

Value Stream Mapping: New Application Forms

Amy Mann

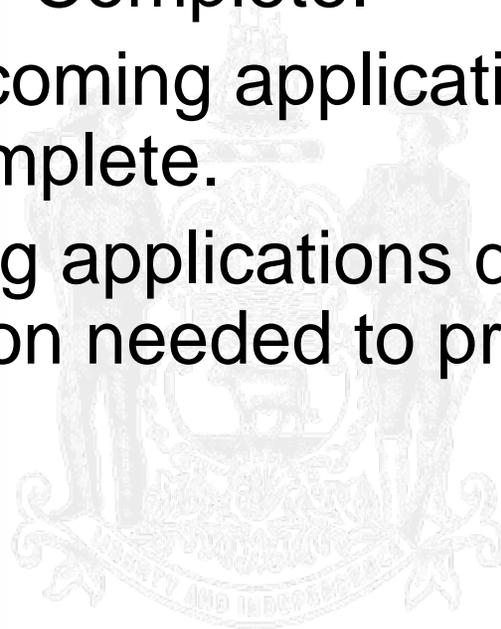
October 8, 2008



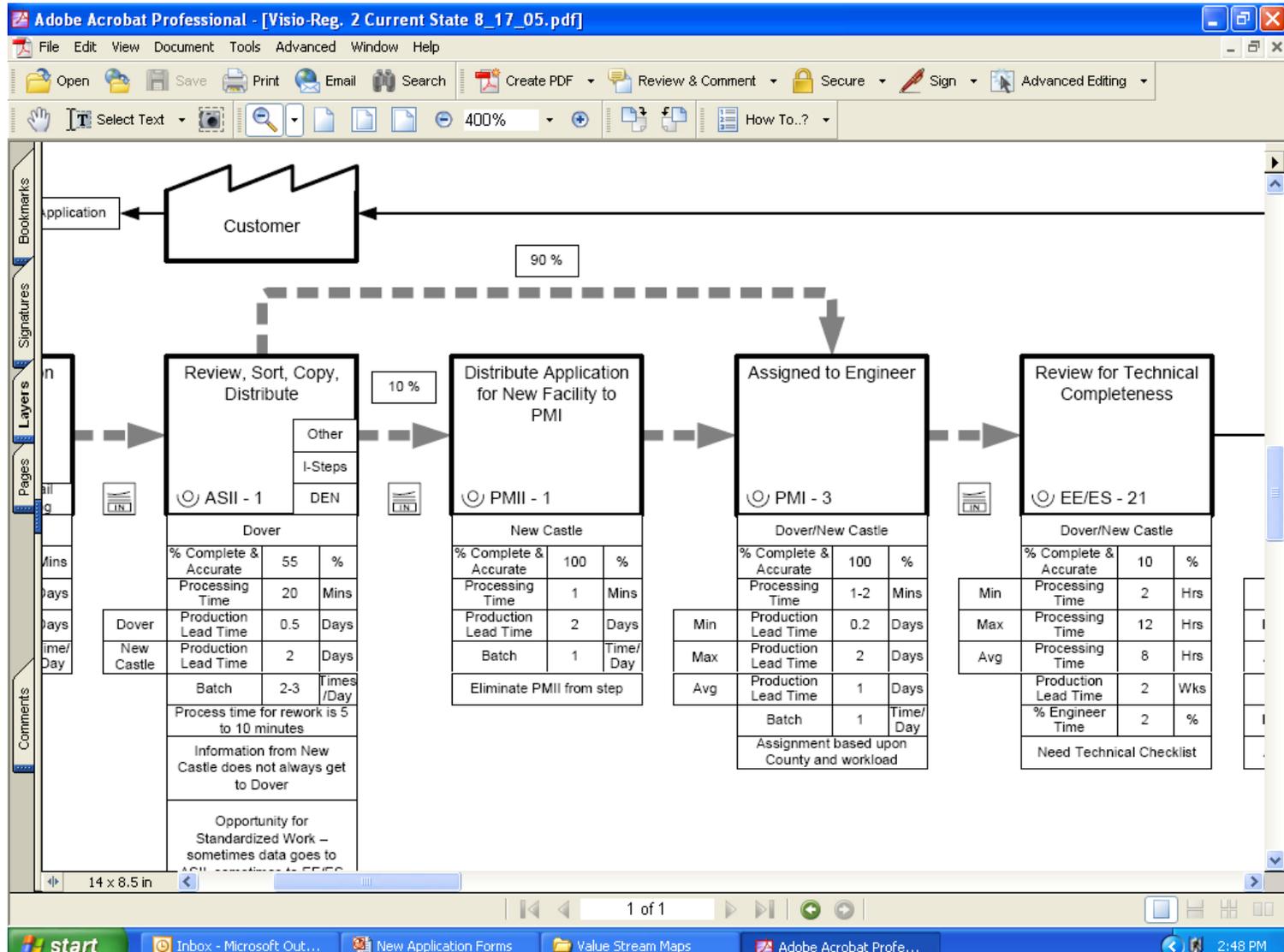
Blue Skies Delaware; Clean Air for Life

Regulation 1102 Current State (As of August 2005)

- Only 55% of incoming applications were Administratively Complete.
- Only 10% of incoming applications were Technically Complete.
- 90% of incoming applications did not contain all of the information needed to process a permit!

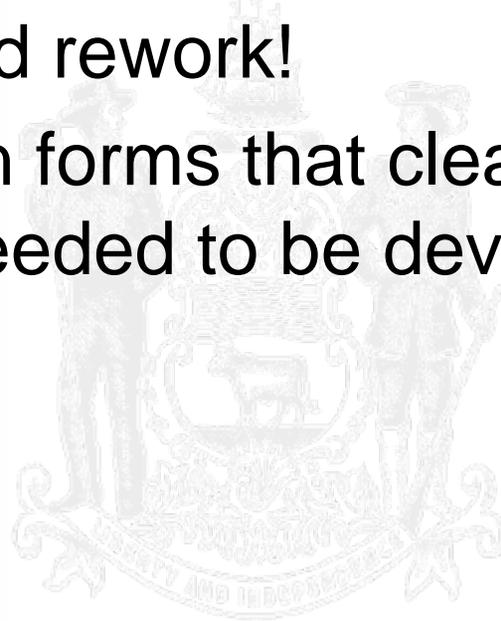


Regulation 1102 Current State (As of August 2005)



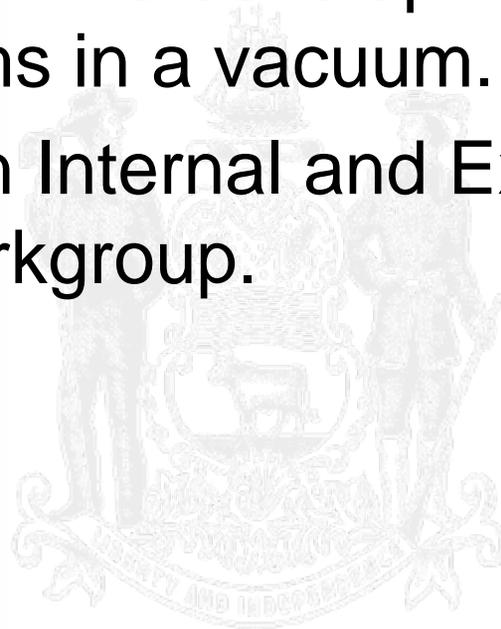
Kaizen Burst

- The application forms were causing most of our wasted time and rework!
- New application forms that clearly outline expectations needed to be developed.



Application Workgroups

- AQM did not want to develop the new application forms in a vacuum.
- AQM formed an Internal and External Application Workgroup.



Internal Application Workgroup

- Consisted of Engineering & Compliance Branch Engineers and Scientists.
- Determined what information was needed for each type of process equipment and control device.
- Developed draft application forms for the External Application Workgroup to review.
- Began meeting in October 2005.



