

Ozone Advance Path Forward

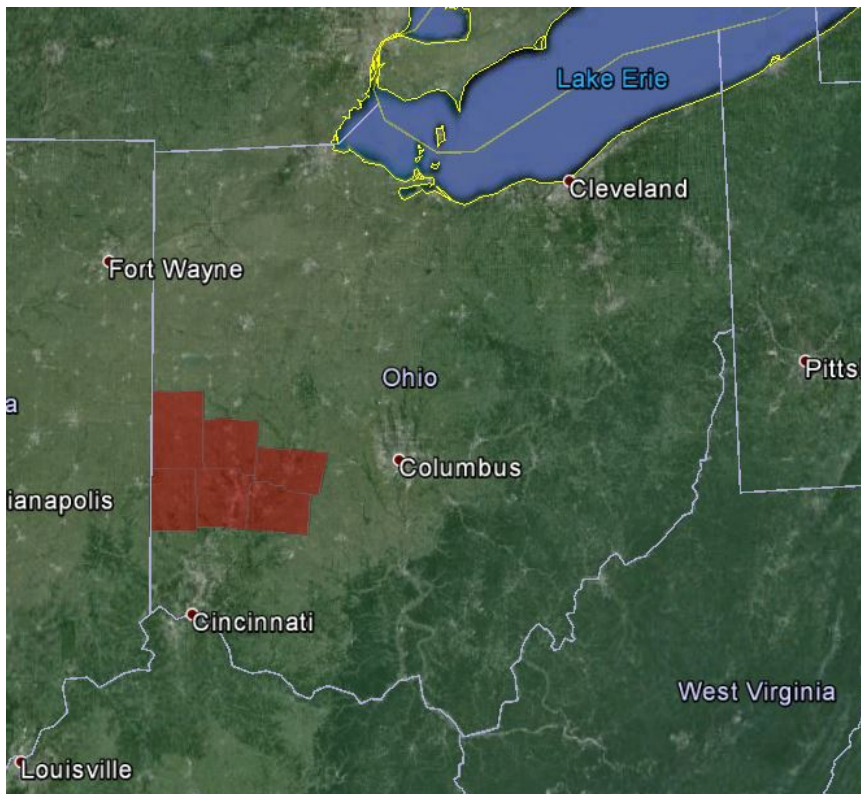
Regional Air Pollution Control Agency
Dayton, Ohio

July 23, 2013

Introduction

The Regional Air Pollution Control Agency (RAPCA) is a local air agency based in Dayton, Ohio. RAPCA's roots are from the 1950's as a department of the City of Dayton. Since the early 1970's our jurisdiction comprises six counties in southwest Ohio: Clark, Darke, Greene, Miami, Montgomery and Preble.

