Ohio Environmental Protection Agency

2014 ALLEN COUNTY AIR QUALITY REPORT

Division of Air Pollution Control
Northwest District Office

October 2015

TABLE OF CONTENTS

Introduction

The purpose of this report is to provide results of Ohio EPA air toxics monitoring, along with information on the 2013 Toxic Release Inventory (TRI) and criteria pollutant monitoring programs, for Allen County, Ohio. The air toxics monitoring includes data from three individual monitoring dates in the industrial area on Lima, Ohio's southwest side.

Background

The air toxics monitoring addressed in this report is follow-up monitoring as recommended in the Battelle study "Results of Air Pollutant Measurements in Allen County" dated October 15, 1991. The Battelle study was broadly aimed and used widespread sampling sites to assess the potential for the county's population to be exposed to toxic air pollutants. Ohio EPA's follow-up monitoring was conducted to provide information on the localized industrial area on the southwest side of Lima.

Air Toxics Monitoring in Allen County

The methodology Ohio EPA used to sample and analyze for air toxic compounds is the same methodology as that outlined in the Battelle study in section 3.3.1 – VOCs Sampling and Analysis. A stainless steel canister of known volume is filled with a sample of air and then laboratory analysis is conducted using a gas chromatograph to determine individual air toxic compound concentration (also known as speciation). Ohio EPA collected the samples during one-hour periods, whereas the Battelle study used 24-hour sampling durations.

Locations and Dates for Monitoring

Each monitoring day, Ohio EPA sets up a canister downwind of the city's industrial area that represents the highest air toxics concentration. Monitoring locations and dates are unannounced and known only to Ohio EPA personnel. Locations and dates are listed below and can also be found in Appendix A.

Test Number	Date	Monitoring Location
1	October 27, 2014	800 block of Oak St., Lima
2	January 14, 2015	Paul St., near intersection of Paul St. and South Metcalf Rd., Lima
3	February 11, 2015	900 block of South Collett St., Lima

Toxics Compounds Monitored

The 71 toxic compounds listed below were monitored on the three dates listed above. The compounds include the 41 toxic compounds monitored in the Battelle study (see Table 3 on page 21 of the Battelle study).

1. acetone
2. acetonitrile
3. acrylonitrile
4. benzene
5. benzyl chloride
6. bromodichloromethane
7. bromoform
8. bromomethane/methyl bromide
9. 1,3-butadiene
10. n-butane
11. 2-butanone
12. carbon disulfide
13. carbon tetrachloride
14. chlorobenzene
15. chlorodifluoromethane
16. chloroethane/ethyl chloride
17. chloroform/trichloromethane
18. chloromethane/methyl chloride
19. 3-chloropropene
20. cumene
21. cyclohexane
22. decane
23. dibromochloromethane

24. 1,2-dibromoethane
25. dibromomethane
26. 1,2-dichlorobenzene (ortho)
27. 1,3-dichlorobenzene (meta)
28. 1,4-dichlorobenzene (para)
29. dichlorodifluoromethane
30. 1,1-dichloroethane
31. 1,2-dichloroethane
32. 1,1-dichloroethene
33. cis-1,2-dichloroethene
34. trans-1,2-dichloroethene
35. 1,2-dichloropropane
36. cis-1,3-dichloropropene
37. trans-1,3-dichloropropene
38. 1,2-dichloro-1,1,2,2-tetrafluoroethane
39. ethanol
40. ethylbenzene
41. 4-ethyltoluene
42. n-heptane
43. hexachlorobutadiene
44. hexane
45. methyl butyl ether
46. methylene chloride/dichloromethane
47. 4-methyl-2-pentanone
48. a-methylstryrene
49. naphthalene
50. n-nonane
51. n-octane
52. n-pentane
53. n-propyl benzene
54. propylene
55. styrene
56. 1,1,2,2-tetrachloroethane
57. tetrachloroethylene/tetrachloroethene
58. toluene
59. 1,2,4-trichlorobenzene
60. 1,1,1-trichloroethane
61. 1,1,2-trichloroethane
62. trichloroethene

63. trichlorofluoromethane
64. 1,1,2-trichloro-1,2,2-trifluoroethane
65. 1,2,4-trimethylbenzene
66. 1,3,5-trimethylbenzene
67. n-undecane
68. vinyl acetate
69. vinyl chloride
70. o-xylene
71. total m+p-xylene

Summary of Air Toxics Monitoring Results

Detailed listings of the results of the air toxics monitoring can be found in Appendix B. The tables in Appendix B contain the name of each air toxic compound and the concentration in parts per billion (ppb).

Ohio EPA evaluates control of air toxic pollutants through determinations of best available technology. These evaluations require that no new air pollution source can emit an air toxic to the ambient air to such an extent that the resulting ambient air concentration would exceed one forty-second (1/42) of the Threshold Limit Value (TLV) for any air toxic pollutant.

