

# Top 25 Virginia Localities with the Highest Toxic Air Emissions

From the 2013 Toxic Release Inventory  
Virginia Chapter Sierra Club  
July 2015



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## Introduction

In April of this year with the Virginia Department of Environmental Quality (DEQ) announcement that the annual Toxic Release Inventory (TRI) for 2013 indicated an increase in toxic releases over the last year, in typical Virginia DEQ fashion, the department provided few details and did not disclose the names of the companies or the communities where these increases occurred. A closer look at the Environmental Protection Agency (EPA) TRI data reviews an almost 8% increase in toxic air pollution statewide.

When Congress adopted the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), under which the TRI was established, it was a compromise. Rather than set limits on known toxic pollutants, the industry agreed to disclose their pollution emissions on an annual basis for each their facilities.

The rationale was that if companies had to report their emissions, an informed public would pressure the polluters to clean up voluntarily or at least neighbors would at least know what they were being exposed to and could move away if they chose to. Of course, that only works if citizens are provided with the actual data—the names of the companies, where they are located and what pollutants they are spewing into our environment. In poorer communities where these polluting companies are frequently located, even if a family accesses this data, they likely lack the political clout and resources to challenge a polluter when the permit comes up for renewal, and they may lack the wherewithal to move even if the pollution is causing their child to suffer from asthma attacks.

The purpose of this report by the Sierra Club is to get more useful information about the toxic air pollutants that we are breathing out into the hands of the public and to the communities most impacted. All the pollution data cited here is the actual information provided by the companies to the US EPA. Unlike DEQ, however, Sierra Club names names. In this report, we identify the top twenty five most toxic zip codes for air pollution, the names of the companies doing the polluting, what the pollution is that they are emitting and the health effects that are associated with exposure to those pollutants. We also provide links to the EPA TRI database where an interested citizen can find data on their own community even if they don't live in one of the top twenty five zip codes.

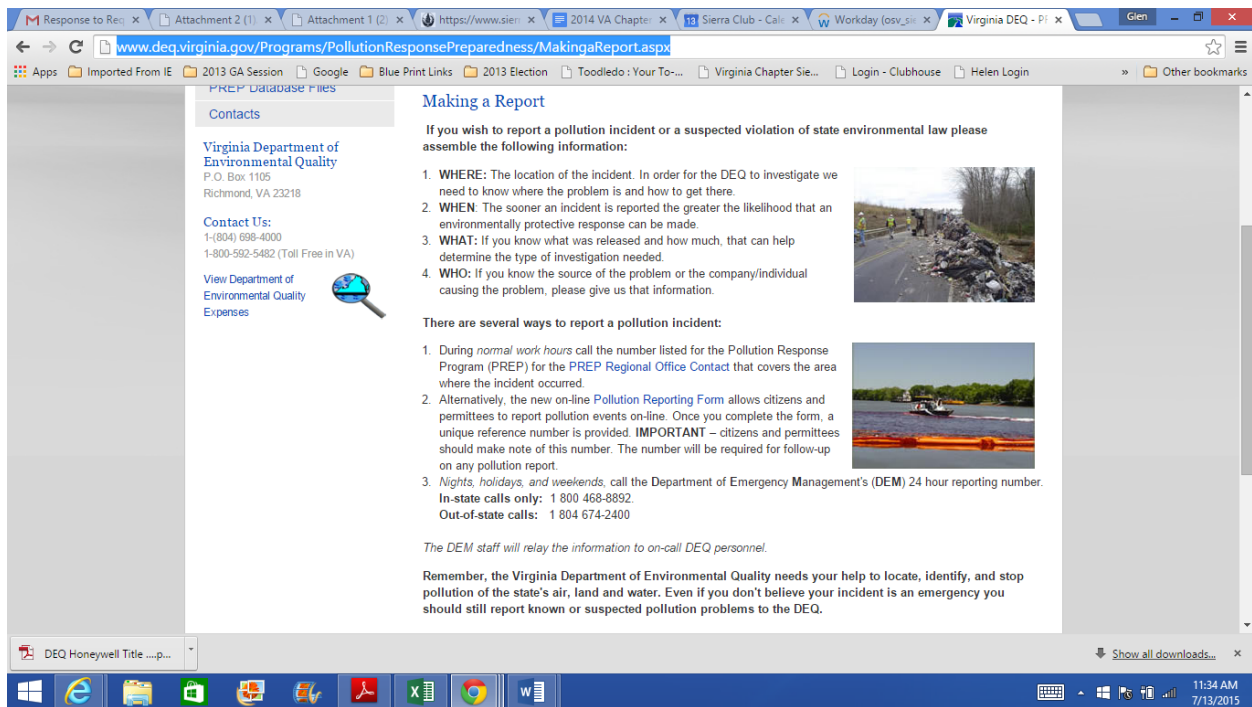
This TRI data is separate from the actual air pollution permit that the company has to secure every five years. Concerned citizens should contact DEQ about a specific plant of concern and inquire about the status of a company's air pollution permit and any violations that have been noted.

However, the DEQ air pollution permit process is not user friendly. First, the fact that there are no standards or limits on most toxic pollutants in the air we breathe comes as a surprise to most Virginians. Virginia DEQ views its role as issuing permits rather than protecting the public from pollution. The permits focus on what comes out of the smoke stack, not on what folks who live nearby may be breathing. The permits are very technical, and if citizens request a public hearing on an air pollution permit, the hearing may be denied, and if not denied, it may not be that

helpful. As DEQ notes: “during a public hearing, this is no opportunity for DEQ staff to answer questions from the general public.”<sup>1</sup>

Despite these obstacles, citizens should voice their concerns about air pollution in their communities. The more people complain, the more likely DEQ will be prodded to take action. Aside from occasional site inspections and company self-reporting, enforcement is complaint driven. If enough citizens complain, a company may take action even if DEQ says the company is in compliance with its permit. DEQ provides a process for filing complaints. Figure 1 depicts the DEQ reporting website.

<http://www.deq.virginia.gov/Programs/PollutionResponsePreparedness/MakingaReport.aspx>



**Figure 1. Virginia DEQ Pollution Reporting Website**

It should come as no surprise that the most persistent sources of toxic pollution are too often found in low-income communities and in communities of color. These communities that are frequently ignored are the most vulnerable to the argument that environmental protections will only come at the expense of jobs. As is evident from the top twenty five polluted zip codes in Virginia identified in this report, these communities may be found in urban settings like Richmond or in rural “company towns” dominated by one industry that serves as the major employer.

<sup>1</sup> Department of Environmental Quality Murphy, Michael. “Response to Comments on Draft Title V Honeywell International Permit.” Letter to VA Sierra Club. 22 Jul. 2014. N.p.

**Table 1. 1988-2013 Virginia Total Toxic Air Emissions and Yearly Percent Change**

<b>Year</b>	<b>Total Air Emissions (lbs.)</b>	<b>Percent Change from Prior Year</b>
<a href="#">1988</a>	95,880,275	N/A
<a href="#">1989</a>	53,788,380	-43.9%
<a href="#">1990</a>	49,013,977	-8.9%
<a href="#">1991</a>	42,329,999	-13.6%
<a href="#">1992</a>	38,812,501	-8.3%
<a href="#">1993</a>	36,177,506	-6.8%
<a href="#">1994</a>	36,318,480	<b>0.4%</b>
<a href="#">1995</a>	33,880,200	-6.7%
<a href="#">1996</a>	33,888,731	0.0%
<a href="#">1997</a>	31,650,673	-6.6%
<a href="#">1998</a>	28,480,834	-10.0%
<a href="#">1999</a>	26,089,614	-8.4%
<a href="#">2000</a>	24,504,969	-6.1%
<a href="#">2001</a>	22,093,425	-9.8%
<a href="#">2002</a>	21,266,581	-3.7%
<a href="#">2003</a>	19,666,266	-7.5%
<a href="#">2004</a>	19,384,274	-1.4%
<a href="#">2005</a>	18,688,653	-3.6%
<a href="#">2006</a>	16,339,188	-12.6%
<a href="#">2007</a>	13,625,845	-16.6%
<a href="#">2008</a>	14,072,433	<b>3.3%</b>
<a href="#">2009</a>	11,614,559	-17.5%
<a href="#">2010</a>	10,451,547	-10.0%
<a href="#">2011</a>	9,298,670	-11.0%
<a href="#">2012</a>	9,057,465	-2.6%
<a href="#">2013</a>	9,762,984	<b>7.8%</b>

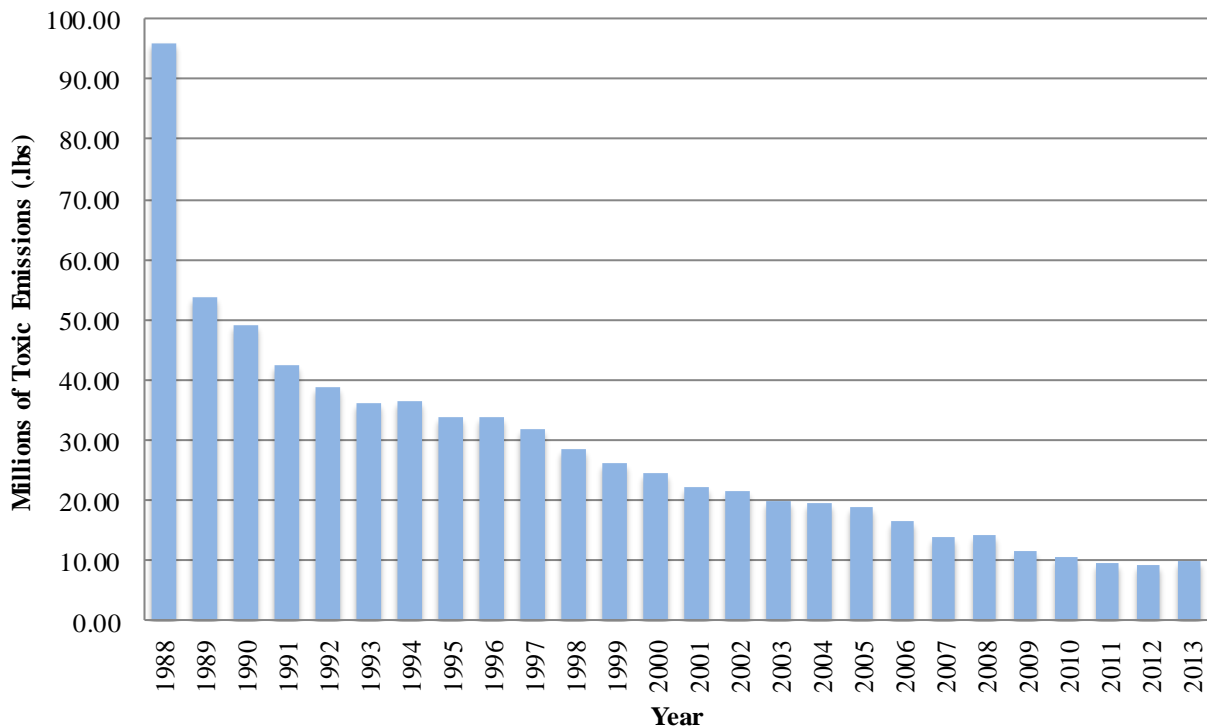
\*Reporting year 2013 is the most recent TRI data available. Increasing percentage is colored red. Facilities reporting to TRI were required to submit RY 2013 data to EPA by July 1, 2014. TRI Explorer is using an updated data set (released to the public in March 2015). Data obtained from [http://iaspub.epa.gov/triexplorer/tri\\_release.chemical](http://iaspub.epa.gov/triexplorer/tri_release.chemical)

## Naming Names

### *Where that 7.8% Increase in Toxic Air Pollution Is Coming From*

Fortunately, the trend line for toxic emissions has been downward for decades (Table 1 and Figure 2), but when we observe a significant increase in toxic releases, the public has a right to know where that pollution is coming from. From a high of almost 96 million pounds in 1988 when records first started, toxic air pollution had declined to just over 9 million pounds in 2012 before the 7.8% increase in 2013 (Figure 2). Only two other years, 1994 and 2008, saw increases, both substantially smaller than the increase observed in 2013 (Table 1).

## Toxic Air Emissions in Virginia from 1988-2013



**Figure 2. Total Air Emissions in Virginia from 1988 to 2013**

The companies that have increased their emissions the most in pounds between 2012 and 2013 are International Paper Franklin Mill (23851) up 406%, Honeywell International Inc. Hopewell Plant (23860) up 27%, Dominion Resources Chesterfield Power Station (23836) up 62%, CPFilms Plant II (24089) up 848% and Masco Cabinetry (22842) up 1,159%. Data on the 25 companies with the largest increased air emissions in pounds from 2012-2013 is depicted in Table 2.

