Upgrades to the Firearms Training Air Monitoring Site

Air Pollution Control District
April 19, 2017

Firearms Training
Air Monitoring Site

CSA/MSA: Louisville/Jefferson County-Elizabethtown-Madison, KY-IN CSA; Louisville/Jefferson County, KY-IN MSA

401 KAR 50:020 Air Quality Region: Louisville Interstate (078)

Site Name: Firearms Training

AQS Site ID: 21-111-1041

Location: 4201 Algonquin Parkway, Louisville, KY 40211

County: Jefferson

GPS Coordinates: 38.23158, -85.82675 (NAD 83)

Date Established: April 13, 1978

Inspection Date: December 4, 2015

Inspection By: Jennifer F. Miller & Wayne Bray

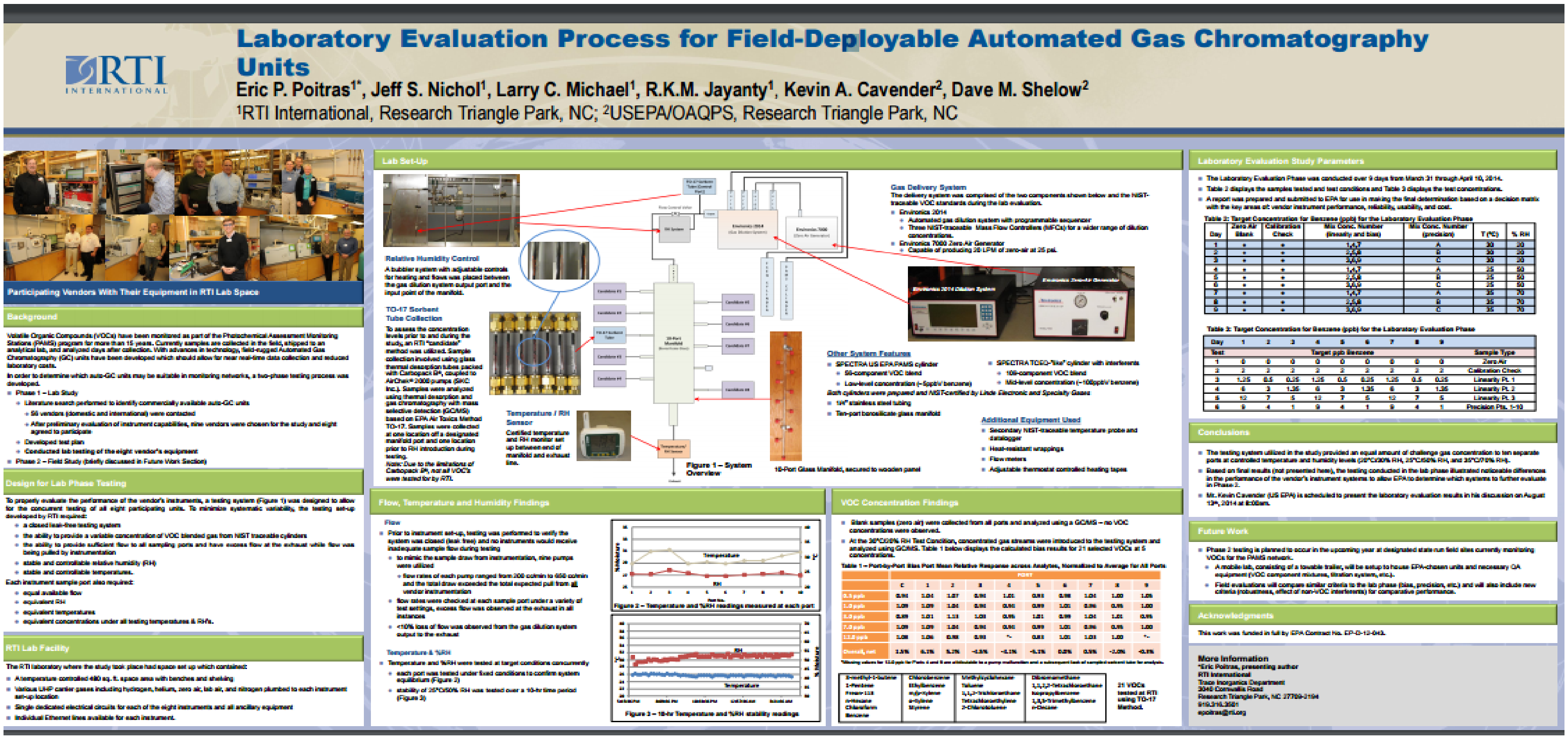
Site Approval Status: Site and monitor meet all design criteria for the monitoring network.

