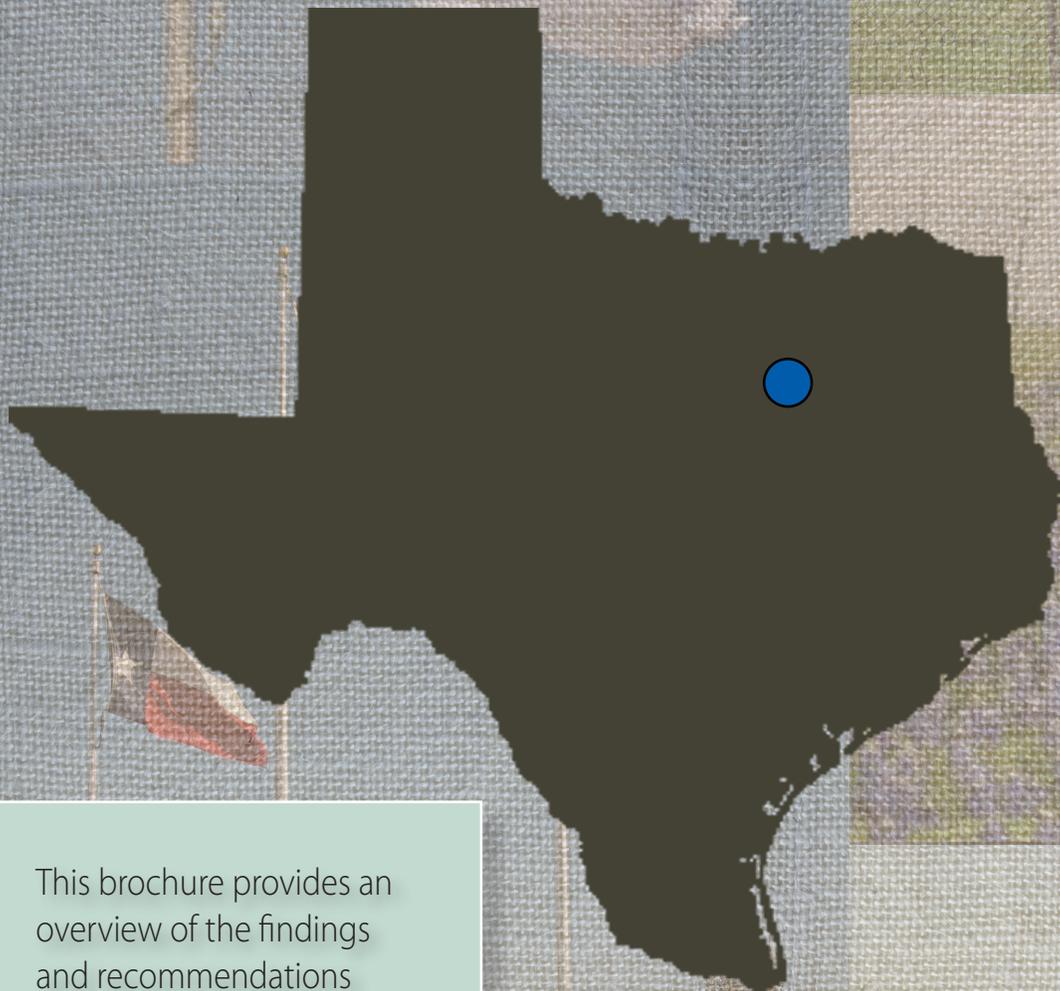


Review and Analysis of Volatile Organic Compounds (VOCs) and Metal Exposures from Air Emissions in Media Other than Air *as part of the Midlothian Area Air Quality Petition Midlothian, Ellis County, Texas*



This brochure provides an overview of the findings and recommendations from one of the six health consultations prepared for the Midlothian site, Midlothian, Texas.

Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations



Midlothian Site Midlothian, Texas

Introduction

The Agency for Toxic Substances and Disease Registry (ATSDR), a federal public health agency, is working with the Texas Department of State Health Services (DSHS) to determine if chemicals released into the air from three cement plants and a steel mill, in Midlothian, could cause health problems in people and animals. This health consultation evaluates the public health impacts from deposition of air emissions to other media such as soil, water, and vegetation. This is one of a series of six health consultations prepared by ATSDR for this site.



The Bottom Line

Deposition of air emissions to media, such as soil, water, and vegetation, does not pose a public health concern from exposure to those media.

	People in the vicinity of the facilities of interest have not been harmed by exposure to air contaminants deposited onto soil, sediment, surface water, groundwater, and vegetation.
	Direct contact with cement kiln dust may briefly irritate the eyes, nose, throat, and skin.

