

BLACK STREAKS (GHOSTING) ON SIDEWALKS & DRIVEWAYS

Black streaks on concrete sidewalks and driveways are a perplexing and difficult problem to diagnose and solve. Only limited research studies are available. All pictures shown are from walkways and driveways in Strasburg Station.



What causes black streaks on concrete sidewalks and driveways?

The main causes are:

- * Soot (small carbon particles) - coal dust
- * Mold
- * Dirt

How can the cause be determined?

Laboratory testing can determine whether the streaks are soot, mold, or dirt. Field tests, not always conclusive, include 1) IF MOLD SUSPECTED, wipe one spot with chlorine bleach; 2. IF COAL DUST/SOOT SUSPECTED, wipe spot with strong commercial concrete cleaner.

Where does the soot come from?

Soot comes from incomplete combustion of a carbon-based material. Any material that can burn produces soot, including natural gas, propane, wood, oil, candle wax, gasoline, diesel fuel, dust, dirt, cooking oils, and carpet fibers. Sources include:

- * propane or oil-fired heating appliances, such as space heaters, kitchen ranges, and clothes dryers.
- * propane or oil-fired whole house heating systems.



- * Exhaust from trucks and cars using diesel fuel
- * Fireplaces burning wood or propane-based
- * Environmental contaminants (dust, dirt, and cooking oils)
- * Sources in the neighborhood, city, county, state, or neighboring states: nearby trash burning facilities; nearby factories [downtown Strasburg?, Rubbermaid plant in Winchester?] with smokestacks; nearby powerplants or ones in West Virginia, the Ohio Valley, and Pennsylvania release soot high into atmosphere with heavy soot particles dropping on cities and towns to the east, miles away.

Why does soot collect on sidewalks and driveways, not at the source?

About 99 percent of particles in air are too small to be seen individually, and many are so small they can only be seen with an electron microscope. The human eye can detect particles larger than 30 microns.

Suspended dust ranges from 0.001 to 20 microns in size and the major soot, coal dust, smudging sizes range from 0.001 to 1.0 micron in size. (One inch is approximately 25,000 microns).

The particles are so small they settle extremely slowly and are disrupted as air molecules "bump" into each other. In the windy Shenandoah valley, the soot particles travel for miles and are deposited on roof shingles, concrete sidewalks and driveways because of their porosity. They are a magnet for holding these greasy, sooty particles. The particles vary in size, density and electrostatic charge. Deposition of the particles is most affected by surface electric charge, temperature, and moisture content. Soot can move a long distance from the source before being deposited. Propane or Oil heating appliances that do not have soot around them can be the source of soot inside or in other rooms or outside on yours or your neighbors' driveways & sidewalks.

Why is it so hard to find and correct soot problems?



The diagnostic equipment needed is expensive and not readily available, and includes: particulate samplers, differential pressure transducers, electron microscopes, combustion analyzers, and blower doors. Many of the causes of soot are intermittent and sporadic. To fully investigate the cause of blackening, continuous monitoring of all suspected sources would require weeks of sampling, at the cost of several thousand dollars.

Locations of Coal-fired Powerplants North and Northwest of the Shenandoah Valley - known for their smokestacks emitting coal dust high in the atmosphere which travels and deposits the soot on houses and concrete many miles away

See locations of coal-fired powerplants in both maps as of 2020 April. Strasburg is located at bottom right corner of each map. The prevailing winds come from the north and northwest.