External Application Workgroup

- Consisted of representatives from the regulated community and the DNREC Small Business Ombudsman.
- Reviewed and commented on draft application forms.
- Began meeting in February 2006.
- Met nine times between February and July 2006 for two hours each time.



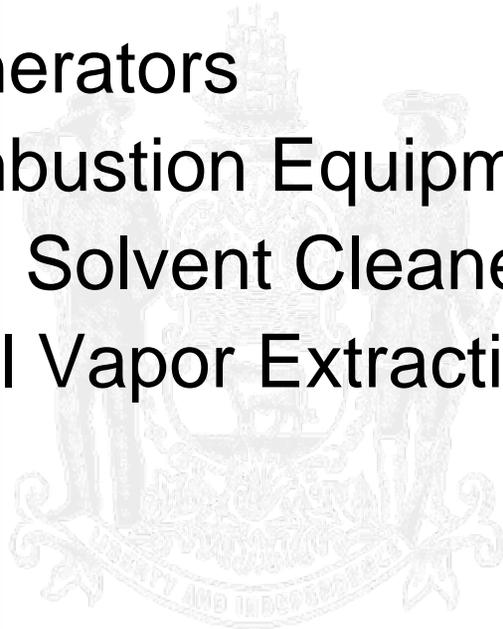
External Application Workgroup Participants

- Kimberly Chesser – DNREC
- Lewis Graham – Dow Reichhold
- Amy Mann – DNREC
- Harry Monck – Salvage Yards
- Richard Murphy – Eagle Group
- Sol Peltz – Hercules
- Julie Simon – Noramco, Inc.
- Paula Sitar – Dixon Environmental
- Thomas Webster - DaimlerChrysler



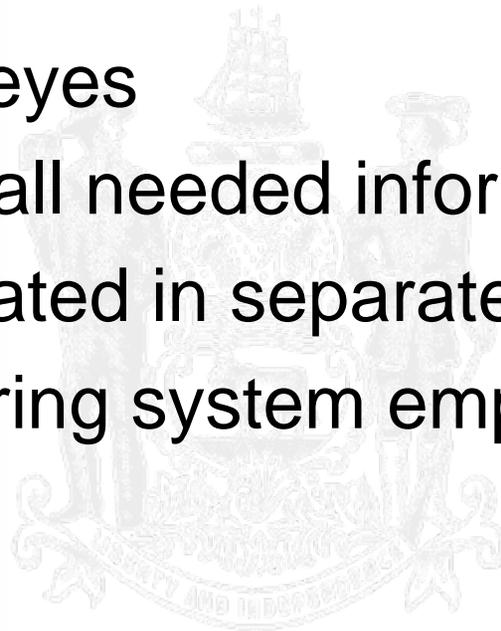
Old Application Forms

- AQM-4 for Process Equipment
 - Supplemental forms for Control Devices
- AQM-3 for Incinerators
- AQM-2 for Combustion Equipment
- AQM-9 for Cold Solvent Cleaners
- AQM-12 for Soil Vapor Extraction Units



Old Application Forms

- Too generic
- Difficult on the eyes
- Did not ask for all needed information
- Instructions located in separate documents
- Illogical numbering system employed



**STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
AIR POLLUTION CONTROL PERMIT APPLICATION**

AQM-4
Page 1
of 4

APPLICATION FOR PERMITTING PROCESS EQUIPMENT
*Attach any additional information (manufacturer specifications, MSDS, etc.)
Use additional pages if necessary*

DEPARTMENT USE ONLY

1. Name of Plant or Establishment █				2. Date of Application █		Permit Number	
3. Physical Location (Street Address) █		City █	County New Castle		Zip Code █	Received Stamp	
4. Mailing Address █		City █	County █		Zip Code █		
5. Name of Owner █		6. Person Signing This Application █		7. Title of Applicant █		8. Telephone █ ext. █	
9. GIS Location █		10. Owner/Applicants Mailing Address █		City █	County █	Zip Code █	11. Proposed Installation or Modification Date █
12. Major Activity at This Location Manufacturing		13. Describe Activity █		14. Number of Employees █		15. SIC Code and NAICS Code SIC: █ NAICS: █	
16. Equipment to be Permitted New		17. Type of Equipment (<i>Kiln, Baghouse, Spray Booth, etc.</i>) █				18. Operating Schedule █ Hours Per Day █ Days Per Week █ Weeks Per Year	