Situation of RAPCA Jurisdiction in Ohio

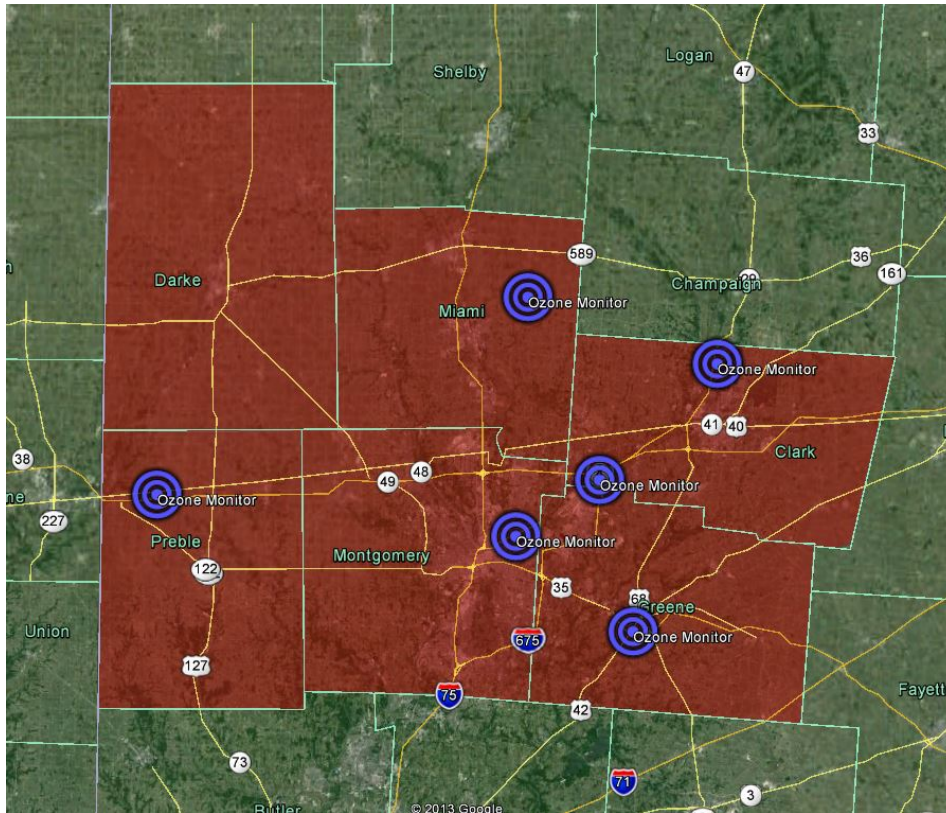


As a local air agency, our authority derives from the individual county Health Departments. In addition to local funding, we receive a direct grant from USEPA and an annual contract with Ohio EPA. One of nine local agencies in Ohio, RAPCA is the only LAA in Ohio to register with the Ozone Advance program. Due to our climate, location, and industrial background, RAPCA jurisdiction has a history of nonattainment for ozone and fine particulate matter. Currently we

are designated attainment for the 2008 ozone NAAQS and 24-hr PM2.5 NAAQS, and nonattainment for the annual PM2.5 NAAQS (Clark, Greene, Montgomery counties only).

OZONE MONITORING SUMMARY

RAPCA operates six ozone monitors in five counties. An outline of RAPCA jurisdiction and ozone monitor locations is depicted below.



Ozone data for RAPCA jurisdiction for 2008 to present is summarized in the following two tables. While 2011 and 2012 were hot and/or dry summers, with large numbers of exceedances, the wetter/cooler 2013 thus far has experienced no exceedances.

Table of ozone exceedances (8-hr average > 75 ppbv)

	2008	2009	2010	2011	2012	2013 to date
Clark 1	3	1	4	6	5	0
Clark 3	3	0	2	4	3	0
Greene	3	1	0	5	6	0
Miami	0	0	1	2	5	0
Montgomery	6	1	10	7	9	0
Preble	0	1	1	2	6	0
TOTAL	15	4	18	26	34	0

