

11. Environmental Health

Table 11-1: Environmental Health Summary Table

Measure	County Data	Recent Change			U.S. Comparison		IN Comparison		HP 2010
		yrs	% Change	👍👎	U.S. Data	👍👎	IN Data	👍👎	
Positive Indicators for Marion County									
Number of septic violations issued	72	3	-11%	👍	NA		NA		NA

Table notes: **County data:** Is for most recent year available. **Recent Change:** Percent change of most recent measurement from a measurement the noted number of years prior. Changes of more than 5 percent in either direction are denoted by thumbs up or thumbs down symbols. Neutral thumbs indicate no change, even though no change may be a negative outcome; **U.S. or IN population data:** Is for most recent year available; **U.S. (or IN) Comparison:** Comparison of most recent data using thumbs up or thumbs down symbolsthumbs up or thumbs down to denote differences that are statistically significant or deemed to be noteworthy from the analysts' professional perspective. **Note:** When there is no public health implication associated with a measure, directional arrows replace thumb icons to indicate the direction of change or the relationship of the Marion County measure (higher/lower/not different) to the U.S./IN measure.

Water Quality

The Water Quality and Hazardous Materials Management Department of the Marion County Health Department is responsible for several programs designed to improve the environmental health and safety of Marion County residents and employees. Staff members ensure proper construction and operation of private septic systems. Environmental Health Specialists respond to complaints of septic failures and respond in accordance with state and local septic ordinances. Table 11-2 illustrates the citations and permits issued by MCHD from 2004 through 2006.

Table 11-2: MCHD Septic system Violations and Actions: 2004-2006

	2004	2005	2006
Violations	72	78	19
Permits for new septic systems	15	26	19
Repair permits for existing septic systems	208	208	202

Source: Marion County Health Department, Water Quality and Hazardous Materials Management Department, (DR0597)

Section 303(d) of the Clean Water Act requires states to identify waters, through their Section 305(b) water quality assessments, that do not or are not expected to meet applicable water quality standards with federal technology based standards alone.¹ Waterbodies are identified based on watershed areas known as 14-digit hydrologic unit areas (HUAs). These watersheds range from about five thousand (5,000) to twenty

¹ Indiana Department of Environmental Management (IDEM)
<http://www.in.gov/idem/programs/water/303d/index.html>

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thousand (20,000) acres in Indiana. The average 14-digit hydrologic unit area in Indiana is about twelve thousand (12,000) acres or twenty (20) square miles. River miles in a 14-digit watershed are designated as one waterbody. These waterbodies may be broken into smaller segments to properly reflect the water quality assessment. Each lake in a watershed is reported as a separate waterbody.²

The waterbody's ability to support aquatic life, fish consumption advisories, and limitations on bacteria (*Escherichia coli*) are the three main factors analyzed to make this determination. If any one of the three standards is not met, the segment is deemed impaired. During the 2006 assessments conducted by the Indiana Department of Environmental Management (IDEM), 32 segments in Marion County were deemed impaired.³ A total of 56 impairments were noted. The reasons for the impairments are listed in Table 11-3.

Table 11-3: Reason for Impairment, Marion County Assessed Water Segments, 2006

Cause Of Impairment	Total
Algae	2
E. Coli	17
FCA for Mercury	12
FCA for PCBs	13
Impaired Biotic Communities	10
Taste And Odor	2
Total	56

The entire state list can be viewed on the IDEM website at <http://www.state.in.us/idem/4680.htm>.

Air Quality

Ozone Levels

Ground-level ozone is formed when oxygen, nitrogen oxides (NO_x) and volatile organic compounds (VOC) chemically react in the presence of sunlight, especially in hot weather. Ground-level ozone is a key component of urban and regional smog. Ozone decreases the quality of air we all breathe. There are 12 monitoring stations in central Indiana that measure for ground-level ozone. When ground-level ozone (smog) levels are high, the respiratory system becomes irritated causing symptoms such as coughing, scratchy throat and tightness in the chest. As a result, lung function is reduced, the intake of air becomes strained and breathing can become uncomfortable.