Source: Kentucky Annual Ambient Air Monitoring Network Plan 2016

Firearms Training
Air Monitoring Site Upgrades

- APCD's planned upgrades include:
  - Adding new equipment to measure meteorological parameters and monitor selected air toxics and volatile organic compounds with high photochemical reactivity
  - Siting Particulate Matter monitoring instruments
  - Purchasing a larger shelter

Firearms Training Air Monitoring Site Upgrades: Automated Gas Chromatograph

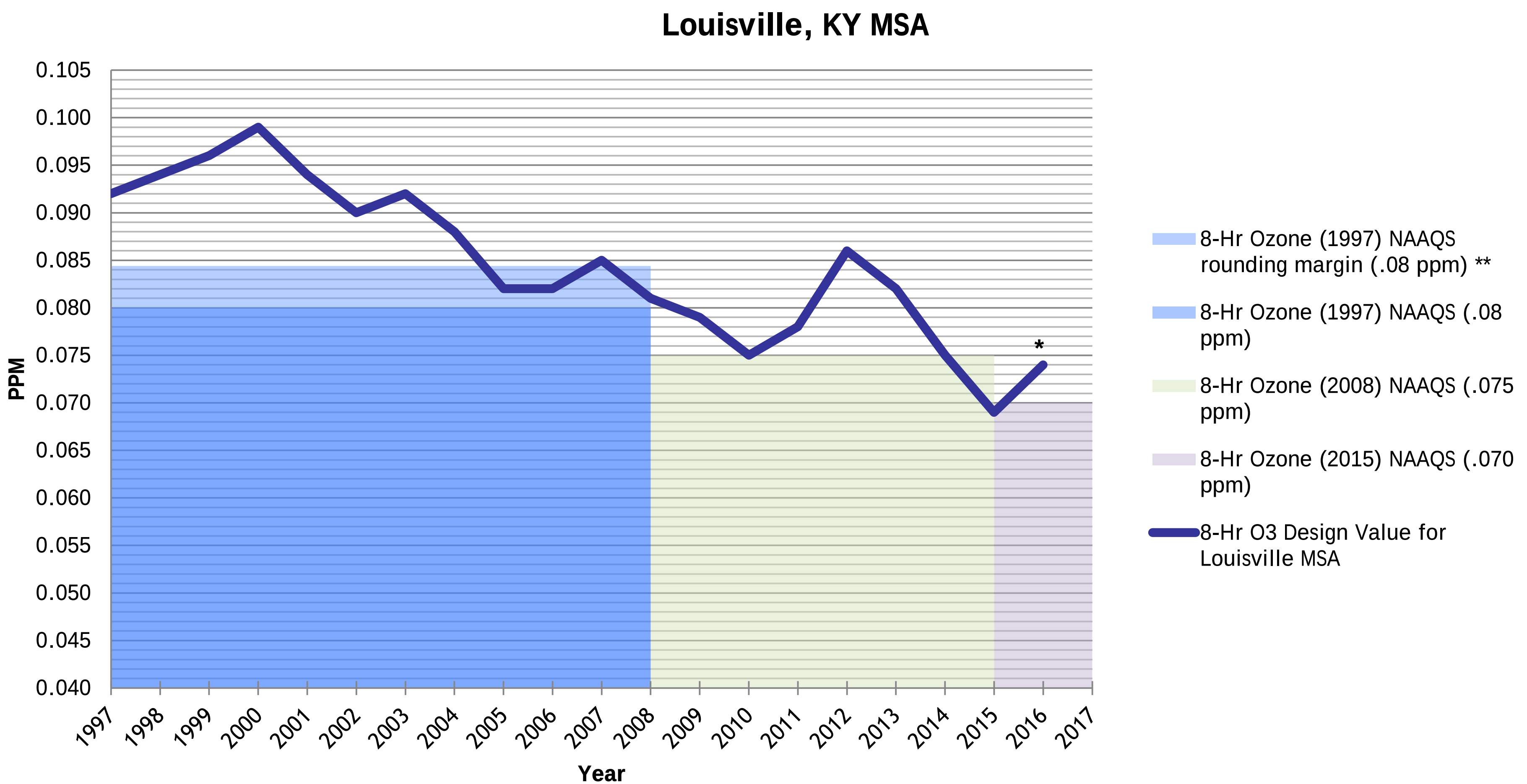


Firearms Training
Air Monitoring Site Upgrades: Automated Gas Chromatograph

CAS No.	Compound	TAC No.
107-13-1	Acrylonitrile	1
71-43-2	Benzene	1
75-25-2	Bromoform	1
106-99-0	1,3 Butadiene	1
56-23-5	Carbon tetrachloride	1
67-66-3	Chloroform	1
106-46-7	1,4 Dichlorobenzene	1
75-09-2	Methylene chloride (Dichloromethane)	1