**Table 2. Air Pollution Comparison Chart of Companies with 25 Largest Increased Air Emissions in Pounds from 2012-2013**

<b>Ranked by Increase in Pounds</b>	<b>Facility</b>	<b>2012 Total Air Emissions (lbs.)</b>	<b>2013 Total Air Emissions (lbs.)</b>	<b>Increase of Air Emissions from 2012-2013 (lbs.)</b>
1	INTERNATIONAL PAPER FRANKLIN MILL.34040 UNION CAMP DR, FRANKLIN VIRGINIA 23851 (ISLE OF WIGHT)	389,573	1,969,619	<b>1,580,046</b>
2	HONEYWELL INTERNATIONAL INC HOPEWELL PLANT.905 E RANDOLPH RD, HOPEWELL VIRGINIA 23860 (HOPEWELL CITY))	1,752,121	2,233,695	<b>481,574</b>
3	CHESTERFIELD POWER STATION.500 COXENDALE RD, CHESTER VIRGINIA 23836 (CHESTERFIELD)	463,318	749,707	<b>286,389</b>
4	CPFILMS – PLANT II.4129 THE GREAT RD, FIELDALE VIRGINIA 24089 (HENRY)	27,921	264,585	<b>236,664</b>
5	MASCO CABINETRY.1325 INDUSTRIAL PARK RD, MOUNT JACKSON VIRGINIA 22842 (SHENANDOAH)	11,941	150,296	<b>138,355</b>
6	DOMINION RESOURCES INC YORKTOWN POWER STATION.1600 WATERVIEW RD, YORKTOWN VIRGINIA 23692 (YORK)	395,894	534,218	<b>138,324</b>
7	DOMINION CLOVER POWER STATION.RT 92, CLOVER VIRGINIA 24534 (HALIFAX)	347,481	453,024	<b>105,543</b>
8	DOMINION RESOURCES INC BREMO POWER STATION.1038 BREMO RD, BREMO BLUFF VIRGINIA 23022 (FLUVANNA)	206,655	310,075	<b>103,420</b>



9	GREIF PACKAGING LLC.861 FIBRE PLANT RD, AMHERST VIRGINIA 24521 (AMHERST)	218,535	315,265	<b>96,730</b>
10	CHESAPEAKE ENERGY CENTER.2701 VEPCO ST, CHESAPEAKE VIRGINIA 23323 (CHESAPEAKE (CITY))	898,795	993,481	<b>94,686</b>
11	HERCULES INC.27123 SHADY BROOK TRAIL, COURTLAND VIRGINIA 23837 (SOUTHAMPTON)	109,520	203,955	<b>94,435</b>
12	HOPEWELL POWER STATION.107 REVEREND CURTIS W HARRIS SENIOR ST, HOPEWELL VIRGINIA 23860 (HOPEWELL (CITY))	2,131	92,067	<b>89,936</b>
13	HONEYWELL INTERNATIONAL COLONIAL HEIGHTS PLANT.15801 WOODS EDGE RD, COLONIAL HEIGHTS VIRGINIA 23834 (CHESTERFIELD)	274,832	364,724	<b>89,892</b>
14	INVISTA SA RL - WAYNESBORO FACILITY.400 DU PONT BLVD, WAYNESBORO VIRGINIA 22980 (AUGUSTA)	33,052	112,054	<b>79,002</b>
15	AMERICAN ELECTRIC POWER GLEN LYN PLANT.RT 460, GLEN LYN VIRGINIA 24093 (GILES)	71,009	141,753	<b>70,744</b>
16	DUPONT SPRUANCE PLANT.U.S. HWY 1 AT COGBILL RD, RICHMOND VIRGINIA 23234 (CHESTERFIELD)	223,680	285,145	<b>61,465</b>
17	US ARMY RADFORD ARMY AMMUNITION PLANT.RT 114 RADFORD ARMY AMMUNITION PLANT, RADFORD VIRGINIA 24141 (MONTGOMERY)	360,556	419,463	<b>58,907</b>

18	HERCULES INC.1111 HERCULES RD, HOPEWELL VIRGINIA 23860 (HOPEWELL (CITY))	501,551	556,741	<b>55,190</b>
19	AMERICAN ELECTRIC POWER CLINCH RIVER PLANT.JUNCTION OF ST RTS 664 & 665, CLEVELAND VIRGINIA 24225 (RUSSELL)	844,231	895,172	<b>50,941</b>
20	HUNTINGTON INGALLS INC.4101 WASHINGTON AVE, NEWPORT NEWS VIRGINIA 23607 (NEWPORT NEWS (CITY))	130,535	170,773	<b>40,238</b>
21	CHURCH & DWIGHT CO INC.1851 TOUCHSTONE RD, COLONIAL HEIGHTS VIRGINIA 23834 (CHESTERFIELD)	478,592	498,963	<b>20,371</b>
22	GEORGIA-PACIFIC BIG ISLAND MILL.9363 LEE- JACKSON HWY, BIG ISLAND VIRGINIA 24526 (BEDFORD)	357,031	374,977	<b>17,946</b>
23	R R DONNELLEY PRINTING CO.4201 MURRAY PL, LYNCHBURG VIRGINIA 24501 (LYNCHBURG (CITY))	302,450	319,120	<b>16,670</b>
24	VAUGHAN-BASSETT FURNITURE CO GALAX.300 E GRAYSON ST, GALAX VIRGINIA 24333 (CARROLL)	121,105	137,385	<b>16,280</b>
25	AQUATIC CO.1100 INDUSTRIAL PARK RD HALIFAX INDUSTRIAL PARK, SOUTH BOSTON VIRGINIA 24592 (HALIFAX)	87,380	97,420	<b>10,040</b>

## Community Right to Know

Although we need tighter limits on toxic pollution in Virginia and stronger enforcement efforts<sup>2</sup>, Virginians and all Americans have benefited from federal legislation, specifically the Toxics Release Inventory (TRI) established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), later expanded in the Pollution Prevention Act of 1990. The requirement of mandatory disclosure has resulted in significant reductions in toxic emissions as a result of greater awareness and scrutiny from an informed public demanding cleaner air and water. When informed and empowered neighborhood residents learn of chemical pollution hazards in their community they can organize to pressure for reductions and enforcement. While TRI has reduced pollution overall, by providing the name of the company, its address and the name and volume of pollutants emitted, it also shines a light on those communities where toxic pollution emissions persist.

The U.S. Environmental Protection Agency (EPA) TRI data-base is maintained as a web-based publicly accessible tool that permits one to enter a zip code and determine which companies in that zip code are required to report and how much and which pollutants they are emitting. The federal TRI program provides data on the release of 650 toxic chemicals into the environment. Each year industries that produce more than 25,000 pounds or handle more than 10,000 pounds of a listed toxic chemical must report to the TRI maintained by the EPA.

VA Sierra Club has taken the entire EPA TRI data set for 2013 (the most recent data available) and sorted it by zip code to draw attention to those Virginia communities experiencing the greatest exposure to toxic air pollution (Appendix A: 2013 Virginia TRI by Zip Code). As noted before, it is no surprise that those zip codes with the most exposure to toxic air pollution are frequently among the more disadvantaged communities in Virginia. However, even if your zip code is free of polluting sources, we all live down wind of one pollution source or another. Additionally, most air pollutants eventually settle to the earth to be deposited on our land and our water where they remain for decades or longer depending on the pollutant.

While the reporting of individual chemical emissions is helpful, it does not tell the whole story. The health impacts of exposure to these combinations of toxic chemicals in most cases has not been studied and is not well understood. Additionally, these stationary source, smoke stack emissions do not include the tons of toxic chemicals emitted from our gasoline and diesel power cars, trucks and heavy equipment.

The President's 2008-2009 Cancer Panel report, entitled 'Reducing Environmental Cancer Risk', found there was a "growing body of evidence linking environmental exposures to cancer."<sup>3</sup> The report noted that "the public is becoming increasingly aware of the unacceptable burden of cancer resulting from environmental and occupational exposures that could have been prevented

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<sup>2</sup> "A Strategy to Protect Virginians from Toxic Chemicals," Noah Sachs and Ryan Murphy, University of Richmond School of Law (Jan 2014)

<sup>3</sup> Reducing Environmental Cancer Risk-What we can do now. President's Cancer Panel Annual Report; April 2010; [http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp08-09rpt/PCP\\_Report\\_08-09\\_508.pdf](http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp08-09rpt/PCP_Report_08-09_508.pdf)

through appropriate national action.”<sup>2</sup> While some of the biggest polluters may still be found in poorer communities, the toxics emitted into our air and water do not respect city or county jurisdictional boundaries. The concentrations of pollution may be lower in communities some distance from pollution sources, but as the 2008-2009 Cancel Panel report illustrates, even lower levels of toxics exposure should be of concern to all Virginians.

## Metropolitan Richmond, Virginia Capital for Toxic Air Pollution

Metropolitan Richmond has four of the top twenty five zip codes with the most toxic air pollution. The four zip codes identified are in Hopewell (23860-ranked #1), Chesterfield County (23836-ranked #4), Colonial Heights-Chesterfield (23834-ranked #8), and Richmond-Chesterfield (23234-ranked #12). Together, these four zip codes accounted for almost 6 million pounds of toxic air pollution in 2013. The total air toxic emissions in the Richmond Metropolitan area declined a quarter of a million pounds from 6,202,408 lbs. in 2012 to 5,951,959 lbs. in 2013. Chesterfield (23836) contributed the most to this decline as its emissions had declined by 573,768 lbs. or roughly by 29% due in large part to Phillip Morris USA Park 500 whose industrial plant emissions had decreased almost by a million pounds. Although emissions by Chesterfield Power Station, the biggest coal plant in Virginia, increased by 60% in this period, the large decrease in emissions from Phillip Morris still resulted in a 23836 total zip code decrease which contributed greatly to the drop in total emissions for the Richmond Metropolitan area. The City of Richmond zip code 23234 emissions also decreased 44% from its 2012 total toxic air emissions; DuPont’s Spruance plant and Phillip Morris’ plant on Commerce Road place this zip code at #7 for toxic air emissions in the state.

Continuing to analyze 2012 and 2013 zip code yearly emissions, both Hopewell (23860) and Colonial Heights (23834) increased their toxic air emissions by 546,587 lbs., up 20%, and 110,261 lbs., up 15%, respectively. The company that is responsible for the most significant increase is the Honeywell International Hopewell Plant which had increases its emissions to 2,233,695 lbs. in 2013, up almost a half of a million pounds from 2012 (Table 2). Other large polluters in Hopewell (23860) that had increased their emissions from 2012 include Hercules Inc. up 11% and Hopewell Power Station which had increased a whopping 4,220% (Table 2). Looking at the other Richmond Metropolitan area zip code whose toxic air emissions had increased, Colonial Heights (23834), Honeywell International Colonial Heights Plant on Woods Edge Road increased its emissions by 89,892 lbs. and Church and Dwight Co. Inc. increased by 20,371 lbs.

The majority of the pollutants emitted into Richmond’s air are potent lung irritants including ammonia, hydrochloric acid and sulfuric acid. Exposure to these pollutants explains in part why

the Asthma and Allergy Foundation of America ranks Richmond among the worst cities for asthma in the United States.<sup>4</sup>

The health effects of these more common pollutants should not be minimized, especially when the long term effects of exposure are not well-understood and permanent harm to the human respiratory system is suspected. Long-term occupational exposure to hydrochloric acid has been reported to cause gastritis, chronic bronchitis, dermatitis, and photosensitization. Long-term exposure to sulfuric acid may cause emphysema.

Other chemicals traced to cancer, birth defects, and liver, kidney, neurological damage are released daily in metro Richmond as well.

Those chemicals include:

- Acetaldehyde emitted by RockTenn has been linked to cancer, birth defects and neurological damage.
- Methanol emitted by Hercules and RockTenn may contribute to birth defects and neurological damage.
- Phenol emitted by Honeywell and RockTenn may cause genetic mutations, and liver, kidney and neurological damage.
- Toluene emitted by Honeywell and DuPont have been linked to birth defects, liver, kidney and neurological damage.

## Beyond the Top 25

The fact that your community does not show up in the top twenty five zip codes does not mean that your health is not affected by toxic air pollution. Data for every zip code in Virginia with reported TRI releases is listed in the appendix to this report, but regardless we all live downwind of one or more sources of toxic air emissions. [You can access TRI information for your zip code here.](#)

## Some Good News

For years the electric utility industry was able to use its lobbying clout to exempt itself from TRI reporting. That finally changed in 1998, more than a decade after the first TRI data was released. Today, the prominence of electric utility power plant toxic emissions in TRI totals reflects the toxic nature of coal burning that the utilities were able to hide for years. Among the top twenty five most toxic zip codes in Virginia, four make the list, in part or wholly, because of emissions from coal-fired power plants. The good news is that coal plants in Chesapeake (#6), York

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<sup>4</sup> "Asthma Capitals 2015: The Most Challenging Places to Live with Asthma". Asthma and Allergy Foundation. <http://www.asthmacapitals.com/>

County (#10) and Cleveland (#7) are slated for retirement. One of the most toxic of pollutants, the neurotoxin mercury, which has resulted in widespread fish consumption advisories throughout Virginia and our country, is primarily due to mercury emissions from coal fired power plants. As these coal plants, many of them more than 50 years old, are retired, we will all benefit greatly from improved air quality.