The TLV refers to the concentration of a substance under which it is believed that a person may be repeatedly exposed to day after day without adverse health effects. For purposes of this evaluation, an air toxic compound is defined as one for which the American Conference of Governmental Industrial Hygienists (ACGIH) has established a TLV. TLV/42 values for given air pollutants are contained in column two in the Appendix B tables. The TLV/42 is also referred to as the maximum acceptable ground level concentration (MAGLC).

A review of information contained in Appendix B indicates that all monitoring results were in compliance with respective MAGLC values.

TOXIC RELEASE INVENTORY (TRI) DATA

Background and Description of TRI Program

The TRI is a publicly available database that contains specific toxic chemical release, transfer, waste management and pollution prevention information for manufacturing facilities across the United States. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), which the U.S. Congress passed to promote planning for chemical emergencies, and to provide information to the public about the presence and release of toxic and hazardous chemicals in their communities. In 1988, the Ohio General Assembly passed the Ohio Right-to-Know Act, Substitute Bill 367. This law provides for state implementation of EPCRA. Ohio's TRI program is coordinated by the Division of Air Pollution Control.

Each year, facilities with 10 or more employees that meet the established thresholds for manufacturing, processing or otherwise used chemicals, must report to the U.S. EPA and the state where the facility is located, their estimated releases and transfers of toxic chemicals, along with waste management and pollution prevention activities. The current reporting thresholds are:

- Manufacturing chemicals – 25,000 pounds;
- Processing chemicals – 25,000 pounds; and
- Otherwise used chemicals – 10,000 pounds.

In addition to these reporting thresholds, certain persistent, bio-accumulative and toxic chemicals (PBTs) with increased toxicity have the following reporting thresholds:

- 100 pounds of aldrin, lead, lead compounds, methoxyclor, pendimethalin, polycyclic aromatic compounds (PACs), tetrabromobisphenol A and trifluralin;
- 10 pounds of benzo(g,h,i)perylene, chlordane, heptachlor, hexachlorobenzene, isodrin, mercury, mercury compounds, octachlorostyrene, pentachlorobenzene, polychlorinated biphenyl (PCBs) and toxaphene; and
- 0.1 gram of dioxin and dioxin-like compounds

The current TRI toxic chemical list contains over 650 chemicals and chemical categories. Reports are due by July 1 for the previous calendar year. These reports are called Form R or, in some instances, alternate Form A. For reporting years 1987 through 1997,

manufacturing facilities with Standard Industrial Classification codes 20 through 39 were subject to TRI regulations. On May 1, 1997, seven non-manufacturing industrial sectors were added. These include metal mining, coal mining, coal and oil-fired electricity generating facilities, commercial hazardous waste treatment facilities, chemicals and allied products (wholesale), petroleum bulk stations (wholesale) and solvent recovery services. TRI reports for these non-manufacturing industrial sectors were first filed July 1, 1999, covering calendar year 1998.

Upon completion of data quality assurance and date entry, Ohio EPA provides the TRI data to the public in the form of an annual report, along with an electronic database with county summaries maintained on the agency's website. The 2013 annual report and county summaries can be found at:

epa.ohio.gov/Portals/27/tri/tri/TRI_AnnualReport2013.pdf

epa.ohio.gov/Portals/27/tri/tri/County2013.pdf

Summary of Changes for Future TRI Reporting

U.S. EPA has published a final rule requiring facilities to report all non-trade secret TRI data to U.S. EPA using the TRI-MEweb online reporting application. This rule also requires facilities to electronically submit any revisions or withdrawals of previously-submitted TRI reporting forms. Facilities may revise or withdraw TRI forms going back to reporting year 1991, but not for years prior to this. The rule applies to all facilities required to report to the TRI Program, and became effective January 21, 2014. Facilities submitting non-trade-secret TRI reporting forms for the 2013 TRI reporting year (forms were due July 1, 2014) or prior reporting years must report electronically. The few facilities that submit trade secret TRI information will continue to submit their trade secret reporting forms and substantiation forms in hard copy, as well as any revisions or withdrawals of previously-submitted trade secret information.

U.S. EPA took direct final action on updates to the list of North American Industry Classification System (NAICS) codes subject to reporting under the TRI to reflect the Office of Management and Budget 2012 NAICS revision. Facilities are required to use 2012 NAICS codes when reporting to the TRI beginning with TRI reporting forms due on July 1, 2014, covering releases and other waste management quantities for the 2013 calendar year. This rule became effective on October 16, 2013.

