

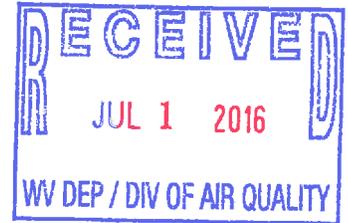


E. I. du Pont de Nemours and Company  
Washington Works  
Mail: P.O. Box 2800  
Washington, WV 26181-2800

CERTIFIED MAIL – 7007 1490 0001 6676 7128  
RETURN RECEIPT REQUESTED

June 30, 2016

William F. Durham, Director  
Division of Air Quality  
WV Department of Environmental Protection  
601 57th Street S.E.  
Charleston, WV 25304



Dear Mr. Durham:

RE: Class I Admin. Update Request for Regulation 13 Permit, R13-1533K

With this letter DuPont requests that a Class I Administrative Update be processed for the existing Regulation 13 permit, R13-1533K. The proposed change allows for replacement of a HEAF moving paper filter on emission point S293-E-03B with a water scrubber. The change will result in equivalent control efficiencies for particulate matter but will provide improved removal of formaldehyde emissions.

This permit application includes Attachment S to provide a Minor Modification request for the Title V permit.

In accordance with the Regulation 45CSR31 procedures, certain business confidential production/process information is enclosed in a separate envelope marked "Claimed Confidential" with a required cover document attached. As detailed in the cover document, the confidential information associated with this request needs to be kept separate and maintained as confidential material pursuant to Section 10, Article Five, Chapter Twenty-two of the West Virginia Code, as amended.

If you have any questions or need additional information, please contact Chris Shoop at (304) 863-2133 or by email at Chris.E.Shoop@dupont.com.

NON CONFIDENTIAL

Very truly yours,

Charles R. Hill  
SHE Manager  
DuPont Washington Works

Copy: Michael Egnor, WV DAQ  
Jay Fedczak, WV DAQ

Enclosures

I.D. No. 10700001 Reg. 13-1533L  
Company DuPont  
Facility WV Region 2  
Initials mc



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/daq](http://www.dep.wv.gov/daq)

**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     TEMPORARY  
 CLASS II ADMINISTRATIVE UPDATE     AFTER-THE-FACT

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

- ADMINISTRATIVE AMENDMENT     MINOR MODIFICATION  
 SIGNIFICANT 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): <b>E. I. du Pont de Nemours and Company</b>		2. Federal Employer ID No. (FEIN): <b>510014090</b>	
3. Name of facility (if different from above): <b>Washington Works</b>		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: <b>DuPont Washington Works P.O. Box 2800 Washington, WV 26181</b>		5B. Facility's present physical address: <b>DuPont Washington Works 8480 DuPont Road, Bldg 24 Washington, WV 26181</b>	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO - If YES, provide a copy of the <b>Certificate of Incorporation/Organization/Limited Partnership</b> (one page) including any name change amendments or other Business Registration Certificate as <b>Attachment A</b> . - If NO, provide a copy of the <b>Certificate of Authority/Authority of L.L.C./Registration</b> (one page) including any name change amendments or other Business Certificate as <b>Attachment A</b> .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO - If YES, please explain: <b>Owned by Applicant</b> - If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be <b>constructed, modified, relocated, administratively updated or temporarily permitted</b> (e.g., coal preparation plant, primary crusher, etc.): <b>Polymer Compounding Facility</b>		10. North American Industry Classification System (NAICS) code for the facility: <b>325211</b>	
11A. DAQ Plant ID No. (for existing facilities only): <b>107 - 00001</b>		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): <b>R13-1533K R30-10700001-2015 Segment 8 of 14</b>	

