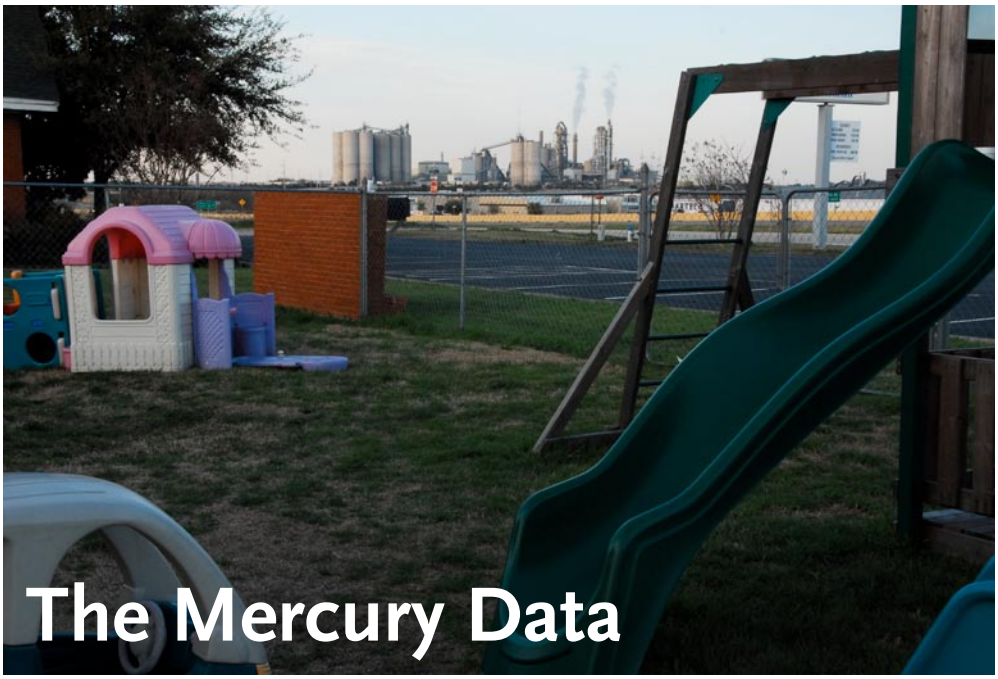


The Mercury Data

Ten years after EPA was required to set standards for cement kilns, EPA requested basic information related to mercury emissions from nine of the major cement kiln companies operating in the U.S.[8] EPA claims that it will use this information to finally propose mercury standards for cement kilns sometime in the summer or fall of 2008. After a review of EPA's data, industry self-reporting to EPA's annual Toxic Release Inventory (TRI), and the data from the Portland Cement Association, it is clear that EPA must act to regulate an industry that is emitting more mercury pollution than previously reported and continues to spew harmful mercury emissions into our air and water.

EPA collected data from nine companies and ultimately released data for 51 non-hazardous waste burning kilns currently operating in the United States. EPA released data for all the kilns for which it has data except those owned by CEMEX, which has claimed that the information EPA requested — information directly related to the amount of mercury it releases into our air and waters — is confidential business information. All of the data considered were self-reported by the kiln companies. For a complete discussion of the data sources considered and methodology, please see Appendix B. The 2007 EPA collection requests were sent to the following companies:

EPA currently estimates cement kilns in the United States emit almost 23,000 pounds of mercury each year.

- **Ash Grove Cement**
- **CEMEX**
- **California Portland Cement Company**
- **Essroc Cement Corp.**
- **Holcim (US) Inc.**
- **LaFarge North America, Inc.**
- **Lehigh Cement Company**
- **Lonestar/Buzzi Unicem**
- **Texas Industries, Inc.**

Findings

According to EPA's current estimate, cement kilns in the United States emit almost 23,000 pounds of mercury each year. This number is nearly double what the entire cement industry reported to the Toxics Release Inventory in 2006 — 11,995 pounds of mercury released into the environment as air emissions.

