



Department of
Environmental
Conservation

6NYCRR Part 212 Process Operations

**The Evaluation of Public Health & Environmental
Impacts – Permitting Sources of Air Pollution From
Process Operations**

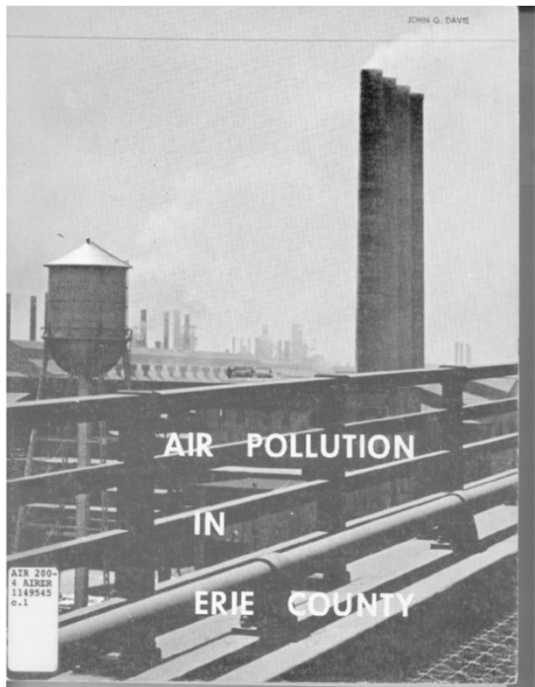
Eastern New York Air & Waste Management Association Chapter
March 9, 2016

Overview

- History
- Application Requirements
- Printing Facility Example
- T-BACT
 - Applications
 - Requirements

History

- Establishment of Air Pollution Control Board in 1957.
- “Rules to Prevent New Air Pollution” – adopted in 1962.
- “Current Guides for Prevention of New Air Pollution”
- Part 187 “Contaminant Emissions from Processes, Exhaust and Ventilation Systems” -1966.
- Focused on 81 specific chemicals and 24 chemical classes.
- **Environmental Rating System Concept First Developed.**
- 1968 - 6 NYCRR Part 212 Processes and Exhaust and/or Ventilation Systems. Process Source Handbook (Chapters 3900 & 4100).



History

- 6 NYCRR Part 212 - Processes and Exhaust and/or Ventilation Systems – adopted in 1968.
- Process Source Handbook (Chapters 3900 & 4100) developed as guidance documents for the control of toxic air contaminants regulated under 6 NYCRR Part 212. (1972).
- 1981 – Air Guide -1 developed (Updated 1983, 1985, 1991).
- 1991- New York State Air Guide-1: Guidelines For The Control of Toxic Ambient Air Contaminants.
- 1986 -1995 Introduction of VOC RACT rules.
- 2010 - Addition of NOx RACT for Asphalt Plants. (12 sections)
- 2015 – Separation into 4 Subparts (Effective June 14, 2015).

1990 Clean Air Act Amendments

- Major expansion of federal air toxics program.
- Identified 189 hazardous air pollutants (HAPs);
- Required the development of 174 National Emission Standards for Hazardous Air Pollutants (NESHAP) – Technology first approach;
- Contained provisions for standards to protect health and the environment – Assessment of Residual Risk – Risk Second Approach;
- Now called Residual Risk and Technology Review

A New Era in Air Toxics Control

EPA Residual Risk Report to Congress (1999)

“ A successful comprehensive air toxics program will be one that integrates the residual risk and other federal programs with State and local programs and strengthens those existing programs. Program integration will involve interactive sharing of expertise, data, analyses and methodologies.”

Objectives of the New Part 212

- To control process emission sources in a manner that is protective of public health and the environment.
- To provide regulatory assurance to businesses and the public concerning emissions of toxic air contaminants.
- To provide consistency among Parts 200, 201 and 212 and the federal NSPS/NESHAP programs.

Applicability (Transition Plan)

- Upon issuance of a new or modified permit or registration for a facility containing process emission sources.
- Upon issuance of a renewal for an existing permit or registration.
- Part 212 does not apply to combustion or incineration sources just process operations.

Application Requirements

A pre-application meeting with DEC regional staff is strongly encouraged.