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



<p>12A.</p> <ul style="list-style-type: none"> <li>For <b>Modifications, Administrative Updates</b> or <b>Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road;</li> <li>For <b>Construction or Relocation permits</b>, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b>.</li> </ul> <p><b>North of State Route 892, Three miles west of intersection with Rt 68</b></p>		
<p>12.B. New site address (if applicable): <b>N/A</b></p>	<p>12C. Nearest city or town: <b>Washington</b></p>	<p>12D. County: <b>Wood</b></p>
<p>12.E. UTM Northing (KM): <b>442.103</b></p>	<p>12F. UTM Easting (KM): <b>4,346,800</b></p>	<p>12G. UTM Zone: <b>17</b></p>
<p>13. Briefly describe the proposed change(s) at the facility: <b>Application is submitted to replace existing S293-C03B, high efficiency paper air filter, with a wet recirculating scrubber control device for the extrusion die vent, S293-S-02B.</b></p>		
<p>14A. Provide the date of anticipated installation or change: <b>08/15/2016</b></p> <ul style="list-style-type: none"> <li>If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen:     /     /</li> </ul>	<p>14B. Date of anticipated Start-Up if a permit is granted: <b>08/29/2016</b></p>	
<p>14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change</b> to and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).</p>		
<p>15. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application:  Hours Per Day <b>24</b>      Days Per Week <b>7</b>      Weeks Per Year <b>52</b></p>		
<p>16. Is demolition or physical renovation at an existing facility involved?    <input type="checkbox"/> YES    <input checked="" type="checkbox"/> NO</p>		
<p>17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a>), submit your <b>Risk Management Plan (RMP)</b> to U. S. EPA Region III.</p>		
<p>18. <b>Regulatory Discussion.</b> List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (<i>if known</i>). 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 (<i>if known</i>). Provide this information as <b>Attachment D</b>.</p>		
<p><b>Section II. Additional attachments and supporting documents.</b></p>		
<p>19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).</p>		
<p>20. Include a <b>Table of Contents</b> as the first page of your application package.</p>		
<p>21. Provide a <b>Plot Plan</b>, 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 <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b>).</p> <ul style="list-style-type: none"> <li>Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).</li> </ul>		
<p>22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b>.</p>		
<p>23. Provide a <b>Process Description</b> as <b>Attachment G</b>.</p> <ul style="list-style-type: none"> <li>Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).</li> </ul>		
<p><b>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</b></p>		

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 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	

General Emission Unit, specify **Extrusion Die Head – but not included since only the control device will change**.

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 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 checked="" type="checkbox"/> Wet Collecting System

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**.

**Section III. Certification of Information**

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

<input checked="" type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**.

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

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

**Certification of Truth, Accuracy, and Completeness**

I, the undersigned  **Responsible Official** /  **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

**Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE J. Valvo (Please use blue ink) DATE: 6/30/16 (Please use blue ink)

35B. Printed name of signee: <b>Jay Valvo</b>		35C. Title: <b>Plant Manager</b>
35D. E-mail: <b>Jay.Valvo@dupont.com</b>	36E. Phone: <b>(304)863-2236</b>	36F. FAX: <b>(304)863-2190</b>
36A. Printed name of contact person (if different from above): <b>Charles R. Hill</b>		36B. Title: <b>SHE Manager</b>
36C. E-mail: <b>Charles-R.F.Hill-1@dupont.com</b>	36D. Phone: <b>(304)863-2202</b>	36E. FAX: <b>(304)863-2190</b>

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

<input checked="" type="checkbox"/> Attachment A: Business Certificate	<input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet
<input checked="" type="checkbox"/> Attachment B: Map(s)	<input type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)
<input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule	<input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s)
<input checked="" type="checkbox"/> Attachment D: Regulatory Discussion	<input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations
<input checked="" type="checkbox"/> Attachment E: Plot Plan	<input type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans
<input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)	<input type="checkbox"/> Attachment P: Public Notice
<input checked="" type="checkbox"/> Attachment G: Process Description	<input checked="" type="checkbox"/> Attachment Q: Business Confidential Claims
<input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS)	<input type="checkbox"/> Attachment R: Authority Forms
<input checked="" type="checkbox"/> Attachment I: Emission Units Table	<input checked="" type="checkbox"/> Attachment S: Title V Permit Revision Information
<input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet	<input type="checkbox"/> Application Fee

*Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.*

**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.*

**TABLE OF CONTENTS**

<b>Attachment or Emission Unit Description</b>	<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Page No.s</b>
Application Form			1
Table of Contents			5
ATTACHMENT A - Business Certificate			6
ATTACHMENT B - Map to Facility			7
ATTACHMENT C - Inst/Startup Schedule			8
ATTACHMENT D - Regulatory Discussion			9
ATTACHMENT E - Plot Plan			10
ATTACHMENT F - Process Diagram			11
ATTACHMENT G - Process Description			12
ATTACHMENT I - Emission Units Table			13
ATTACHMENT J - Emission Points Data Summary			16
ATTACHMENT M - Air Pollution Control Device Sheets			
SB Extruder Die	S293-S-02B	S293-S-02B	18
SD Extruder Die	S293-S-02D	S293-S-02D	
ATTACHMENT N – Calculations			
Example Calculations			22
CBI Calculations			23
ATTACHMENT O - Monit/Recordkeeping/Reporting			24
ATTACHMENT Q - Business Confidential Claims			25
ATTACHMENT S - Title V Permit Revision			26

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

ISSUED TO:  
**E I DUPONT DE NEMOURS & COMPANY INC  
8480 DUPONT RD PO BOX 1217  
WASHINGTON, WV 26181-8398**

**BUSINESS REGISTRATION ACCOUNT NUMBER: 1030-4756**

This certificate is issued on: **07/20/2010**

*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 cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a 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.

atL006 v.3  
L1795294976



ATTACHMENT C  
Installation/Startup Schedule

Installation is expected to commence on August 15, 2016. Startup will occur by the end of the month, probably on August 29, 2016.

