Ensuring Quality Permit Applications

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Department of Environmental Quality

What is Required in a Permit Application?

Completeness Determination (for all applications, except PSD)

- Appropriately signed application forms
- Local zoning consistency determination
- Professional engineer (PE) seal, if required.
- Number of copies
- Application fee
- Financial qualification or substantial compliance statement, if required.

NORTH CAROLINA
Department of Environmental Quality

What is Required in a Permit Application?

Technical Completeness Determination

- Narrative of project or modification
- Process schematics and parameters
- Emissions information
  - -- Sample calculations
  - -- Source of emissions factors
- Regulatory applicability and compliance
- Modeling analysis, if required.

What is Required in a Permit Application?

Completeness Determination (for PSD applications only)

- Best available control technology (BACT) analysis
- Source impact analysis
- Source information
- Additional impacts analysis
- Class I analysis, if applicable.

What is the Processing Timeframe?

- **Construction and operation permit application** (02Q .0300)

  Most applications - 90 days from the receipt of the complete application (60 days for administrative amendments)

- **Title V permit application** (02Q .0500)

  Most of the applications - approximately 320 days from the receipt of complete application, if no public hearing held and using parallel processing (90 days for minor modifications, 60 days for administrative amendments)

- **PSD application**

  Processed using either 02Q .0300 or 02Q .0500 - 1 year from the receipt of the complete application

What is the Processing Timeframe?

- Modification of Title V Permits
  - Addresses all criteria, HAPs and certain other federally regulated pollutants.
  - Administrative Amendments (2Q .0514) – 60 days
  - State-Only Changes (2Q .0300) – 90 days
  - 502(b)(10) Changes (2Q .0523(a), 2Q .0300) – 7 days
  - Minor Modifications (2Q .0515) – 10 days (letter to applicant followed by 80 days processing)
  - Significant Modifications (2Q .0504) - ~270 days
  - PSD/NA-NSR Permits (2D .0530/.0531) - ~ 1 year

Why is a Quality Permit Application Needed?

- Increases efficiency of NCDAQ staff

- Decreases scrutiny by EPA, public, and third parties
  Hearings and public participation

Common Issues with Permit Applications

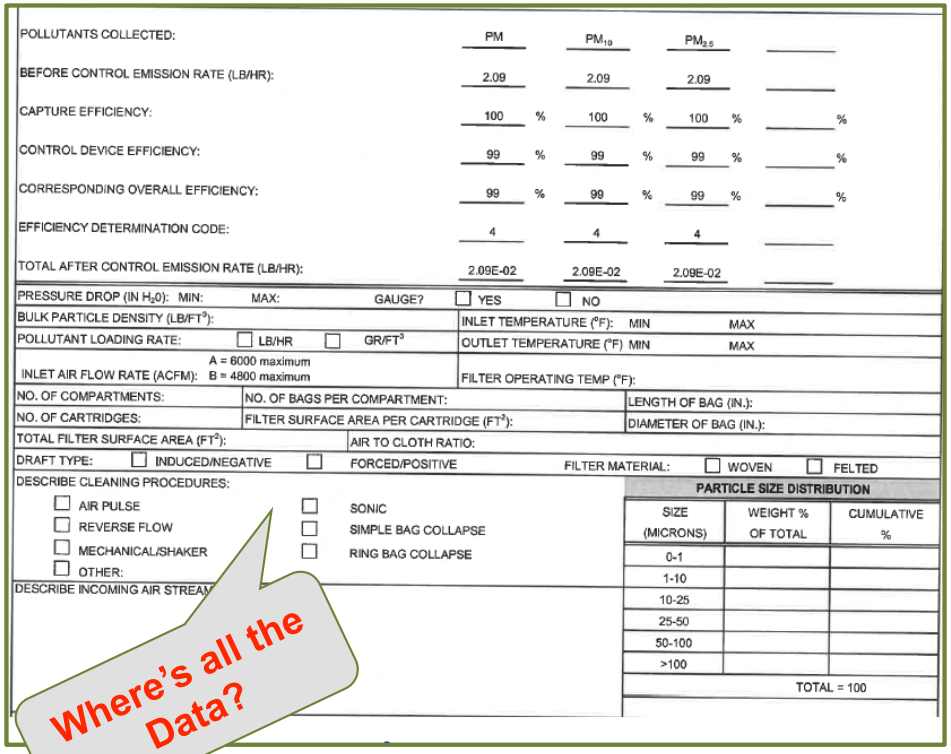
- Not stand-alone documents
  - Refers to other documents