A complete application contains:

- The appropriate application forms (ATV/ASF or AFR)
- Project location map
- Supporting documentation

Application Requirements – Supporting Documentation

- Emission calculations
- Plot plan (emission source/point location)
- Methods Used to Determine Compliance (ATV only)
- List of Exempt Activities (ATV only)
- P.E. Certification (new facilities and emission sources – ATV)
- List of applicable requirements
- Process flow diagrams
- Emission unit/source/process summary (optional)
- Rule applicability analysis (optional)
- RACT/BACT/LAER demonstration (if required)
- Stack test reports (optional)

Application Requirements – Part 212 Specific

- 1) The annual actual emissions of all High Toxicity Air Contaminants (HTAC) must be reported on the application;
- 2) The emission rate potential (ERP), of each non-HTAC air contaminant emitted at a rate greater than 100 pounds per year facility-wide;
- 3) Each air contaminant must be identified by its chemical name and number, as defined in the CAS Registry;
- 4) A Safety Data Sheet (SDS), must be included for each chemical used or produced that is emitted from the facility;
- 5) Facility plot plan, to scale, showing North orientation and property lines and the location, elevation, and dimensions of facility structures and nearby receptors;

Application Requirements – Part 212 Specific

- 6) A list and description of all process emission sources at the facility except those that are listed as exempt or trivial in Subpart 201-3 or exceptions in Section 212-1.4;
- 7) A description of all processes, their associated emission sources and products, including a process flow diagram detailing the emissions from each process emission source and from which emission point (EP) the emissions exhaust;
- 8) A list of all EPs including the following parameters: stack height, stack height above building, internal stack diameter, exit temperature, exit velocity, exit flow, distance from the EP to the property line and NYUTM or latitude and longitude coordinates;
- 9) All necessary analyses in support of the permit application or renewal. These include but are not limited to:
- Environmental Rating (ER) demonstration;
 - Toxic Impact Assessment (TIA) incorporating an Aerscreen modeling analysis or Aermol modeling protocol;
 - BACT or T-BACT analysis; or
 - VOC or NO_x RACT analysis.

Thought Process

1. Is the Process Emission Source exempt in 201?
2. Is the Process Emission Source listed under exceptions in 212-1.4?
3. Have High Toxicity Air Contaminants been identified?
4. Can facility comply by maintaining HTAC < Table 2 thresholds?
5. Is the Process Emission Source identified in 40 CFR Part 60, or NESHAP regulations Parts 61 or 63?
6. Has all the data been submitted to determine an Environmental Rating for each air contaminant from all applicable Process Emission Sources?
7. Has the Emission Rate Potential for each air contaminant from the process emission source been calculated?
8. Has the control requirement been identified in Table 3 or 4 in Subpart 212-2.

DEC Review

- Assign an Environmental Rating for each air contaminant
 - Group compounds by Particulate family and VOC family and other.
 - Particulate Families are controlled under 212-2.4 and major source VOC facilities under 212-3.
 - Assign control for speciated air contaminants and Particulate family.
- Discuss with applicant the degree of control required for a particular emission source.

Determining an Environmental Rating

- Toxic and other properties and the emission rate potential of the air contaminant;
- Location of the source with respect to residences or other sensitive environmental receptors, including consideration of the area's anticipated growth;
- Emission dispersion characteristics at or near the source, taking into account the physical location of the source with respect to terrain; and
- Projected maximum cumulative impact taking into account emissions from all sources at the facility under review and the pre-existing ambient concentration of the air contaminant under review (background).

Example – Color World

Color World is engaged in both the manufacture and printing of colored boxes, as well as contract commercial screen printing. The facility is located in a low density rural area.

The process involves the application of inks using offset lithographic printing presses. Six (6) Heidelberg press units are located in the printing department with three (3) emission points. Cutting and Trimming activities exhaust to a cyclone.

Facility is subject to:

Part 212 Process Operations;

Part 228 Surface Coating Processes, Commercial and Industrial Adhesives, Sealants and Primers; and

Part 234 Graphic Arts

Emission Point AERSCREEN Modeling Results

Emission Point 0001 – Press #1, Blanket wash emissions

Air Contaminant	CAS#	Toxicity	lb/hr	Concentration	AGC
Styrene	100-42-5	Moderate	0.025	7.92	1,000
2-Butoxyethanol	111-76-2	Moderate	0.202	64.51	1,600
Carbitol	111-90-0	Moderate	0.001	0.38	200
Glycol Ethers	112-34-5	Moderate	0.002	0.61	200
Xylene	1330-20-7	Low	0.125	39.93	100
Heptane	142-82-5	Moderate	0.148	47.48	3,900
Isopropanol	67-03-0	Moderate	0.245	78.26	7,000
Aliphatic Naphtha	64742-48-9	Moderate	0.838	267.85	900
Aromatic Naphtha	64742-95-0	Moderate	0.207	66.20	100
Methyl pyrrolidone	872-50-4	Moderate	0.025	7.91	100
1,2,4 Trimethyl benzene	95-03-0	Moderate	0.104	33.10	6
Cumene	98-82-8	NA	0.026	8.28	400