Based on the source test data that EPA collected and data self-reported by industry to TRI, the ten worst mercury emitting cement kiln sites across the country are listed in Table 1: *10 Highest Self-Reported Mercury Polluting Cement Kilns.* The numbers provided in this chart are based on the data set described in Appendix A.[9]

Some cement kilns release as much or more mercury as coal-fired power plants. As shown in *10 Highest Self-Reported Mercury Polluting Cement Kilns,* based on source tests and industry's own estimates to TRI, several of these kilns emit over 250 pounds of mercury annually.

- The Ash Grove Cement Plant in Durkee, Oregon has the dubious distinction of being the worst mercury polluter of any kind in the country, emitting more mercury into the air than any power plant, steel mill or hazardous waste incinerator. In 2006 Ash Grove reported to the EPA's Toxic Release Inventory that it emitted 2,582 pounds of mercury. Based on information Ash Grove submitted to EPA in 2007, however, actual emissions may be as much as 3,788 pounds a year. Note that although it emits the greatest amount of mercury (more than double the amount of the next worst polluter), it has the third smallest production capacity of the kilns on the Top 10 list.[11]

- Lafarge North America, Inc., shows up on the Top 10 Polluting Cement Kiln list twice, at rank four and rank five with its plants in New York and Michigan. By Lafarge's own calculations the

TABLE 1. 10 HIGHEST SELF-REPORTED MERCURY POLLUTING CEMENT KILNS

Rank	Facility Owner	Location	Mercury (lbs/yr)	Basis for Annual Mercury Estimate	Production Capacity (thousand metric tons of clinker/yr)
1	Ash Grove	Durkee, Oregon	3788	Source Test	894
2	Hanson Permanente Cement[10]	Cupertino, California	494	TRI	1497
3	Lehigh	Tehachapi, California	586	TRI	958
4	Lafarge	Ravena, New York	400	TRI	1695
5	Lafarge	Alpena, Michigan	360	Source Test	2265
6	CEMEX	Victorville, California	271	TRI	2717
7	National Cement Company Alabama	Ragland, Alabama	208	TRI	907
8	Lehigh	Mason City, Iowa	184	Source Test	731
9	CEMEX	Davenport, California	172	TRI	823
10	Essroc	Nazareth, Pennsylvania	163	TRI	1280

Note that at the following locations, data provided in this table cover multiple kilns at one site: Ravena, New York – 2 kilns, Alpena, Michigan — 5 kilns, Victorville, California — 2 kilns.

kiln in Ravena, New York emits 400 pounds of mercury per year.

- Cement kilns in Cupertino, California and Ragland, Alabama were wholly omitted from EPA's 2007 data requests. Their mercury emissions included in this report came directly from the Toxic Release Inventory, data for which is voluntarily reported by the cement companies. It is possible that mercury emissions at these facilities could be much higher.

EPA sampling shows that large amounts of mercury pass through cement kilns, with some kilns reporting astonishingly high amounts. Absent emission monitoring and emission controls, most of that mercury will be released into the environment. Some plants have installed scrubbers to control sulfur dioxide, and mercury emissions should decline as a co-benefit of sulfur dioxide controls. However, none of the kilns listed in Table 2: *Mercury Accounting Gaps*, employ scrubbers or pollution control devices designed to control mercury emissions.

When the actual mercury-content for the kiln inputs (i.e., fuel and feedstock) are compared to the self-reported numbers to TRI, there are often significant gaps between what is coming into the plant and what companies are reporting to EPA as exiting the plant. Companies report data to TRI that includes not only the air emissions from a cement kiln, but also mercury that may be treated, disposed of, or recycled rather than emitted through a smokestack. Yet, for the facilities listed in Table 2, companies consistently reported "n/a" for these other categories, making it impossible for the public to know where the mercury is going.