New Application Forms

- The forms use a Building Block Approach:
 - Administrative Form
 - Overall Process Flow Diagram
 - Process Equipment
 - Control Device
 - Emissions Information
 - Air Toxics Modeling
- Applications can be customized to meet project needs.
- The forms include interactive instructions.



Administrative Form

- Form Number AQM-1
- Focuses On:
 - Site Information
 - Application Information
- One Administrative Form must be completed with each application.
- <http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Administrative%20Information%20Application%20-%20Final%20with%20Instructions%20Version%2007.doc>



Overall Process Flow Diagram Form

- Form Number AQM-2
- Focuses On:
 - How all of the process equipment and control devices fit together
 - How all of the documents in the application fit together
- One Process Flow Diagram must be completed for each process.
- <http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Process%20Flow%20Diagram%20Form%20-%20Generic%20Final.doc>



Process Equipment Forms

- Form Numbers AQM-3.1 through 3.15.
- Focuses On:
 - Individual emission units.
- Customized for different types of process equipment.
- One Process Equipment Form must be completed for each emission unit.



Process Equipment Forms

- AQM-3.1: Generic Process Equipment
- AQM-3.2: Boilers
- AQM-3.3: Generators/Engines
- AQM-3.4: Coating Operations
- AQM-3.5: VOC Storage Tanks
- AQM-3.6: Cold Solvent Cleaners
(Degreasers)
- AQM-3.7: Silos



Process Equipment Forms

- AQM-3.8: Used Oil Heaters
- AQM-3.9: Stone Crushers
- AQM-3.10: Pulverized or Fines Crushers
- AQM-3.11: Crematories
- AQM-3.12: Printing Operations
- AQM-3.13: Grain Terminal, Elevator, and Drying
- [http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Generic%20Application%20-%20Final%20with%20Instructions%20-%20Version%202%20\(Stack\).doc](http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Generic%20Application%20-%20Final%20with%20Instructions%20-%20Version%202%20(Stack).doc)



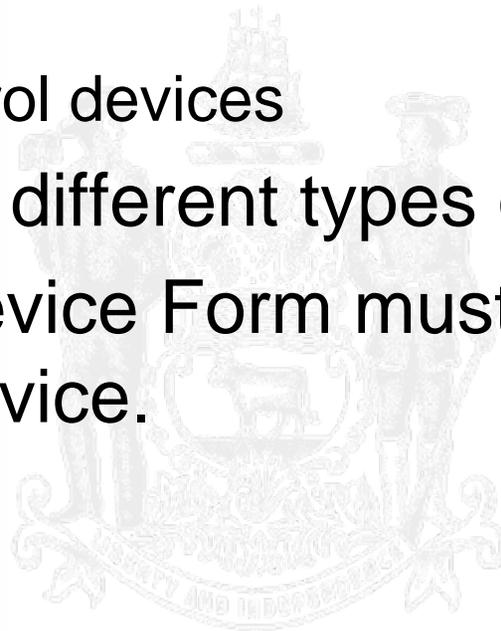
Future Process Equipment Forms

- AQM-3.14: Vapor Degreasers ?
- Any other suggestions from the regulated community?



Control Device Forms

- Form Numbers AQM-4.1 through 4.11
- Focuses On:
 - Individual control devices
- Customized for different types of control devices
- One Control Device Form must be completed for each control device.



