Air Quality Regulations 101

2016 Northern Michigan Environmental Compliance Conference

Chris Hare
Saginaw Bay District Supervisor
989.894.6215/ harec@michigan.gov

Discussion Points

- Why? What's the big deal?
- What air emissions are regulated?
  - NAAQS, HAP's, and TAC's
- How much? Potential to Emit and Determining Source Category
- How are emissions regulated?
  - Federal Regulations, State Rules, and Permits
- Tying it all together

Why regulate air emissions?

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What air emissions are regulated?

As a company or factory, what emissions do I have to worry about?

What air emissions are regulated?

- Pollutants with established National Ambient Air Quality Standards (NAAQS)
  - CO
  - NOx
  - SO_2
  - PM
  - Lead
  - Ozone (VOC)

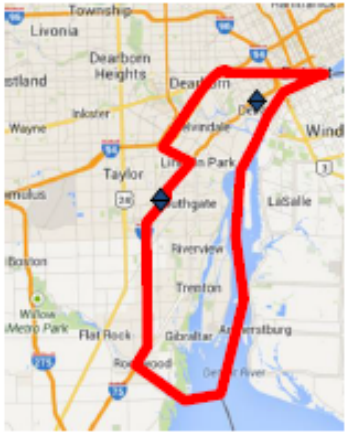
NAAQS

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m³ (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m³	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m³	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m³	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

NAAQS Non-Attainment

- **Sulfur Dioxide [SO_2]**

In Wayne county, a corridor that runs along I-75 extending east to the shoreline border was recently designated to nonattainment with the new 2010 standard.



- **Lead [Pb]**

All Michigan Counties meet the Lead (Pb) National Ambient Air Quality Standards except for a small area in Ionia County (*less than 1 square mile in Belding*).

What air emissions are regulated?

- Pollutants with established National Ambient Air Quality Standards (NAAQS)
  - CO, NOx, SO_2, PM, Lead, Ozone (VOC)
- Hazardous Air Pollutants (HAP's)–
  - 187 pollutants

HAPs

CAS Number	Chemical Name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate (DEHP)
542881	Bis(chloromethyl)ether
75252	Bromoform

CAS Number	Chemical Name
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride

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- Hazardous Air Pollutants (HAP) –
  - 187 pollutants
- Toxic Air Contaminants (TAC or "Toxics")
  - 750 pollutants, defined by state rule

TACs

Chemical Name
4-chloro-2-ethyoxy-6-fluoropyrimidine
ad acid
triethylammonium suleptanate
heptamethyl-1-vinyl-1,7-dichlorotetrasilazane
epoxy resin solution
n-chloro-2,6-difluorobenzamide
polycyclic aromatic hydrocarbons (pahs)
cyclopentyldichlorosilane
amyl acetate (mixture)
n-butylglucamine
2-(1-ethoxyethoxy)-6-(trifluoromethyl)-benzenethiol
sponto 11
100 sxl
biosam tp-1.5
dicyclopentyldichlorosilane
atlox 848
witconol al 69-66

Chemical Name
trospectomycin sulfate
dipropylene glycol methyl ether acetate
oxo-heptyl acetate
isopar h
dibasic ester
5-bp-bisenamine
propanol, 1(or 2) ethoxy, acetate isoparaffinic petroleum hydrocarbon
flumetsulam
n-(2,6-difluorophenyl)-7-methyl-1h-1,2,4-triazolo(1,5a)pyrimidine-2-su
bis(2-methoxy-1-methylethy
4-aza acid
3-methoxy-3methyl-1butyl acetate
ceftiofur hydrochloride
sanduvor 3068 liquid
exxate 800 - octyl acetate
exxate 900
exxate 1000
c11-14 branched alkyl acetates
Solsperse 12000

Chemical Name
estradiol
ddt
benzo(a)pyrene
2,4-dinitrophenol
methyl predisolone acetate
dibenz(a,h)anthracene
carbon tetrachloride
3-methylcholanthrene
benz(a)anthracene
glycerol
stearic acid
cyanide
chlorobutanol
phenytoin
progesterone
7,12-dimethylbenz(a)anthracene
10,10'-oxybisphenoxarsine oxide
ethyl ether