On June 20, 2013, U.S. EPA proposed adding a nonylphenol category to the TRI list of reportable chemicals. The Agency's proposal is part of an ongoing effort to examine the scope of TRI chemical coverage and provide communities with more complete information on toxic chemical releases. Nonylphenol is highly toxic to aquatic organisms and has been found in natural waters. Because of nonylphenol's toxicity, chemical properties and widespread use to make other chemicals, concerns have been raised over

the potential risks to aquatic organisms from exposure to nonylphenol.

On November 7, 2013, U.S. EPA published a final rule adding o-nitrotoluene to the TRI list of reportable chemicals. The final rule was effective for the 2014 TRI reporting year with the first reports due July 1, 2015.

New Green Chemistry Source Reduction codes that describe green chemistry practices have been added to the list of selections available for completing Section 8.10 of Form R. Green chemistry is the design of chemical products and processes that reduce or eliminate the generation of hazardous substances.

On September 30, 2014, U.S. EPA published a final rule adding a nonylphenol category to the TRI list of reportable chemicals. The final rule is effective for the 2015 TRI reporting year with the first reports due July 1, 2016.

Limitations for Use of TRI Data

When interpreting TRI data, the user should be aware of various limitations in order to accurately assess the significance of annual releases. These limitations include:

- TRI covers only certain manufacturing and non-manufacturing industries. Other industries not covered under TRI regulations may release toxic chemicals into the environment that are not required to be reported.

- The TRI list of chemicals and chemical categories does not represent all chemicals used by all industries.

- Releases are reported in total annual quantities without referencing the frequency or duration and thus are not sufficient to assess health or environmental impacts.

- The majority of releases are based on estimates, which can result in data variability. For instance, facilities are required to base releases on actual monitoring if required in a permit. Release estimates are allowed when monitoring data is not a requirement.

- High volume releases of relatively non-toxic chemicals may appear to be a more serious issue than lower volume releases of highly toxic chemicals. The opposite might be true. The user should examine the characteristics of individual chemicals before drawing conclusions.

- TRI reports contain information on chemical releases, but not the public's exposure to these chemicals. Some chemicals break down when exposed to the environment, while others disperse rapidly when released and some may not disperse due to inert chemical properties. Disposal of chemicals by underground

deep well injection does not expose the public since the material is injected thousands of feet below ground level.

Summary of Allen County TRI Data

Results of the 2013 TRI program for Allen County are contained in Appendix C. Allen County ranks second in Ohio with regard to total toxic chemical releases and transfers, and first with regard to total air pollutant releases. The trend for air pollutant releases in Allen County during the past six reporting years (2008 – 2013) has shown some variation. This appears to be related to increases or decreases in facility production since the number of reporting facilities has remained similar from year to year (between 19 and 23 facilities).

Criteria Pollutant Monitoring

Background Information

National Ambient Air Quality Standards (NAAQS) were established for seven air pollutants in order to protect public health and welfare. The seven pollutants with established NAAQS are:

- Particulate Matter less than or equal to 2.5 micron diameter ($PM_{2.5}$)
- Particulate Matter less than or equal to 10 micron diameter (PM_{10})
- Sulfur Dioxide (SO_2)
- Carbon Monoxide (CO)
- Ozone (O_3)
- (NO_2)
- Lead (Pb).

The Clean Air Act requires that U.S. EPA evaluate the NAAQS every five years to ensure that air quality standards are protective of public health and the environment.

The tables on the following two pages show the current NAAQS values.

U.S. EPA and Ohio EPA Ambient Air Quality Standards

National Ambient Air Quality Standards

Pollutant	Duration	Restriction	Primary Standard	Secondary Standard
$PM_{2.5}$	Annual arithmetic mean	Not to be exceeded, 3 year average	12 µg/m3	15 µg/m3
	24-hr concentration	Not to be exceeded, 3 year average of 98th percentile	35 µg/m3	35 µg/m3
PM_{10}	24-hr concentration	Not to be exceeded more than once per year averaged over 3 years	150 µg/m3	150 µg/m3
SO_2	1-hr mean concentration	Not to be exceeded, 3 year average of 99th percentile of daily maximum	0.075 ppm (200 µg/m3)	None
	3-hr mean concentration	Not to be exceeded more than once per year	None	0.5 ppm
CO	8-hr mean concentration	Not to be exceeded more than once per year	9 ppm (10 mg/m3)	None
	1-hr concentration	Not to be exceeded more than once per year	35 ppm (40 mg/m3)	None
O_3	8-hr concentration	Each year's fourth highest concentration averaged over 3 years, not to be exceeded	0.070 ppm	0.070 ppm

U.S. EPA & Ohio EPA Ambient Air Quality Standards

National Ambient Air Quality Standards (Continued)

Pollutant	Duration	Restriction	Primary Standard	Secondary Standard
NO_2	Annual mean	Primary standard: not to be exceeded	0.053 ppm (100 µg/m3)	
		Secondary standard: not to be exceeded, 3 year average of 98th percentile		0.053 ppm (100 µg/m3)
	1-hr concentration	Not to be exceeded	0.10 ppm (189 µg/m3)	
Pb	3-month mean concentration	Not to be exceeded, 3-month rolling average over a 3-year period	0.15 µg/m3	0.15 µg/m3

Notes

Primary standards are established for the protection of public health.