## Where Do We Go from Here?

The frequent refrain from industry and regulators is that typical levels of exposure to these toxic chemicals are within applicable health standards, but the truth is that we don't know. Worse yet, the cumulative and synergistic health effects of these combinations of chemicals in the air we breathe have in most cases never been studied.

The more prudent course would be to follow the precautionary principle and not allow the release of chemicals not proven safe. But since we are living with these toxic chemicals every day, the very least we should do is pursue epidemiological studies to assess correlations between long term exposure and incidents of cancer and other serious illnesses.

It is our intention that this report will help inform the public and public officials of where toxic air pollution is a problem across the state. TRI data presented in this manner may be effective in fostering a healthy public debate that can contribute to greater and swifter reductions of toxic pollution emissions.

In 'A Strategy to Protect Virginians from Toxic Chemicals', authors Noah Sachs and Ryan Murphy recommend numerous measures to reduce Virginians' exposure to the toxic pollutants prevalent in our environment.<sup>5</sup> Among those recommendations that could accelerate a reduction in toxics emissions discussed in this report are:

- “DEQ and the three citizen boards governing air, water, and waste should enact strict limits on toxic chemical releases in environmental permits, especially in environmentally sensitive areas.”
- “DEQ and the three citizen boards should focus stricter permitting and enforcement efforts on chemical manufacturing and electric utilities, which are responsible for more than two-thirds of all reported toxic chemical releases to Virginia's environment.”

Unfortunately, legislative efforts to tighten reporting requirements and increase fines for violations of pollution laws in Virginia failed in the 2015 General Assembly Session. Hopefully,

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<sup>5</sup> “A Strategy to Protect Virginians from Toxic Chemicals,” Noah Sachs and Ryan Murphy, UofR School of Law (Jan 2014)

with the growing awareness of our exposure to these toxics and the risks they represent, citizens will demand stronger pollution limits, and industry and public officials will listen.

## Top 25 Zip Codes with the Highest Amount of Toxic Air Emissions

**Table 3. 2013 Top 25 Zip Codes with Largest Air Emissions with Population Data**

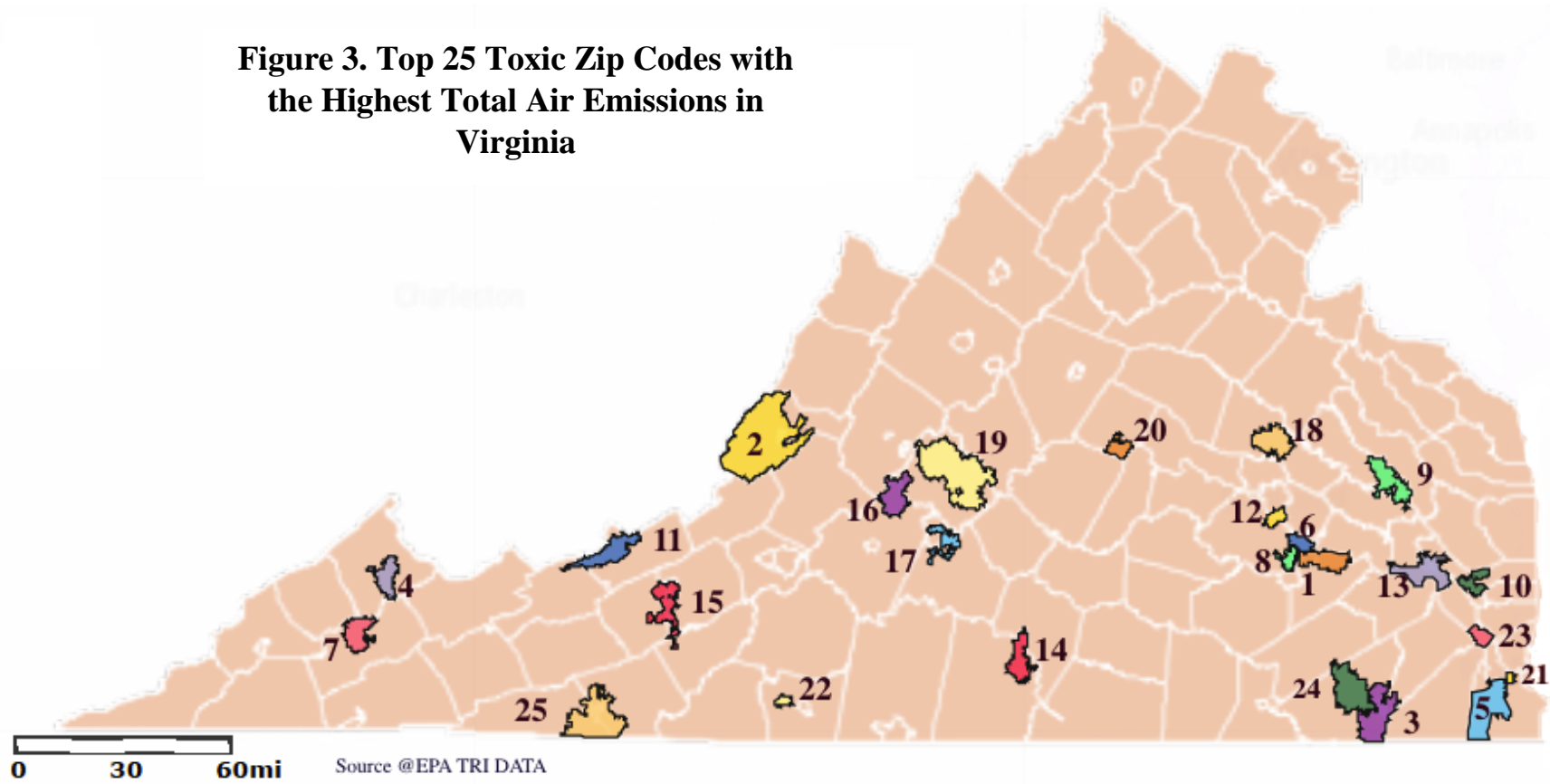
<b>Ranking</b>	<b>City/County</b>	<b>Zip Code</b>	<b>2010 Population Within Zip Code</b>	<b>Toxic Air Emissions (lbs.)**</b>
1	Hopewell	<a href="#">23860</a>	31,970	3,205,517
2	Covington	<a href="#">24426</a>	14,329	2,935,732
3	Isle of Wight	<a href="#">23851</a>	13,715	2,000,871
4	Chesterfield	<a href="#">23836</a>	11,444	1,407,275
5	Buchanan	<a href="#">24631</a>	2,843	1,312,624
6	Chesapeake	<a href="#">23323</a>	35,906	1,005,211
7	Cleveland	<a href="#">24225</a>	1,697	895,172
8	Colonial Heights	<a href="#">23834</a>	25,612	863,710
9	West Point	<a href="#">23181</a>	5,426	826,002
10	Yorktown	<a href="#">23692</a>	18,846	534,218
11	Narrows	<a href="#">24124</a>	4,352	493,931
12	Richmond	<a href="#">23234</a>	42,989	475,457
13	James City	<a href="#">23185</a>	46,370	453,638
14	Clover	<a href="#">24534</a>	438	453,024
15	Radford	<a href="#">24141</a>	20,668	420,070
16	Big Island	<a href="#">24526</a>	1,240	374,977
17	Lynchburg	<a href="#">24501</a>	26,757	330,582
18	Ashland	<a href="#">23005</a>	14,572	320,360
19	Amherst	<a href="#">24521</a>	9,859	315,265
20	Bermo Bluff	<a href="#">23022</a>	656	310,075
21	Chesapeake	<a href="#">23324</a>	22,072	291,752
22	Fieldale	<a href="#">24089</a>	2,640	265,425
23	Newport News	<a href="#">23607</a>	180,726	246,759
24	Courtland	<a href="#">23837</a>	4,298	204,455
25	Galax	<a href="#">24333</a>	17,643	161,555

*\*\*Toxic emissions are the sum of Fugitive Air and Stack Air as reported by the TRI. This value is expressed in pounds (TRI.NET, 2013).*

**EPA's website may be accessed to view TRI data for any zip code directly:**

[Click here to enter your Zip Code.](#)

**Figure 3. Top 25 Toxic Zip Codes with the Highest Total Air Emissions in Virginia**



Esri, HERE, DeLorme, NGA, USGS | Esri, HERE, DeLorme

- |                                   |                                 |                                |
|-----------------------------------|---------------------------------|--------------------------------|
| <b>1. Hopewell, 23860</b>         | <b>9. WestPoint, 23181</b>      | <b>17. Lynchburg, 24501</b>    |
| <b>2. Covington, 24426</b>        | <b>10. York, 23692</b>          | <b>18. Ashland, 23005</b>      |
| <b>3. Isle of Wight, 23851</b>    | <b>11. Narrows, 24124</b>       | <b>19. Amherst, 24521</b>      |
| <b>4. Buchanan, 24631</b>         | <b>12. Richmond City, 23234</b> | <b>20. Bermo Bluff, 23022</b>  |
| <b>5. Chesapeake, 23323</b>       | <b>13. James City, 23185</b>    | <b>21. Chesapeake, 23324</b>   |
| <b>6. Chesterfield, 23836</b>     | <b>14. Clover, 24534</b>        | <b>22. FIELDDALE, 24089</b>    |
| <b>7. Cleveland, 24225</b>        | <b>15. Radford, 24141</b>       | <b>23. Newport News, 23607</b> |
| <b>8. Colonial Heights, 23834</b> | <b>16. Big Island, 24526</b>    | <b>24. Courtland, 23837</b>    |
|                                   |                                 | <b>25. Galax, 24333</b>        |



# Top 25 Virginia Localities by Zip Code with the Highest Toxic Air Emissions

1. [Hopewell, VA \(23860\)](#) is in the Tri-Cities area of the Richmond Metropolitan Statistical Area and is combined with Prince George County for statistical purposes.

**2010 Population in Zip Code 23860:** 31,970

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 3,205,517

**Primary Source(s) of Toxic Air Emissions:**

**[HONEYWELL INTERNATIONAL INC HOPEWELL PLANT](#)**

905 E Randolph Rd., Hopewell, VA 23860

North American Industry Classification System (NAICS) Code - 325199 Organic Chemical Manufacturing

**Total Air Releases (In Pounds):** 2,233,695

- 70% of Total Air Emissions in Zip Code 23860

**Table 4. Honeywell Plant 2013 Largest Toxic Air Emissions by Chemical Type <sup>6</sup>**

Chemical Name	Toxic Emissions (lbs.)
<u><a href="#">AMMONIA</a></u>	2,122,000
<u><a href="#">PHENOL</a></u>	36,000
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	210,000
<u><a href="#">TOLUENE</a></u>	17,300

\*Tables 4 - 34 show the chemicals that more than 15,000 lbs. of which were emitted into the air.\*

## [Hercules, Inc.](#)

1111 Hercules Rd, Hopewell, VA 23860

NAICS CODE – 325199 Organic Chemical Manufacturing

**Total Air Releases (In Pounds):** 556,741

<sup>6</sup> [http://oaspub.epa.gov/enviro/tris\\_control\\_v2.tris\\_print?tris\\_id=24426WSTVCRIVER](http://oaspub.epa.gov/enviro/tris_control_v2.tris_print?tris_id=24426WSTVCRIVER)

- 17% of Total Air Emissions in Zip Code 23860

**Table 5. Hercules, Inc. 2013 Largest Toxic Air Emissions by Chemical Type<sup>7</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">CHLOROETHANE</a></u>	77,611
<u><a href="#">ETHYLENE</a></u>	56,579
<u><a href="#">METHANOL</a></u>	241,871
<u><a href="#">TERT-BUTYL ALCOHOL</a></u>	174,227

**[Rocktenn CP LLC](#)**

910 Industrial St, Hopewell, VA 23860

NAICS Code - 322130 Paperboard Mill

**Total Air Releases (In Pounds): 312,833**

- 10% of Total Air Emissions in Zip Code 23860

**Table 6. Rocktenn CP LLC 2013 Largest Toxic Air Emissions by Chemical Type<sup>8</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">AMMONIA</a></u>	60,720
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	55,910
<u><a href="#">HYDROGEN SULFIDE</a></u>	25,400
<u><a href="#">METHANOL</a></u>	143,210

<sup>7</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23860QLNCM1111H](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23860QLNCM1111H)

<sup>8</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23860STNHP910IN](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23860STNHP910IN)

2. [Covington, VA \(24426\)](#) is a small Appalachian town about 40 miles north of Roanoke, VA and is completely surrounded by the George Washington National Park.

