Evaluation of Air Exposures in the North Birmingham Area - Final Air PHA

Background

The Agency for Toxic Substances and Disease Registry (ATSDR) evaluated Environmental Protection Agency (EPA) and the Jefferson County Department of Health (JCDH) air sampling results. Air samples were collected in the Collegeville, Harriman Park and Fairmont communities, and at Providence (a rural location near Birmingham for background comparisons). The samples were tested for many chemicals and particulate matter (PM). ATSDR looked at the sampling results to see if any chemical levels in air were high enough to cause health problems for people who live or work in the community.

This fact sheet reviews north Birmingham results from air samples collected between 2005 - 2012. It also discusses how air contaminants in north Birmingham may affect your health.

Air Sampling in North Birmingham

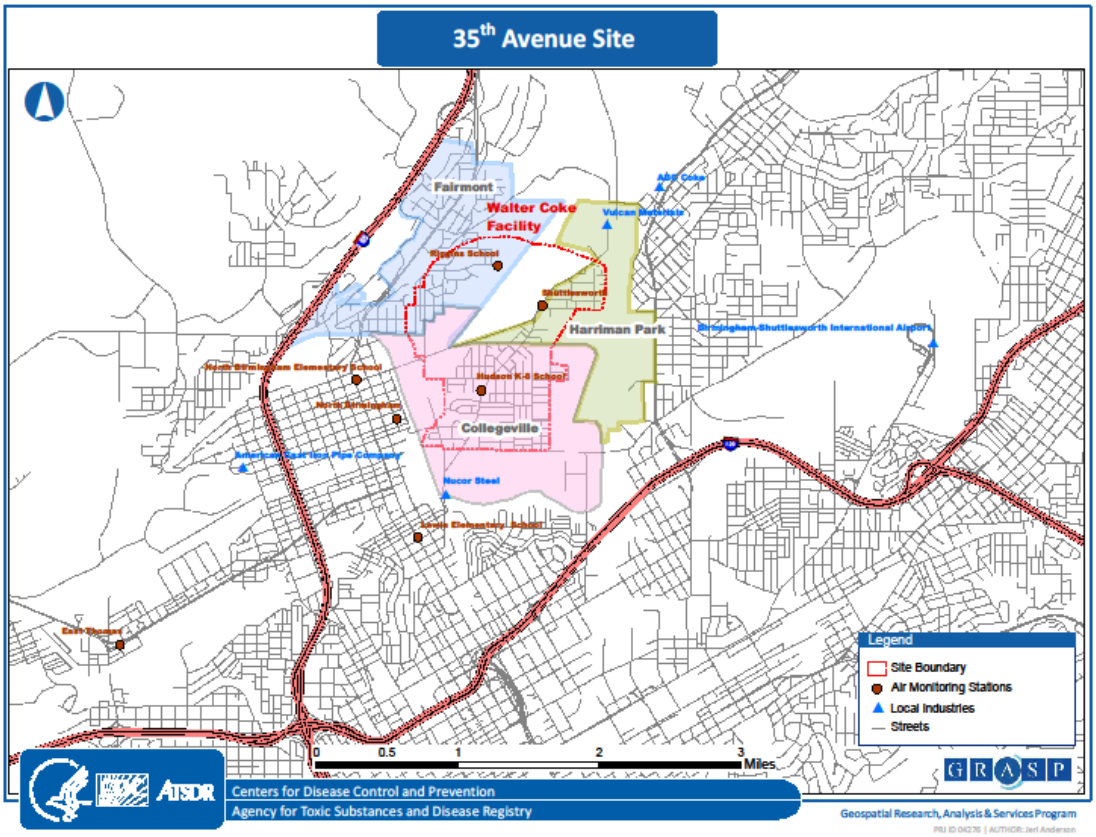
EPA and the JCDH collected air samples in the north Birmingham area at the dates and locations listed in Table 1. The sampling locations are shown in Map 1.

Table 1
Air Sample Locations in North Birmingham

Year(s) Air Samples Collected	Air Sampling Station Locations
2005-2006	East Thomas North Birmingham Shuttlesworth Providence[1]
2009	Riggins School North Birmingham Elementary School Lewis Elementary School
2011 – 2012	Shuttlesworth Riggins School Lewis Elementary School Hudson K-8 School

1 - The Providence location was selected as a background sampling site. The site is located in a rural wooded area about 30 miles southwest of north Birmingham. Air sampling results from this site were compared to air sampling results from the north Birmingham sites to see if chemical levels in the air were different. The north Birmingham air sampling locations are shown on Map 1.

