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CLUB**

**IOWA CHAPTER**

## **Understanding Air Pollution from Lead**

Lead is a highly toxic, naturally occurring metal found in the earth's crust. Lead and its compounds can be found in a variety of consumer products, but it is also found in industrial settings. The federal Clean Air Act and companion regulations set limits to the levels of airborne lead so that human health can be protected. The Iowa Department of Natural Resources (DNR) is responsible for developing permits for industry so that minimal levels of lead are emitted, to monitor the air quality across the state and to enforce compliance with permits.

### **Sources of airborne lead**

Lead is emitted into the air when coal is burned. Lead is also emitted into the air during some manufacturing processes. Incinerators can be sources of airborne lead.

General aviation aircraft fuel still has lead additives, which are used for piston engine aircraft. When the leaded fuel is burned, the lead becomes airborne. Lead has been removed from automobile fuels.

Lead settles out of the air and, thus, is deposited onto the soil and in the waters from airborne sources. Airborne particles of lead that have settled on the ground can again suspend themselves back into the air when disturbed. Lead contamination can also result from direct discharges into water bodies or onto the land. It persists in the environment and does not break down.

### **What are the health consequences from lead exposure?**

Humans can be exposed to lead by breathing it or by ingesting it. Children are particularly vulnerable to coming into contact with lead on the soil while they are playing outside.

Exposure to high quantities of lead poses serious health risks. Lead exposure affects the proper function of the central nervous system, hand-eye coordination, lowered reaction time and can affect the kidneys and the immune system. Additionally lead can cause sperm damage and miscarriages. Children exposed to lead can suffer lower intelligence test performance, can have learning, concentration and memory problems and can have behavior problems such as hyperactivity.

### **Council Bluffs was in nonattainment for lead.**

A lead monitor in Council Bluffs detected that the outdoor air pollution levels for lead were exceeded six times in 2010. Federal regulations require that the area around the monitor be labeled as a nonattainment area and that measures must be undertaken to reduce the lead levels.

The Iowa DNR identified Griffin Pipe Products Company, a manufacturer of fresh water and wastewater transmission products, to be the source of the airborne lead. In response, Griffin Pipe installed a new bag house, an air pollution control device that removes particulates out of air or gas released from commercial processes or combustion for electricity generation. In 2014 Griffin Pipe shuttered the business. As a result of excessive lead emissions, the Environmental Protection Agency levied a civil penalty of \$950,000 against Griffin Pipe<sup>1</sup>. Griffin Pipe also agreed that it would lower lead emissions if the plant were to be restarted.



Picture of Griffin Pipe Products Company taken from Microsoft Virtual Earth

Once an area is in nonattainment, the Iowa DNR will monitor the air quality for further exceedences for the next three years. The Iowa DNR must work closely with the federal Environmental Protection Agency (EPA) to resolve the nonattainment issues to prevent the Iowa DNR from risking its authority for Iowa's air quality program to EPA.

### **Sources**

National Institute of Environmental Health Sciences, National Institutes of Health,  
[www.niehs.nih.gov/health/topics/agents/lead/](http://www.niehs.nih.gov/health/topics/agents/lead/)

Iowa Department of Natural resources web sites  
[www.iowadnr.gov/Environment/AirQuality/CommonAirPollutants/Lead.aspx](http://www.iowadnr.gov/Environment/AirQuality/CommonAirPollutants/Lead.aspx)

"Proposed Lead Nonattainment Area Boundaries for Council Bluffs, IA", Power Point slides by Jim McGraw, Matthew Johnson, David Brown, and Chris Roling, Iowa Department of Natural Resources, February 16, 2011

Centers for Disease Control website, [www.cdc.gov/nceh/lead/](http://www.cdc.gov/nceh/lead/)

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<sup>1</sup> Matthew Patane, "Defunct Council Bluffs plant agrees to reduce lead emissions", Des Moines Register, September 30, 2014