**2010 Population in Zip Code 24426:** 14,329

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 2,935,732

**Primary Source of Toxic Air Emissions:**

**[MeadWestvaco of Virginia, Inc Covington Operations](#)**

104 East Riverside Street Covington VA 24426

NAICS Code - 322130 Paperboard Mills

**Total Air Release (In Pounds):** 2,935,732

- 100% of Total Air Emissions in Zip Code 24426

**Table 7. MeadWestvaco 2013 Largest Toxic Air Emissions by Chemical Type<sup>9</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">ACETALDEHYDE</a></u>	50,402
<u><a href="#">AMMONIA</a></u>	200,260
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	360,124
<u><a href="#">HYDROGEN SULFIDE</a></u>	93,000
<u><a href="#">METHANOL</a></u>	1,954,000
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	210,000

<sup>9</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24426WSTVCRIVER](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24426WSTVCRIVER)

3. Isle of Wight, VA (23851) is located in the Hampton Roads metropolitan area and features two incorporated towns Smithfield and Windsor.

**2010 Population in Zip Code 23851:** 13,715

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 2,000,871

**Primary Source(s) of Toxic Air Emissions:**

**[INTERNATIONAL PAPER FRANKLIN MILL](#)**

34040 Union Camp Dr., Franklin, VA 23851

NAICS Code - 322110 Pulp Mills

**Total Air Releases (In Pounds):** 1,969,619

- 98% of Total Air Emissions in Zip Code 23851

**Table 8. International Paper Mill 2013 Largest Toxic Air Emissions by Chemical Type<sup>10</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">ACETALDEHYDE</a></u>	32,826
<u><a href="#">AMMONIA</a></u>	100,653
<u><a href="#">CRESOL</a></u>	74,106
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	83,515
<u><a href="#">HYDROGEN SULFIDE</a></u>	222,965
<u><a href="#">METHANOL</a></u>	1,411,740

<sup>10</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23851NNCMPHIGHW](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23851NNCMPHIGHW)

4. [Chesterfield, VA \(23836\)](#) is located between Richmond and Petersburg. Chesterfield County is the third largest county by population in the state.

**2010 Population in Zip Code 23836:** 11,444

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 1,407,275

**Primary Source(s) of Toxic Air Emissions:**

**[PHILIP MORRIS USA PARK 500 SITE](#)**

4100 Bermuda Hundred Rd., Chester, VA 23836

NAICS Code – 312230 Tobacco Product Manufacturing

**Total Air Releases (In Pounds):** 580,231

- 41% of Total Air Emissions in Zip Code 23836

**Table 11. Phillip Morris 2013 Largest Toxic Air Emissions by Chemical Type<sup>11</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">AMMONIA</a></u>	351,010
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	207,350
<u><a href="#">NICOTINE AND SALTS</a></u>	21,543

**[CHESTERFIELD POWER STATION](#)**

500 Xendale Rd., Chester, VA 23836

NAICS Code - 221112 Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds):** 749,707

- 53% of Total Air Emissions in Zip Code 23836

<sup>11</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23831PHLLP4100B](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23831PHLLP4100B)

**Table 12. Chesterfield Power Station 2013 Toxic Air Emissions by Chemical Type<sup>12</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u>AMMONIA</u>	28,000
<u>HYDROCHLORIC ACID (ACID AEROSOLS)</u>	570,000
<u>HYDROGEN FLUORIDE</u>	71,000
<u>SULFURIC ACID (ACID AEROSOLS)</u>	79,000

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<sup>12</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23836CHSTR500CO](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23836CHSTR500CO)

5. Buchanan, VA (24631) Oakwood is an unincorporated area in Buchanan County, Virginia.

**2010 Population in Zip Code 24631:** 2,843

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 1,312,624

**Primary Source of Toxic Air Emissions:**

**JEWELL COKE CO LP**

1034 Dismal River Rd Oakwood VA 24631

NAICS Code - 331110 Iron and Steel and Ferroalloy Manufacturing

**Total Air Releases (In Pounds):** 1,312,624

- 100% of Total Air Emissions in Zip Code 24631

**Table 9. Jewell Coke 2013 Largest Toxic Air Emissions by Chemical Type<sup>13</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<b><u>HYDROCHLORIC ACID (ACID AEROSOLS)</u></b>	1,308,936

<sup>13</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24656JWLLCHWY46](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24656JWLLCHWY46)

6. [Chesapeake, VA \(23323\)](#) is located in the Hampton Roads MSA. Chesapeake is the second-largest independent city by land area and the third most populous city in Virginia.

**2010 Population in Zip Code 23323:** 35,906

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 1,005,211

**Primary Source of Toxic Air Emissions:**

[CHESAPEAKE ENERGY CENTER](#)

2701 Co St. Chesapeake, VA 23323

NAICS Code - 221112 Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds):** 993,481

- 99% of Total Air Emissions in Zip Code 23323

**Table 10. Chesapeake Energy Center 2013 Largest Toxic Air Emissions by Chemical Type<sup>14</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a>	810,000
<a href="#">HYDROGEN FLUORIDE</a>	100,000
<a href="#">SULFURIC ACID (ACID AEROSOLS)</a>	75,000

<sup>14</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23323CHSPK2701V](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23323CHSPK2701V)



7. Cleveland, VA (24225) is located in Russell County in southwest Virginia.

**2010 Population:** 1,697

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (Measured in Pounds):** 895,172

**Primary Source of Toxic Air Emissions:**

[AMERICAN ELECTRIC POWER CLINCH RIVER PLANT](#)

Junction of Routes 664 and 665 Cleveland, VA 24225

NAICS Code - 221112 Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds):** 895,172

- 100% of Total Air Emissions in Zip Code 24225

**Table 13. American Electric Plant 2013 Largest Toxic Air Emissions by Chemical Type<sup>15</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	792,000
<u><a href="#">HYDROGEN FLUORIDE</a></u>	57,200
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	45,200

<sup>15</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24225MRCNLJUNCT](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24225MRCNLJUNCT)

8. Colonial Heights, VA (23834) is located in the Tri-Cities area of the Richmond Metropolitan Statistical Area.

**2010 Population in Zip Code 23834:** 25,612

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 863,710

**Primary Source(s) of Toxic Air Emissions:**

[CHURCH & DWIGHT CO INC](#)

1851 Touchstone Rd Colonial Heights VA 23834

NAICS Code – 326299 All Other Rubber Product Manufacturing

**Total Air Releases (In Pounds):** 498,963

- 58% of Total Air Emissions in Zip Code 23834

**Table 14. Church & Dwight Co. Inc. 2013 Largest Toxic Air Emissions by Chemical Type<sup>16</sup>**

Chemical Name	Toxic Emissions (lbs.)
<u><a href="#">AMMONIA</a></u>	498,805

[HONEYWELL INTERNATIONAL COLONIAL HEIGHTS PLANT](#)

15801 Woods Edge Rd Chesterfield VA 23834

NAICS CODE – 325220 Artificial and Synthetic Fibers and Filaments Manufacturing

**Total Air Releases (In Pounds):** 364,724

- 42% of Total Air Emissions in Zip Code 23834

**Table 15. Honeywell International Colonial Heights Plant 2013 Largest Toxic Air Emissions by Chemical Type<sup>17</sup>**

Chemical Name	Toxic Emissions (lbs.)
<u><a href="#">FREON 113</a></u>	364,724

<sup>16</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23834LDNCR16101](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23834LDNCR16101)

<sup>17</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23832LLDSGEXIT5](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23832LLDSGEXIT5)

9. West Point, VA (23181) is a vibrant, small town nestled at the confluence of the Mattaponi and Pamunkey Rivers where the York River is formed, between Richmond and Hampton Roads.

**2010 Population in Zip Code 23181:** 5,426

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 826,002

**Primary Source of Toxic Air Emissions:**

[ROCKTENN CP LLC](#)

1901 Main St West Point VA 23181

NAICS Code - 322110 Pulp Mills

**Total Air Releases (In Pounds):** 826,002

- 100% of Total Air Emissions in Zip Code 23181

**Table 16. Rocktenn CP LLC 2013 Largest Toxic Air Emissions by Chemical Type<sup>18</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<a href="#">ACETALDEHYDE</a>	33,336
<a href="#">AMMONIA</a>	127,250
<a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a>	76,338
<a href="#">HYDROGEN SULFIDE</a>	46,994
<a href="#">METHANOL</a>	442,987
<a href="#">PHENOL</a>	20,342
<a href="#">SULFURIC ACID (ACID AEROSOLS)</a>	52,422

<sup>18</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23181CHSPK19THM](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23181CHSPK19THM)

10. York, VA (23692) is a county in the Hampton Roads Metropolitan Area and Yorktown is the county seat.

**2010 Population in Zip Code 23692:** 18,846

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 534,218

**Primary Source of Toxic Air Emissions:**

[DOMINION RESOURCES INC YORKTOWN POWER STATION](#)

1600 Waterview Rd Yorktown VA 23692

NAICS Code - 221112 Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds):** 534,218

- 100% of Total Air Emissions in Zip Code 23692

**Table 17. Dominion Resources Inc. Yorktown Power Station 2013 Largest Toxic Air Emissions by Chemical Type<sup>19</sup>**

Chemical Name	Toxic Emissions (lbs.)
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	420,000
<u><a href="#">HYDROGEN FLUORIDE</a></u>	52,000
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	61,900

<sup>19</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23692YRKTW1600W](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23692YRKTW1600W)

11. Narrows, VA (24124) is located in Giles County, Virginia. It was named for the narrowing of the New River that flows past it.

**2010 Population in Zip Code 24124:** 4,352

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 493,931

**Primary Source of Toxic Air Emissions:**

**[CELANESE ACETATE LLC - CELCO PLANT](#)**

3520 Virginia Ave Narrows VA 24124

NAICS Code – 325220 Artificial and Synthetic Fibers and Filaments Manufacturing

**Total Air Releases (In Pounds):** 493,931

- 100% of Air Emissions in Zip Code 24124

**Table 18. Celanese Acetate Celco Plant 2013 Largest Toxic Air Emissions by Chemical Type<sup>20</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">CYCLOHEXANE</a></u>	138,661
<u><a href="#">DICHLOROMETHANE</a></u>	30,799
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	149,657
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	151,248

<sup>20</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24124HCHSTR460](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24124HCHSTR460)

12. [Richmond, VA \(23234\)](#) is the capital of the Commonwealth of Virginia, in the United States. It is the center of the Richmond Metropolitan Statistical Area and the Greater Richmond Region. Since 1871 Richmond has been an independent city.

**2010 Population in Zip Code 23234:** 42,989

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (Measured in Pounds):** 475,457

**Primary Source(s) of Toxic Air Emissions:**

**[DUPONT SPRUANCE PLANT](#)**

U.S. Hwy 1 at Cogbill Rd Richmond VA 23234

NAICS Code – 325220 Artificial and Synthetic Fibers and Filaments Manufacturing

**Total Air Releases (In Pounds):** 285,145

- 60% of Total Air Releases in Zip Code 23234

**Table 19. Dupont Spruance Plant 2013 Largest Toxic Air Emissions by Chemical Type<sup>21</sup>**

Chemical Name	Toxic Emissions (lbs.)
<u><a href="#">DIMETHYLAMINE</a></u>	52,344
<u><a href="#">N-METHYL-2-PYRROLIDONE</a></u>	56,020
<u><a href="#">TOLUENE</a></u>	21,230
<u><a href="#">TRICHLOROFLUOROMANE</a></u>	140,960

**[Phillip Morris USA](#)**

3601 COMMERCE RD RICHMOND VA 23234

NAICS CODE – 312230 Tobacco Manufacturing

**Total Air Releases (In Pounds):** 142,511

- 30% of Total Air Releases in Zip Code 23234

<sup>21</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23234DPNTSUSHIG](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23234DPNTSUSHIG)

**Table 20. Phillip Morris USA 2013 Largest Toxic Air Emissions by Chemical Type<sup>22</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u>AMMONIA</u>	19,352
<u>HYDROCHLORIC ACID (ACID AEROSOLS)</u>	110,540

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<sup>22</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23234PHLLP3601C](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23234PHLLP3601C)

13. James City County, VA (23185) is the county in which Williamsburg serves as the county seat. James City County is a part of the Hampton Roads Metropolitan Area.