In fact, roughly one out of every three people in the United States is at a higher than average risk of experiencing ozone-related health effects. Smog can damage a person's lungs, trigger and intensify asthma attacks and aggravate other breathing conditions.

²Indiana Department of Environmental Management (IDEM)
http://www.in.gov/idem/programs/water/305b/2006integrept/appc_305b303dmethodology.doc

³ Indiana Department of Environmental Management (IDEM) DR0598
<http://www.in.gov/idem/programs/water/303d/303dlist2006.xls>

There is also evidence that ground-level ozone can lower resistance to respiratory illnesses and chronic lung diseases, such as pneumonia, emphysema, asthma and bronchitis.

Some people have an unusual susceptibility to ground-level ozone. Scientists do not yet know why, but some otherwise healthy people may experience health effects at more moderate levels of exertion or at lower levels of smog pollution than the average person.

In an effort to educate the public about the health effects of ozone, the city of Indianapolis also began identifying and releasing public warnings, called Knozone Air Quality Action Days. Between 10 and 15 Knozone Air Quality Action Days are called in Marion County for ground-level ozone during a typical summer. As a general rule, if the ozone concentration exceeds 85 parts per billion (ppb), Central Indiana has exceeded the federal air quality standard. A report generated by Earth Day Network reviewed data from 72 of the most populated areas in each state and the District of Columbia. The report ranked Indianapolis 42nd for the number of high ozone days between 2002 and 2004.⁴

Table 11-4: KnoZone Air Quality Action Days by Year for Marion County

Year	Total Number of Action Days
2002	14
2003	7
2004	0
2005	11
2006	3

Source: <http://www.knozone.com/Technical/chart.htm>, (DR0599)

Since the production of ozone is dependent on temperature, both 2004 and 2006 had a low number of KnoZone Air Quality Action days since the summer temperature averages were lower than usual. The City of Indianapolis also began identifying and releasing public warnings (Knozone Air Quality Action Days) for fine particle levels in the fall of 2005. Data for the number of days declared will be available in 2008. As a general rule, if the daily fine particle concentration exceeds 65 micrograms per cubic meter, central Indiana has exceeded the federal air quality standard.⁵

Lead Poisoning

Lead is a toxin that affects every system in the body. Exposure to large amounts of lead may cause anemia, muscle weakness, and even death. Even fairly low levels of lead exposure can permanently affect a child's mental and physical growth.⁶ The risk of lead exposure from vehicle exhaust has been minimized since leaded gasoline was phased out in the 1990s. The most common source of exposure is lead-based paint, which was

⁴ Earth Day Network. *Urban environment report: what's your city's score?*
http://www.earthday.net/uer/report/in_indianapolis.html

⁵ Indianapolis Department of Public Works, KnoZone Office <http://www.knozone.com/Technical/chart.htm>

⁶ *Preventing Lead Poisoning in Young Children*. Centers for Disease Control, 1991.
<http://www.cdc.gov/nceh/lead/publications/books/plpyc/contents.htm> . Also see
http://www.cdc.gov/healthmarketing/entertainment_education/tips/lead.htm

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restricted from common residential use in 1978, but is still present in many older houses.⁷ Intact lead-based paint poses little risk unless it is disturbed during home improvement projects. The primary risk arises from paint chips and dust produced by peeling or otherwise deteriorating lead-based paint. Especially high concentrations of lead dust often occur on windowsills and window wells, where the window rubs the paint on the window frame. Young children ingest large amounts of dust and soil around houses through their normal hand-to-mouth contact. Because of this, young children are especially at risk for lead poisoning, and dust and soil are considered to be the most significant routes of lead exposure to children.⁸

Some of the most practical and effective measures for preventing lead poisoning are replacing windows that have been painted with lead-based paint, using special measures to capture and dispose of dust when repairing older homes, and assuring proper disposal of lead-containing items like many batteries.⁹