Secondary standards are established for the protection of public welfare.

µg/m3 = micrograms per cubic meter

ppm = parts per million

mg/m3 = milligrams per cubic meter

Particulate Matter NAAQS History

On July 1, 1987, U.S. EPA promulgated revisions to the NAAQS for particulate matter. The primary standard includes only those particles less than or equal to 10 micron diameter (PM_{10}). From July 1, 1987 until July 18, 1997, the annual standard was 50 µg/m3 annual arithmetic mean, averaged over three years. The 24-hour standard, not to be exceeded more than once, was 150 µg/m3. The standard is currently 150 µg/m3, not to be exceeded more than once per year, averaged over three years. On October 17, 2006, U.S. EPA revoked the annual PM_{10} standard.

The standards were changed on July 18, 1997, when the $PM_{2.5}$ standard was promulgated. This NAAQS was established due to research findings concerning particle size. Particulate matter can harm body tissue such as the linings of the nose, throat and lungs by irritation. Nasal hairs and sneezing are the body's natural defenses against some of the relatively large particles (15 to 100 micron diameter). However, small particles can slip past these defenses and penetrate deep into the lungs where tissue damage may occur. On December 18, 2006, the 24-hour $PM_{2.5}$ standard was revised from 65 µg/m3 to 35 µg/m3. Annual arithmetic mean standards for $PM_{2.5}$ were also promulgated on December 14, 2012. These are 12 µg/m3 primary standards (lowered from an original value of 15 µg/m3) and 15 µg/m3 secondary standard.

Because of U.S. EPA's final action on the $PM_{2.5}$ standard, Ohio's ambient air monitoring network has been expanded. Although monitoring for $PM_{2.5}$ is generally limited to larger metropolitan areas in Ohio, U.S. EPA decided that northwest Ohio lacked this type of monitoring, so a $PM_{2.5}$ monitor was installed at Bath High School (Bath Township) in the Lima area. It measures effects from nearby industry and mobile sources (for example, emissions from vehicles using I-75). The monitor is recording hourly $PM_{2.5}$ data.

Ohio EPA operates 104 $PM_{2.5}$ monitors throughout the state. The majority of particulate monitoring in Ohio is done using $PM_{2.5}$, rather than PM_{10} monitors. There are only nine remaining total suspended particulate (TSP) monitors in Ohio, and these are used for specific metals analysis (such as lead) near industrial sites.

Sulfur Dioxide NAAQS History

On June 2, 2010, U.S. EPA promulgated final rules to revise the NAAQS for sulfur dioxide. The annual and 24-hour average primary NAAQS of 0.03 ppm (80 µg/m3) and 0.14 ppm (365 µg/m3) were revoked, and were replaced with a new, one-hour primary NAAQS of 0.075 ppm (200 µg/m3). Attainment status is determined by calculating the three-year average of the 99th percentile of the annual distribution of daily maximum one-hour average concentrations. The new, one-hour primary NAAQS was published in the Federal Register on June 22, 2010.

U.S. EPA also published a final rule on April 3, 2012 retaining the sulfur dioxide secondary NAAQS of 0.5 ppm (1300 µg/m3), as a 3-hour mean concentration not to be exceeded more than once per year.

Ozone NAAQS History

On March 12, 2008, U.S. EPA promulgated final rules to revise the NAAQS for ground-level ozone, and lowered the NAAQS from 0.08 ppm to 0.075 ppm as a three-year average of the fourth highest 8-hour average. If the three-year average is greater than 0.075 ppm, a violation of the standard has occurred. Ohio EPA was required to notify U.S. EPA by March 2009 which counties should be designated as nonattainment areas for the revised NAAQS, based on ozone monitoring data.

On June 15, 2007, U.S. EPA designated Allen County as an attainment area for the previous ozone NAAQS of 0.08 ppm as a three-year average of the fourth highest 8-hour average. In the March 9, 2009, letter to U.S. EPA, Ohio EPA recommended that Allen County be designated as an attainment area for the new NAAQS of 0.075 ppm, since recent monitoring data (2006 through 2008) indicated a three-year average of 0.073 ppm.

It was originally expected that U.S. EPA would publish a public notice of each state's recommended designations for attainment or nonattainment areas by mid-November 2009, and a final list of attainment and nonattainment areas for the 0.075 ppm standard by March 12, 2010. However, environmental and industry groups filed petitions with the D.C Circuit Court of Appeals in May 2008 for review of the 2008 ozone standards.