Control Device Forms

- AQM-4.1: Incinerators/Afterburners/Oxidizers
- AQM-4.2: Adsorption Equipment
- AQM-4.3: Flares
- AQM-4.4: Scrubbers
- AQM-4.5: Inertial/Cyclone Collectors
- AQM-4.6: Baghouses
- AQM-4.7: Electrostatic Precipitators



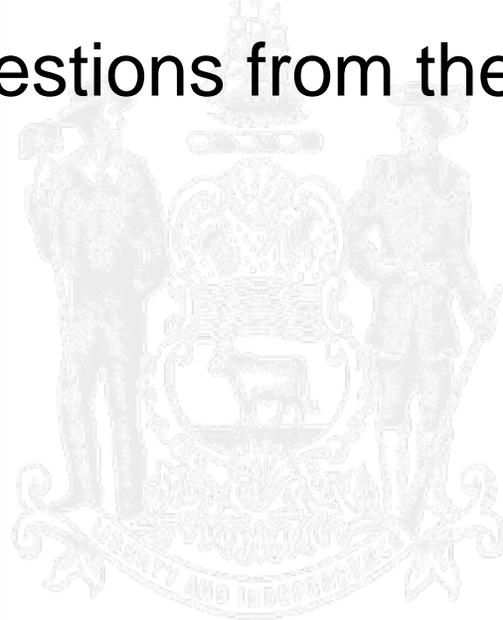
Control Device Forms

- AQM-4.8: Venturi Scrubbers
- AQM-4.9: SCR/NSCR/SNCR/Ammonia Injection
- AQM-4.10: Settling Chambers
- AQM-4.11: Knock Out Pots
- [http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Incinerator_Afterburner_Oxidizer%20Application%20-%20Final%20with%20instructions%20-%20Version%202\(stack\).doc](http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Incinerator_Afterburner_Oxidizer%20Application%20-%20Final%20with%20instructions%20-%20Version%202(stack).doc)



Future Control Device Forms

- AQM-4.12: Condensers?
- Any other suggestions from the regulated community?



Emissions Information Form

- Form Number AQM-5
- Focuses On:
 - Pollutant emissions from each emission unit and after each control device
 - Overall process emissions
- One Emissions Information Form must be completed for each process.
- <http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Emissions%20Information%20-%20Final%20with%20instructions.doc>



Interactive Help

The screenshot shows a Windows Internet Explorer browser window. The address bar contains the URL: <http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Administrative%20Information%20Application>. The browser's menu bar includes File, Edit, View, Insert, Format, Tools, Table, Go To, Favorites, and Help. The toolbar shows various navigation and utility icons. The main content area displays a form with the following questions:

4. Site Mailing Address:
(if different from above)
City: State: Zip Code:
5. Physical Location of Site:
(if different from above)
City: State: Zip Code:
6. Air Quality Management Plan:
7. Site NAICS Code(s):
(list all that apply)
8. Site SIC Code:
(list all that apply)
9. Site Location Coordinates:
10. Is the Facility New or Existing? NEW EXISTING
If the Facility is an Existing Facility, Complete the Rest of Question 10. If Not, Proceed to Question 11.
- 10.1. Does the Facility Have Active Air Permits? YES NO

At the bottom of the form, it says: "Final Application – Version 6 created 1/8/07".

An interactive help popup window is overlaid on the form, titled "Help". It contains the following text: "Provide the facility's Standard Industrial Classification (SIC) Code. SIC Codes can be found at <http://www.osha.gov/pls/mis/sicsearch.html>. If there are more than three SIC Codes that are applicable to your facility, provide the top three." There is an "OK" button at the bottom of the popup.

The Windows taskbar at the bottom shows the Start button, several open applications (Presentations, Screen3 for Windows..., Microsoft PowerPoint...), and the system tray with the time 2:20 PM and date 2/20/07.

Air Emissions Modeling Form

- Form Number AQM-6
- Focuses On:
 - SCREEN3 Modeling
- The Air Emissions Modeling Form is optional.
- Completing this form may speed up the permitting process.
- If included, one Air Emissions Modeling Form must be completed for each process.
- <http://www.awm.delaware.gov/SiteCollectionDocuments/AWM%20Gallery/Reg2/Air%20Toxics%20Modeling%20Application%20-%20Final%202%20with%20instructions.doc>



The Future

- The forms are evergreen.
- AQM will be accepting comments on the forms and updating them as needed.
- Version numbers are posted on the forms. Always check the website to make sure you are using the most up-to-date version.