**2010 Population in Zip Code 23185:** 46,370

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 453,638

**Primary Source of Toxic Air Emissions:**

**BALL METAL BEVERAGE CONTAINER CORP**

8935 Pocahontas Trail James River Commerce Center Williamsburg VA 23185

NAICS Code – 332431 Metal Can Manufacturing

**Total Air Releases (In Pounds):** 445,000

- 98% of Total Air Releases in Zip Code 23185

**Table 21. Ball Metal Beverage Container Corp 2013 Largest Toxic Air Emissions by Chemical Type<sup>23</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">CERTAIN GLYCOL ETHERS</a></u>	313,000
<u><a href="#">N-BUTYL ALCOHOL</a></u>	132,000

<sup>23</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23185BLLPC8935P](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23185BLLPC8935P)



14. [Clover, VA \(24534\)](#) is a census-designated place in Halifax County. Clover was an incorporated town from 1895 until 1998, when it reverted to unincorporated status.

**2010 Population in Zip Code 24534:** 1,740

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 453,024

**Primary Source of Toxic Air Emissions:**

**[DOMINION CLOVER POWER STATION](#)**

Rte. 92, Clover VA 24534 (Halifax)

NAICS Code – 221112 Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds):** 453,024

- 100% of Total Air Releases in Zip Code 24534

**Table 22. Dominion Clover Power Station 2013 Largest Toxic Air Emissions by Chemical Type<sup>24</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	21,100
<u><a href="#">HYDROGEN CYANIDE</a></u>	48,300
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	371,000

<sup>24</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24534CLVRP RTE92](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24534CLVRP RTE92)

15. Radford, VA (24141) is part of the Blacksburg–Christiansburg–Radford Metropolitan Statistical Area which encompasses all of Montgomery County and the city of Radford.

**2010 Population in Zip Code 24141:** 20,668

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 420,070

**Primary Source of Toxic Air Emissions:**

**US ARMY RADFORD ARMY AMMUNITION PLANT**

Rte. 114 Radford Army Ammunition Plant Radford VA 24141

NAICS Code – 928110 National Security

**Total Air Releases (In Pounds):** 419,463

- 99% of Total Toxic Air Emissions in Zip Code 24141

**Table 23. US Army Radford Army Ammunition Plant 2013 Largest Toxic Air Emissions by Chemical Type<sup>25</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u>AMMONIA</u>	23,718
<u>HYDROCHLORIC ACID (ACID AEROSOLS)</u>	282,212
<u>NITROGLYCERIN</u>	37,000
<u>SULFURIC ACID (ACID AEROSOLS)</u>	72,344

<sup>25</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24141SDDSRPOBOX](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24141SDDSRPOBOX)

16. Big Island, VA (24526) is a census-designated place in northern Bedford County, Virginia.

**2010 Population in Zip Code 24526:** 1,593

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 374,977

**Primary Source of Toxic Air Emissions:**

[GEORGIA-PACIFIC BIG ISLAND MILL](#)

9363 Lee-Jackson Hwy, Big Island VA 24526

NAICS Code - 322121 Paper (Except Newsprint) Mills

**Total Air Releases (In Pounds):** 374,977

- 100% of Total Air Releases in Zip Code 24526

**Table 24. Georgia - Pacific Big Island Mill 2013 Largest Toxic Air Emissions by Chemical Type<sup>26</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<a href="#"><u>ACETALDEHYDE</u></a>	56,500
<a href="#"><u>METHANOL</u></a>	294,100

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<sup>26</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24526NKSPCHIGHW](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24526NKSPCHIGHW)

17. Lynchburg, VA (24501) is an independent city that is in the geographic center of Virginia. Other nearby cities include Roanoke, Charlottesville, and Danville.

**2010 Population in Zip Code 24501: 26,757**

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds): 330,582**

**Primary Source of Toxic Air Emissions:**

**[R R DONNELLEY PRINTING CO](#)**

4201 Murray Pl Lynchburg VA 24501

NAICS Code – 323111 Commercial Gravure Printing

**Total Air Releases (In Pounds): 319,120**

- 97% of Total Air Releases in Zip Code 24501

**Table 25. R. R. Donnelley Printing Co. 2013 Largest Toxic Air Emissions by Chemical Type<sup>27</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">TOLUENE</a></u>	319,120

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<sup>27</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24506MRDTH4201M](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24506MRDTH4201M)

18. Ashland, VA (23005) is a town located 15 miles north of Richmond along Interstate-95 in Hanover County, Virginia, United States.

**2010 Population in Zip Code 23005:** 15,227

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 320,360

**Primary Source of Toxic Air Emissions:**

**DOSWELL LP**

10098 Old Ridge Rd, Ashland VA 23005

NAICS Code: 221112 - Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds):** 242,646

- 76 % of Total Air Releases in Zip Code 23005

**Table 26. Doswell LP 2013 Largest Toxic Air Emissions by Chemical Type<sup>28</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<a href="#"><u>AMMONIA</u></a>	242,646

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<sup>28</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23005DSWLL10098](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23005DSWLL10098)

19. Amherst, VA (24521) is located at the base of the Blue Ridge Mountains in Amherst County.

**2010 Population in Zip Code 24521:** 2,231

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 315,265

**Primary Source of Toxic Air Emissions:**

**GREIF PACKAGING LLC**

861 Fibre Plant Rd, Amherst VA 24521

NAICS Code: 322110 - Pulp Mills

**Total Air Releases (In Pounds):** 315,265

- 100 % of Total Air Releases in Zip Code 24521

**Table 27. Greif Packaging LLC 2013 Largest Toxic Air Emissions by Chemical Type<sup>29</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">ACETALDEHYDE</a></u>	40,364
<u><a href="#">METHANOL</a></u>	274,896

<sup>29</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24521VRGNFROUTE](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24521VRGNFROUTE)

20. Bremo Bluff, VA (23022) is an unincorporated community located on the northern bank of the James River in Fluvanna County, Virginia, United States.

**2010 Population in Zip Code 23022: 930**

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds): 310,075**

**Primary Source of Toxic Air Emissions:**

**DOMINION RESOURCES INC BREMO POWER STATION**

1038 Bremo Rd, Bremo Bluff VA 23022

NAICS Code: 221112 - Fossil Fuel Electric Power Generation

**Total Air Releases (In Pounds): 310,075**

- 100 % of Total Air Releases in Zip Code 23022

**Table 28. Dominion Resources Inc. Bremo Power Station 2013 Largest Toxic Air Emissions by Chemical Type<sup>30</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a></u>	255,000
<u><a href="#">HYDROGEN FLUORIDE</a></u>	31,800
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	23,200

<sup>30</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23022BRMPWRTE65](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23022BRMPWRTE65)

21. [Chesapeake, VA \(23324\)](#) is a city located in southeastern Virginia and is a part of the Hampton Roads metropolitan area.

**2010 Population in Zip Code 23324:** 22,851

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 291,752

**Primary Source(s) of Toxic Air Emissions:**

**[CHESAPEAKE SOY CRUSHING](#)**

501 Barnes Rd, Chesapeake VA 23324

NAICS Code: 311224 - Soybean and Other Oilseed Processing

**Total Air Releases (In Pounds):** 289,054

- 99% of Total Air Emissions in Zip Code 23324

**Table 29. Chesapeake Soy Crushing 2013 Largest Toxic Air Emissions by Chemical Type<sup>31</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">N-HEXANE</a></u>	289,054

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<sup>31</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23324CRGLL501BA](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23324CRGLL501BA)



22. Fieldale, VA (24089) is a census-designated place in Henry County, Virginia.

**2010 Population in Zip Code 24089:** 879

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 265,425

**Primary Source of Toxic Air Emissions:**

**CPFILMS - PLANT II**

4129 The Great Rd, Fieldale VA 24089

NAICS Code: 326130 - Laminated Plastics Plate, Sheet (Except Packaging), and Shape Manufacturing

**Total Air Releases (In Pounds):** 264,585

- 99% of Total Air Emissions in Zip Code 24089

**Table 30. CPFILMS Plant II 2013 Largest Toxic Air Emissions by Chemical Type<sup>32</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">ETHYLENE GLYCOL</a></u>	201,970
<u><a href="#">N-METHYL-2-PYRROLIDONE</a></u>	43,450
<u><a href="#">TOLUENE</a></u>	15,330

<sup>32</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24089MRTNPRTE68](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24089MRTNPRTE68)

23. Newport News, VA (23607) is one of the cities that makes up the Hampton Roads region in the southeastern part of the state.

**2010 Population in Zip Code 23607:** 24,519

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 246,759

**Primary Source(s) of Toxic Air Emissions:**

**HUNTINGTON INGALLS INC**

4101 Washington Ave, Newport News VA 23607

NAICS Code: 336611 – Ship Building and Repairing

**Total Air Releases (In Pounds):** 170,773

- 69% of Total Air Emissions in Zip Code 23607

**Table 31. Huntington Ingalls Inc. 2013 Largest Toxic Air Emissions by Chemical Type<sup>33</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">1,2,4-TRIMETHYLBENZENE</a></u>	25,298
<u><a href="#">N-BUTYL ALCOHOL</a></u>	75,362
<u><a href="#">SULFURIC ACID (ACID AEROSOLS)</a></u>	31,349
<u><a href="#">XYLENE (MIXED ISOMERS)</a></u>	37,804

**MICA CO OF CANADA**

900 Jefferson Ave., Newport News VA 23607

NAICS Code: 327999 - Miscellaneous Nonmetallic Mineral Product Manufacturing

**Total Air Releases (In Pounds):** 75,986

- 31% of Total Air Emissions in Zip Code 23607

<sup>33</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23607NWPRT4101W](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23607NWPRT4101W)

**Table 32. Mica Co of Canada Inc. 2013 Largest Toxic Air Emissions by Chemical Type<sup>34</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<a href="#"><u>METHANOL</u></a>	36,609
<a href="#"><u>TOLUENE</u></a>	39,377

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<sup>34</sup> <http://www.epa.gov/enviro/facts/tri/ef-facilities/#/Release/23607MCCMP900J/MICA%20CO%20OF%20CANADA%20INC>

24. [Courtland, VA \(23837\)](#) is located on the north shore of the Nottoway River in Southampton County.

**2010 Population in Zip Code 23837:** 4,298

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 204,455

**Primary Source of Toxic Air Emissions:**

[HERCULES INC](#)

27123 Shady Brook Trail, Courtland VA 23837

NAICS Code: 325199 – All Other Basic Organic Chemical Manufacturing

**Total Air Releases (In Pounds):** 203,955

- 99% of Total Air Emissions in Zip Code 23837

**Table 33. Hercules Inc. 2013 Largest Toxic Air Emissions by Chemical Type<sup>35</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<a href="#">1,2-DICHLOROPROPANE</a>	85,469
<a href="#">HYDROCHLORIC ACID (ACID AEROSOLS)</a>	23,422
<a href="#">TRIETHYLAMINE</a>	95,064

<sup>35</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=23851HRCLSROUTE](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=23851HRCLSROUTE)

25. Galax, VA (24333) is located at the foot of the Blue Ridge Mountains in southwestern Virginia.

**2010 Population in Zip Code 24333:** 17,996

**Total Aggregate Air Releases of TRI Chemicals excluding Dioxin and Dioxin-like Compounds 2013 (In Pounds):** 161,555

**Primary Source of Toxic Air Emissions:**

[VAUGHAN-BASSETT FURNITURE CO GALAX](#)

300 E Grayson St, Galax VA 24333

NAICS CODE: 337122 – Nonupholstered Wood Household Furniture Manufacturing

**Total Air Releases (In Pounds):** 137,385

- 85% of Total Air Emissions in Zip Code 24333

**Table 34. Vaughan-Bassett Furniture Co. Galax 2013 Largest Toxic Air Emissions by Chemical Type<sup>36</sup>**

<b>Chemical Name</b>	<b>Toxic Emissions (lbs.)</b>
<u><a href="#">METHANOL</a></u>	20,208
<u><a href="#">TOLUENE</a></u>	67,666
<u><a href="#">VINYL ACETATE</a></u>	21,505
<u><a href="#">XYLENE (MIXED ISOMERS)</a></u>	16,868

<sup>36</sup> [http://iaspub.epa.gov/enviro/tris\\_control.tris\\_print?tris\\_id=24333VGHNBOLDTO](http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=24333VGHNBOLDTO)