In March 2009, the court granted a request by U.S. EPA to stay the litigation to allow time to review the standards and investigate whether the standards should again be revised. U.S. EPA proposed new ozone primary and secondary standards on January 6, 2010. At the time of proposal, it was expected that the new primary standard would be within a range of 0.060 to 0.070 ppm.

On July 11, 2011, U.S. EPA submitted a draft final rule titled "Reconsideration of the 2008 Ozone Primary and Secondary NAAQS" for review by the Office of Information and Regulatory Affairs under two executive orders. The President of the United States did not support finalizing the rule, so it was sent back to U.S. EPA. to consider the high costs to industry associated with lowering the standard to the 0.060 to 0.070 ppm range.

On October 1, 2015, U.S. EPA submitted a draft final rule for publication in the Federal Register to revise the primary and secondary ozone NAAQS. The primary and secondary ozone standards will be lowered from 0.075 ppm to 0.070 ppm. The final rule has not yet been published. Once the rule is officially published, there will be a transition period to work through the implementation of the standard.

Pollutants Monitored

Given the type of industry and mobile sources that exist in Allen County, specifically in the Lima area, the criteria pollutants of most concern are particulate matter (specifically $PM_{2.5}$), sulfur dioxide and ozone.

$PM_{2.5}$ is particulate matter that includes dust, soot, dirt, smoke and/or liquid droplets that can be suspended in the air for long periods. The particles are less than or equal to 2.5 microns in diameter, and are also called "fine" particulate. These small particles pose the greatest health risks due to their small size (approximately $1/30^{th}$ the average diameter of a human hair). These particles can lodge deeply in the lungs. Sources of $PM_{2.5}$ include combustion activities such as motor vehicles, boilers, wood burning and other industrial processes.

Sulfur dioxide is a colorless gas formed through the combination of sulfur and oxygen during the combustion of fossil fuels, such as coal or oil. Gaseous fuels such as natural gas or propane contain smaller amounts of sulfur-producing material, and thus burn cleaner, producing less sulfur dioxide than coal or oil combustion. Waste gas combustion through flares also produces sulfur dioxide. Conversion to sulfuric acid (H_2SO_4) may occur when sulfur dioxide comes into contact with moisture, either in the atmosphere, on plants and materials or in the lungs. The presence of increased levels of sulfur dioxide in the atmosphere has been associated with a higher incidence of respiratory diseases, mortality rates and property damage.

Ozone is a pollutant that is created photochemically in the lower atmosphere by the reaction of volatile organic compounds (VOCs) and nitrogen oxides (NO_x) in the presence of sunlight. It is not directly emitted into the atmosphere from emissions sources. Due to temperature and sunlight's role in its formation, the largest ozone concentrations occur during the summer months.

Ozone irritates mucous membranes in the nose and throat, causes eye irritation, reduces resistance to respiratory infections, damages plants and contributes to the deterioration of materials. Individuals with asthma, heart or circulatory disease may experience symptoms when concentrations are elevated.

Monitoring Location

Ohio EPA monitors ambient air for $PM_{2.5}$, sulfur dioxide and ozone concentrations at a permanent monitoring site northeast of Lima, Ohio, in Bath Township. Specifically, the site is at Bath High School, 2650 Bible Road. This site was chosen for three main reasons.

1. It is located downwind from the predominant southwest winds experienced in the area.

2. It is located at a distance from the urban area of Lima that will allow ample time for the formation of ozone from the photochemical reaction of VOC and NO_x.

3. It provides a location that addresses security concerns such as vandalism, sabotage, etc.

At present, $PM_{2.5}$ and sulfur dioxide are monitored continuously on a year-round basis. Historically, ozone was monitored from April 1 through October 31. Beginning in calendar year 2017, ozone will be monitored continuously from March 1 through October 31.

Monitoring Results

The following tables summarize the continuous monitoring results for $PM_{2.5}$, sulfur dioxide and ozone. Concentration (Conc.) results for $PM_{2.5}$ are presented in µg/m3, sulfur dioxide and ozone are both shown in ppm.

$PM_{2.5}$ Monitoring Results

Year	24-hr Average Conc. (µg/m3)	3-Yr Average of 24-Hr Average Conc. (µg/m3)	Annual Arithmetic Mean Conc. (µg/m3)	3-Yr Average of Annual Arithmetic Mean Conc. (µg/m3)
2014	27.7	22.5	9.5	9.8
2013	19.0	22.6	9.9	10.2
2012	20.7	28.0	10.0	10.6

Sulfur Dioxide Monitoring Results

Year	1-Hr Annual Mean (ppm)	3-Yr Average of 1-Hr Annual Mean (ppm)
2014	0.013	0.010
2013	0.007	0.011
2012	0.011	0.016
2011	0.014	0.020
2010	0.023	0.022
2009	0.023	0.021
2008	0.020	0.020

Ozone Monitoring Results

Year	8-Hr 4th Highest (ppm)	3-Yr Average of 8-Hr 4th Highest (ppm)
2014	0.066	0.071
2013	0.068	0.073
2012	0.079	0.074*
2011	0.073	0.072
2010	0.072	0.070
2009	0.071	0.072
2008	0.067	0.073
2007	0.078	0.078
2006	0.075	0.077
2005	0.081	0.081
2004	0.076	0.087

*The 2010 through 2012 actual value for 3-Yr Average is 0.07466 ppm. Per U.S. EPA rounding and truncating regulations, the value is truncated to 0.074 ppm and is compliant with the NAAQS of 0.075 ppm.