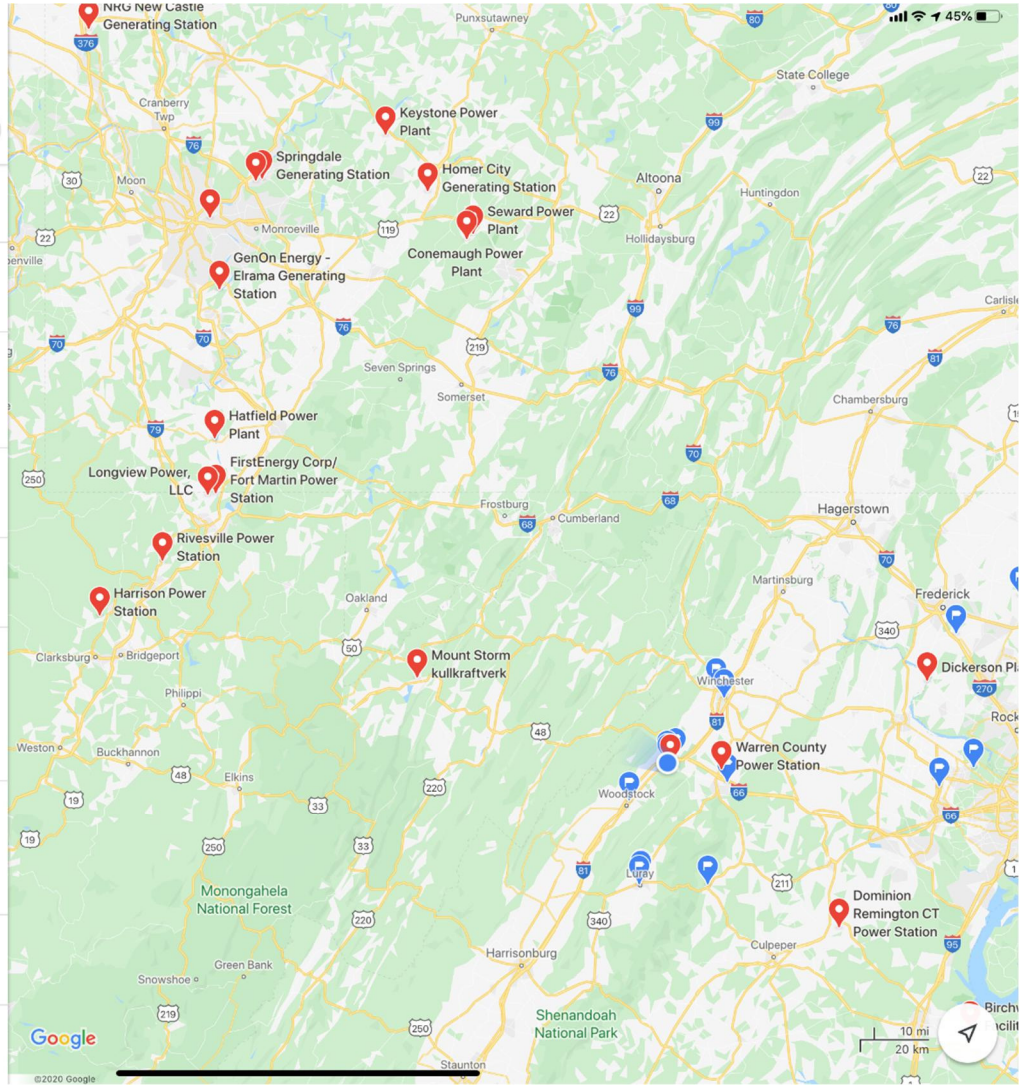
☰ coal power station ✕

☰ Sort by ▾ Open now Top rated Visited

Verify info with places

Hours or services may differ due to COVID-19

- Dickerson Plant**
No reviews · 50 mi
Power station · 21200 Martinsburg Rd
- Keystone Power Plant**
3.9 ★★★★★ (13) · 126 mi
Power station · 313 Keystone Dr
"It's another Great coal ..."
- Conemaugh Power Plant**
No reviews · 103 mi
Power station · 1442 Power Plant Rd
- Seward Power Plant**
No reviews · 103 mi
Power station · 595 Plant Rd
- Harrison Power Station**
3.7 ★★★★★ (6) · 109 mi
Power station · RR 20
Closed · Opens 8 AM Tue
"... and this place was very clean and nice, even tho its a coal burner."
- Cheswick Generating Station**
3.0 ★★★★★ (11) · 131 mi
Power station · 151 Porter St
"98.5% of what you see is steam... this is a clean coal plant."
- Warren County Power Station**
5.0 ★★★★★ (3) · 10 mi
Power station · 477 Kelly Dr
- Homer City Generating Station**
3.1 ★★★★★ (22) · 113 mi
Electric utility company · 1750 Power



coal power station

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Verify info with places

Hours or services may differ due to COVID-19

Conemaugh Power Plant

No reviews · 103 mi
Power station · 1442 Power Plant Rd

Harrison Power Station

3.7 ★★★★★ (6) · 109 mi
Power station · RR 20
Closed · Opens 8 AM Tue
"... and this place was very clean and nice, even tho its a coal burner."

Seward Power Plant

No reviews · 103 mi
Power station · 595 Plant Rd

Cheswick Generating Station

3.0 ★★★★★ (11) · 131 mi
Power station · 151 Porter St
"98.5% of what you see is steam... this is a clean coal plant."

Homer City Generating Station

3.1 ★★★★★ (22) · 113 mi
Electric utility company · 1750 Power Plant Rd
Open 24 hours
"To the tree huggers that bash coal fired ..."

FirstEnergy Corp/Fort Martin Power Station

3.0 ★★★★★ (8) · 97 mi
Power station · 1732 Fort Martin Rd

Mount Storm kullkraftverk

No reviews · 49 mi
Power station