CAS No.	Compound	TAC No.
127-18-4	Perchloroethylene (Tetrachloroethylene)	1
79-01-6	Trichloroethylene	1
75-01-4	Vinyl Chloride	1
108-88-3	Toluene	1
100-41-4	Ethylbenzene	2
108-10-1	Methyl isobutyl ketone (4-Methyl-2-pentanone)	4
100-42-5	Styrene	4
80-62-6	Methyl methacrylate	4
140-88-5	Ehtyl acrylate	4

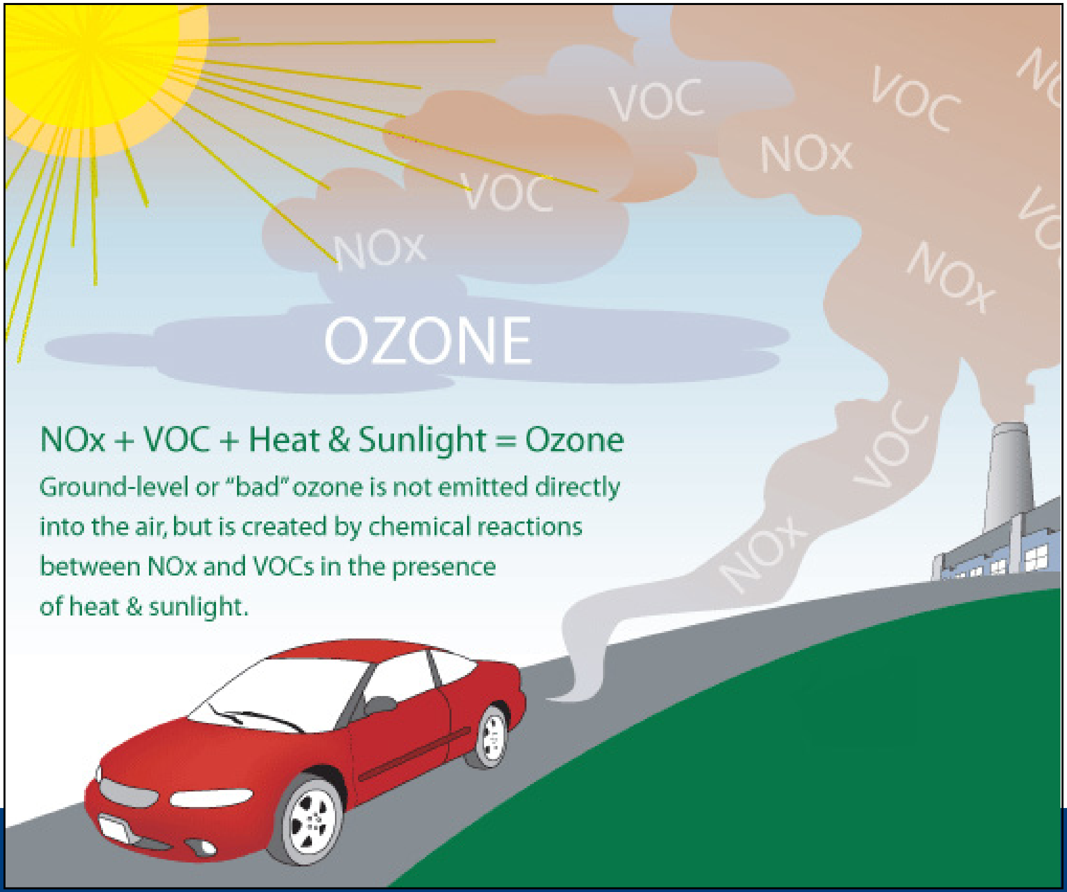
Louisville's Ozone History



*Preliminary, 2016 data are not certified

What is Ozone?