Conclusions

1. Air toxics have been monitored near the industrial area in southwest Lima, Ohio since 1990. Results of air toxics monitoring are similar to the county-wide monitoring results (from multiple locations in Allen County) from the 1991 Battelle study, indicating individual air toxic concentrations are well within the maximum acceptable ground level concentration (MAGLC).

2. Ohio EPA air toxics monitoring results from the three samples collected between October 27, 2014 and February 11, 2015, (Appendix B) indicate that results for the 71 air toxic compounds are all within the acceptable limits for ambient concentration, so compliance with respective MAGLC values is shown.

3. Monitoring results for $PM_{2.5}$ indicate compliance with the NAAQS as follows:

   - The first two calculated 3-year averages for 2011 through 2013, and 2012 through 2014 for 24-hour average concentration are comply with the primary and secondary NAAQS, both of which are 35 µg/m3; and

   - The first two calculated 3-year averages for 2011 through 2013, and 2012 through 2014 for annual arithmetic mean concentration comply with the primary and secondary NAAQS of 12 µg/m3 and 15 µg/m3.

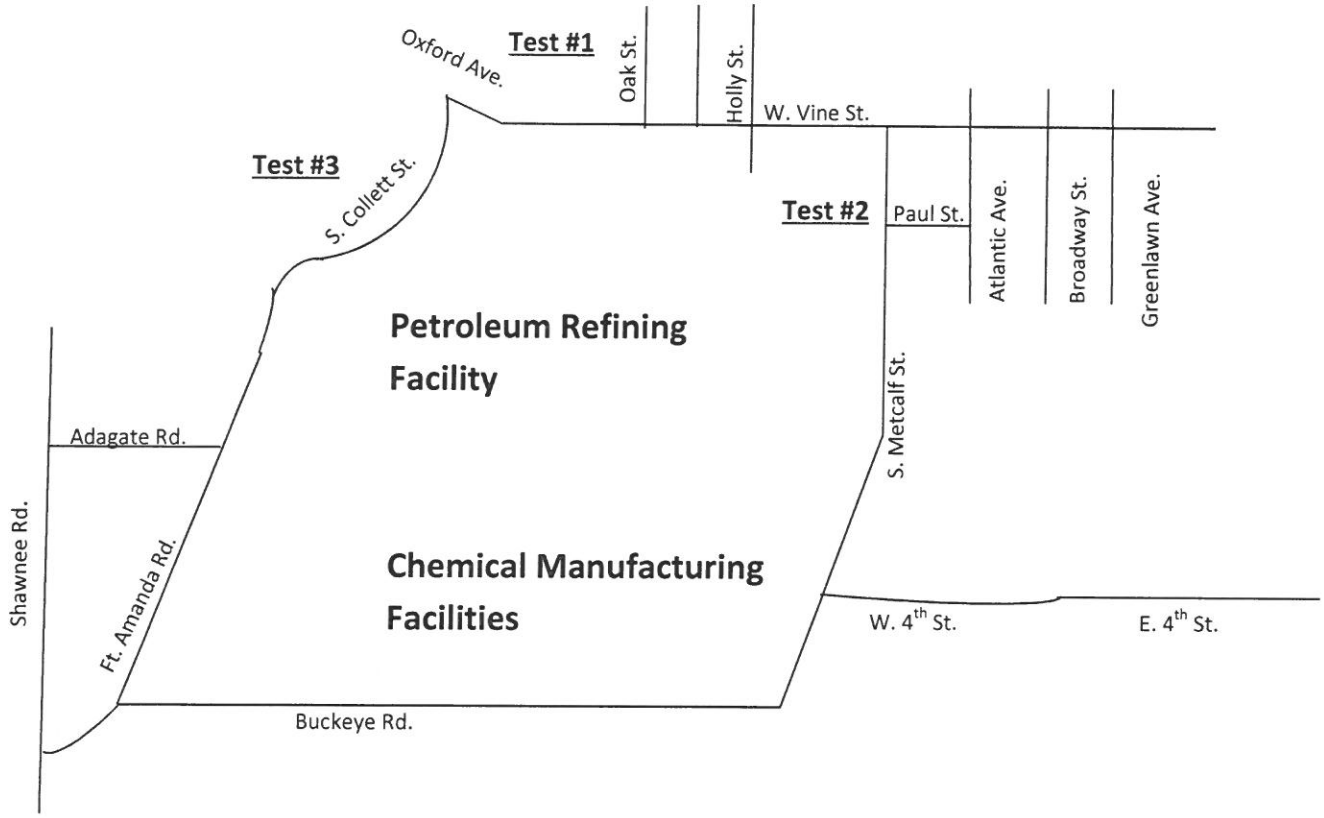
4. Monitoring results for sulfur dioxide indicate compliance with the 3-year average for 1-hour mean concentration primary and secondary NAAQS of 0.075 ppm.