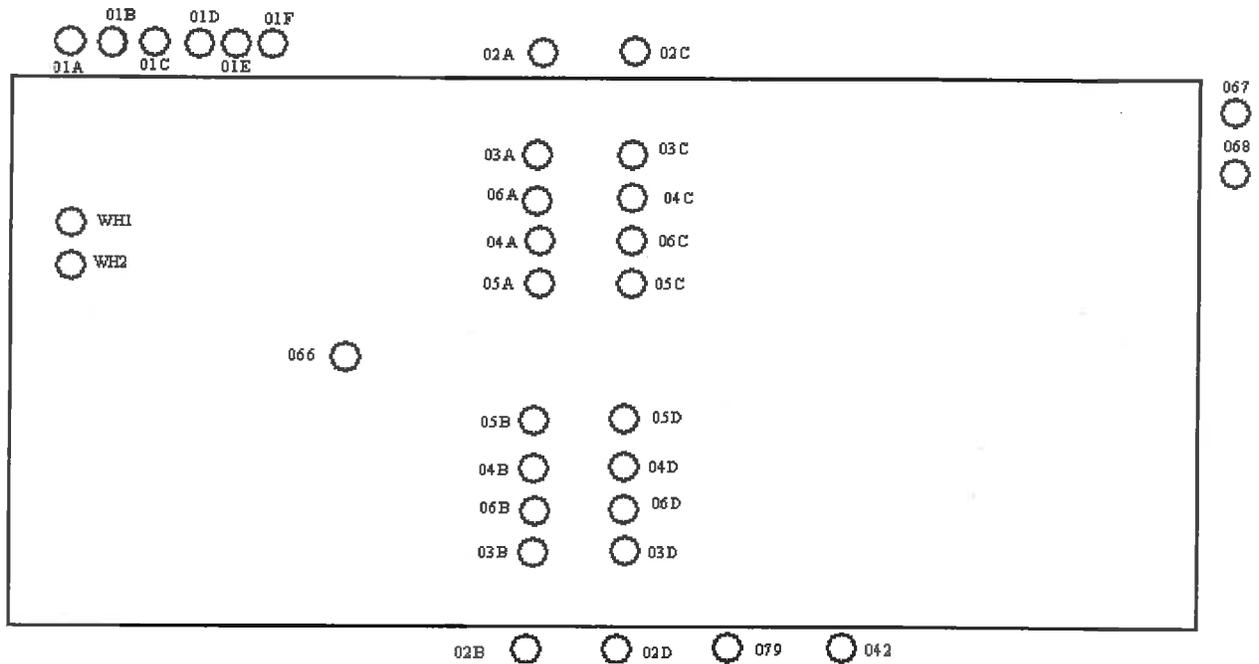
ATTACHMENT D

There are no changes in regulatory applicability with this application.