Summed Offsite Concentrations for Three Emission Points

Emission Points 0001 through 0003

Air Contaminant	CAS#	Concentration	AGC
Styrene	100-42-5	29.40	1,000
2-Butoxyethanol	111-76-2	241.11	1,600
Carbitol	111 90-0	1.41	200
Glycol Ethers	112-34-5	2.38	200
Xylene	1330-20-7	148.41	100
Heptane	142-82-5	176.35	3,900
Isopropanol	67-03-0	290.72	7,000
Aliphatic Naphtha	64742-48-9	858.30	900
Aromatic Naphtha	64742-95-0	245.91	100
Methyl pyrrolidone	872-50-4	29.39	100
1,2,4 Trimethyl benzene	95-03-0	122.95	6
Cumene	98-82 8	30.73	400

Assigning Environmental Rating

- Initial Rating either “B” or “C”
Reasoning: Moderate toxicity
- Maintain initial rating
Reasoning : Offsite Receptors: Maximum concentration of air contaminants located in rural area with no other contributing sources.
- Maintain “B” or “C” rating
Reasoning : Concentration of summed air contaminant from 3 emission points below AGC.
- Either increase rating, apply refined air model dispersion, or eliminate air contaminant.
“B” or “C” ratings will need to show compliance with the AGC.
“A” ratings will need to meet the control of Table 4, potentially meeting the AGC or applying control
Reasoning: Concentration of summed air contaminant from 3 emission points above AGC.

Example Outcome

- If none of the air contaminant/emission point combinations were “A” rated, emission source is not applicable to Part 212
 - If refined modeling shows the three air contaminants meet the AGC, the initial rating of “B” would prevail. The same refined modeling would also be used to demonstrate compliance with Table 4.
 - If pollution prevention measures were incorporated to remove trimethyl benzene and other aromatics from the blanket wash, the initial rating of “B” would prevail.
- If an air contaminant/emission source cannot meet the AGC, the emission source would be rerated “A” and Part 212 applies.

**Degree of Air Cleaning Required for Non-Criteria Air Contaminants
Gases and Liquid Particulate Emissions (Environmental Rating A, B, C or D)
and
Solid Particulate Emissions (Environmental Rating A or D)**

'EMISSION RATE POTENTIAL'

Environmental Rating	Less than 0.1 lbs/hr and lbs/yr ≤ PB trigger	≥ 0.1 to 1 lbs/hr or lbs/yr > PB trigger	≥ 1 to 10 lbs/hr	≥ 10 to 25 lbs/hr	Greater than 25 lbs/hr
A	Guideline Concentration*	90%	99%	99.5%	99.5%
B	Guideline Concentration*			90%	
C	Guideline Concentration*			75%	
D	NO AIR CLEANING REQUIRED				

* Using air dispersion modeling demonstrate that the maximum offsite air concentration is less than the applicable AGC/SGC.

T-BACT Applicable Situations

- Source owner unable to demonstrate compliance with the percent reduction requirements in Table 4 based on emission rate potential (ERP) and Environmental Rating (ER), however meets the AGC for all air contaminants.
- Source owner demonstrates compliance with the percent reduction requirements in Table 4 based on ERP and ER, however offsite concentrations exceeds established risk management policies.
- Source owner cannot demonstrate compliance with the percent reduction requirements in Table 4 due to the configuration of the stack, such as no space for inlet testing.

T-BACT Requirements

- T-BACT is not determined solely on \$ per ton reduction
- Best controlled similar source, as “achieved in practice”, and is within the acceptable risk range
 - Requirements of “achieved in practice” found in DAR-1
- Existing source MACT is not necessarily T-BACT
- New Source MACT may be T-BACT if after control, cancer risk or hazard index is within acceptable risk range.
- Varying degrees of control options can be presented, top-down approach, based on \$ per risk reduction

Next Steps

- Updated web page which summarizes the rule and provides a general implementation flow chart.
<http://www.dec.ny.gov/chemical/8568.html>
- Update and reissue DAR-1: Guidelines for the Control of Ambient Air Contaminants Under Part 212.
- Update and reissue DAR-10: Impact Analysis Modeling.

Thank You

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