- Created via a chemical reaction:
  NOx + VOCs + Sunlight = O_3
- Ozone season: March-October
- Health effects:
  - Shortness of breath
  - Inflame airways
  - Aggravate lung disease
  - Increase frequency of asthma attacks



Firearms Training Air Monitoring Site Upgrades: Ozone Precursors

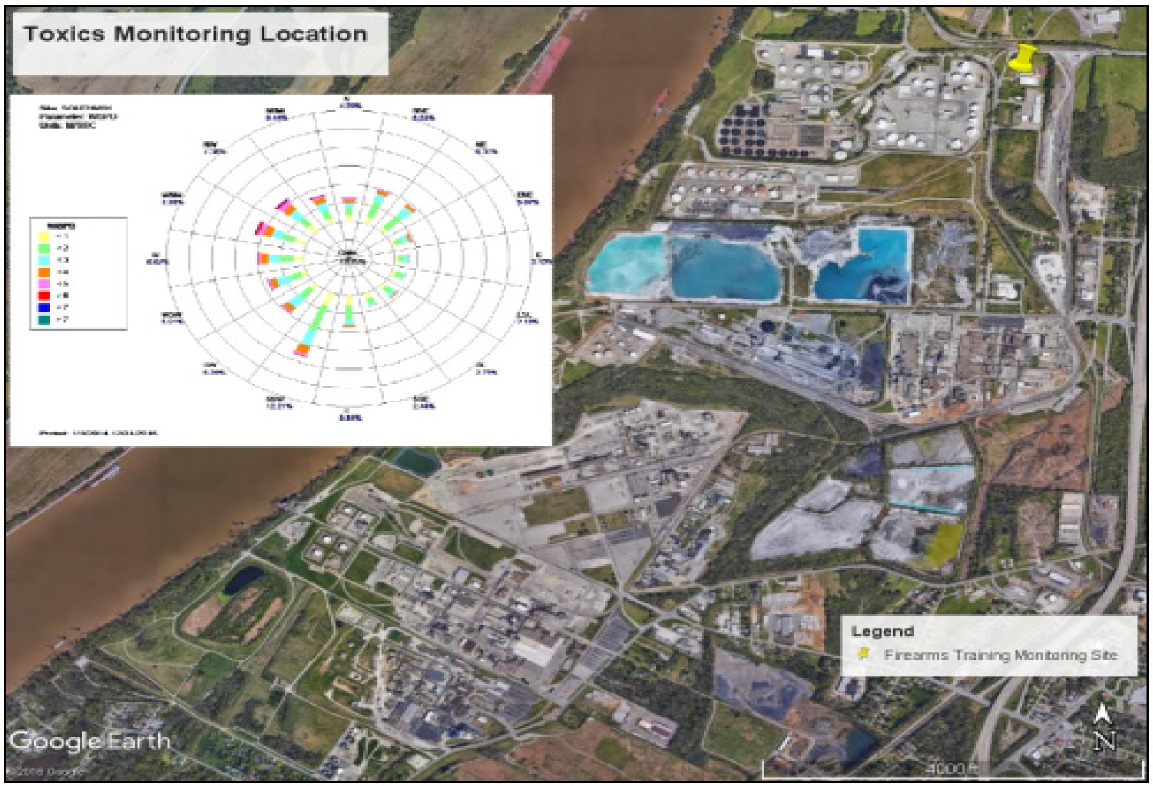
- **Monitoring objectives include:**
  - Developing a better understanding of photochemically reactive precursors in the area of maximum emissions in support of ozone reduction efforts
  - Assessing relative contribution of emissions from Firearms Training with observations from federally required PAMS monitoring at APCD's Cannon's Lane NCORE Air Monitoring Site
  - Evaluating ambient trends of speciated VOCs and meteorological conditions

Total Air Toxics
2004 - 2015

Jefferson County, KY Sources	2004 Air Releases in Pounds	2015 Air Releases in Pounds	% Change
Electric Generating Utilities (NAICS 2211)	4,710,016	2,076,785	-56% Decrease
All Other Sources	5,141,564	2,659,926	-48% Decrease
Total	9,851,580	4,736,711	-52% Decrease

Source: EPA Toxics Release Inventory

Firearms Training
Air Monitoring Site Upgrades:
Air Toxics



Firearms Training
Air Monitoring Site Upgrades: Air Toxics

- **Monitoring objectives include:**
  - Generating near real time, quality-assured data
  - Providing air pollution data to the community in a timely way
  - Supporting academic and scientific research
  - Improving access to data via APCD's website and U.S. EPA's Air Quality System (AQS) database

Firearms Training
Air Monitoring Site Upgrades: Next Steps

3Q FY 17
- Purchasing begins
- Position development begins

1Q FY 18
- Hire successfully
- Establish auto-GC operation

3Q FY 18
- Move South-wick Site
- Submit data to AQS