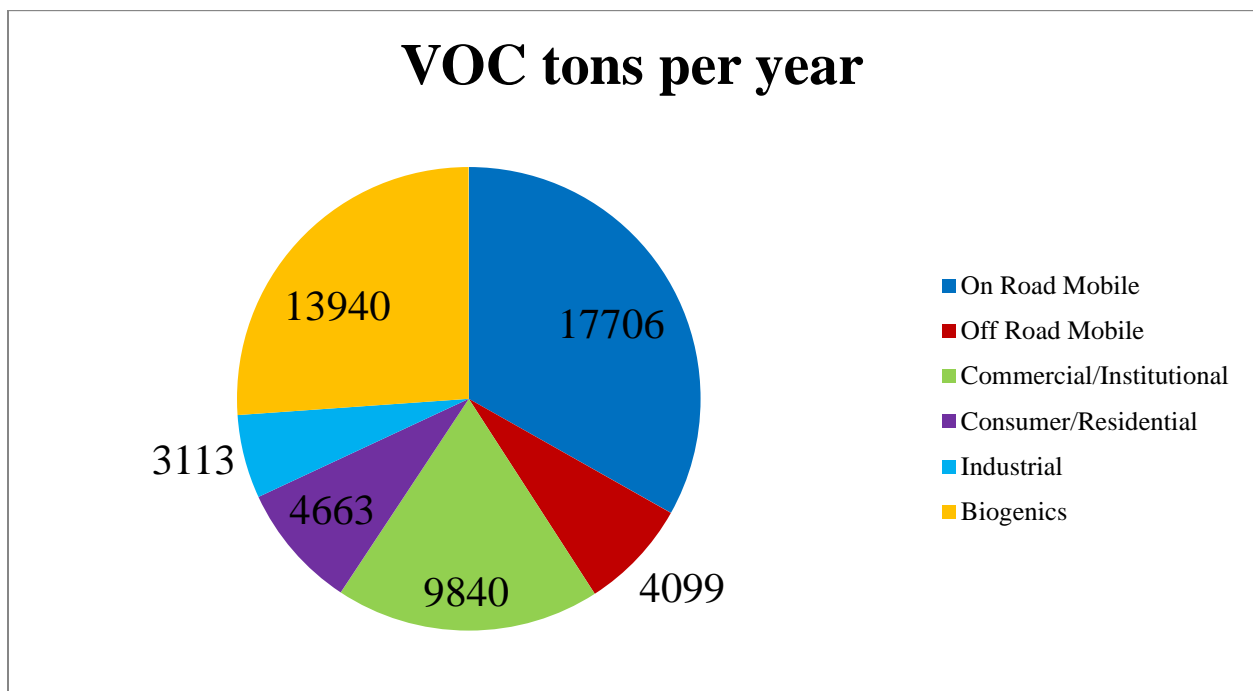
However, even if 2013 were to continue to experience relatively low ozone levels, the current design values for 2011 – 2013 are very close to 75 ppbv. This bodes ill for designations under the impending tightening of the ozone NAAQS. Therefore, emissions reductions of ozone precursors is a high priority.

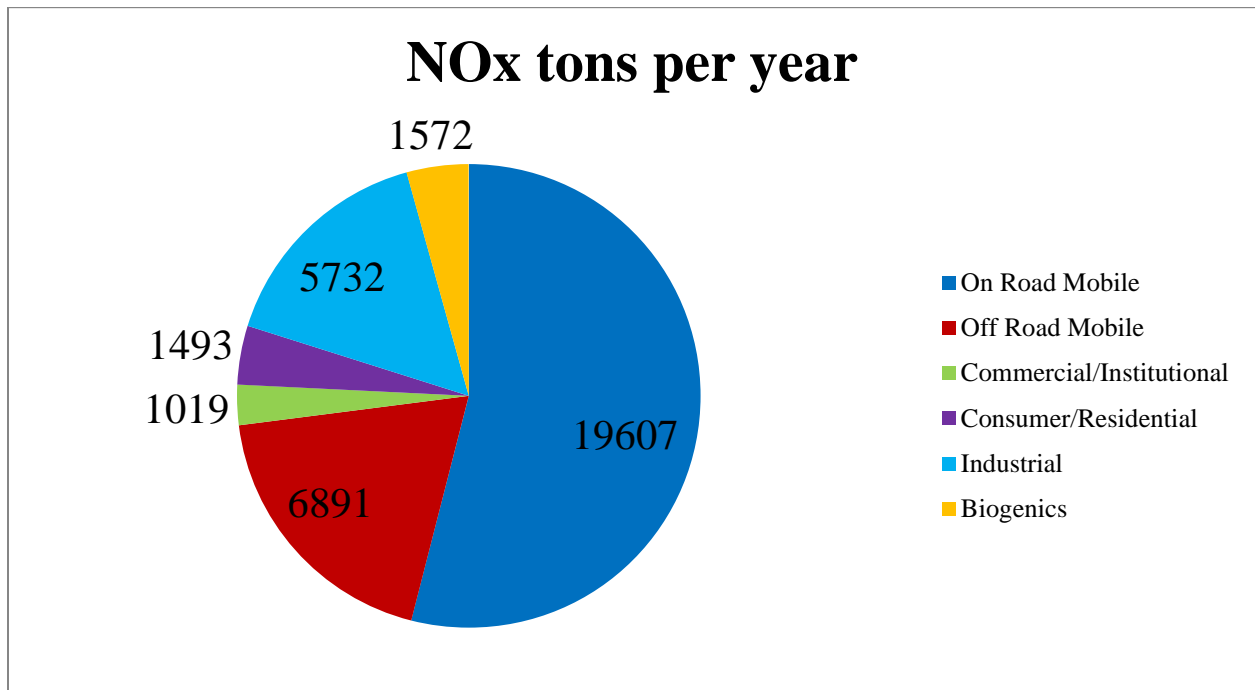
Table of 4th high ozone 8-hr average concentration, ppbv