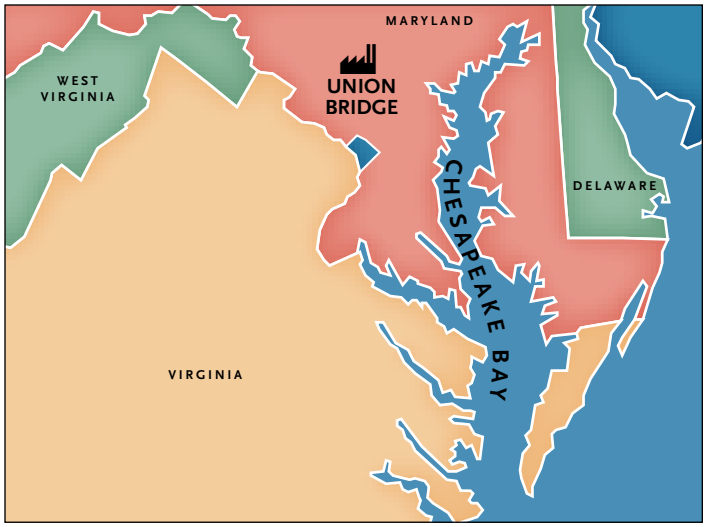
None of the kilns in Table 2 use scrubbers or pollution control devices designed to control their mercury emissions.

- Lehigh kilns at Union Bridge and Tehachapi reported numbers to TRI in 2006 that appear to be grossly less than their mercury inputs and clearly illustrate the data gap problem.

  The Lehigh cement kiln at Union Bridge reported to TRI in 2006 emitting only 35 pounds of mercury pollution; but the number calculated based on EPA data shows the kiln could be emitting up to 1539 pounds, an unusually

TABLE 2. MERCURY ACCOUNTING GAPS

Facility Owner	Location	Production Capacity (thousand metric tons of clinker/yr)	Mercury Content from Inputs (fuel and feedstock combined in lbs/yr)	TRI Reported Mercury sent to Treatment (lbs/yr)	TRI Reported Mercury sent to Disposal (lbs/yr)	TRI Reported Mercury released to the air (lbs/yr)
Lehigh	Tehachapi, California	958	1748	Unknown	Unknown	586
Lehigh	Union Bridge, Maryland	1996	1539	Unknown	Unknown	35
Lafarge	Calera, Alabama	1467	258	Unknown	Unknown	36
Lafarge	Harleyville, South Carolina	978	206	Unknown	Unknown	78
Ash Grove	Seattle, Washington	675	52	Unknown	Unknown	12



large discrepancy, especially as compared to the entire data set.

It is not entirely clear why there is such a large range. What we do know is: (1) Lehigh reported 35 lbs of mercury emissions to EPA's 2006 TRI; (2) all of Lehigh's reported 2006 TRI mercury emissions were air emissions; there were no reports of on or off-site mercury waste; (3) in 2007 Lehigh reported an estimated amount of "mass in" of mercury, meaning content of the fuel and feedstock, of 1,539 pounds of mercury in fuel and ingredients. If 1,539 pounds of mercury go into the plant and only 35 pounds come out, what has happened to the rest of the mercury?

Lehigh's Union Bridge, Maryland, plant is located approximately 75 miles northwest of Baltimore. It is the fifth largest cement kiln in the United States, able to produce nearly 2 million tons of clinker annually.This is particularly significant given the plant's proximity to the Chesapeake Bay.

- As indicated in Table 2: *Mercury Accounting Gaps*, the Lafarge Harleyville, South Carolina plant reported 78 pounds of mercury to TRI in 2006, but reported mercury inputs of just over 200 pounds of mercury on an annual basis. This plant, sited close to the Francis Marion National Forest, is preparing to more than double its current clinker production capacity from about 978,000 tons per year now to over 2.238 million tons per year by 2010. The fish in large sections of South Carolina's water bodies are already contaminated with mercury making them unsafe to eat, according to advisories from the South Carolina Department of Health and Environmental Control.[12]

The cement industry is rapidly expanding. Production capacity gains of nearly 2.5 million metric tons are expected between 2006 and 2010.[13] As the cement industry's capacity increases, the amount of mercury emissions, if unchecked by regulation, will also increase.

TABLE 3. MAJOR KILNS IGNORED BY EPA

Company	Kiln Location	Clinker Capacity per Year	Clinker Capacity Rank
Titan America, LLC	Medley, Florida	1,634 tons	8th
Titan America, LLC	Cloverdale, Virginia	1,138 tons	24th
Mitsubishi Cement Corporation	Lucerne Valley, California	1,543 tons	9th
Hanson Permanente Cement	Cupertino, California	1,497 tons	11th
Phoenix Cement Corporation	Clarkdale, Arizona	1,477 tons	13th
St. Mary's Cement, Inc.	Charlevoix, Michigan	1,234 tons	21st

The cement industry continues to avoid public scrutiny as a result of inaction on the part of the U.S. EPA.