In 1999, a national survey found that 68 percent of houses built before 1940 and 43 percent of houses built between 1940 and 1959 had damaged lead-based paint or dust levels exceeding the maximum levels set by the Environmental Protection Agency and the U.S. Department of Housing and Urban Development. Among households with any children under six years old, the prevalence of lead hazards was even higher; 81 percent for homes built before 1950, and 57 percent for homes built between 1940 and 1959 (Table 11-5).¹⁰ In Marion County in 2000, 15 percent of occupied homes were built before 1950, and 24 percent were built between 1950 and 1969. Homes with high risk of lead hazards were especially prevalent in Center Township, where 61 percent of homes were built before 1950. In no other township were over 25 percent of its occupied homes built before 1950 (Table 11-6).¹¹

⁷ Lanphear B, Matte T, Rogers J, et al. The contribution of lead-contaminated house dust and residential soil to children's blood lead levels: A pooled analysis of 12 epidemiologic studies. *Environ Res*. October 1998;79(1):51-68.

⁸ U.S. EPA. *Report on the HUD National Survey of Lead-based Paint in Housing (Base Report)*. EPA/747-R95-003. Washington, DC:U.S. Environmental Protection Agency. 1995.

<http://www.epa.gov/oppt/lead/pubs/r95-003.pdf>

⁹ *Preventing Lead Poisoning in Young Children*. Centers for Disease Control, 1991.

<http://www.cdc.gov/nceh/lead/publications/books/plpyc/contents.htm>

¹⁰ Jacobs, DE; Clickner, RP; Zhou, JY, et al., "The Prevalence of Lead-Based Paint Hazards in U.S. Housing," *Environmental Health Perspectives*, Volume 110, Number 10, October 2002, pp. A599-A606.

<http://www.hud.gov/offices/lead/techstudies/LeadPaintHousingSurvey.pdf> Data sources: American Housing Survey for the United States for 1997, HUD National Lead Paint Survey, 1999.

¹¹ U.S. Census Bureau 2000 census File 3 (SF3), Table H34.

Table 11-5: Prevalence of Lead Hazards Among All Homes, and Among Homes of Young Children, United States, 1999

	Year Built			
	1939 or earlier	1940-1959	1960-1977	1978-1998
% Housing units with hazards	68	43	8	3
% Housing units with hazards, among homes with children < 6 years old	81	57	9	<1

Source: HUD National Lead Paint Survey, 1999

Table 11-6: Percent of Homes by Year Built, within Township, Marion County, 2000

Township	Year Built			
	1939 or earlier	1940-1959	1960-1979	1980-1999
Center	61	33	16	7
Lawrence	25	29	37	20
Pike	22	27	36	26
Franklin	21	28	40	20
Perry	13	22	43	28
Washington	10	17	35	43
Wayne	7	9	27	59
Warren	4	13	39	46
Decatur	2	5	26	68
Overall (whole County)	15	24	32	29

Source: U.S. Census Bureau 2000 census File 3 (SF3), Table H34

The CDC recommends that all children living in areas where more than 27 percent of houses were built before 1950 should be screened. The Marion County Health Department screens children throughout Marion County for lead poisoning. In each year from 2004 through 2006, over 9000 Marion County children under six years old were screened, and each year, 2.4 percent to 3.0 percent were found to have blood lead levels over the minimum safe threshold of 10 micrograms per deciliter, set by the CDC.¹² This probably overestimates the prevalence of lead poisoning in Marion County children, since the children screened tend to be those from areas with relatively high concentrations of older homes, where the risk of lead poisoning is greatest.

Workplace Safety

Indiana Occupational Safety and Health Administration (IOSHA) ensures Hoosier workplace safety and health. IOSHA strives to improve workplace safety and health for all Indiana workers by reducing hazards and exposures in the workplace environment that result in occupational injuries, illnesses, and fatalities.

During 2006, there were 1,364 inspections completed Indiana by the IOSHA. A total of 702 (51%) inspections resulted in citations and there were a total of 2, 231 violations

¹² Stellar and Insight databases, Marion County Health Department (DR0644).

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noted. In Marion County, 1,228 inspections were completed. Of the sites visited, 126 (10%) had violations. A total of 328 violations were noted.¹³

¹³ Indiana Department of Labor, (Integrated Management Information System) (DR0596)