	2008	2009	2010	2011	2012	2013 to date
Clark 1	75	71	75	77	77	72
Clark 3	75	72	74	77	75	66
Greene	75	71	70	76	77	63
Miami	70	71	70	75	77	70
Montgomery	77	73	77	80	79	67
Preble	68	69	71	74	77	68

EMISSIONS INVENTORY SUMMARY

As part of the Ozone Advance process, a detailed inventory of ozone precursors (VOC and NO_x) in RAPCA jurisdiction was prepared and submitted to the stakeholders. Largely based on the 2008 NEI, the emissions inventory for the mobile and stationary source sectors was presented to the stakeholders.





For both pollutants, it was determined that mobile sources are dominant. In addition, large industrial sources (Title 5 facilities) have continued to reduce their emissions under the current regulatory schema (in 2012, RAPCA Title 5 facilities emitted 929 tons OC and 3371 tons NOx).

Measures and Programs

Based on stakeholder meetings and feedback from elected officials and others, we are identifying the following ongoing, planned, and accomplished activities under the aegis of the Ozone Advance program.

MOBILE SOURCE ACTIVITIES

Tier 3 letter of support: In January 2013, a sample letter of support for U.S. EPA’s clean vehicle and gasoline standards known as “Tier 3” was distributed to the stakeholders. This sample letter of support is included in this document as Attachment A. RAPCA participated in the drafting of the NACAA letter of support sent to Lisa Jackson on January 22, 2013.

Wright State University partnership: In November 2012, RAPCA wrote a letter in support of an EPA Environmental Education grant proposal by Audrey McGowin PhD. The grant is

intended to fund installation by students of a propane conversion kit on a large commercial mower at WSU. Letter is included in this document as Attachment B.

Mobile Source grants: An ongoing area of interest for RAPCA is the procurement of clean diesel retrofit and clean fuel conversion grant funding. We have been discussing availability and strategy with Tony Maietta, Region 5 Midwest Clean Diesel Initiative, and plan to pursue further opportunities with Clean Fuels Ohio and Carolyn Watkins of the Ohio EPA Environmental Education Fund. For a listing of the OEEEEF-funded clean school bus retrofit grants in RAPCA jurisdiction, please see Attachment C.

Miami Valley Regional Planning Commission (MVRPC) mobile source programs:

As the regional planning organization for transportation, environmental, and land use planning, the MVRPC is responsible for a number of transportation and air quality initiatives.

RideShare, Vanpool, Pedal Pals

Combining trips with others with similar origins and destinations (work, college) to reduce roadway congestion and transportation emissions.

- Free Rideshare matching service
- Subsidies for startup of new vanpools
- Guaranteed Ride Home

Pedal Pals matches bicycle commuters with similar origins and destinations

- Also can be a bike commuting mentoring program

Battery-Operated Yard Equipment

Small gas-powered equipment are disproportionate contributors to high ozone and PM

- Engines are not emission-controlled
- Used mostly in warm seasons

Periodic free drawings to promote use of battery-powered equipment

Drive Less Live More

Annual behavior change campaign to encourage Miami Valley residents to drive alone less and use alternative transportation more.

- Partnership with Five Rivers Metroparks, Miami Conservancy District and Greater Dayton Regional Transit Authority
- Carpool, Transit, Bike, Walk
- Events geared toward different modes.

STATIONARY SOURCE ACTIVITIES

An assessment of the Ohio EPA Ohio Administrative Code (OAC) was performed to determine stationary and area source regulatory opportunities. Many of the largest contributors to VOC emissions have been addressed in regulations with effective dates after the 2008 NEI. These regulations are based on CARB or OTC model rules, and should be reducing VOC emissions well below 2008 levels.