Map 1
Air Sampling Station Locations in north Birmingham



Particulate Matter (PM)

Particulate matter (PM) is the name for a mixture of very small solid or liquid particles found in air. Air samples were tested for two types of PM that are small enough to get down to your lungs:

- PM10 – particles smaller than 10 microns (0.0004 inches, or 1/7th the width of a human hair) in diameter.
- PM2.5 – particles smaller than 2.5 microns (0.0001 inches) in diameter.

When people breathe in these particles, they can pass through the nose and throat and get into the lungs. Once in the lungs they may cause health problems such as coughing, trouble breathing, making asthma worse, and worsening of heart and lung problems.

Particulate Matter Air Sampling

PM10 and PM2.5 samples were collected as part of Alabama's state and local air monitoring network.

- PM10 samples were collected at the North Birmingham and Shuttlesworth locations.
- PM2.5 samples were collected at the North Birmingham and Providence locations (1999-2013) and at the Shuttlesworth location (2013).
- Jefferson County currently meets the National Ambient Air Quality Standards for PM10 and 2.5.

ATSDR recommends the Jefferson County Department of Health continue monitoring for particulate matter at the North Birmingham (Collegeville neighborhood) and Shuttlesworth (Harriman Park) monitoring stations.

How did ATSDR review the sampling results?

ATSDR evaluated the chemical and PM test results to see if breathing them in could cause health problems. ATSDR did this by comparing the levels of each chemical in the air to its health screening value (HSV). A HSV is the amount of a chemical that people can get into their bodies that is unlikely to cause health problems.

Most chemicals were found in air at levels lower than their health screening values. These chemicals were not studied further because they should not cause health problems in people. Other chemicals were found at levels higher than their health screening values. ATSDR reviewed these chemicals more closely to see if exposure to them could cause health problems.

Is my health at risk for non-cancer health effects?

ATSDR evaluated the past and present levels of air contaminants in the Collegeville, Harriman Park and Fairmont communities. Based on the air sampling results ATSDR concludes:

- Exposures to PM in the air in the past could have resulted in harmful effects in sensitive individuals but not the general public.
- Children (under 18 years of age), the elderly (over 65 years old), people with asthma, chronic obstructive pulmonary disease (COPD), cardiovascular disease, diabetes, and those with certain genes may be more sensitive to PM. For these people exposure to PM2.5 levels in the past may have caused health problems such as coughing or trouble breathing, making asthma worse, and aggravating heart and lung disease.
- Breathing PM levels that are in the air now is unlikely to result in harmful effects in sensitive people or the general population.
- Exposure to chemical contaminants in air is unlikely to result in harmful noncancerous health effects in people.

Am I at risk for developing cancer from breathing chemicals in the air?

The EPA north Birmingham air risk assessment and the ATSDR north Birmingham air public health assessment reviewed the results of air samples collected in north Birmingham. Current and past levels of chemicals in the air are in the range considered to be a low increased risk for cancer for people who have been exposed to these chemicals their whole lives.

The American Cancer Society estimates 1 in 3 Americans will get some form of cancer during their lifetime. The estimated risk of developing cancer from chemical exposure from the air in north Birmingham at this time is low. Breathing the air in north Birmingham for a lifetime is **estimated** to increase the risk of getting cancer by 1 case for every 10,000 people who are exposed to these chemicals their whole lives.

The risk of developing cancer from chemical exposure from the air at the Riggins (2009) and Shuttlesworth (2005/2006) monitoring stations was higher in the past than it is now. Breathing the air in these areas with

the levels of contaminants found in the past for a lifetime is **estimated** to increase the risk of getting cancer by 2 cases for every 10,000 people. This does not mean that a person will get cancer caused by breathing chemicals in the air, but that the risk is slightly increased. Even if a person gets cancer, we would not be able to say the cancer was related to breathing the air in north Birmingham for their lifetime.

Are there any medical tests to find out if I have unsafe levels of air contaminants in my body?

When chemicals get into your body, they may stay the same, or break down into other chemicals. Tests can measure the levels of some of these chemicals in your body. But the tests cannot tell where the chemicals came from or, in most cases, if you may get sick. We do not recommend medical testing for these air contaminants.

Will ATSDR check my or my child's health or on any of our medical issues?

ATSDR does not provide medical care. However, ATSDR works with medical groups who study how exposure to hazardous substances where people live or work can affect their health. These groups are the Pediatric Environmental Health Specialty Units (PEHSU) and the Association of Occupational and Environmental Clinics (AOEC). These groups can talk to you about how breathing chemicals in air can affect your health. You can make an appointment with physicians in these groups to talk about your health concerns. You will have to pay the cost of these appointments. ATSDR can give you or your doctor the information to contact the groups that provide these services.

For More Information

For questions about ATSDR's work at the north Birmingham community you can contact:

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