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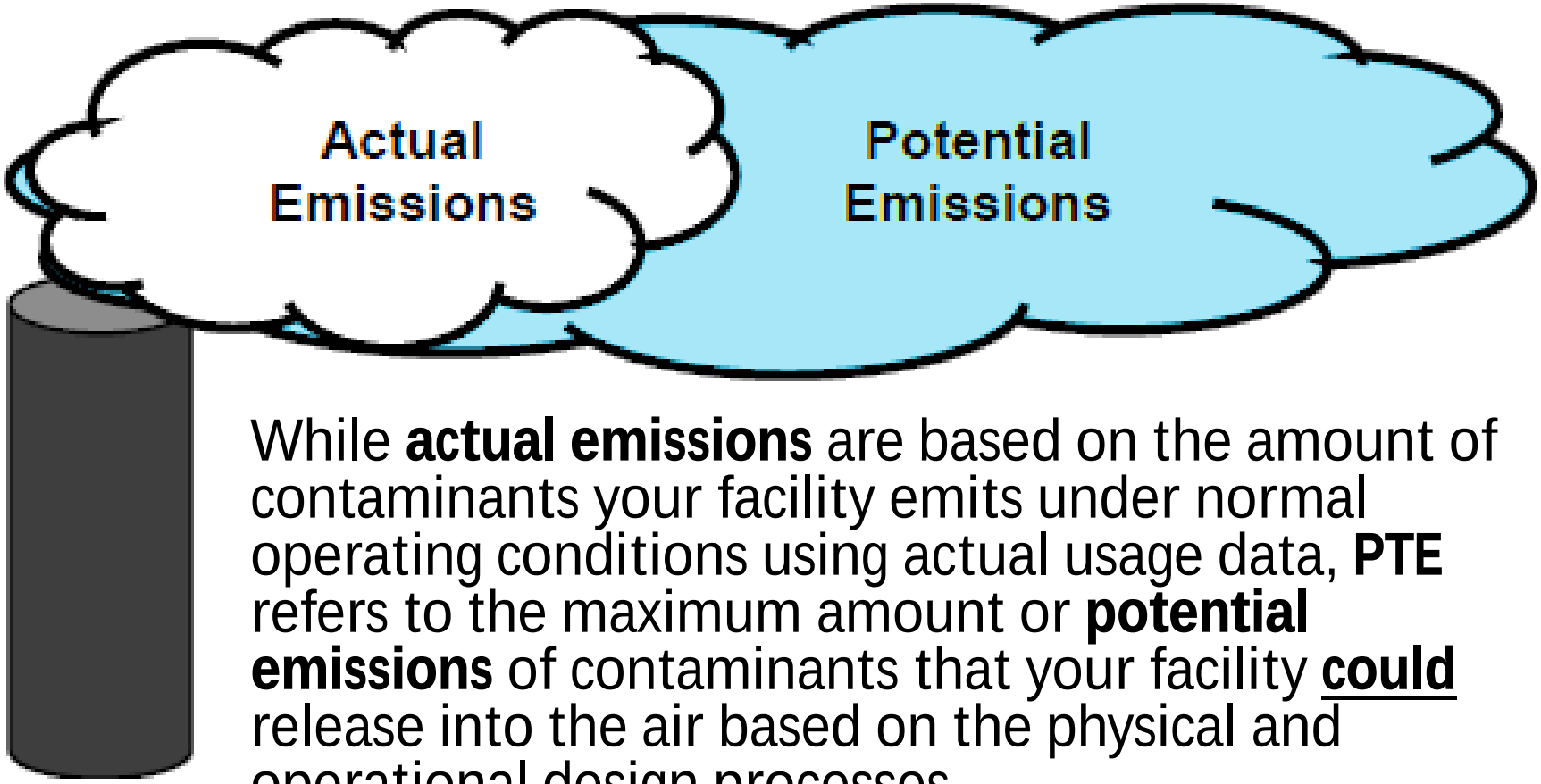
How Much? Potential to Emit and Determining Source Category

As a company or factory, what quantity of emissions do I have to worry about?

Potential to Emit (PTE)

- PTE is the maximum amount of air contaminants that your facility could emit with the following conditions being applied:
  - each process is operated at 100% of its design capacity;
  - each process is operated 24 hours/day, 365 days/year;
  - the materials emitting the highest amount of air contaminants are used or processed; and
  - air pollution control equipment either is not in use or is turned off.

