INTRODUCTION TO NC AIR TOXICS

- The NC toxic air pollutant regulations were first adopted in 1990, with a major revision to the toxics rules in 1993.
- The NC Air Toxics rules apply to a list of 97 pollutants known as toxic air pollutants (TAPs).
- Note that the list of TAPs is not identical to EPA's list of hazardous air pollutants (HAPs).
- Federal HAPs and the MACT program are technology-based, whereas the NC TAP program is health-based.
MCAPCO Sections

1.5700 – Toxic Air Pollutant Procedures
   • 1.5701 – “Applicability”
   • 1.5702 – “Exemptions”
   • 1.5703 – “Definitions”
   • 1.5711 – “Emission Rates Requiring a Permit”

2.1100 – Control of Toxic Air Pollutants
   • 2.1102 – “Applicability”
   • 2.1104 – “Toxic Air Pollutant Guidelines”
What is a TAP Review?:

- A toxics review means taking a look at your facility-wide TAP emissions and comparing those emissions to the rates listed in MCAPCO 1.5711 – “Emission Rates Requiring a Permit.”

- The listed rates are also called Toxic Permit Emission Rates (TPERs)
APPLICABILITY

MCAPCO 1.5701
Who is subject?
What triggers a Toxics Review?

1. New facilities
2. Existing facilities with a modification
3. SIC calls or MACT/GACT compliance
1. **NEW FACILITIES**

Any new facility (after September 30, 1993) will trigger a toxics review.
2. **Existing Facilities - Modification**

A modification at an existing permitted facility that includes:

- A net increase in emissions of an existing TAP, or
- Introduction of a new TAP

will trigger a toxics review.
NET INCREASE IN EMISSIONS

The “Net increase in emissions” means:

- For a modification, the sum of any increases in permitted allowable* and decreases in actual emissions from the proposed modification.
- If the net increase is greater than zero, creditable increases and decreases in emissions for the previous 5 years may be included in the netting process.

* Permitted Allowable is usually the same as Potential to Emit (PA = PTE).
3. **SIC Calls or MACT/GACT**

A facility that has received an SIC call or is subject to a MACT/GACT regulation must complete a toxics review and demonstrate compliance with the toxics regulation.

- The director will identify certain industries (SIC code) and request a toxics review/compliance demonstration. (Examples of SIC calls outside Mecklenburg County: foam manufacturers and dry cleaners)
- If a facility is subject to several MACT/GACT regulations, they must demonstrate compliance with toxics regulations when they are required to apply for a permit to meet the last MACT/GACT regulation.
EXEMPTIONS

- MCAPCO 1.5702
- Notable Exemptions:
  - Some storage tanks
  - Laboratory activities
  - Combustion sources - NO LONGER EXEMPT!
    - New or modified combustion sources permitted on or after July 10, 2010 must be included in a TAP review and may be permitted.
Comparing Emissions to TPERS

Scenarios:

Actual Emission ≤ TPER = Compliance

Actual Emission > TPER = More Work
DEMONSTRATING COMPLIANCE

If actual emissions are > TPER, must demonstrate compliance another way.

Options for Demonstrating Compliance:

1. Add control device, product substitution, or other modification to lower actual emissions to below TPER (this would include a permit limit)

2. Model and demonstrate compliance with the Acceptable Ambient Level (AAL) listed in MCAPCO 2.1104 (modeling parameters will be included in the permit)
DEMONSTRATING COMPLIANCE USING AIR DISPERSION MODELING

There are basically two types of models used in NC Toxics Compliance:

1. Screen Model (SCREEN3 or AERSCREEN)– simple and conservative.
2. Refined Model (AERMOD) - more complicated, detailed data. Possibly will produce more accurate results.

If requested, MCAQ may run a Screen Model for you:

• You submit Modeling Application Forms including emission rates, stack parameters, etc.
• MCAQ will run a model and inform you of the results. We do not tweak the numbers in any way or try to make adjustments for better results.
• If the model fails, you will then be required to run a refined model
DEMONSTRATING COMPLIANCE USING AIR DISPERSION MODELING CONTINUED

If you or your consultant runs the refined model:
• Facility/Consultant submits Modeling Protocol for approval prior to submitting application.
• Facility/Consultant runs model and analyzes results.
• Facility/Consultant submits results and proposes/requests limits with application.

Modeled parameters and limits will be incorporated into the permit.
ACCEPTABLE AMBIENT LEVELS (AALs)

- MCAPCO 2.1104 – “Toxic Air Pollutant Guidelines”
- Significant Ambient Air Concentrations
- Compare model results to AALs
- If model results are less than the AAL for the TAP, compliance has been demonstrated.
SUMMARY

1. Trigger a toxic review.
2. Compare emissions to TPER.
3. If emissions > TPER, must demonstrate compliance another way.
4. Model and show compliance with AALs.
A Few things to Think About

- Averaging Periods
- Definition of “Actual Emissions”
- Calculations
- Permit Limits and Flexibility
TAPs and the related TPERs (MCAPCO 1.5711) and AALs (MCAPCO 2.1104) are divided up into 4 classifications with different averaging periods:

<table>
<thead>
<tr>
<th>Classification</th>
<th>TPER Emission Rate Unit</th>
<th>AAL Concentration Averaging Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinogens</td>
<td>lb/year</td>
<td>Annual</td>
</tr>
<tr>
<td>Chronic Toxicants</td>
<td>lb/day</td>
<td>24-hour</td>
</tr>
<tr>
<td>Acute Systemic Tox.</td>
<td>lb/hour</td>
<td>1-hour</td>
</tr>
<tr>
<td>Acute Irritants</td>
<td>lb/hour</td>
<td>1-hour</td>
</tr>
</tbody>
</table>
Actual Emissions

“Actual rate of emissions” for existing sources means (MCAPCO 1.5703):

- For TAPs with annual averaging periods, the average rate emitted during the two-year period preceding the modification.
- For TAPs with daily or hourly averaging periods, the maximum actual emission rate during the two-year period preceding the modification.
**Actual Emissions**

“Actual rate of emissions” for **new sources** means (MCAPCO 1.5703):

- The average rate, determined for the applicable averaging period, that the proposed source will actually emit as determined by engineering evaluation.

When comparing the actual emissions to the TPER, make sure to use the correct averaging period and provide background documentation for your calculations.
BE CAREFUL WITH CALCULATIONS

- Remember the averaging period.
- Look at the previous two years of actual emissions. Do your calculations carefully.
  - For daily and hourly averaging periods, do not just take an annual number and back calculate (use maximum rates/period).
  - Provide background documentation.
- Compare actual emissions to TPERs
PERMIT LIMITS AND FLEXIBILITY

- When modeling, MCAQ recommends using potential emissions instead of actuals. This will allow for higher permit limits and more flexibility.
RECAP – THIS IS A 3-STEP PROCESS

- **Step 1:** Will your facility trigger a TAP review?
  - new facility; or,
  - modification with a “net increase”?
- **Step 2:** Do any of the facility-wide TAP emission rates exceed the respective TPER?
- **Step 3:** Do any of the modeled TAP concentrations exceed the respective AAL?
WHERE TO FIND THE FORMS

- http://airquality.charmeck.org
- Under “Permitting & Regulations”, click on “Forms”
- **Form D1-5** “Toxic and Hazardous Air Pollutant Emission Calculations” and **Form D3-1** “Facility-wide Summary of Criteria Pollutant, HAP and TAP Emissions”
- **Section M** “Dispersion Modeling Protocol/Report Forms”