- Cover letter and narrative
  - Missing information in narrative
  - No process diagram
  - No discussion of applicability or compliance
  - Emission sources do not match information in forms

- Forms
  - Outdated or incomplete
  - Not signed by Responsible Official
  - Missing

Examples - Issues with Forms...

Form C1 for a Bagfilter



POLLUTANTS COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	2.09	2.09	2.09	
CAPTURE EFFICIENCY:	100 %	100 %	100 %	%
CONTROL DEVICE EFFICIENCY:	99 %	99 %	99 %	%
CORRESPONDING OVERALL EFFICIENCY:	99 %	99 %	99 %	%
EFFICIENCY DETERMINATION CODE:	4	4	4	
TOTAL AFTER CONTROL EMISSION RATE (LB/HR):	2.09E-02	2.09E-02	2.09E-02	

PRESSURE DROP (IN H_2O): MIN: MAX: GAUGE? ☐ YES ☐ NO

BULK PARTICLE DENSITY (LB/FT³): | INLET TEMPERATURE (°F): MIN MAX

POLLUTANT LOADING RATE: ☐ LB/HR ☐ GR/FT³ | OUTLET TEMPERATURE (°F) MIN MAX

INLET AIR FLOW RATE (ACFM): A = 6000 maximum, B = 4800 maximum | FILTER OPERATING TEMP (°F):

NO. OF COMPARTMENTS: | NO. OF BAGS PER COMPARTMENT: | LENGTH OF BAG (IN.):

NO. OF CARTRIDGES: | FILTER SURFACE AREA PER CARTRIDGE (FT²): | DIAMETER OF BAG (IN.):

TOTAL FILTER SURFACE AREA (FT²): | AIR TO CLOTH RATIO:

DRAFT TYPE: ☐ INDUCED/NEGATIVE ☐ FORCED/POSITIVE FILTER MATERIAL: ☐ WOVEN ☐ FELTED

DESCRIBE CLEANING PROCEDURES:

☐ AIR PULSE ☐ SONIC
☐ REVERSE FLOW ☐ SIMPLE BAG COLLAPSE
☐ MECHANICAL/SHAKER ☐ RING BAG COLLAPSE
☐ OTHER:

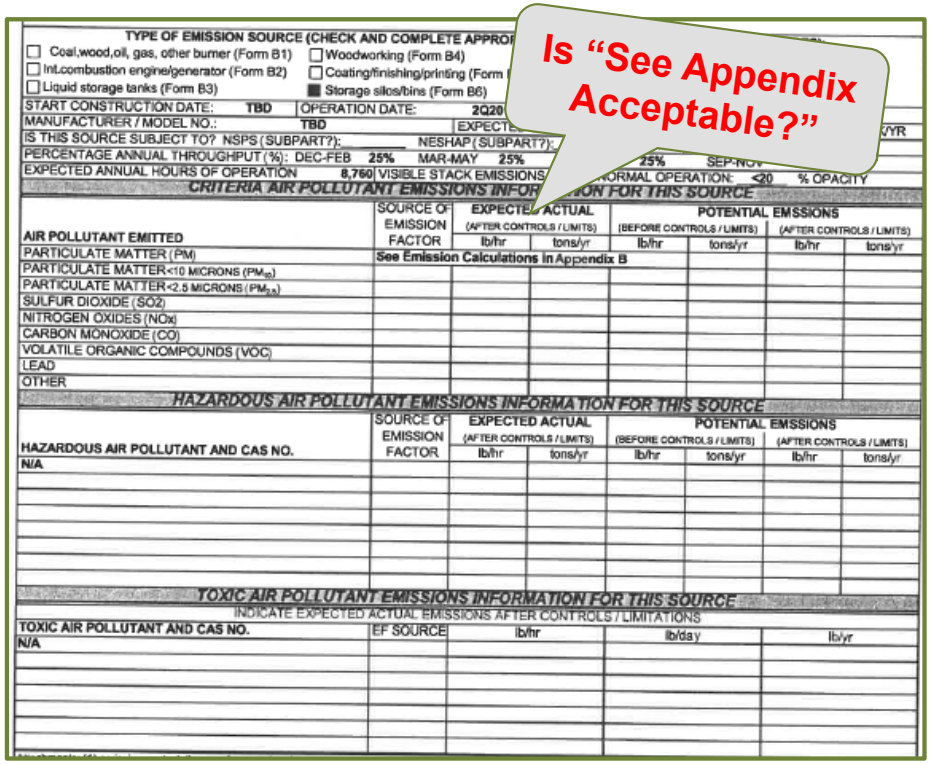
DESCRIBE INCOMING AIR STREAM

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1		
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

Where's all the Data?

Is "See Appendix Acceptable?"



TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROP

☐ Coal,wood,oil, gas, other burner (Form B1) ☐ Woodworking (Form B4)
☐ Int.combustion engine/generator (Form B2) ☐ Coating/finishing/printing (Form
☐ Liquid storage tanks (Form B3) ■ Storage silos/bins (Form B6)

START CONSTRUCTION DATE: TBD | OPERATION DATE: 2Q20

MANUFACTURER / MODEL NO.: TBD | EXPECTE /YR

IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?): | NESHAP (SUBPART?):

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% 25% SEP-NOV

EXPECTED ANNUAL HOURS OF OPERATION 8,760 | VISIBLE STACK EMISSIONS ORMAL OPERATION: <20 % OPACITY

CRITERIA AIR POLLUTANT EMISSIONS INFOR ON FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	See Emission Calculations in Appendix B						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO_2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
N/A							

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

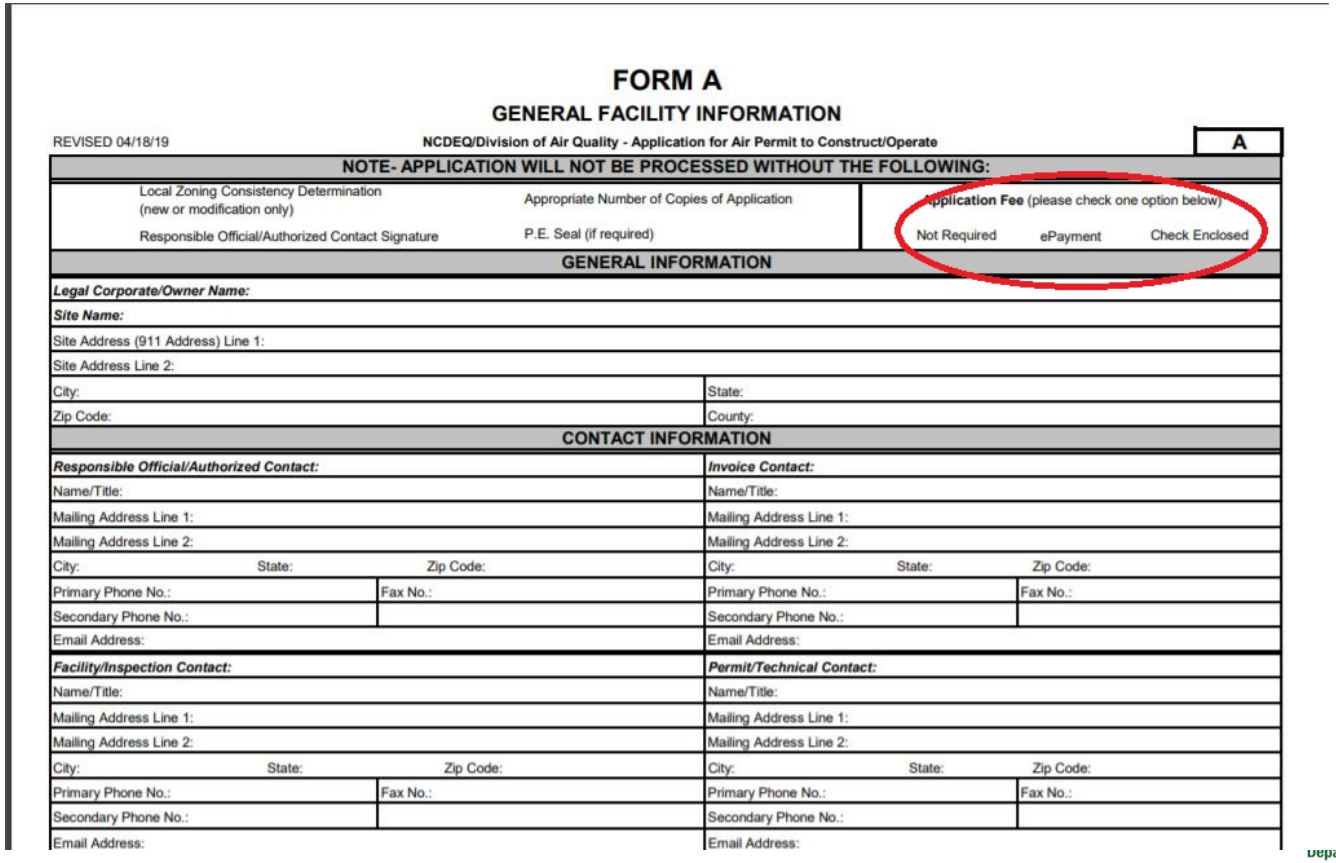
INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
N/A				