Example

- New Facility
- Not located in Coastal Zone
- Makes wooden office desks
- Wood shop controlled by a baghouse
- Coating spray booth with a 16 MMBTU/hr natural gas fired oven



How to Complete Application

- Two processes
 - Wood shop and baghouse
 - Spray booth and oven
- Forms to complete
 - One AQM-1
 - Two AQM-2s
 - One for wood shop and baghouse
 - One for spray booth and oven



How to Complete Application

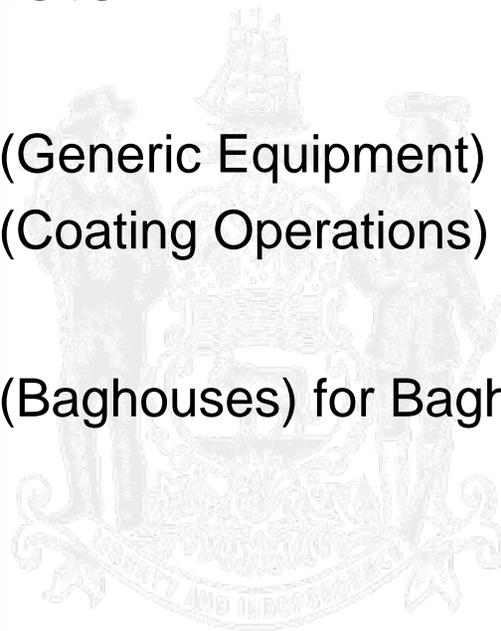
■ Forms to Complete

□ Two AQM-3s

- One AQM-3.1 (Generic Equipment) for wood shop
- One AQM-3.4 (Coating Operations) for spray booth and oven

□ One AQM-4

- One AQM-4.6 (Baghouses) for Baghouse



How to Complete Application

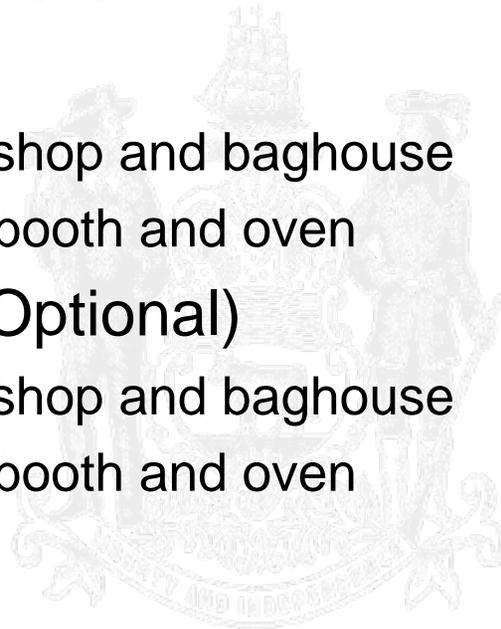
■ Forms to Complete

□ Two AQM-5s

- One for wood shop and baghouse
- One for spray booth and oven

□ Two AQM-6s (Optional)

- One for wood shop and baghouse
- One for spray booth and oven





**DNREC – Air Quality Management Section
Application to Construct, Operate, or Modify
Stationary Sources**

Form AQM-1
Page 1 of 4

Administrative Information

If you are using this form electronically, press F1 at any time for help

For Department Use Only

Date Received Stamp

Assigned Permit Number

Company and Site Information

1. Company Name: **Acme Office Desks**
2. Company Mailing Address: **1234 Acme Lane**
City: **Newark** State: **DE** Zip Code: **19717**
3. Site Name: **Acme Office Desks Newark**
4. Site Mailing Address: **same as above**
(if different from above)
City: State: Zip Code:
5. Physical Location of Site: **same as above**
(if different from above)
City: State: Zip Code:

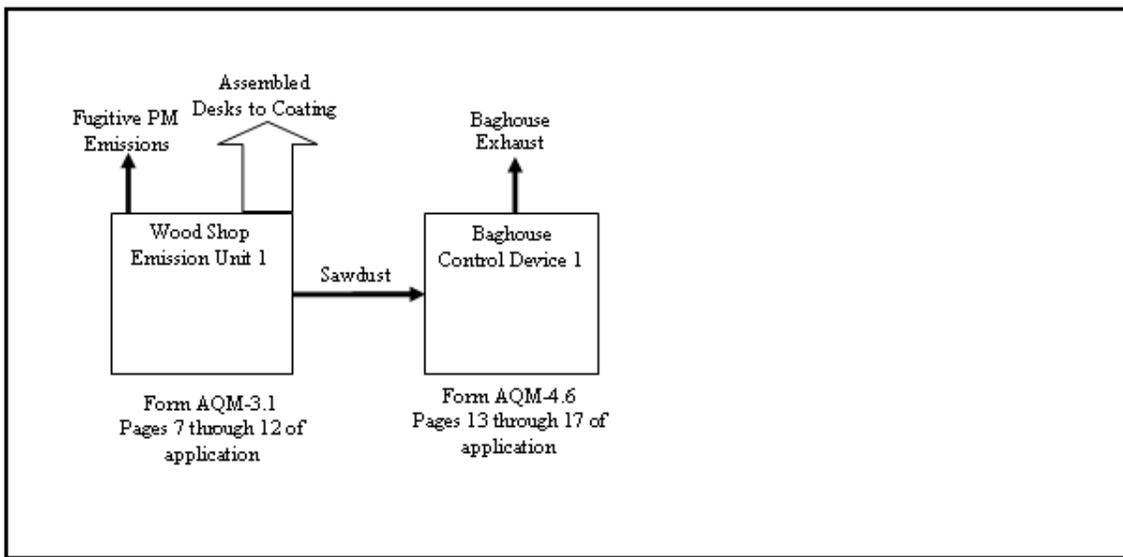


DHREC – Air Quality Management Section
Application to Construct, Operate, or Modify
Stationary Sources

Form AQM-2
 Page 1 of 1

Process Flow Diagram

Sketch the Process Flow Diagram for the equipment or process being applied for. Include each emission unit and control device (even existing emission units that will not be modified by this application). You may identify each emission unit with a simple shape. Label each emission unit and control device with a unique identifier. Show the relationship between each emission unit and/or control device by drawing arrows between them to indicate the flow of air pollutants. List which application forms are included for each emission unit or control device below the shape representing each emission unit or control device. See <http://xxxxxxx> for example Process Flow Diagrams for common processes. If you already have a Process Flow Diagram for the equipment or process being applied for, you may attach it to the application instead of using this form.



Final Application – Version 1 created 9/5/06



**DNREC – Air Quality Management Section
Application to Construct, Operate, or Modify
Stationary Sources**

Form AQM-3.1
Page 1 of 6

Generic Process Equipment Application

If you are using this form electronically, press F1 at any time for help

<u>General Information</u>	
1. Facility Name:	Acme Office Desks
2. Equipment ID Number:	Emission Unit 1
3. Provide a brief description of Equipment or Process:	Desks are assembled from raw wood. The raw wood is planed, sanded, cut into patterns and the desks are assembled. Assembled desks are then sent to be coated.
4. Manufacturer:	assembled on site
5. Model:	assembled on site
6. Serial Number:	assembled on site

<u>Raw Material Information</u>			
7. Raw Materials Used in Process			
If there are more than four Raw Materials used, attach additional copies of this page as needed.			
<u>Raw Material Used</u>	<u>CAS Number</u>	<u>Usage Rate (include units)</u>	<u>MSDS Attached?</u>
7.1. raw wood	not applicable	500 pounds per day	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

Microsoft Word ribbon and toolbars including font settings (Normal, Arial, 10), bold/italic/underline, alignment, and other formatting options.