5. Monitoring results for ozone indicate compliance with the 3-year average, fourth highest 8-hour concentration primary and secondary NAAQS of 0.075 ppm.

Appendix A

Air Toxics Monitoring Locations

Air Toxics Monitoring Locations



Test Number	Date	Monitoring Location
Test #1	October 27, 2014	800 block of Oak St., Lima
Test # 2	January 14, 2015	Paul St., near intersection of Paul St. and S. Metcalf Rd., Lima
Test #3	February 11, 2015	900 block of S. Collett St., Lima

Appendix B

Air Toxics Monitoring Results

Air Toxics Monitoring Results

Compound	TLV/42 (ppb)	Detection limit (ppb)	Test #1 10/27/14 (ppb)	Test #2 1/14/15 (ppb)	Test #3 2/11/15 (ppb)
Acetone*	11,905	0.5	5.00		8.00
acetonitrile	476	0.2		0.41	2.20
acrylonitrile	47.6	0.2		1.00	1.90
benzene	11.9	0.2	0.33	0.46	7.10
benzyl chloride	23.8	0.2			
bromodichloromethane	none	0.2			
Bromoform	11.9	0.2			
bromomethane/ methyl bromide	none	0.2			
1,3-butadiene	47.6	0.2			
n-butane	23,809	0.2	3.30	4.80	11.00
2-butanone	4,762	0.5	2.70	0.52	3.00
carbon disulfide	23.8	0.5			
carbon tetrachloride	119	0.2			
chlorobenzene	238	0.2			
chlorodifluoromethane	23,809	0.2	0.29	0.26	1.20
chloroethane/ethyl chloride	2,381	0.2			
chloroform/trichloro-methane	238	0.2			
chloromethane/methyl chloride	1,190	0.2	0.64	0.52	2.20

Compound	TLV/42 (ppb)	Detection limit (ppb)	Test #1 10/27/14 (ppb)	Test #2 1/14/15 (ppb)	Test #3 2/11/15 (ppb
3-chloropropene	none	0.2			0.66
cumene	1,190	0.2			
cyclohexane	2,381	0.2			2.10
decane	none	0.2			
dibromochloromethane	none	0.2			
1,2-dibromoethane	none	0.2			
dibromomethane	none	0.2			
1,2-dichlorobenzene (ortho)	595	0.2			
1,3-dichlorobenzene (meta)	none	0.2			
1,4-dichlorobenzene (para)	238	0.2			
dichlorodifluoro-methane	23,809	0.2	0.50	0.46	2.00
1,1-dichloroethane	2,381	0.2			
1,2-dichloroethane	238	0.2			
1,1-dichloroethene	none	0.2			
cis-1,2-dichloroethene	none	0.2			
trans-1,2-dichloro-ethene	4,762	0.2			
1,2-dichloropropane	1,786	0.2			0.22
cis-1,3-dichloro-propene	23.8	0.2			
trans-1,3-dichloro-propene	23.8	0.2			

Compound	TLV/42 (ppb)	Detection limit (ppb)	Test #1 10/27/14 (ppb)	Test #2 1/14/15 (ppb)	Test #3 2/11/15 (ppb
1,2-dichloro-1,1,2,2-tetrafluoroethane	none	0.2			
ethanol	23,809	0.2		2.00	3.00
ethylbenzene	476	0.2			
4-ethyltoluene	none	0.2			
n-heptane	9,524	0.2		0.21	2.80
hexachlorobutadiene	0.48	0.2			
hexane	1,190	0.2	0.35	0.77	8.10
methyl butyl ether	none	0.2			
methylene chloride/dichloro-methane	1,190	0.2			0.46
4-methyl-2-pentanone	none	0.2			
a-methylstyrene	1,190	0.2			
naphthalene	238	0.2			
n-nonane	4,762	0.2			
n-octane	7,143	0.2			0.66
n-pentane**	14,286	0.2	1.90	2.20	8.30
n-propyl benzene	none	0.2			
propylene	11,905	0.2	2.90	2.10	7.90
styrene	476	0.2			
1,1,2,2-tetrachloro-ethane	23.8	0.2			