Form B for a Hammermill

NORTH CAROLINA Department of Environmental Quality

New Form A - ePayment



FORM A

GENERAL FACILITY INFORMATION

REVISED 04/18/19 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — A

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

Local Zoning Consistency Determination (new or modification only)	Appropriate Number of Copies of Application	**Application Fee** (please check one option below)
Responsible Official/Authorized Contact Signature	P.E. Seal (if required)	Not Required ePayment Check Enclosed

GENERAL INFORMATION

Legal Corporate/Owner Name:	
Site Name:	
Site Address (911 Address) Line 1:	
Site Address Line 2:	
City:	State:
Zip Code:	County:

CONTACT INFORMATION

Responsible Official/Authorized Contact:		***Invoice Contact:***	
Name/Title:		Name/Title:	
Mailing Address Line 1:		Mailing Address Line 1:	
Mailing Address Line 2:		Mailing Address Line 2:	
City: State: Zip Code:		City: State: Zip Code:	
Primary Phone No.:	Fax No.:	Primary Phone No.:	Fax No.:
Secondary Phone No.:		Secondary Phone No.:	
Email Address:		Email Address:	
Facility/Inspection Contact:		***Permit/Technical Contact:***	
Name/Title:		Name/Title:	
Mailing Address Line 1:		Mailing Address Line 1:	
Mailing Address Line 2:		Mailing Address Line 2:	
City: State: Zip Code:		City: State: Zip Code:	
Primary Phone No.:	Fax No.:	Primary Phone No.:	Fax No.:
Secondary Phone No.:		Secondary Phone No.:	
Email Address:		Email Address:	

Department of Environmental Quality

Common Issues with Permit Applications

- Emission calculations
  - No sample calculations
  - Data in tables not readable
  - Incorrect or undocumented emission factors
  - Ambiguous manufacturer specifications

- Modeling data and files, if applicable
  - Emission data differs
  - Emission sources do not match permit application
  - Source parameters and locations incorrect
  - Inaccurate met files or modeling methodology

- Reference material
  - Information not publicly available not included
  - Inappropriate for industry