ATTACHMENT E

"S" Area Process Plot Plan

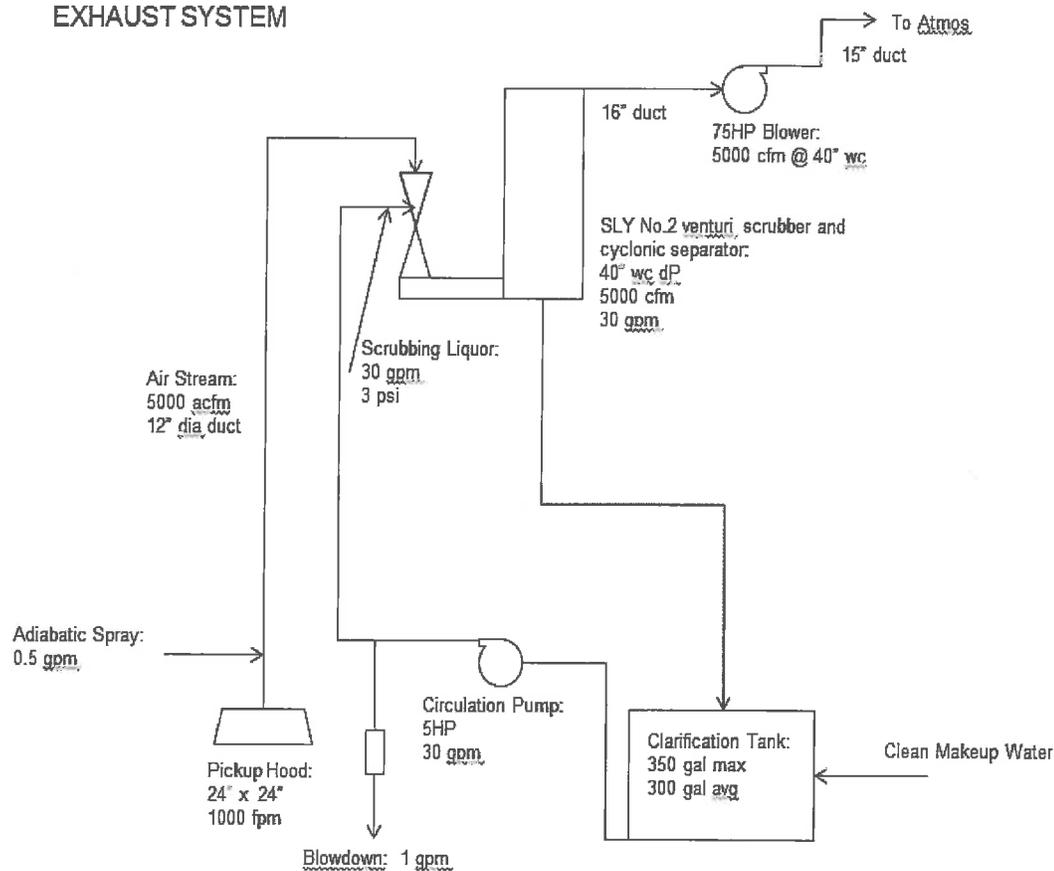
Emission Points are designated as  
"S293-E-"  
plus the ID on the actual point.



# ATTACHMENT F

## Process Flow Diagram

### SB WET VENTURI SCRUBBER DIE EXHAUST SYSTEM



## ATTACHMENT G

### Process/Project Description

Specialty Compounding Division (SCD) is an extrusion operation. Dry raw materials in pellet, flake and fiber form can be received in boxes, bins, hopper trucks, and bags. Some raw materials are delivered to SCD using onsite trucks and/or conveying lines. These raw materials are comprised of classes of materials such as plastic resins, mineral fillers, mineral reinforcements, flame retardants, flow additives, colorants or color concentrates and stabilizers.

The materials are held in temporary storage in either the original shipping container, or by unloading into storage bins or silos. Ingredients are conveyed through a series of hoppers and blenders and fed to the extruders. In the extruder, the combined mixture of raw materials is subjected to heat provided by electric coils in the barrel of the extruder. A conveying screw(s) inside the barrel of the extruder pushes the melted material to the extruder die.

At the die, the melt is forced through an orifice or series of orifices to achieve a predetermined diameter and shape. Strands of extruded melt are pushed through the die, and immediately quenched with water. The quenching process converts the strands to the solid phase.

The strands of engineered plastic are then cut into pellet form for shipment as product. After cutting, the pellets pass through a series of separators designed to eliminate and capture off-specification materials and miscellaneous fines for recycling. The pellets are then stored in bins for packaging and shipment.

The proposed project will replace an existing High Efficiency dry paper filter (HEAF) [S293-C-03B] control device with a wet recirculating type scrubber for the extrusion die vent [S293-S-02B]. The use of the wet scrubber will improve operability of the system. This proposed change will lead to a decrease of 0.07 lbs/hr and 0.28 tons/yr of Formaldehyde and 0.07 lbs/hr and 0.28 tons/yr of Total HAP in emissions with corresponding decreases in emissions of "Total HAP". The control efficiencies for all sizes of particulate matter will be equal to or better than the 99.3% afforded by the previous device.

The HEAF control device [S293-C-03D] on the SD extruder die [S293-S-02D] was similarly replaced in 2015 as allowed per permit determination PD14-121. The scrubber affords the same reduction in formaldehyde emissions for that vent, so revised pages for the APCD and EPDS forms for that device/emission point are included.