Compound	TLV/42 (ppb)	Detection limit (ppb)	Test #1 10/27/14 (ppb)	Test #2 1/14/15 (ppb)	Test #3 2/11/15 (ppb)
tetrachloroethylene/ tetrachloroethene	595	0.2			
toluene	1,190	0.2	0.90	0.81	2.30
1,2,4-trichlorobenzene	none	0.2			
1,1,1-trichloroethane	8,333	0.2			
1,1,2-trichloroethane	238	0.2			
trichloroethene	none	0.2			
trichlorofluoromethane	none	0.2	0.28	0.25	1.10
1,1,2-trichloro-1,2,2-trifluoroethane	23,809	0.2			0.31
1,2,4-trimethylbenzene	595	0.2			
1,3,5-trimethylbenzene	595	0.2			
n-undecane	none	0.2			
vinyl acetate	238	0.2	1.20	0.71	7.80
vinyl chloride	23.8	0.2			
o-xylene	2,381	0.2			
total m+p-xylene	2,381	0.4			0.57

*The current *AGGIH Handbook* lists a proposed TLV revision for acetone to 200 parts per million (ppm). If passed, the new MAGLC will be lowered from 11,905 ppb to 4,762 ppb.

**The current *AGGIH Handbook* lists a proposed TLV revision for all isomers of pentane, which includes n-pentane, to 1,000 ppm. If passed, the new MAGLC will be raised from 14,286 ppb to 23,809 ppb.

Notes:

ppb = parts per billion

If no value is presented in the table for the test date, the results are less than the test method detection limit.

If "none" is listed in column labeled TLV/42 (ppb), this means there is no established threshold limit value in the American Conference of Governmental Industrial Hygienists (ACGIH) and, thus, no value for TLV/42 can be calculated.

Appendix C

2013 TRI Data for Allen County

State of Ohio Environmental Protection Agency
Toxic Chemical Release Inventory Program
2013 County Summary

APPENDIX B

ALLEN		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
County Rank in State		5	4	4	7	4	7	10	5	4	3	3	3	2
Number of Reporting Facilities		27	26	23	22	22	22	22	23	21	21	21	21	19

Environmental Media	All Data Included (lbs)						Normalized Data (lbs)					
	2008	2009	2010	2011	2012	2013	2008	2009	2010	2011	2012	2013
Air	3,001,726	3,839,403	3,394,869	3,979,101	5,696,208	5,858,744	1,140,472	1,383,564	954,202	956,850	1,707,365	0
Surface Water	308,294	171,635	304,521	303,359	193,146	185,914	5,048	9,891	2,325	1,283	2,193	2,234
Deepwell Injection	10,629,270	8,839,490	9,867,504	8,889,510	7,362,540	7,157,108	8,954,470	7,518,540	8,344,714	7,019,210	5,674,437	5,414,221
Land On-Site	0	0	0	9	0	8	0	0	0	0	0	8
POTW	238	132	141	91	59	29	164	7	65	29	23	13
Off-Site Transfers	629,392	559,902	608,263	580,409	521,426	579,454	459,164	401,586	418,593	367,167	359,258	359,258
Total Releases & Transfers	14,568,920	13,410,562	14,175,298	13,752,479	13,773,379	13,781,257	10,559,318	9,313,588	9,719,899	8,344,539	7,743,276	5,775,734

Top 5 Facilities in County (Based on Total Air Releases)	State Rank	Air Releases (lbs/2013)
1) PCS NITROGEN OHIO L.P.	1	5,476,742
2) LIMA REFINING CO	39	178,868
3) INEOS USA LLC	57	98,045
4) DTR INDUSTRIES INC.	102	45,025
5) GUARDIAN LIMA LLC	121	30,916

Top 5 Facilities in County (Based on Total Releases & Transfers)	State Rank	Total Releases (lbs/2013)
1) INEOS USA LLC	3	7,259,276
2) PCS NITROGEN OHIO L.P.	6	5,568,152
3) FORT AMANDA SPECIALTIES LLC	68	385,212
4) LIMA REFINING CO	78	316,407
5) DTR INDUSTRIES INC.	143	114,132

Top 5 Chemicals in County (Based on Total Air Releases)	Air Releases (lbs/2013)
1) AMMONIA	4,068,303
2) METHANOL	1,322,391
3) NITRIC ACID	101,857
4) PROPYLENE	58,538
5) TOLUENE	51,417

Top 5 Chemicals in County (Based on Total Releases & Transfers)	Total Releases (lbs/2013)
1) AMMONIA	5,900,280
2) ACETONITRILE	2,008,876
3) METHANOL	1,878,656
4) ACRYLAMIDE	1,119,240
5) ACRYLONITRILE	709,643