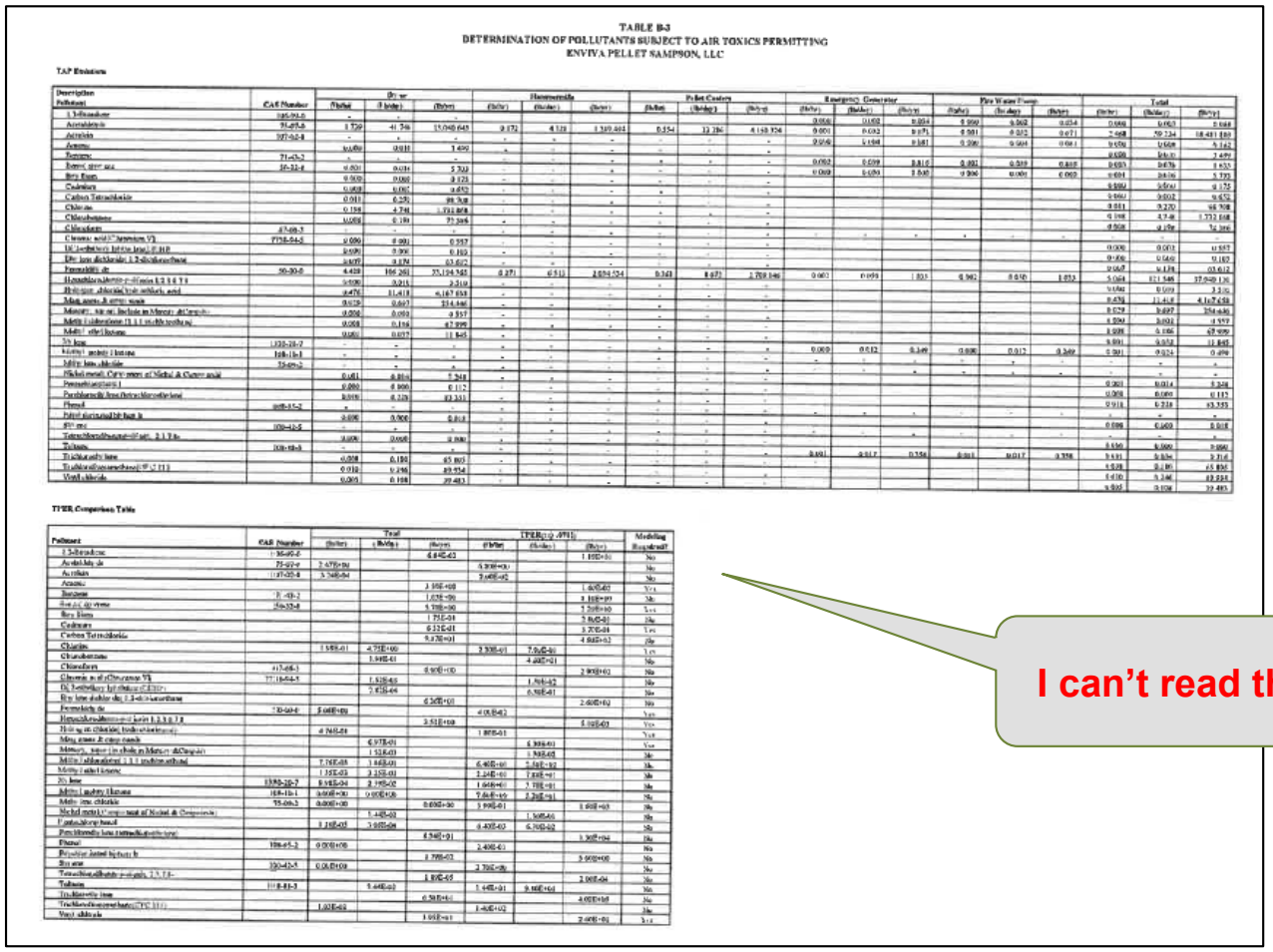


TABLE B-3
DETERMINATION OF POLLUTANTS SUBJECT TO AIR TOXICS PERMITTING
ENVIVA PELLET SAMPSON, LLC

TAP Emissions

Description	CAS Number	Dryer			Hammermills			Pellet Coolers			Emergency Generator			Fire Water Pump			Total		
Pollutant		(lb/hr)	(lb/day)	(lb/yr)	(lb/hr)	(lb/day)	(lb/yr)	(lb/hr)	(lb/day)	(lb/yr)	(lb/hr)	(lb/day)	(lb/yr)	(lb/hr)	(lb/day)	(lb/yr)	(lb/hr)	(lb/day)	(lb/yr)
1,3-Butadiene	106-99-0	-	-	-							0.0568	0.1352	0.034	0.990	0.262	0.034	0.046	0.1613	5.068
Acetaldehyde	75-07-0	1.739	41.746	15,060.645	0.172	4.128	1,489.494	0.354	12.186	4,168.924	0.001	0.032	0.871	0.581	0.252	0.071	2.468	58.234	18,481.880
Acrolein	107-02-8	-	-	-	-	-	-	-	-	-	0.0246	0.1968	0.681	0.206	0.664	0.068	0.030	0.861	7.749
Acrylic		0.0450	0.011	3.499	-	-	-	-	-	-	-	-	-	-	-	-	0.030	0.011	3.499
Benzene	71-43-2	-	-	-	-	-	-	-	-	-	0.052	0.039	0.816	0.307	0.369	0.015	0.035	0.078	1.831
Benzyl chloride	10-32-8	0.021	0.031	5.319	-	-	-	-	-	-	0.009	0.050	2.535	0.006	0.001	0.002	0.031	0.086	5.773
Biphenyl		0.020	0.000	3.125	-	-	-	-	-	-	-	-	-	-	-	-	0.020	0.000	3.125
Butadiene		0.0458	0.007	2.652	-	-	-	-	-	-	-	-	-	-	-	-	0.046	0.007	2.652
Carbon Tetrachloride		0.011	0.251	88.308	-	-	-	-	-	-	-	-	-	-	-	-	0.011	0.251	88.308
Chlordane		0.158	4.741	1,731.808	-	-	-	-	-	-	-	-	-	-	-	-	0.158	4.741	1,731.808
Chlorobenzene		0.058	0.139	73.206	-	-	-	-	-	-	-	-	-	-	-	-	0.058	0.139	73.206
Chloroform	67-66-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromic acid (Chromium VI)	7738-94-5	0.000	0.001	0.557	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.001	0.557
Di-2-ethylhexyl phthalate [bis(2-ethylhexyl) phthalate]		0.020	0.000	0.183	-	-	-	-	-	-	-	-	-	-	-	-	0.020	0.000	0.183
Dichlorobenzene		0.007	0.179	65.602	-	-	-	-	-	-	-	-	-	-	-	-	0.007	0.179	65.602
Formaldehyde	50-00-0	4.428	106.261	38,804.565	0.371	8.911	3,254.154	0.343	8.231	3,004.346	0.003	0.095	1.033	0.382	0.920	1.033	5.104	122.518	44,745.131