Consumer Products (4027 tons VOC in 2008 NEI) Ohio Administrative Code (OAC) 3745-112 VOC content limits effective date January 1, 2009

Architectural and Industrial Maintenance Coatings (1430 tons VOC in 2008 NEI) Ohio Administrative Code (OAC) 3745-113 VOC content limits effective date January 1, 2009

Gas Can Replacement Program (476 tons VOC in 2008 NEI) OAC 3745-21-17 CARB certification requirement effective date July 1, 2007.

Auto Body Refinishing (228 tons VOC in 2008 NEI) OAC 3745-21-18 VOC content limits and operational restrictions effective date May 1, 2009. Clark, Greene, Miami, Montgomery counties (not Darke or Preble). Overlap with VOC RACT rules.

Graphic Arts (2914 tons VOC in 2008 NEI) Covered under Ohio Administrative Code (OAC) 3745-113 VOC content limits effective date January 1, 2009. Also may overlap with OAC 3745-21-22 VOC content and control requirements effective date April 2, 2009.

Due to the recent vintage date of these regulations, no additional stationary source regulation is planned. However, note that a percentage of stationary source enforcement penalty money is devoted to Ohio EPA's Clean Diesel School Bus Program Fund. RAPCA's enforcement program continues to be timely and stringent.

GENERAL AIR QUALITY & PUBLIC HEALTH ACTIVITIES

RAPCA/PHDMC Heat Plan:

This partnership between RAPCA and Public Health – Dayton & Montgomery County is intended to address the public health risks of oppressive heat episodes. While not a typical air pollution control activity, it is in effect May through October each year and overlaps ozone season to great extent. Using a variety of meteorological parameters and forecasts (e.g. heat index, air mass classification, time of year, etc), RAPCA advises PHDMC on impending dangerous heat waves. PHDMC then in turn uses email and media releases to inform first responders, utility companies, heat care providers, group homes and the general public of the dangerous heat and increase awareness of symptoms and treatment.

Air Quality Forecasting / Air Pollution Advisories:

This is a joint MVRPC/RAPCA program to forecast levels of ozone and PM_{2.5} up to four days into the future. Using a variety of forecasting models and tools, RAPCA generates numerical forecasts of ozone and PM_{2.5} concentrations. These forecasts are submitted to AirNOW and MVRPC for distribution and notification of the public.

Numerous Distribution Channels

- E-mail Blasts
 - Jurisdictions, daycares, senior centers, ENTs' offices, media, top 100 local businesses

- ODOT dynamic message signs on interstate highways
- Key-Ads and Lamar Outdoor dynamic billboards
- MVRPC website and miamivalleyair.org
- Radio: Clear Channel, Main Line, Cox Media Group, NPR
- Cox Media Group
 - Websites – Dayton Daily News, Springfield News Sun
 - Print – front page notices above the mastheads

Typical Content

- Forecast
- Health effects
- Practical steps you can take to reduce air pollution

School Flags – AQI:

National program to provide visible information about the current air quality forecast. Currently 4 schools are participating.

- MVRPC provides the flags.
- Schools get AirNow notices regarding the air quality forecast.
- Flag colors are matched with the Air Quality Index.
- Appropriate flags are flown on school grounds daily.

Implementation Schedule

PROGRAM	TARGET DATE
Tier 3 letter of support	completed
Wright State University partnership	pending grant funding
Mobile Source grants	applications due September 1, 2013
MVRPC mobile source programs	ongoing
Stationary Source regulation assessment	completed
RAPCA/PHDMC Heat Plan	ongoing
Air Quality Forecasting/Air Pollution Advisories	ongoing
School Flags – AQI	ongoing

Provisions for Stakeholder Involvement

The principal stakeholder group is based on the Air Quality Advisory Committee convened by the Miami Valley Regional Planning Commission. Members of the AQAC include industry representatives, municipality and township representatives, citizen's groups, League of Women Voters, Sierra Club, Ohio Environmental Council, and local health departments. These are contacted regularly via email and periodically a face-to-face meeting is convened at the MVRPC's Center for Regional Cooperation, 1100 West Third Street in Dayton, across the street from the Dayton Aviation Heritage National Historical Park.