 Green means we don't believe there is a problem.

 Yellow means we don't know if there is a problem, or if there may have been a problem in the past, currently or in the future, however this problem would be short-term.

Background of the Site

Midlothian is in Ellis County, Texas, about 30 miles south of the Dallas/Fort Worth area. Midlothian is home to large-scale industrial operations including three cement plants and a steel mill. Operations at these four facilities have changed over the years including a range of production levels and use of different fuels in the cement kilns. Community members asked ATSDR and DSHS to investigate whether chemical releases from these industries might make them or their animals sick.

Community Concerns

Starting in 2005, ATSDR and DSHS have been keeping a record of community concerns regarding the Midlothian facilities. With respect to this health consultation, community members raised concerns about:

- The impact of air pollution emissions on other media, especially water
- Cement kiln dust.

What did ATSDR do?

In this report, ATSDR:

- Looked at how people could be exposed to contamination in soil, water, and vegetation that was deposited from the air.
- Grouped available environmental sampling data and documents as background information, data of limited use, and data on media other than air of suitable quality.
- Reviewed sampling data from dust, slag, fish tissue, and hair and determined it to be of some, but limited use.

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- Evaluated environmental sampling data from soil, sediment, surface water, groundwater, and vegetation that was determined to be of suitable quality.
- Identified potential chemicals of concern found in media other than air that were above ATSDR's health screening values.
- Reviewed other documents relevant to media other than air such as modelling results and permit and registration records.

Exposure pathway analysis looks at the link between environmental contaminant releases and local populations. To be complete, an exposure pathway must have an exposure source, an environmental medium in which the chemical moves, a point of exposure, a route of exposure, and a person or persons who could be exposed.

What did ATSDR find?

People living or working in the vicinities of the four facilities of interest since the early to mid-1990s have not been adversely affected by exposure to contaminated soil, sediment, surface water, or groundwater, or through indirect exposure pathways (including ingestion of beef and fish) from air deposition from the four facilities of interest. Direct contact with deposited cement kiln dust may cause brief irritant health effects. Rinsing the area with water will stop the irritation.

SOIL

- ATSDR reviewed TNRCC soil test results from the early 1990s and compared them to 2015 health based comparison values. Concentrations of pollutants measured in these samples do not appear to be related to facility emissions deposition patterns, and for the most part, appear to fall within background soil ranges of these pollutants. There was a lot of variability in the concentrations of metals in these soil samples.
- Arsenic in soil was identified as a chemical for further evaluation, because levels exceeded health based comparison values at seven off-site locations. Arsenic did not exceed the same values at on-site locations, so it may be related to historical agricultural pesticide application. Arsenic was not indentified as a pollutant of concern in the health consultations that examined air pollution.
- ATSDR reviewed surface soil sampling data collected in 2003 from Gerdau Ameristeel property just south of the facility complex and compared pollutant concentrations to health based comparison values. Only two soil samples had a metal (manganese) that exceeded its health based comparison value and these were taken from the on-site locations. ATSDR believes these concentrations are unlikely to pose a health risk to the public.
- Soil samples collected in 2005 on a private property near Gerdau Ameristeel found no metals in soil that exceeded health based comparison values.



SEDIMENT, SURFACE WATER, and GROUNDWATER

- ATSDR evaluated sampling data on surface water (from 1994) and sediment, surface water, and groundwater (from 2003) from around the Gerdau Ameristeel facility and compared them with 2015 health based comparison values. ATSDR found that concentrations of metals in these media did not exceed health based comparison values.

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VEGETATION

- Vegetation, including hay bales and forage were sampled in 1994 and 2003-04 taken from around the Gerdau Ameristeel facility. Some samples in 1994 exceeded the maximum tolerable level for intake in livestock feed for a few metals. Given the varied mix of vegetation and hay that an animal might consume and that a person's diet would not be exclusively meat products from cattle grazing in this field, ATSDR did not consider the vegetation results as a public health concern. This determination was further supported by modeling results reviewed by ATSDR.

CEMENT KILN DUST

- Tapelift sample results, particulate modeling in previous health consultations, and reports from residents support airborne deposition of alkaline cement kiln dust in residential areas. Because it is highly alkaline, direct contact with this dust would be expected to cause temporary irritation to skin, eyes, and mucous membranes.



What are the next steps?

- ATSDR and DSHS will share the findings of this Health Consultation with Midlothian residents
- As recommended in the Midlothian health consultations that addressed air issues, ATSDR recommends that community focused air investigations continue.

Where can I learn more?

To get more information about ATSDR's public health activities in Midlothian, visit our website at: www.atsdr.cdc.gov/sites/midlothian/.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
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