Hexachlorodibenzo-p-dioxins [1,2,3,4,6,7,8-]		0.000	0.000	0.000	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000	0.000
Hydrogen chloride [hydrochloric acid]		0.476	11.418	4,167.858	-	-	-	-	-	-	-	-	-	-	-	-	0.476	11.418	4,167.858
Manganese compounds		0.028	0.667	243.446	-	-	-	-	-	-	-	-	-	-	-	-	0.028	0.667	243.446
Mercury, vapor (Include in Mercury (Elemental))		0.000	0.000	0.557	-	-	-	-	-	-	-	-	-	-	-	-	0.029	0.697	254.446
Methyl chloroform [1,1,1-trichloroethane]		0.008	0.196	87.996	-	-	-	-	-	-	-	-	-	-	-	-	0.008	0.202	87.997
Methyl ethyl ketone		0.081	0.077	11.845	-	-	-	-	-	-	-	-	-	-	-	-	0.081	0.077	11.845
Styrene	1330-20-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl methacrylate	108-10-1	-	-	-	-	-	-	-	-	-	0.000	0.012	0.349	0.000	0.012	0.349	0.001	0.024	0.699
Methyl tert-butyl ether	75-09-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel metal, Cadmium and Nickel & Cadmium acid		0.011	0.266	9.268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene [1]		0.000	0.000	0.112	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.014	5.268
Polychlorinated dibenzofurans [Mixed or Total]		0.000	0.000	0.000	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000	0.115
Phenol	108-95-2	0.016	0.378	82.333	-	-	-	-	-	-	-	-	-	-	-	-	0.016	0.378	83.333
Polycyclic organic matter [4]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Propionaldehyde		0.006	0.000	0.018	-	-	-	-	-	-	-	-	-	-	-	-	0.006	0.000	0.018
Quinone	106-51-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-		0.000	0.000	0.000	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000	0.000
Toluene	108-88-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.196	4.000	0.000
Trichloroethylene		0.008	0.180	65.863	-	-	-	-	-	-	0.001	0.017	0.358	0.001	0.017	0.358	0.011	0.214	3.716
Trichlorofluoromethane [CFC 11]		0.018	0.246	89.954	-	-	-	-	-	-	-	-	-	-	-	-	0.028	0.181	65.954
Vinyl chloride		0.005	0.108	39.483	-	-	-	-	-	-	-	-	-	-	-	-	0.010	0.246	89.954
																	0.005	0.108	39.483