Attachment A SAMPLE LETTER OF SUPPORT TO U.S. EPA

Robert Perciasepe
EPA Administrator, Interim
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20004

Dear Administrator Perciasepe:

I write to you today on behalf of (city, county, agency etc), located in southwestern Ohio to support the EPA's clean vehicle and gasoline standards known as "Tier 3." These standards are modeled on California's Low-Emission Vehicle III program. California is known as a pioneer in mobile source standards.

We are engaged in the Ozone Advance stakeholder process with the Miami Valley Regional Planning Commission and the Regional Air Pollution Control Agency, and among our findings is that mobile source emissions are significant contributors to ozone pollution in our area.

Mobile source emissions are a national problem, and require national measures to address adequately. Onroad mobile source emission reductions of nearly 1/3 of the ozone pollution precursors nitrogen oxide and volatile organic compounds would result from implementation of the Tier 3 standards. Studies show these reductions would be achieved with relatively minor costs of less than one cent per gallon of gasoline and an additional \$150 per new automobile. The resulting health benefits of ozone pollution reduction far outweigh the costs.

Further, implementation of these national standards would help obviate the need for additional restrictions on local stationary sources such as industrial facilities and commercial enterprises. The Miami Valley is committed to facilitating smart growth and protecting the health of its citizens. As such, we advocate for the Tier 3 standards to be implemented as soon as possible.

Thank you for your consideration of this matter.

Sincerely,

c: Matt Lindsay, MVRPC



REGIONAL AIR POLLUTION CONTROL AGENCY

Serving Clark, Darke, Greene, Miami, Montgomery & Proble Counties

117 South Main Street, Dayton, Ohio 45422-1280

937-225-4435 — Fax: 937-225-3486

www.rapca.org

RE: Partnership Letter of Commitment for EPA EE Grant Proposal "Incorporation of Environmental Community Service-Learning Projects into a General Education Natural Science Course for Non-Science Majors at Wright State University"

Dear Sir or Madam: [This is submitted electronically with the proposal but ultimately goes to Megan Gavin, U.S. EPA Region V, Environmental Education (AT-18J) 77 West Jackson Boulevard Chicago, IL 60604]

Professor Audrey McGowin approached me regarding air quality issues in the region that could potentially be addressed by students at Wright State University performing Service-Learning Community Service Projects.

The Regional Air Pollution Control Agency (RAPCA) is responsible for the implementation of federal, state and local air pollution regulations and air quality standards in the Dayton-Springfield, Ohio region. Significant air quality issues with regard to ozone persist in our region. In 2012, we monitored 34 exceedances of the current ozone air quality standard (75 ppbv). Therefore, in cooperation with local stakeholders, we have begun to investigate ways to reduce ozone levels in the Dayton-Springfield, Ohio region.

Emission inventory data show that, in the aggregate, lawn and garden equipment are significant contributors to ozone precursor emissions. Emissions from gasoline-powered riding mowers can be as high as 30 times that of an automobile. If a significant number of mowers are converted from gasoline to clean fuel (propane), we believe a significant improvement in air quality could result. Without significant reductions in ozone precursor emissions, the Dayton-Springfield region will likely be reclassified as nonattainment when the ozone air quality standard is tightened.

I would like to convey RAPCA's commitment to the proposed Service-Learning project "Protecting Air Quality – Ozone Mitigation Through Propane Conversion of Mowers" that will be conducted by students in the Chemistry of Our World: Energy and the Environment course taught by Professor Audrey McGowin at Wright State University (WSU). Students in this course will specify the installation of a propane conversion kit on a large mower at WSU. Mower emissions will be measured before and after the propane conversion, demonstrating the efficacy of this technique to reduce emissions.