**Attachment I**

**Emission Unit List**

<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Emission Unit Description</b>	<b>Year Installed</b>	<b>Design Capacity</b>	<b>Type and Date of Change</b>	<b>Control Device</b>
S293-S-01A	S293-E-01A	Bulk Storage Silo	1991	2500 pph	None	S293-C-01A
S293-S-01B	S293-E-01B	Bulk Storage Silo	1991	2500 pph	None	S293-C-01B
S293-S-01C	S293-E-01C	Bulk Storage Silo	1991	2500 pph	None	S293-C-01C
S293-S-01D	S293-E-01D	Bulk Storage Silo	1991	2500 pph	None	S293-C-01D
S293-S-01E	S293-E-01E	Bulk Storage Silo	1991	2500 pph	None	S293-C-01E
S293-S-01F	S293-E-01F	Bulk Storage Silo	1991	2500 pph	None	S293-C-01F
S293-S-02A	S293-E-03A	SA Extruder - Die	1991	2500 pph	None	S293-C-03A
S293-S-02A	S293-E-02A	SA Extruder – Vacuum Port	1991	2500 pph	None	
S293-S-02B	S293-E-03B	SB Extruder - Die	1991	2500 pph	Modified	S293-C-03B
S293-S-02B	S293-E-02B	SB Extruder – Vacuum Port	1991	2500 pph	None	
S293-S-02C	S293-E-03C	SC Extruder - Die	1991	2500 pph	None	S293-C-03C
S293-S-02C	S293-E-02C	SC Extruder – Vacuum Port	1991	2500 pph	None	
S293-S-02D	S293-E-03D	SD Extruder - Die	1991	2500 pph	Updated per PD14-121	S293-C-03D
S293-S-02D	S293-E-02D	SD Extruder – Vacuum Port	1991	2500 pph	None	
S293-S-038	S293-E-049	Area Hoods	1991	27000 ACFM	None	S293-C-031
S293-S-03A	S293-E-04A	Screen A	1991	2500 pph	None	S293-C-04A
S293-S-03B	S293-E-04B	Screen B	1991	2500 pph	None	S293-C-04B
S293-S-03C	S293-E-04C	Screen C	1991	2500 pph	None	S293-C-04C
S293-S-03D	S293-E-04D	Screen D	1991	2500 pph	None	S293-C-04D

**Attachment I**

**Emission Unit List**

<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Emission Unit Description</b>	<b>Year Installed</b>	<b>Design Capacity</b>	<b>Type and Date of Change</b>	<b>Control Device</b>
S293-S-04A	S293-E-05A	Impact Separator A	1991	2500 pph	None	
S293-S-04B	S293-E-05B	Impact Separator B	1991	2500 pph	None	
S293-S-04C	S293-E-05C	Impact Separator C	1991	2500 pph	None	
S293-S-04D	S293-E-05D	Impact Separator D	1991	2500 pph	None	
S293-S-06A	S293-E-06A	SA Quench Bath	1991	2500 pph	None	
S293-S-06B	S293-E-06B	SB Quench Bath	1991	2500 pph	None	
S293-S-06C	S293-E-06C	SC Quench Bath	1991	2500 pph	None	
S293-S-06D	S293-E-06D	SD Quench Bath	1991	2500 pph	None	
S293-S-078	S293-E-049	Miscellaneous Hoods	1991	27000 ACFM	None	S293-C-078
S293-S-07A	S293-E-06A	SA Plop Buggy	1991	2500 pph	None	
S293-S-07B	S293-E-06B	SB Plop Buggy	1991	2500 pph	None	
S293-S-07C	S293-E-06C	SC Plop Buggy	1991	2500 pph	None	
S293-S-07D	S293-E-06D	SD Plop Buggy	1991	2500 pph	None	
S293-S-10A	S293-E-04A	Extruder Pelletizer	1991	2500 pph	None	S293-C-04A
S293-S-10B	S293-E-04B	Extruder Pelletizer	1991	2500 pph	None	S293-C-04B
S293-S-10C	S293-E-04C	Extruder Pelletizer	1991	2500 pph	None	S293-C-04C
S293-S-10D	S293-E-04D	Extruder Pelletizer	1991	2500 pph	None	S293-C-04D
S293-S-14A	S293-E-04A	Receiver Bin A	1991	2500 pph	None	S293-C-04A
S293-S-14B	S293-E-04B	Receiver Bin B	1991	2500 pph	None	S293-C-04B

**Attachment I**

**Emission Unit List**

<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Emission Unit Description</b>	<b>Year Installed</b>	<b>Design Capacity</b>	<b>Type and Date of Change</b>	<b>Control Device</b>
S293-S-14C	S293-E-04C	Receiver Bin C	1991	2500 pph	None	S293-C-04C
S293-S-14D	S293-E-04D	Receiver Bin D	1991	500 pph	None	S293-C-04D
See Footnote	S293-E-AN-A	See Footnote	1991	2500 pph	None	
See Footnote	S293-E-AN-B	S293-E-AN-B	1991	2500 pph	None	
See Footnote	S293-E-AN-C	See Footnote	1991	2500 pph	None	
See Footnote	S293-E-AN-D	See Footnote	1991	2500 pph	None	

FOOTNOTE: Emission Point S293-E-AN-(x) is a virtual point to combine the acrylonitrile emission from the sources S293-S-02(x) Die and S293-S-(x) Vacuum Port.