## Health Impacts of the Top 10 Toxic Chemicals Released in Virginia

**Table 35. Health Impacts of the Top Toxic Chemicals With the Highest Total Air Releases**

Chemical Name	Total Air Releases (lbs.)	Eye Irritant	Skin Irritant	Nasal/Throat Irritant	Lung Irritant	Birth Defects	Death	Cancer Causing	Cardiovascular Impacts	Liver/Kidney Damage	Neurological Impacts	Notes and References
<a href="#">NITRATE COMPOUNDS</a>	10,986,334								X			37
<a href="#">HYDROCHLORIC ACID (AEROSOLS)</a>	6,009,828	X	X	X	X							Exposure linked to gastritis, dental discoloration, and erosion. 38
<a href="#">METHANOL</a>	5,206,240	X	X	X	X	I				X	X	Exposure linked to headaches, severe abdominal, leg, back pain, loss of vision, blindness, sleep disorders, gastrointestinal problems, and optic nerve damage. 39
<a href="#">ZINC COMPOUNDS</a>	4,593,742		I			I					X	Very little is known about the long-term effects of breathing zinc dust. 40
<a href="#">AMMONIA</a>	4,526,610	X	X	X	X		X					Chronic or repeated exposure to ammonia may cause chronic respiratory tract irritation, chronic cough, asthma, lung fibrosis, headaches, somnolence, chronic eye membrane irritation, and dermatitis. 41
<a href="#">MANGANESE COMPOUNDS</a>	1,983,327			X	X				X	X	X	42

X-Health Effect Found in Humans  
I-Health Effect Found in Animals

<sup>37</sup> <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=1186&tid=258>

<sup>38</sup> <http://www.cdc.gov/niosh/docs/81-123/pdfs/0332.pdf>

<sup>39</sup> <http://nj.gov/health/eoh/rtkweb/documents/fs/1222.pdf>

<sup>40</sup> <http://www.atsdr.cdc.gov/PHS/PHS.asp?id=300&tid=54>

<sup>41</sup> <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=11&tid=2>

<sup>42</sup> <http://www.cdc.gov/niosh/npg/npgd0379.html>

Chemical Name	Total Air Releases (lbs.)	Eye Irritant	Skin Irritant	Nasal/Throat Irritant	Lung Irritant	Birth Defects	Death	Cancer Causing	Cardiovascular Impacts	Liver/Kidney Damage	Neurological Impacts	Notes and References
<a href="#">BARIUM COMPOUNDS</a>	1,516,190	X		X	X							43
<a href="#">SULFURIC ACID (AEROSOLS)</a>	1,262,260	X	X	X	X			X			X	International Agency for Research on Cancer believes that evidence is sufficient to state that occupational exposure is carcinogenic. <sup>44</sup>
<a href="#">TOLUENE</a>	870,485	X	X	X	X	X			X		X	Exposure to the substance may enhance hearing damage caused by exposure to noise. <sup>45,46</sup>
<a href="#">ETHYLENE GLYCOL</a>	579,093	X		X	X				X	X	X	47,48

X-Health Effect Found in Humans  
 I-Health Effect Found in Animals

<sup>43</sup> <http://www.cdc.gov/niosh/npg/npgd0047.html>

<sup>44</sup> <http://nj.gov/health/eoh/rtkweb/documents/fs/1761.pdf>

<sup>45</sup> <http://www.cdc.gov/niosh/ipcsneng/neng0078.html>

<sup>46</sup> [https://www.osha.gov/SLTC/toluene/health\\_hazards.html](https://www.osha.gov/SLTC/toluene/health_hazards.html)

<sup>47</sup> <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=85&tid=21>

<sup>48</sup> [http://www.cdc.gov/NIOSH/ershdb/EmergencyResponseCard\\_29750031.html](http://www.cdc.gov/NIOSH/ershdb/EmergencyResponseCard_29750031.html)

## Health Impacts

The ten most common toxic chemicals released in the state of Virginia are shown in Table 34. By virtue of these chemicals being included in the EPA's TRI Program, they all cause "cancer or other chronic human health effects, significant adverse acute human health effects [and/or] significant adverse environmental effects".<sup>49</sup> It is important to keep in mind that the consequences of being exposed to toxic chemicals can vary depending on several factors such as the amount of the dose, the amount of time one was exposed, how one was exposed and whether one is exposed to other chemicals as well. Personal habits impact the effects of exposure as well.<sup>48</sup> Health effects can occur shortly after exposure with a range of impacts in seriousness from watery eyes to lung damage or they can be more insidious and occur after many months or years after one's first exposure (i.e. cancer).

Breathing toxic chemicals can increase your risk of health problems. They can hinder the function of the body by frequently altering chemical reactions at the cellular level resulting in the cell being unable to function or changing cellular activity. The effects of toxic air pollutants entering the body can thus range from impaired organs, cancer which is the result of cells growing too quickly, to birth defects which occur when an unborn child's cells are damaged. After a pollutant is breathed into the body, it can stay in the lungs or move around to all parts of the body, being transported by the bloodstream. Depending on the chemical, pollutants can become more or less toxic as they move around the body. This change due to chemical reactions can occur especially in the liver. Pollutants can either stay in the body stored in fat, bone and/or hair or can leave the body by being exhaled, in breast milk, sweat, urine and/or bowel movements.<sup>50</sup>

## Top 10 Toxic Pollutants in Virginia and Health Effects

The most released toxic pollutant in the Commonwealth is the family of nitrate compounds. Nitrate compounds are dangerous to the cardiovascular system if consumed. They are the culprits behind blue baby syndrome which is a problem in agricultural areas where nitrates have gotten into the drinking supply. However, when considered as an air pollutant, nitrate compounds make up a major component of particle pollution.<sup>51</sup> Particle pollution can lead to serious health consequences especially for the smaller particle sizes which can be inhaled into the lungs and some of which can get into the bloodstream. When people are exposed to particulate matter or PM for a long time, this can lead to negative impacts on lung function, chronic bronchitis or premature death.<sup>52</sup>

The second most released toxic pollutant in Virginia is hydrochloric acid aerosols which can cause irritation of the respiratory tract which can lead to difficulties in breathing. Hydrogen chloride gas can also cause burns and eye irritation.<sup>53</sup> Being exposed to methanol or methyl

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<sup>49</sup> <http://www2.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals>

<sup>50</sup> [http://www.epa.gov/airquality/air\\_risc/3\\_90\\_024.html](http://www.epa.gov/airquality/air_risc/3_90_024.html)

<sup>51</sup> [http://www.epa.gov/airtrends/aqtrnd04/pmreport03/pmunderstand\\_2405.pdf](http://www.epa.gov/airtrends/aqtrnd04/pmreport03/pmunderstand_2405.pdf)

<sup>52</sup> [http://www.epa.gov/airtrends/aqtrnd04/pmreport03/pmunderstand\\_2405.pdf](http://www.epa.gov/airtrends/aqtrnd04/pmreport03/pmunderstand_2405.pdf)

<sup>53</sup> <http://www.cdc.gov/niosh/docs/81-123/pdfs/0332.pdf>



alcohol in the air can irritate the respiratory tract and cause coughing or shortness of breath. Zinc compounds make up the next most released air pollutant in the state of Virginia. Little is known about impacts of breathing in zinc compounds on a long-term scale.<sup>54</sup>

Ammonia is an upper respiratory irritant and as such it can irritate the eyes, nose and throat; short-term exposure to high concentrations of ammonia gas has been linked to tracheal burns, airway obstruction and death.<sup>55</sup> Manganese inhalation impacts fall mostly on the nervous system resulting in decreased reaction times and poor hand-eye coordination and the respiratory system causing bronchitis, coughing and an increased susceptibility to lung disease. Exposure to high levels can cause lethargy, tremors and psychological issues.<sup>56</sup> Like manganese, inhalation of barium compounds can lead to irritation of the upper respiratory system as well as the eyes.<sup>57</sup>

Sulfuric acid, if inhaled, can irritate the nose, throat and lungs causing shortness of breath or build-up of fluid as well as cause headaches, nausea and vomiting.<sup>58</sup> There are many potential health consequences of being exposed to toluene. This particular chemical impacts the nervous system as well as the respiratory system. Being exposed to high concentrations of toluene has resulted in death. Symptoms can include anxiety, exhaustion, confusion, dizziness and euphoria. During pregnancy, exposure to toluene has resulted in miscarriages, children with birth defects in addition to negative impacts on growth and mental abilities. Toluene can also damage skin, liver and kidneys.<sup>59</sup> Breathing high levels of ethylene glycol can irritate the upper respiratory tract as well as mucous membranes such as the nose, ears, eyelids and mouth.<sup>60</sup>

The EPA TRI database provides an excellent resource to access not only which chemicals are being released into the air and their associated health risks, but also to find information on the big emitters close to your community. In highlighting the Top 25 toxic zip codes along with the biggest polluters and the toxic chemicals released, our goal has been to make the public more aware of what they are being exposed to as well as to empower Virginians with the knowledge of how to use the EPA TRI database to find this information. As of 2013, Virginia was the 16<sup>th</sup> most toxic state in looking at both fugitive and point source air emissions. Although we have come a long way, Virginia still has a way to go to ensure that every Virginian is breathing clean air.

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<sup>54</sup> <http://www.atsdr.cdc.gov/PHS/PHS.asp?id=300&tid=54#bookmark04>

<sup>55</sup> <http://www.atsdr.cdc.gov/toxprofiles/tp126-c3.pdf>

<sup>56</sup> <http://www.epa.gov/ttnatw01/hlthef/manganes.html>

<sup>57</sup> <http://www.cdc.gov/niosh/npg/npgd0047.html>

<sup>58</sup> <http://nj.gov/health/eoh/rtkweb/documents/fs/1761.pdf>

<sup>59</sup> [https://www.osha.gov/SLTC/toluene/health\\_hazards.html](https://www.osha.gov/SLTC/toluene/health_hazards.html)

<sup>60</sup> [http://www.cdc.gov/NIOSH/ershdb/EmergencyResponseCard\\_29750031.html](http://www.cdc.gov/NIOSH/ershdb/EmergencyResponseCard_29750031.html)

## Community Spotlight: Newport News (23607)

The Southeast Community is about 4 miles long and 2 miles wide and is found in Newport News, part of the Hampton Roads region in southeastern Virginia. According to the 2010 Census, the neighborhood population is approximately 17% Caucasian and 77% African American. Past research has found that the African American community in Newport News suffers from heart disease death rates, chronic respiratory disease death rates and septicemia death rates higher than the regional and state averages.<sup>61</sup> The Southeast Community has been identified as one of the most vulnerable areas to adverse health outcomes according to the 2012 Virginia Health Equity Report.<sup>62</sup>

In 2013, 72% of the toxic air emissions in Newport News occurred within the Southeast Community (23607) which equals almost 250,000 pounds of releases. Huntington Ingalls Inc. (Newport News Shipyard) continues to be the largest emitter of toxic chemicals not only in the Southeast Community, but also in the city of Newport News. In addition to industrial facilities such as the shipyard and the Mica Co. of Canada, Interstate 664 and commercial port operations are also located within the Southeast Community. From 2012 to 2013, Huntington Ingalls Inc. increased their toxic air emissions by more than 40,000 pounds. In that same time period, emissions from the Mica Co. of Canada decreased around 20%.

N-butyl alcohol, toluene, xylene, methanol and sulfuric acid remain the most released chemicals by air. N-butyl alcohol is a suspected neurotoxicant, cardiovascular/blood toxicant, gastrointestinal/liver toxicant, respiratory toxicant, and skin/sense toxicant. Toluene has been recognized as a developmental toxicant. Exposure of pregnant women can disrupt fetal development or in some cases cause the death of the fetus. Other impacts can include birth defects, abnormal birth weight, biological impairments, and psychological/behavioral deficits. Additionally, toluene is suspected to be a cardiovascular/blood toxicant, gastrointestinal/liver toxicant, immunotoxicant, kidney toxicant, neurotoxicant, reproductive toxicant, respiratory toxicant and a skin/sense toxicant.

Methanol is a suspected developmental toxicant, gastrointestinal/liver toxicant, kidney toxicant, neurotoxicant, respiratory toxicant, and a skin/sense toxicant. Sulfuric acid is a suspected musculoskeletal toxicant, respiratory toxicant and skin/sense toxicant. Sulfuric acid ranks in the 75th percentile on the Environmental Protection Agency's Risk Screening Environmental Indicators for Inhalation Toxicity Weight, a ranking system that measures risk assessment relative to other chemicals in terms of propensity to cause cancer and non-cancer health effects. Xylene is suspected to be a cardiovascular/blood toxicant, developmental toxicant,

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<sup>61</sup> [2008 Virginia Health Equity Report, Virginia Department of Health](#)

<sup>62</sup> [2012 Virginia Health Equity Report, Virginia Department of Health](#)

gastrointestinal/liver toxicant, immunotoxicant, kidney toxicant, neurotoxicant, reproductive toxicant, respiratory toxicant and skin/sense toxicant.<sup>63</sup>

As a response to these environmental stressors, the Southeast Community has pulled together to fight the pollution threatening their neighborhood. In 2011, the Environmental Protection Agency (EPA) designated the Greater Southeast Development Corporation, a Southeast Community-based neighborhood development corporation, as a recipient of the

Community Action for a Renewed Environment (CARE) national competitive grant program. The EPA's CARE program focused on providing communities pathways to address risk from multiple sources of toxic pollution. The Greater Southeast Development Corporation established the Southeast CARE Coalition which is working today to tackle environmental concerns in the community. Their main goals are to inform the Southeast Community of the impacts of toxic pollutant exposure and to generate action that advances local environmental quality.