TPER Comparison Table

Pollutant	CAS Number	Total			TPER(tpy, 40 CFR 70)			Modeling Required?
		(lb/hr)	(lb/day)	(lb/yr)	(tpy)	(lb/hr)	(lb/yr)	
1,3-Butadiene	106-99-0			6.84E-03			1.37E+01	No
Acetaldehyde	75-07-0	2.47E+00			5.20E+00			No
Acrolein	107-02-8	5.74E-04			2.60E+05			No
Arsenic				3.95E+00			1.40E-01	Yes
Benzene	71-43-2			1.03E+00			3.11E+01	No
Benzyl chloride	100-44-7			5.79E+00			1.20E+01	No
Beryllium				1.75E-01			3.50E-01	Yes
Cadmium				6.23E-01			3.27E-01	Yes
Carbon Tetrachloride				8.17E+01			4.86E-02	No
Chlorine		1.58E-01	4.75E+00		2.33E-01	7.00E-01		Yes
Chlorobenzene			1.94E-01			4.40E+01		No
Chloroform	67-66-3			5.90E+00			2.90E+01	No
Chromic acid (Chromium VI)	7738-94-5		1.52E-03			1.70E-02		No
Di-2-ethylhexyl phthalate [bis(2-ethylhexyl) phthalate]			2.47E-04			6.50E-01		No
Dichlorobenzene				6.30E+01			2.60E+01	No
Formaldehyde	50-00-0	5.08E+00			4.93E-02			No
Hexachlorodibenzo-p-dioxin [1,2,3,6,7,8-				2.51E+00			5.02E-03	Yes
Hydrogen chloride [hydrochloric acid]		4.76E-01			1.80E-01			Yes
Manganese compounds			6.97E-01			6.30E+01		Yes
Mercury, vapor (Include in Mercury (Elemental))			1.52E-03			1.30E-02		No
Methyl chloroform [1,1,1-trichloroethane]		7.76E-03	1.86E-01		6.40E+00	2.50E+02		No
Methyl ethyl ketone		1.35E-03	3.25E-01		2.24E+01	7.80E+01		No
Methyl methacrylate	1330-20-7	8.95E-04	2.19E-02		1.66E+01	3.78E+01		No
Methyl tert-butyl ether	108-10-1	0.00E+00	0.00E+00		7.06E+00	3.20E+01		No
Methylene chloride	75-09-2	0.00E+00		0.00E+00	3.99E-01		1.40E+03	No
Nickel metal (Compounds of Nickel & Compounds)			1.40E-01			1.30E-01		No
Pentachlorophenol		1.15E-05	3.60E-04		6.43E-03	6.70E-02		No
Polycyclic organic matter [4, quantitative]				6.54E+01			1.30E+04	No
Phenol	108-95-2	0.00E+00			2.40E-01			No
Polycyclic organic matter [4]				1.79E-03			5.90E+00	No
Quinone	106-51-4	0.00E+00			3.70E-02			No
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-				1.87E-05			2.00E-04	No
Toluene	108-88-3		5.44E-02		1.44E+01	9.90E+01		No
Trichloroethylene				6.58E+01			4.00E+00	No
Trichlorofluoromethane [CFC 11]		1.02E-02			1.40E-02			No
Vinyl chloride				1.01E+01			2.00E-01	Yes

I can't read the data!