**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> (ppmv or 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			
S293-E-03B	Upward vertical stack	S293-S-02B, Die	Extruder	S293-E-03B	Wet Scrubber	C	8760	PM	10.9	47.74	0.08	0.34	S	EE	1950.6
-and-								PM10	10.9	47.74	0.08	0.34	V	EE	1950.6
								VOC	0.07	0.31	0.07	0.31	V	EE	12.8
								CO	0.03	0.11	0.03	0.11	G	EE	4.5
								Ammonia	0.2	0.88	0.2	0.88	G	EE	35.8
S293-E-03D		S293-S-02D, Die		S293-E-03D				Total HAP	1.84	8.06	0.04	0.17	V	EE	12.8
								HAP (Formaldehyde 50000)	0.07	0.31	0.01	0.04	V	EE	12.8

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.

- Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- Indicate by 'C' if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (e.g., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- 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>x</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.
- 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).
- 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).
- 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).
- 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 No. (Must match Emission Units Table)	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow <sup>1</sup> (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height <sup>2</sup> (Release height of emissions above ground level)	Northing	Easting
293-E-03B	1.17	83	4000	62	630	30	4346800	4423100
293-E-03D	1.17	83	4000	62	630	30	4346800	4423100

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

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



18. If the liquor is to be recirculated, describe any treatment performed:  
No treatment.

19. Data for Venturi Scrubber:  
 Throat Dimensions: 3.125in x 6.625in  
 (Specify Units)  
 Throat Velocity: 466 ft/sec

20. Data for Packed Towers:  
 Type of Packing:  
 Superficial Gas Velocity through Bed:

**Gas Stream Characteristics**

21. Gas flow into the collector:  
 ACF @ 70 °F and 13.1 PSIA

22. Gas stream temperature:  
 Inlet: 64 °F  
 Outlet: 83 °F

23. Gas flow rate:  
 Design Maximum: 5000 ACFM  
 Average Expected: 4000 ACFM

24. Particulate Grain Loading in grains/scf:  
 Inlet: 0.36  
 Outlet: 0.0025

25. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN		OUT		Guaranteed Minimum Collection Efficiency
	lb/hr	grains/acf	lb/hr	grains/acf	
A PM	10.90	0.36	0.08	0.0025	99.3
B PM10	10.90	0.36	0.08	0.0025	99.3
C Phenol	1.75		0.012		99.3
D Formaldehyde	0.071		0.0086		88.0
E					

26. Type of pollutant(s) controlled:  SO<sub>x</sub>  Odor  
 Particulate (type): polymer fumes, phenol  Other: VOC/HAP

27. By what method were the uncontrolled emissions calculated?  Material Balance  Stack Test  
 Pilot Test  Other: **Historical data**

28. Dimensions of stack: Height 30 ft. Diameter 1.17 ft

29. Supply an equilibrium curve and/or solubility data (at various temperatures) for the proposed system.

30. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 100 percent of design rating of collector.

**Particulate Distribution**

31. Complete the table:	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
Particulate Size Range (microns)	Weight % for Size Range	Weight % for Size Range
0 – 2	31.5	99.3
2 – 4	27.4	99.3
4 – 6		99.3
6 – 8	27.4	99.3
8 – 10		99.3
10 – 12		99.3
12 – 16	27.4	99.3
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		
<p>32. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): None.</p>		
<p>33. Describe the collection material disposal system: Periodic tank cleaning disposed to plant waste water treatment facility</p>		
<p>34. Have you included <b>Wet Collecting (Scrubber) Control Device</b> in the Emissions Points Data Summary Sheet? Yes</p>		