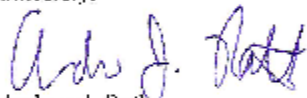
I will be the RAPCA contact for this project. In my 22 years with RAPCA, I have been involved with industrial regulation, air quality monitoring, emissions testing, air quality modeling and forecasting, air toxics and emission inventory. Specifically my contribution to the project will

include meeting with students to provide technical assistance with regard to emissions testing, as well as a review of their data and results. In April 2014 and subsequent spring semesters, review of the end-of-semester reports, including the students' cost-benefit analysis of the propane conversion, will be conducted. Further, RAPCA ozone monitoring data, in Excel format, will be provided in support of the project.

Each April, the students will prepare a poster to present at the WSU Celebration of Research that is free and open to the public. This poster will be made available online through the WSU Libraries CORE electronic repository for free download by anyone.

I believe WSU could be a model in our region for mower clean fuel conversion. WSU is positioned for a leadership role in this area where over time ozone levels could be reduced with the conversion of a significant number of mowers if this project is successful. As other stakeholders in our area witness this success, we anticipate more mower conversions. In addition, students would benefit greatly from the Service-Learning project, facilitating the increasing use of clean fuels in our region, and ultimately improving the quality of the air that we breathe.

Sincerely,



Andrew J. Roll
Monitoring & Analysis Unit Supervisor
Regional Air Pollution Control Agency

11/30/12

Beaver Creek City Schools, Greene County, \$9,750 to retrofit 13 buses with DOCs. #B2006S-011, This grant is supported with state civil penalties. Contact: gary.sattler@beavercreek.k12.oh.us

Bellbrook-Sugarcreek Schools, Greene County, \$14,184.00 to install DOCs onto 9 buses, #B2012S-020. This grant is supported with state civil penalties. Contact: Beverly Wetzel, bev.wetzel@sugarcreek.k12k.oh.us 937-848-6251.

Centerville City Schools, Montgomery County, \$14,448 to retrofit 14 buses with DOCs, #B2011S-018. This grant is supported with state civil penalties. Contact: Chuck Walk, Chuck.Walk@centerville.k12.oh.us or 937-885-7776.

Eaton Community City Schools, Preble County, \$14,448.00 to retrofit 14 buses with diesel oxidation catalysts, #B2011S-026. This grant is supported with state civil penalties. Contact: Karen Jefferson, kjefferson@eaton.k12.oh.us or 937-456-4330.

Greenville City Schools, Darke County, \$63,653 to install diesel oxidation catalysts and anti-idling equipment onto 7 buses, diesel oxidation catalysts onto 6 buses and anti-idling equipment onto an additional 12 buses #B2013F-011. This grant is supported with state civil penalties. Contact: Beth Cain, bcain@greenville.k12.oh.us 937-548-4464.

Mad River Local Schools, Montgomery County, \$25,207.00 to install 16 DOCs. #B2012F-006. This grant is supported with federal DERA dollars. Contact: Dan Decerbo, dan.decerbo@madriverschools.org 937-237-4280.

Northmont City Schools, Montgomery County, \$30,180 to retrofit 33 buses with DOCs. #B2006S-002, This grant is supported with state civil penalties. Contact: John Blessing, jblessing@northmontschools.com

Northeastern Local School District, Clark County, \$26,044.00 to install DOCs onto 17 buses, #B2012S-015. This grant is supported with state civil penalties. Contact: Randy Phares, randyphares@nelso.org 937-328-6562.

Vandalia-Butler City Schools, Montgomery County, two grants totaling \$185,012 to retrofit 23 buses: 7 buses with catalyzed continuously regenerating technology and 18 with DPF/CCF. #B2007S-014 and B2007F-018, These grants are supported with state civil penalties. Contact: Jean.Taylor@vandalia-butler.k12.oh.us

Yellow Springs Exempted Village Schools, Greene County, \$7,181 to retrofit four buses with DPF. #B2006S-003, This grant is supported with state civil penalties. Contact: Susan Butler & Sharon Horne, ys_shorne@mveca.org

DOC = Diesel Oxidation Catalysts
DPF = Diesel Particulate Filter
CCF = Closed Crankcase Filter
PH = Preheater anti-idling technology