Potential to Emit (PTE)



While **actual emissions** are based on the amount of contaminants your facility emits under normal operating conditions using actual usage data, **PTE** refers to the maximum amount or **potential emissions** of contaminants that your facility **could** release into the air based on the physical and operational design processes.

Source Categories

- Major Source
  - 100 tons / year or more for CO, NOx, PM, VOC, SO2
  - 25 tons / year of any combined HAPs
  - 10 tons / year of any single HAP
- Minor Source
  - Emissions less than Major levels
- Synthetic Minor
  - Permit conditions that prevent emissions greater than Major source thresholds

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How are air emissions regulated?- Federal Regulations

- Federal Regulations
  - Title 40 Code of Federal Regulations Part 60, New Source Performance Standards

    aka

    NSPS

    aka

    40CFR60
  - 40CFR63, National Emission Standards for Hazardous Air Pollutants (NESHAP)
  - 40CFR75, Continuous Emission Monitoring (CEMS)

How are air emissions regulated?- State Rules

LARA Office of Regulatory Reinvention
Department of Licensing and Regulatory Affairs

MICHIGAN.GOV Michigan's Official Web Site

Michigan.gov Home | Michigan Administrative Code | ORR Contact | Help | ORR Home

Michigan Administrative Code

Environmental Quality

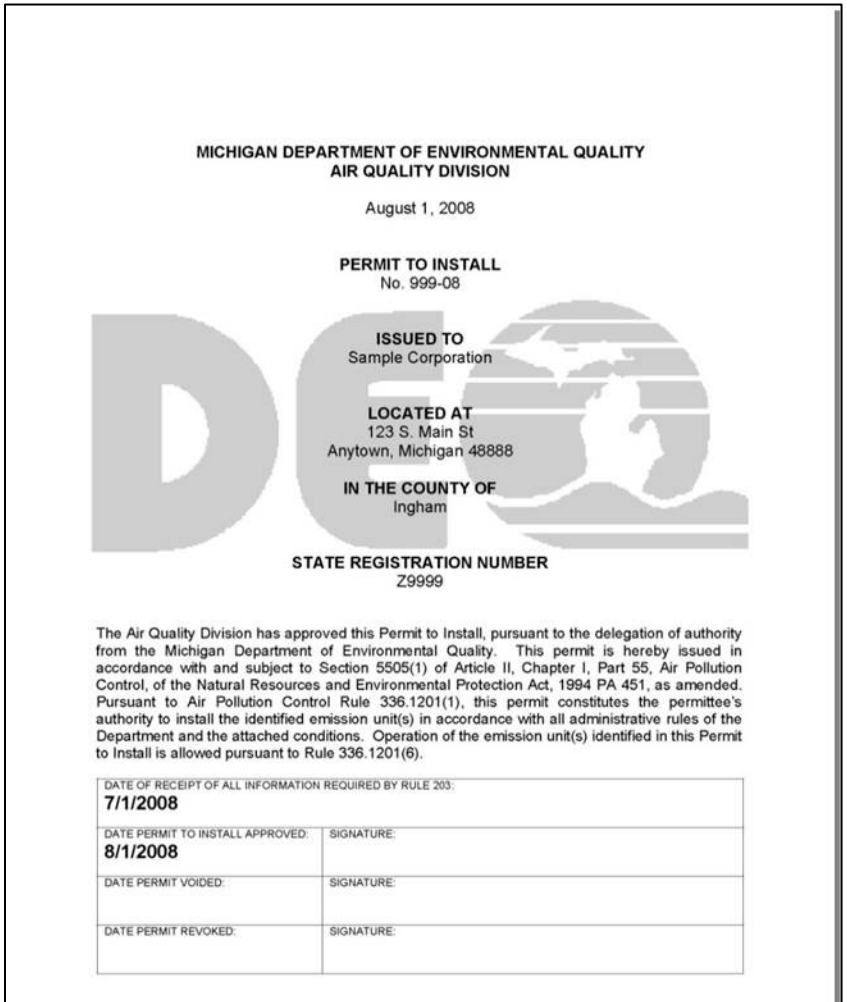
Air Quality Division:

Dry Cleaning Establishments	R 325.17101 - 325.18104	
Annual Reporting	R 336.201 - 336.205	
Part 1. General Provisions	R 336.1101 - 336.1128	Proposed Revision Info
Part 2. Air Use Approval	R 336.1201 - 336.1299	Proposed Revision Info
Part 3. Emission Limitations and Prohibitions-Particulate Matter	R 336.1301 - 336.1374	
Part 4. Emissions Limitations and Prohibitions - Sulfur-Bearing Compounds	R 336.1401 - 336.1420	Proposed Revision Info
Part 6. Emission Limitations and Prohibitions-Existing Sources of Volatile Organic Compound Emissions	R 336.1601 - 336.1669	Proposed Revision Info
Part 7. Emission Limitation and Prohibitions - New Sources of Volatile Organic Compounds Emissions	R 336.1701 - 336.1710	
Part 8. Emission Limitations and Prohibitions-Oxides of Nitrogen (NOx)	R 336.1801 - 336.1834	
Part 9. Emission Limitation and Prohibitions--Miscellaneous	R 336.1901 - 336.1972	Proposed Revision Info
Part 10. Intermittent Testing and Sampling	R 336.2001 - 336.2060	
Part 11. Continuous Emission Monitoring	R 336.2101 - 336.2199	
Part 14. Clean Corporate Citizen	R 336.2401 - 336.2420	
Part 15. Emission Limitations and Prohibitions-Mercury	R 336.2501 - 336.2514	
Part 16. Organization, Operation, and Procedures	R 336.2601 - 336.2608	
Part 17. Hearings	R 336.2701 - 336.2706	
Part 18. Prevention of Significant Deterioration of Air Quality	R 336.2801 - 336.2823	
Part 19. New Source Review For Major Sources Impacting Nonattainment Areas	R 336.2901 - 336.2908	

How are air emissions regulated?- State Rules

How are air emissions regulated?- Permits

- Permits
  - Permits to Install (PTI's)
  - Renewable Operating Permits (ROP's)
  - Opt-Out PTI (synthetic minor)



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

August 1, 2008

PERMIT TO INSTALL
No. 999-08

ISSUED TO
Sample Corporation

LOCATED AT
123 S. Main St
Anytown, Michigan 48888

IN THE COUNTY OF
Ingham

STATE REGISTRATION NUMBER
Z9999

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **7/1/2008**	
DATE PERMIT TO INSTALL APPROVED: **8/1/2008**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

How are air emissions regulated?- Permits

- PTI's
  - Operates as contract
  - Contains emission and material limits, operation and design restrictions
  - Contains monitoring/recordkeeping, testing sampling, and reporting requirements
  - Allows facility to begin construction or installation
  - Major sources must also obtain a Renewable Operating Permit

How are air emissions regulated?- Permits

- ROP's (Title V)
  - Title V of the Clean Air Act is the explanation of Permits, or ROP's
  - ROP's are federal permits
  - Pulls together all of the requirements into a single document
  - Gives a better picture of air emissions at a facility.
  - All PTI's and any other applicable air quality requirements will be incorporated into one permit

How are air emissions regulated?- Permits

- Opt- Out PTI
  - Though this is for a source that has the potential to be a Major source, yet the desire to remain a Minor source
  - Permit includes emission limits, material limits, or design restrictions to prevent Major source emissions

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Tying it all together

- Why- Air emissions are regulated to ensure the comfortable enjoyment of life and health
- What- Regulated emissions include those identified in NAAQS, HAPs, and TACs
- How much- Facilities use PTE to determine their category or source size for pollutants
- How regulated- Depending on emissions, facilities may be required to comply with one or multiple NSPS', NESHAP, or may be required to obtain a permit

Should you need a Air Permit or a Federal Regulation Applies, what are your Responsibilities?

Facility Duties

- Comply with conditions
- Monitor emissions
- Maintain records
- Submit reports
- Apply for new or modified permit if certain changes are made

AQD Duties

- Monitor stack testing
- Conduct inspections
- Review emission reports
- Review compliance certifications
- Certify monitoring systems
- Respond to complaints

Common Questions

- Is it possible to not need a permit yet have a NSPS or NESHAP that applies to me?
- How do the exemption rules (270-290) work?
- Is it better to ask for forgiveness than ask for approval?
- How do I get help determining whether I need a permit?

THANK YOU!