**Figure 4. March 2015 Southeast Community Tour**



**Figure 5. June 2015 Summer Air Monitoring Research Project Presentation at CARE Coalition Meeting**

Through partnerships with several organizations, the Southeast CARE Coalition continues to both seek community-specific data and raise awareness by providing tours of the environmental stressors in the community (Figure 4). A research project to obtain preliminary air monitoring data will begin this summer in conjunction with Old Dominion University Professor Dr. Anna Jeng (Figure 5). Volunteers have been canvassing the

community and they already have almost 500 petitions signed going to the Virginia Department of Environmental Quality as well as Secretary of Natural

<sup>63</sup> <http://scorecard.goodguide.com/>

Resources Molly Ward to ask for an official State and Local Air Monitoring Site (SLAMS) as well as National Air Toxics Trends Station (NATTS) in Newport News and for assistance with developing a community-based air monitoring program. The Southeast Community continues to provide an excellent example of a community working together to not only face the risks imposed by exposure to hundreds of thousands of pounds of multiple toxic chemicals, but also to begin to address them.

## Appendix A. 2013 Virginia Toxic Release Inventory (TRI) By Zip Code

<b>Zip Code</b>	<b>County/ Independent City</b>	<b>Facility</b>	<b>Total Air Emissions (lbs.)</b>
20109	Prince William	SAFETY-KLEEN SYSTEMS	37.00
20109	Prince William	MANASSAS BROAD RUN READY MIX CONCRETE	0.01
20110	Prince William	MICRON TECHNOLOGY INC	15,850.00
20120	Fairfax	TITAN VIRGINIA READY-MIX LLC	0.02
20121	Fairfax	VIRGINIA CONCRETE CENTREVILLE PLANT	0.01
20135	Loudoun	US DHS MT WEATHER EOC	5.00
20147	Loudoun	VIRGINIA CONCRETE LEESBURG PLANT	0.05
20152	Loudoun	CHANTILLY READY MIX CONCRETE	0.01
20166	Loudoun	VIASYSTEMS TECHNOLOGIES CORP LLC	3,494.00
20166	Loudoun	ASIG FUELING OPERATIONS INTERNATIONAL AIRPORT DULLES.	1,798.41
20166	Loudoun	VIRGINIA CONCRETE DULLES PLANT	0.08
20166	Loudoun	TITAN VIRGINIA READY-MIX LLC	0.03
22026	Prince William	POSSUM POINT POWER STATION	110,180.94
22026	Prince William	TITAN VIRGINIA READY-MIX LLC	0.03
22026	Prince William	VIRGINIA CONCRETE DUMFRIES PLANT	0.03
22031	Fairfax	MOTIVA FAIRFAX TERMINAL	1,618.00
22043	Falls Church	VIRGINIA CONCRETE FALLS CHURCH PLANT	0.01
22101	Fairfax	CIA HEADQUARTERS	5.00
22134	Prince William	US MARINE CORPS BASE QUANTICO	2,647.50
22135	Stafford	US DOJ FBI TRAINING ACADEMY.MCB	23.00
22150	Fairfax	VIRGINIA CONCRETE EDSALL ROAD PLANT	0.13
22153	Fairfax	SICPA SECURINK CORP	202.00
22202	Arlington	ALLIED AVIATION FUELING CO INC.	5,068.00
22203	Arlington	PENT RESERVATION	88,912.00
22206	Arlington	VIRGINIA CONCRETE SHIRLINGTON PLANT	0.11
22304	Alexandria	LANE CONSTRUCTION CORP	0.90
22403	Fredericksburg	QUARLES PETROLEUM INC FREDERICKSBURG TERMINAL/BULK PLANT	1.60
22405	Stafford	FALMOUTH READY MIX CONCRETE	0.01
22406	Stafford	TITAN VIRGINIA READY-MIX LLC	0.02
22407	Spotsylvania	SPOTSYLVANIA PLANT	107.16
22407	Spotsylvania	VIRGINIA CONCRETE SPOTSYLVANIA PLANT	0.01
22427	Caroline	US ARMY FORT AP HILL OPERATIONS	211.50
22435	Northumberland	CARRY-ON TRAILER CORP	12,075.00
22485	King George	BIRCHWOOD POWER FACILITY	7,757.76
22485	King George	KING GEORGE PLANT	30.47
22514	Caroline	BONSAL AMERICAN INC	0.10
22520	Westmoreland	CARRY-ON TRAILER CORP	40.06
22554	Stafford	STAFFORD PLANT	105.62

22572	Richmond	WOOD PRESERVERS INC	3,117.20
22580	Caroline	LADYSMITH COMBUSTION TURBINE STATION	0.28
22601	Winchester	FEDERAL-MOGUL CORP	75.40
22601	Winchester	O'SULLIVAN FILMS INC	1.54
22602	Frederick	HP HOOD LLC	2,688.90
22603	Frederick	PACTIV LLC	30,254.00
22603	Frederick	QG LLC WINCHESTER VIRGINIA	6,542.35
22624	Frederick	TRELLEBORG MARINE SYSTEMS USA INC	35.50
22624	Frederick	TITAN VIRGINIA READY-MIX LLC	0.02
22630	Warren	AXALTA COATING SYSTEMS LLC - FRONT ROYAL PLANT	39,635.00
22630	Warren	RPS COMPOSITES VIRGINIA INC	7,276.00
22630	Warren	US CBP CANINE TRAINING FACILITY	0.42
22657	Shenandoah	O-N MINERALS (CHEMSTONE) STRASBURG LIME PLANT	27,503.52
22657	Shenandoah	RR DONNELLEY STRASBURG DIV.ONE	11,370.00
22701	Culpeper	MASCO CABINETRY LLC	37,233.14
22701	Culpeper	BINGHAM & TAYLOR	37.00
22728	Fauquier	FIBERGLASS ENGINEERING CO	6,200.00
22801	Rockingham	AIRDYE SOLUTIONS LLC.	580.00
22802	Rockingham	RR DONNELLEY	107,174.00
22802	Rockingham	MONTEBELLO PACKAGING	4,631.00
22802	Rockingham	SUPERIOR CONCRETE INC	0.07
22812	Rockingham	BRIDGEWATER PROCESSING PLANT FACILITY	25,102.00
22827	Rockingham	MERCK SHARP & DOHME CORP	25,655.00
22827	Rockingham	MILLERCOORS - SHENANDOAH	232.00
22842	Shenandoah	MASCO CABINETRY	150,295.66
22844	Shenandoah	HOWELL METAL CO	26.00
22853	Rockingham	PILGRIM'S PRIDE CORP BROADWAY FACILITY	5,400.00
22901	Albemarle	NORTHROP GRUMMAN SYSTEMS CORP	0.27
22911	Albemarle	GE INTELLIGENT PLATFORMS	1.60
22980	Augusta	INVISTA SA RL - WAYNESBORO FACILITY	112,053.50
23005	Hanover	DOSWELL LP	242,646.00
23005	Hanover	BEAR ISLAND PAPER WB LLC	72,680.00
23005	Hanover	SOUTH ATLANTIC GALVANIZING LLC	4,450.83
23005	Hanover	COMMONWEALTH GALVANIZING	583.00
23022	Fluvanna	DOMINION RESOURCES INC BREMO POWER STATION	310,075.40
23059	Hanover	TYSON FARMS INC - PROCESSING FACILITY	6,720.00
23110	King and Queen	ASB GREENWORLD INC	0.02
23112	Chesterfield	MECHANICSVILLE CONCRETE LLC- CHESTERFIELD PLANT	0.01

23139	Powhatan	MECHANICSVILLE CONCRETE LLC-FLAT ROCK PLANT	0.01
23150	Henrico	STANDEX ENGRAVING LLC	901.00
23150	Henrico	SOUTHERN GRAPHIC SYSTEMS RICHMOND	181.00
23168	James City	OWENS-BROCKWAY GLASS CONTAINER INC PLANT 26.150	66.94
23168	James City	GREYSTONE OF VIRGINIA	1.32
23181	King William	ROCKTENN CP LLC	312,833.03
23185	James City	BALL METAL BEVERAGE CONTAINER CORP	445,000.00
23185	James City	ANHEUSER-BUSCH INC	8,637.00
23185	James City	BRANSCOME INC-LEE HALL	0.86
23222	Henrico	ENNIS-FLINT	16,187.78
23224	Richmond	BELLEMEADE POWER STATION	22,000.00
23224	Richmond	SAMPSON COATINGS INC	2,466.00
23224	Richmond	SONOCO RICHMOND	0.22
23224	Richmond	TCS MATERIALS RICHMOND PLANT	0.03
23228	Henrico	CADMUS SPECIALTY PUBLICATIONS	2,406.44
23230	Henrico	READY MIXED CONCRETE CO	0.01
23231	Richmond	MONDELEZ GLOBAL LLC	115,880.00
23231	Henrico	MECHANICSVILLE CONCRETE LLC-AIRPORT PLANT (OAKLEYS LANE)	0.02
23234	Richmond	PHILIP MORRIS USA	580,231.17
23234	Chesterfield	DUPONT SPRUANCE PLANT	285,145.00
23234	Richmond	SPRUANCE GENCO LLC	46,792.34
23234	Richmond	CARPENTER CO RICHMOND PLANT	1,008.95
23237	Chesterfield	WAKO CHEMICALS USA INC	27,070.00
23237	Chesterfield	DUPONT JAMES RIVER PLANT	16,690.00
23237	Chesterfield	BELLWOOD PRINTING PLANT	13,736.00
23237	Chesterfield	ALERIS ROLLED PRODUCTS INC	10,166.00
23237	Chesterfield	KAISER ALUMINUM FABRICATED PRODUCTS LLC	0.02
23297	Chesterfield	US DEFENSE LOGISTICS AGENCY DEFENSE SUPPLY CENTER	966.00
23301	Accomack	ACCOMAC PROCESSING PLANT	79,905.00
23320	Chesapeake	MITSUBISHI KAGAKU IMAGING CORP	42.00
23323	Chesapeake	CHESAPEAKE ENERGY CENTER	993,480.80
23323	Chesapeake	AMERICAN GFM CORP	11,730.00
23324	Chesapeake	CHESAPEAKE SOY CRUSHING	289,054.00
23324	Chesapeake	BUCKEYE TERMINALS LLC - CHESAPEAKE TERMINAL	2,697.58
23337	Accomack	US NASA GSFC WALLOPS FLIGHT FACILITY	726.50
23415	Accomack	KMX CHEMICAL CORP	750.00
23430	Isle of Wight	SMITHFIELD FARMLAND - SMITHFIELD FACILITY (NORTH)	40,734.00
23434	Suffolk	BASF CORP	8,984.00

23434	Suffolk	CAMERON CHEMICAL INC	1,500.00
23442	Accomack	TYSON FARMS INC - TEMPERANCEVILLE	7,632.00
23451	Virginia Beach	TITAN VIRGINIA READY-MIX LLC	0.02
23452	Virginia Beach	STIHL INC	3,411.00
23460	Virginia Beach	US NAVY NAVAL AIR STATION OCEANA BASE	38.00
23504	Norfolk	TITAN VIRGINIA READY-MIX LLC	0.01
23511	Norfolk	US NAVY NAVAL STATION NORFOLK	117.90
23523	Norfolk	COLONNA'S SHIPYARD INC	27,859.00
23523	Norfolk	BAE SYSTEMS NORFOLK SHIP REPAIR	22,067.00
23523	Norfolk	US GYPSUM CO	0.19
23602	Newport News	TCS MATERIALS NEWPORT NEWS	0.02
23603	Newport News	KINYO VIRGINIA INC	85,480.00
23606	Newport News	CANON VIRGINIA INC	5,199.00
23607	Newport News	HUNTINGTON INGALLS INC	170,772.92
23607	Newport News	MICA CO OF CANADA INC	75,986.00
23607	Newport News	BKEP MATERIALS LLC	0.50
23661	Hampton	HOWMET CASTINGS & SERVICES INC	4,451.20
23661	Hampton	CATALINA CYLINDERS CLIFF IMPACT DIV A DIV OF APP	10.00
23661	Hampton	BRANSCOME-HAMPTON	1.54
23665	Hampton	US DOD USAF JOINT BASE LANGLEY EUSTIS - LANGLEY AFB	4.00
23690	York	US NAVY DEFENSE FUEL SUPPORT POINT YORKTOWN FUELS	94.53
23692	York	DOMINION RESOURCES INC YORKTOWN POWER STATION	534,217.62
23701	Portsmouth	US COAST GUARD BASE PORTSMOUTH	5.05
23703	Portsmouth	US AMINES (PORTSMOUTH) LLC	728.00
23703	Portsmouth	US NAVY DEFENSE FUEL SUPPORT POINT CRANEY ISLAND	690.24
23703	Portsmouth	COGENTRIX VIRGINIA LEASING CORP	1.80
23707	Portsmouth	TITAN VIRGINIA READY-MIX LLC	0.01
23709	Portsmouth	US NAVY NORFOLK NAVAL SHIPYARD	33,900.00
23803	Petersburg	PRE CON INC	10,740.87
23803	Dinwiddie	CHAPARRAL (VA) INC	1,431.00
23803	Petersburg	DOMINION CHEMICAL CO INC	500.00
23803	Dinwiddie	TUBE CITY IMS	17.00
23805	Petersburg	BOEHRINGER INGELHEIM CHEMICALS INC	6,139.00
23805	Petersburg	BLEACHTECH LLC	1,500.00
23805	Petersburg	VALMONT - VIRGINIA GALVANIZING INC	560.00
23805	Petersburg	AMSTED RAIL CO INC	1.10
23824	Nottoway	US ARMY NATIONAL GUARD FORT PICKETT INSTALLATION	144.50
23824	Nottoway	ARBORTECH FOREST PRODUCTS INC	12.70