<p><b>35. Proposed Monitoring, Recordkeeping, Reporting, and Testing</b> 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.</p>	
<p><b>MONITORING:</b></p> <p>The differential pressure (dP) across the venturi will be monitored continuously and maintained at 26 inches water column or greater while material is processed. The scrubber liquor flow rate will be monitored continuously and will be maintained at 20 gpm or greater while material is processed.</p>	<p><b>RECORDKEEPING:</b></p> <p>Record 60-minute rolling average of dP and liquor flow rate.</p>
<p><b>REPORTING:</b></p>	<p><b>TESTING:</b></p>
<p><b>MONITORING:</b> 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.</p> <p><b>RECORDKEEPING:</b> Please describe the proposed recordkeeping that will accompany the monitoring.</p> <p><b>REPORTING:</b> Please describe any proposed emissions testing for this process equipment on air pollution control device.</p> <p><b>TESTING:</b> Please describe any proposed emissions testing for this process equipment on air pollution control device.</p>	
<p><b>36. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.</b></p> <p>The vent is hard-piped to the control device so Capture is 100%</p>	
<p><b>37. Manufacturer's Guaranteed Control Efficiency for each air pollutant.</b></p> <p>12" wc pressure drop = 96.78% total efficiency (20 microns down to 1 micron)  20" wc pressure drop = 98.81% total efficiency (20 microns down to 1 micron)  30" wc pressure drop = 99.49% total efficiency (20 microns down to 1 micron)  40" wc pressure drop = 99.77% total efficiency (20 microns down to 1 micron)  At 26" wc minimum:  PM = 99.3%  PM10 = 99.3%  Formaldehyde = 88% (based on DuPont Data)  The HAP, Phenol will behave as a particulate at vent conditions and will be collected at 99.3%</p>	
<p><b>38. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.</b></p> <p>Overall collection efficiency is controlled by pressure drop through venturi. Maintain pressure drop of 26 inches water column or greater to produce 99.3% or higher efficiency down to 1 micron. Maintain scrubber liquor flow at 20 gpm or greater.</p>	

## ATTACHMENT N

### EXAMPLE CALCULATIONS

#### Narrative: Typical Emission Point

*An example calculation is presented below, based on a process rate of 8700 pph, an emission rate of 0.00032 pounds of pollutant per pound of production through the emission unit, and a control device efficiency of 99%.*

1. Maximum Potential Hourly Emission Rate (lbs./hr.)

$$\begin{aligned} & \text{Maximum Throughput} \left[ \frac{\text{lbs.}}{\text{hr.}} \right] * \text{Emission Factor} \left[ \frac{\text{lbs.PM}}{\text{lbs.Throughput}} \right] = \\ & 8,700 \frac{\text{lbs.}}{\text{hr.}} * 0.00032 \frac{\text{lbs.PM}}{\text{lb.Throughput}} = 2.78 \frac{\text{lbs.}}{\text{hr.}} \end{aligned}$$

2. Maximum Controlled Hourly Emission Rate (lbs./hr.)

$$\begin{aligned} & \text{Maximum Throughput} \left[ \frac{\text{lbs.}}{\text{hr.}} \right] * \text{Emission Factor} \left[ \frac{\text{lbs.PM}}{\text{lbs.Throughput}} \right] * (1 - \text{Control Efficiency}) = \\ & 8,700 \frac{\text{lbs.}}{\text{hr.}} * 0.00032 \frac{\text{lbs.PM}}{\text{lb.Throughput}} * (1 - 0.99) = 0.028 \frac{\text{lbs.}}{\text{hr.}} \end{aligned}$$

3. Maximum Potential Annual Emission Rate (Tons/year)

$$\begin{aligned} & \text{Max Potential Hourly Emission Rate} \frac{\text{lbs.}}{\text{hr.}} * 8760 \frac{\text{hrs.}}{\text{year}} * \frac{\text{Tons}}{2000\text{lbs.}} = \\ & 2.78 \frac{\text{lbs.}}{\text{hr.}} * 8760 \frac{\text{hrs.}}{\text{year}} * \frac{\text{Tons}}{2000\text{lbs.}} = 12.18 \frac{\text{Tons}}{\text{year}} \end{aligned}$$

4. Maximum Controlled Annual Emission Rate (lbs./year)

$$\begin{aligned} & \text{Max Controlled Hourly Emission Rate} \frac{\text{lbs.}}{\text{hr.}} * 8760 \frac{\text{hrs.}}{\text{year}} * (1 - \text{ContEff}) = \\ & 0.00028 \frac{\text{lbs.}}{\text{hr.}} * 8760 \frac{\text{hrs.}}{\text{year}} * (1 - 0.99) = 244 \frac{\text{lbs.}}{\text{year}} \end{aligned}$$

5. Maximum Controlled Annual Emission Rate (Tons/year)

$$\begin{aligned} & \text{Maximum Controlled Annual Emission Rate} \frac{\text{lbs.}}{\text{year}} * \frac{\text{Tons}}{2000\text{lbs.}} = \\ & 244 \frac{\text{lbs.}}{\text{year}} * \frac{\text{Tons}}{2000\text{lbs.}} = 0.12 \frac{\text{Tons}}{\text{year}} \end{aligned}$$