- CEMEX is the largest producer of cement in the United States.[14] EPA requested information from CEMEX in its 2007 information requests, but no information on mercury content of the kiln feed or results of mercury stack tests have been turned over by EPA to the public. CEMEX made blanket claims of confidentiality regarding measurements of mercury emissions from its kilns nation-wide. No other company made such blanket claims to EPA. CEMEX, like the industry at large, is expanding. It acquired Rinker Materials in 2007 and is expected to bring a massive new plant on-line in New Braunfels, Texas in 2009. [15]

- EPA's 2007 data request omitted some of the country's largest individual cement kilns. As shown in Table 3: *Major Kilns Ignored by EPA*, EPA failed to request information from numerous companies with cement kilns that rank in the top 25 for production of clinker.

Certain communities are bearing the brunt of EPA's inaction. Even a small amount of mercury can have adverse environmental and public health impacts. There are several kilns throughout the country that are noteworthy due to their proximity to other kilns and populated areas. In these communities, EPA's failure to control mercury emissions is especially alarming.

- The largest concentration of cement manufacturing in the entire country is just outside of the Dallas/Fort Worth metroplex in Midlothian, Texas. Citizens of Midlothian are burdened by 5 plants operated by Holcim, Ash Grove and Texas Industries, all within a 6.5 mile radius of each other. Combined, these plants may emit just under 200 pounds of mercury on an annual basis, and thousands of tons of other dangerous toxic air pollutants.[16]

Homes, schools and nearby farms are located right beside a cement plant in Davenport, CA

- Although there are other sites in California, the kilns at Davenport and Cupertino are of particular concern.[17] In the Bay Area, Hanson Permanente Cement operates a kiln in Cupertino, California.[18] This kiln is located within a major residential area in close proximity to several Cupertino schools. It is also located within five miles of the San Francisco Bay, which is currently contaminated with mercury.[19] The Hanson Permanente kiln reported emitting a staggering 494 pounds of mercury pollution in 2006 to the EPA's

> ***"We are soccer moms, ranchers, farmers, retired engineers. We are a cross section of America. We are grass roots volunteers. We naively believed that we could band together and government agencies would listen to our concerns. We were wrong."***
>
> **—Becky Bornhorst, Midlothian, Texas**

Toxic Release Inventory. EPA failed to include Hanson Permanente Cement in any of its information requests, leaving open the possibility that its mercury emissions could be even worse. The CEMEX kiln in Davenport, California is of similar concern. That kiln, located right beside homes and farms along California's coastline and only 40 miles north of the Monterey Bay Sanctuary, reported emitting 172 pounds of mercury pollution to the Toxic Release Inventory in 2006. The Davenport kiln is one of those for which EPA refuses to release data gathered in 2007.

- The Lafarge site in Alpena, Michigan is a five-kiln plant, and in 2006 was the nation's third largest cement plant. These kilns collectively reported emitting 360 pounds of mercury in 2006. The Alpena cement plant is of particular concern because it sits on the banks of Lake Huron and is in close proximity to residential areas of Alpena.

Data Sources

For the analysis in this report, an extensive review of available data on mercury emissions was undertaken. Data were assembled and analyzed from the following sources:

- EPA, Summary of Cement Kiln Mercury Emissions (July 2008).
- Portland Cement Association, *U.S. and Canadian Portland Cement Industry Plant Information Summary* (December 31, 2006).
- EPA list of hazardous waste burning kilns (2005). These kilns were excluded from the analysis because mercury emissions from hazardous waste burning kilns are regulated, albeit inadequately.
- EPA-obtained data from several large cement companies in response to a 2007 EPA information collection request. This data generally includes: (1) mercury tests and (2) data on mercury content in input (raw materials) for an approximate 30-day period in 2007.
- Data on mercury air emissions submitted to EPA as a part of the 2006 Toxic Release Inventory (TRI) reporting.
- Clean Air Act Title V operating permits for various cement kilns.