23834	Chesterfield	CHURCH & DWIGHT CO INC	498,962.71
23834	Chesterfield	HONEYWELL INTERNATIONAL COLONIAL HEIGHTS PLANT	364,724.00
23834	Colonial Heights	SUN CHEMICAL CORP	23.00
23836	Chesterfield	CHESTERFIELD POWER STATION	749,707.00
23836	Chesterfield	PHILIP MORRIS	142,510.94
23836	Chesterfield	DUPONT TEIJIN FILMS	75,417.00
23836	Chesterfield	UNIVAR USA INC CHESTER FACILITY	1,338.00
23836	Chesterfield	TRIDENT AMERICAS	559.00
23836	Chesterfield	SAFETY-KLEEN SYSTEMS	23.00
23837	Southampton	HERCULES INC	556,741.00
23837	Southampton	ARKEMA INC FRANKLIN PLANT	500.00
23847	Greenville	GEORGIA PACIFIC WOOD PRODUCTS LLC EMPORIA PLYWOOD	24,800.00
23851	Isle of Wight	INTERNATIONAL PAPER FRANKLIN MILL	1,969,619.00
23851	Southampton	SOUTHAMPTON POWER STATION	31,251.80
23860	Hopewell	HONEYWELL INTERNATIONAL INC HOPEWELL PLANT	2,233,695.00
23860	Hopewell	ROCKTENN CP LLC	826,001.57
23860	Hopewell	HERCULES INC	203,955.00
23860	Hopewell	HOPEWELL POWER STATION	92,067.00
23860	Hopewell	JAMES RIVER COGENERATION CO INC	8,098.91
23860	Hopewell	EVONIK CORP	2,082.00
23867	Greenville	GEORGIA-PACIFIC WOOD PRODUCTS LLC	154,407.00
23868	Brunswick	REDLAND BRICK INC- LAWRENCEVILLE PLANT	304.00
23875	Prince George	METL-SPAN A DIV OF NCI GROUP INC	1.17
23890	Sussex	MURPHY-BROWN LLC	3.91
23927	Mecklenburg	MECKLENBURG POWER STATION	2,652.00
23936	Buckingham	KYANITE MINING CORP MULLITE PLANT	156.23
23944	Lunenburg	VIRGINIA MARBLE MANUFACTURERS INC	75,177.00
23944	Lunenburg	VIRGINIA MARBLE MANUFACTURERS INC	51,500.00
23950	Mecklenburg	AMERICAN BUILDINGS COMPANY-LA CROSSE	6.55
23964	Charlotte	MORGAN LUMBER CO INC	10.10
24012	Roanoke	FOOT LEVELERS INC	58,777.00
24012	Botetourt	GENERAL SHALE BRICK INC PLANT	45,000.00
24012	Roanoke	VIRGINIA TRANSFORMER CORP	8,921.00
24013	Roanoke	CHEMSOLV INC	1,469.00
24015	Roanoke	AKZO NOBEL COATINGS INC.2837 ROANOKE AVE SW, ROANOKE VIRGINIA 24015 (ROANOKE (CITY))	15,513.00
24015	Roanoke	ASSOCIATED ASPHALT ROANOKE LLC	22.11
24017	Roanoke	STEEL DYNAMICS INC ROANOKE BAR DIV.102	3,437.49

24018	Roanoke	MARATHON PETROLEUM CO	3,858.00
24019	Botetourt	DYNAX AMERICA CORP	65,033.00
24019	Roanoke	BOXLEY CONCRETE PRODUCTS OF VA INC	1.90
24054	Henry	CPFILMS INC-AXTON FACILITY	160,200.00
24060	Montgomery	WOLVERINE ADVANCED MATERIALS	15,465.57
24060	Montgomery	WOLVERINE ADVANCED MATERIALS	9,518.69
24060	Montgomery	FEDERAL-MOGUL CORP	9,226.00
24073	Montgomery	HUBBELL LIGHTING INC	33.00
24083	Botetourt	ALTEC INDUSTRIES INC.	94.10
24084	Pulaski	MAR-BAL INC	1,715.00
24084	Pulaski	VOLVO GROUP NA LLC	410.00
24084	Pulaski	ELECTROPLATE-RITE CORP	275.00
24085	Botetourt	GALA INDUSTRIES INC	2.00
24089	Henry	CPFILMS - PLANT II	264,585.00
24089	Henry	CPFILMS INC - PLANT 1	840.00
24093	Giles	AMERICAN ELECTRIC POWER	895,172.40
24112	Henry	COMMONWEALTH LAMINATING & COATING INC	14,519.00
24112	Henry	BASSETT PLANT	10,315.00
24112	Henry	PINC PRODUCTS INC	771.00
24112	Henry	MEHLER ENGINEERED PRODUCTS	394.00
24112	Henry	VIRGINIA MIRROR CO INC	0.61
24124	Giles	CELANESE ACETATE LLC - CELCO P LANT	493,930.50
24141	Montgomery	US ARMY RADFORD ARMY AMMUNITION PLANT	419,463.11
24141	Radford	GREDE-RADFORD LLC	607.00
24143	Montgomery	ALLIANT TECHSYSTEMS OPERATIONS LLC	22,033.20
24150	Giles	LHOIST NA OF VIRGINIA INC	62,637.27
24153	Roanoke	KOPPERS INC	6,012.20
24153	Roanoke	YOKOHAMA TIRE CORP	5,539.87
24153	Roanoke	TECTON PRODUCTS LLC	954.00
24153	Roanoke	NEW MILLENNIUM BUILDING SYSTEMS	97.00
24153	Roanoke	GRAHAM-WHITE MANUFACTURING CO	79.00
24153	Roanoke	MEDECO SECURITY LOCKS INC	1.13
24153	Roanoke	KIK (VIRGINIA) LLC	1.00
24171	Patrick	HANESBRANDS WOOLWINE VIRGINIA FACILITY	9.88
24175	Botetourt	ROANOKE CEMENT CO LLC	39,867.30
24179	Roanoke	SAFETY-KLEEN SYSTEMS	16.00
24201	Bristol	STRONGWELL CORP BRISTOL	1,000.00
24201	Bristol	ASSOCIATED ASPHALT BRISTOL LLC	14.07
24202	Washington	AZZ GALVANIZING-BRISTOL	811.63
24202	Washington	HIRSCHFELD INDUSTRIES BRIDGE LLC	1.80
24210	Washington	HAPCO	17,295.00

24210	Washington	STEEL FAB A DIV OF SAMUEL PRESSURE VESSEL GROUP (PLANT #20)	15.72
24210	Washington	AGC FLAT GLASS NA ABINGDON PLANT	10.00
24210	Washington	STEEL FAB A DIV OF SAMUEL PRESSURE VESSEL GROUP (PLANT #1)	2.18
24225	Russell	AMERICAN ELECTRIC POWER CLINCH	141,753.10
24236	Washington	COLUMBUS MCKINNON CORP	0.06
24244	Scott	TEMPUR PRODUCTION USA INC	20.00
24277	Lee	US PENITENTIARY LEE	0.50
24283	Wise	VIRGINIA CITY HYBRID ENERGY CENTER	29,114.62
24301	Pulaski	CATERPILLAR GLOBAL MINING AMERICA	10.00
24301	Pulaski	JAMES HARDIE BUILDING PRODUCTS PULASKL	0.03
24311	Smyth	UTILITY TRAILER MANUFACTURING CO	3.62
24315	Bland	ABB INC	10,676.00
24333	Carroll	VAUGHAN-BASSETT FURNITURE CO GALAX	137,384.99
24333	Galax	CONSOLIDATED GLASS & MIRROR.101	12,223.00
24333	Galax	VAUGHAN-BASSETT FURNITURE GALAX PLANT	11,901.40
24333	Galax	CONSOLIDATED GLASS & MIRROR.305	46.00
24340	Washington	APPALACHIAN PLASTICS INC	36,032.00
24343	Carroll	CATERPILLAR CONVEYOR SYSTEM PRODUCTS	12.00
24354	Smyth	SUPERFLO INC	501.00
24354	Smyth	ROYAL MOULDINGS LTD	82.00
24382	Wythe	HUTCHINSON SEALING SYSTEMS INC	1,022.00
24401	Augusta	TAYLOR & BOODY INC	0.50
24416	Rockbridge	MODINE MANUFACTURING CO	23.17
24416	Buena Vista	EVERBRITE LLC	8.43
24426	Covington	MEADWESTVACO OF VIRGINIA COVINGTON OPERATIONS	2,935,731.93
24439	Rockbridge	STELLA-JONES CORP	6,558.00
24477	Augusta	NIBCO OF VIRGINIA INC	12,339.00
24477	Augusta	REXNORD INDUSTRIES LLC	5,478.00
24482	Augusta	SCHICK MANUFACTURING INC	26,210.00
24482	Augusta	BALL ADVANCED ALUMINUM TECHNOLOGIES CORP	14,003.40
24482	Augusta	DAIKIN APPLIED	250.00
24486	Augusta	CERRO FABRICATED PRODUCTS INC	1,913.00
24486	Augusta	DEGESCH AMERICA INC	1,369.00
24501	Lynchburg	R R DONNELLEY PRINTING CO	319,120.00
24501	Lynchburg	SLOCUM ADHESIVES CORP	10,733.00
24501	Lynchburg	PARKER HANNIFIN INTEGRATED SEALS DIV	729.00
24502	Lynchburg	NORCRAFT COS.1	72,118.00
24502	Lynchburg	C R HUDGINS PLATING INC	535.54

24504	Lynchburg	GRIFFIN PIPE PRODUCTS CO	20,247.97
24504	Campbell	BABCOCK & WILCOX NUCLEAR OPERATIONS GROUP	3,066.47
24504	Lynchburg	TRI TECH LABORATORIES INC	22.00
24504	Lynchburg	ROCK-TENN CO	0.26
24506	Lynchburg	DAVIS-FROST INC	3,436.00
24517	Campbell	TIMKEN CO ALTAVISTA BEARING PLANT	1.00
24521	Amherst	GREIF PACKAGING LLC	315,265.00
24526	Bedford	GEORGIA-PACIFIC BIG ISLAND MILL	374,977.00
24531	Pittsylvania	CCP COMPOSITES US LLC	15,488.56
24531	Pittsylvania	COLUMBIA FOREST PRODUCTS	14,896.00
24531	Pittsylvania	ARKEMA INC SARTOMER BUSINESS UNIT	6,665.00
24534	Halifax	DOMINION CLOVER POWER	453,023.60
24539	Halifax	HUBER ENGINEERED WOODS LLC	65,893.09
24540	Pittsylvania	INTERTAPE POLYMER CORP	102,937.10
24540	Pittsylvania	DANCHEM TECHNOLOGIES INC	57,428.10
24541	Pittsylvania	JTI LEAF SERVICES (US) LLC	63,120.00
24541	Danville	THE GOODYEAR TIRE & RUBBER CO	323.89
24541	Pittsylvania	BLUE RIDGE FIBERBOARD	12.00
24554	Campbell	GEORGIA-PACIFIC WOOD PRODUCTS LLC - BROOKNEAL OSB	6,054.00
24574	Amherst	LYNCHBURG STEEL CO LLC	0.02
24586	Pittsylvania	ELKAY WOOD PRODUCTS CO	51,809.00
24586	Pittsylvania	OWENS-BROCKWAY GLASS CONTAINER INC PLANT 29	244.94
24592	Halifax	AQUATIC CO	97,420.00
24592	Halifax	RTP CO	5.00
24592	Halifax	ABB INC	3.80
24631	Buchanan	JEWELL COKE CO LP	1,312,624.00