DNREC – Air Quality Management Section
Application to Construct, Operate, or Modify
Stationary Sources

Form AQM-4.6
 Page 1 of 4

Baghouse Application
If you are using this form electronically, press F1 at any time for help

<u>General Information</u>	
1. Facility Name:	Acme Office Desks
2. Equipment ID Number:	Control Device 1
3. Manufacturer:	Baghouses "R" Us
4. Model:	1000
5. Serial Number:	To be determined upon the construction to operation inspection.
6. Is the Baghouse Insulated?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
7. Design Minimum Operating Temperature:	65 °F
8. Design Maximum Operating Temperature:	90 °F
9. Are Temperature Controls Provided?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

Microsoft Word drawing toolbar with AutoShapes, lines, and other drawing tools.

File Edit View Insert Format Tools Table Window Help

Type a question for help

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Final Showing Markup Show



Emissions Information Application

If you are using this form electronically, press F1 at any time for help

Process Information

1. Number of Individual Pieces of Process Equipment in Process: **1**

2. Number of Individual Control Devices in Process: **1**

Emissions Information for First Emission Point/Stack

3. Emission Point Name: **Process 1 Emissions**

4. Equipment ID Number for all Process Equipment and Control Devices Venting Through Emission Point/Stack: **Emission Unit 1 and Control Device 1**

5. Pollutant Emissions

If more than 18 pollutants are emitted at this Emission Point/Stack, attach additional copies of this page as needed.

	Pollutant Name (Specify VOCs and HAPs Individually in 5.10 through 5.18)	CAS Number (Not required for 5.1 through 5.9)	Maximum Uncontrolled Emission Rate at Design Capacity	Maximum Controlled Emission Rate at Design Capacity	Annual Potential to Emit (PTE)	Expected Annual Emissions
5.1.	Particulate Matter (PM)	N/A	100 lbs/hour	1 lbs/hour	4.38 tons/year	2 tons/year
5.2.	PM ₁₀	N/A	100 lbs/hour	1 lbs/hour	4.38 tons/year	2 tons/year
5.3.	PM _{2.5}	N/A	100 lbs/hour	1 lbs/hour	4.38 tons/year	2 tons/year
5.4.	Sulfur Oxides (SO _x)	N/A	0 lbs/hour	0 lbs/hour	0 tons/year	0 tons/year
5.5.	Nitrogen Oxides (NO _x)	0	0 lbs/hour	0 lbs/hour	0 tons/year	0 tons/year

File Edit View Insert Format Tools Table Window Help

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Final Showing Markup Show

1 2 3 4 5 6 7 8 9 10



DNREC – Air Quality Management Section
Application to Construct, Operate, or Modify
Stationary Sources

Form AQM-6
 Page 1 of 2

Air Emissions Modeling Application

This form is optional. Applications will be considered complete without this form. Completing this form may expedite processing of your permit.

If you are using this form electronically, press F1 at any time for help

General Information

1. Identification of Equipment/Process Being Modeled: **Acme Office Desks Emissions From Baghouse (Control Device 1)**

2. Modeling Tool Used: SCREEN3 AERSCREEN Other (Specify): _____
 ISC3 AERMOD

Modeling Information

3. Modeling Information

If there are more than 20 Contaminants, attach additional copies of this page as needed

	Contaminant Name	Maximum Controlled Emission Rate at Design Capacity	Short Term Emission Rate	Threshold Limit Value (TLV)	TLV Source	Maximum Downwind Concentration (MDC) (8-Hour Average)	TLV:MDC Ratio
3.1.	Particulate Matter	24 lbs/day	0.126 grams/second	10 mg/m³	ACGIH	0.023 mg/m³	434
3.2.		lbs/day	grams/second	mg/m ³		mg/m ³	

How to Find Application Forms

- <http://www.dnrec.delaware.gov/Pages/default.aspx>
- Under Services “Forms and Applications”
 - <http://www.dnrec.delaware.gov/services/Pages/Forms.aspx>
- Under Air Forms “Air Reg. 2 Application”
 - <http://www.dnrec.delaware.gov/services/Pages/Forms.aspx>



Contact Information

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