczak, dated June 14, 2015 describing the CBI is being submitted with this application. The letter documents the reasons for confidentiality in relation to 45CSR31, and includes an attachment with cross-references to the permit pages with CBI and the corresponding justification codes.

**ATTACHMENT R  
AUTHORITY OF CORPORATION**

**Explanatory Note**

Christopher S. Shockey, the Unit Manger of Kuraray America Inc. Washington Works Plant would normally sign the permit application.

Mr. Shockey is traveling out of the country and is not currently available. To meet the permit timing requirements with the legal advertisement to be run this week, E. Ross Crews, Unit Manager of Kuraray America Inc., Fayetteville Works, and Mr. Shockey's supervisor is signing the application. Attachment R, "Authority of Corporation" has been included with this permit application.



**Attachment R  
AUTHORITY OF CORPORATION  
OR OTHER BUSINESS ENTITY (DOMESTIC OR FOREIGN)**

TO: The West Virginia Department of Environmental Protection,  
Division of Air Quality

DATE: June 15, 2015

ATTN.: Director

Corporation's / other business entity's Federal Employer I.D. Number 13-4119995

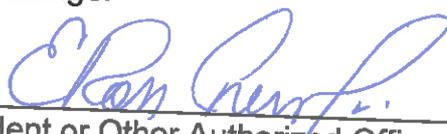
The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which is used in the conduct of an incorporated business or other business entity.

Further, the corporation or the business entity certifies as follows:

(1) E Ross Crews (is/are) the authorized representative(s) and in that capacity may represent the interest of the corporation or the business entity and may obligate and legally bind the corporation or the business entity.

(2) The corporation or the business entity is authorized to do business in the State of West Virginia.

(3) If the corporation or the business entity changes its authorized representative(s), the corporation or the business entity shall notify the Director of the West Virginia Department of Environmental Protection, Division of Air Quality, immediately upon such change.

  
June 15, 2015  
President or Other Authorized Officer  
(Vice President, Secretary, Treasurer or other  
official in charge of a principal business function of  
the corporation or the business entity)

(If not the President, then the corporation or the business entity must submit certified minutes or bylaws stating legal authority of other authorized officer to bind the corporation or the business entity).

\_\_\_\_\_  
Secretary

Kuraray America, Inc.  
\_\_\_\_\_  
Name of Corporation or business entity