**SPECIALTY COMPOUNDING AIR EMISSIONS PERMIT CALCULATIONS**

EMISSION POINTS\*\* = E03B,E03D

DESCRIPTION = EXTRUDER DIES

UTILITY:			SOURCE:	Dies
Acetal or	100%		CONTROL:	Wet Scrubber
Polyester or	100%			
Nylon or	100%			
Down	0%			

Product Emission	Emission Rate (lbs/lb)	Extr. Rate (lbs/hr)	(A) (lbs/hr)	State	Scrubber Efficiency	Emission (B) (lbs/hr)	Annual Emission (ton/yr)
PARTICULATE (VOC)			10.90	V	99.3%	0.08	0.34
VOC			0.071	G	0.0%	0.08	0.32
CARBON MONOXIDE			0.03	G	0.0%	0.03	0.11
AMMONIA			0.20	G	0.0%	0.20	0.88
<b>Total HAP</b>			<b>1.84</b>			<b>0.02</b>	<b>0.17</b>
HAP (Formaldehyde)			0.071	G	88.0%	0.0086	0.0375
HAP (Acetaldehyde)			0.018	G	0.0%	0.018	0.08
HAP (Phenol)			1.750	S	99.3%	0.012	0.05
Redacted							
POLYESTER							
# HAP (Acetaldehyde)			0.018	G	0.0%	0.018	0.08
# PARTICULATE (VOC),(Total)			10.90	S	99.3%	0.076	0.334
ETHYLHEXOATE							
CARBON MONOXIDE			0.003	G	0.0%	0.003	0.01
NYLON:							
PARTICULATE (VOC)			2.15	S	99.3%	0.015	0.07
OLIGOMERS			0.33	S	99.3%	0.002	0.01
CAPROLACTAM			1.82	S	99.3%	0.01	0.06
VOC,(Total)			0.04	V	0.0%	0.04	0.17
CYCLOPENTANONE			0.03	V	0.0%	0.03	0.12
BUTANAL			0.0050	V	0.0%	0.0050	0.02
ETHANOL			0.0055	V	0.0%	0.0055	0.02
CARBON MONOXIDE			0.0100	G	0.0%	0.0100	0.04
AMMONIA			0.0007	G	0.0%	0.0007	0.003
MODIFIED NYLON:							
NO GREATER THAN NYLON PLUS							
PARTICULATE (VOC)							
# PHENOL			1.75	S	99.3%	0.012	0.05
HT NYLON:Same as Nylon above except							
# CARBON MONOXIDE			0.03	G	0.0%	0.03	0.11
# AMMONIA			0.20	G	0.0%	0.20	0.88
ACETAL							
# HAP (FORMALDEHYDE)			0.071	G	88.0%	0.00857	0.0375
PARTICULATE (VOC)			0.05	S	99.3%	0.000320	0.001
VOC (METHANOL)			0.0019	V	0.0%	0.002	0.01

# Components used for Maximum Emissions Calculations

\*\* Only one emission point in use at any one time on HAP(VOC)

Calculation Methodology  
 State: S = Solid, V = Vapor, G = Gas  
 Data from: "Volatiles From Extrusion of Nylon Resins" by W. H. Martin  
  
 $A = (\text{Emission Rate}) \times (\text{Extr. Rate})$   
 $B = A \times (100\% - \text{Eff}) / 100 \text{ (lb/hr)}$

	Total HAP		Formaldehyde	
	lb/hr	tn/yr	lb/hr	tn/yr
Permit	0.11	0.45	0.08	0.32
Proposed	0.04	0.17	0.00857	0.0375
DELTA	-0.07	-0.28	-0.07	-0.28

**ATTACHMENT O**  
**Monitoring/Recordkeeping/Reporting/ Testing Plans**

Please see the individual EUD sheets for the proposed monitoring and recordkeeping.

**Attachment Q**  
**Business Confidential Claims**

**Permit Application R13-1533L**  
**Confidential Pages and Reasons for Confidentiality**

<b>Page Number</b>	<b>Reason for Confidentiality<sup>1</sup></b>
24	1
Calculations	

<sup>1</sup>Reasons for Confidentiality (as per 45CSR 31, Section 4.1(e)(1)):

- 1) Process rate- Disclosure of this information would be harmful to the business in three areas-competitive advantage, cost advantage, and technological advantage- all three are important to the continued financial health, and future survival, of the business.
- 2) Ingredients- Disclosure of this information would cause harm because these allow the product to exhibit specific properties that differentiate it, and make it superior, from a competitive standpoint
- 3) Process technology- Disclosure of this information would compromise competitive advantage since it describes the interaction of the various unit operations involved in the manufacture of a proprietary, marketable product.