Acceptable Emission Estimation Methods

- Continuous emission monitoring system (CEMS)
- NC DAQ approved site-specific emission factor (stack test)
- NC and local approved emission factor (NC Spreadsheets)
- NC DAQ-approved & representative stack tests
- Material balance
- US EPA/AP-42 emission factor not in NC spreadsheets
- Trade association developed emission factors or calculations
- Engineering judgment with documentation
- Manufacturer specification with warranty

CEMS Data – It's Complicated!

- CEMS monitor needs to be considered
  - Properly installed, maintained, and operated?
  - Certified, RATA, etc.

- Data collection and processing vary by rule
  - NSPS vs. Part 75
  - Rolling vs. block averages

- Understand CEM data before using it for emissions

Source Test Data

- Questions about the source tests
  - Was the test conducted at the facility?
  - Was the test recent?
  - Were the test conditions representative?
  - Was the test for a similar facility?

- **All source test data should be approved by SSCB before acceptance in permitting.**

Other Emission Estimation Methods

- Material balance – Need supporting data (MSDS, SDS, etc.)
- US EPA/AP-42 emission factors - Use most up to date versions
- Trade associations, engineering judgment, manufacturer data - Need documentation

  Example – NCASI's Technical Bulletins

How to Improve Permit Application Process

- Fill out forms completely.
- Submit emission spreadsheets and provide sample calculations.
- Provide references in application.
- Provide source test data.
- Respond to questions in a timely manner.
- Communicate.

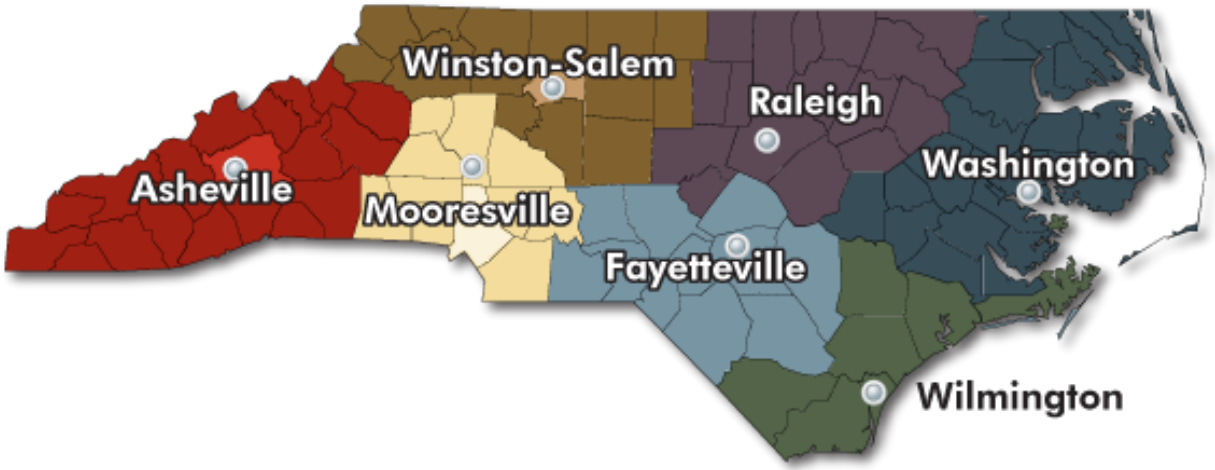
Questions?

For Title V Permitting:

Mark Cuilla, E.I.T., CPM
Title V Permitting Supervisor
mark.cuilla@ncdenr.gov
(919) 707-8738

Questions?

For non-Title V Permitting:



Ask for the DAQ Permitting Coordinator at your Regional Office.

https://deq.nc.gov/contact/regional-offices

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