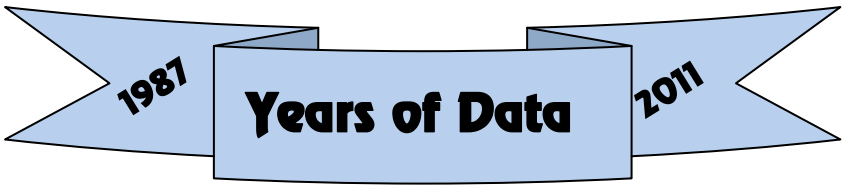
DELAWARE
TOXICS RELEASE INVENTORY
DATA DETAIL

2011

25



Prepared by the EPCRA Reporting Program
Department of Natural Resources and Environmental Control

November 2012

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DNREC MISSION STATEMENT

The mission of the Department of Natural Resources and Environmental Control is to ensure the wise management, conservation, and enhancement of the State's natural resources, protect public health and the environment, provide quality outdoor recreation, improve the quality of life, and educate the public on historic, cultural, and natural resource use, requirements and issues.

Scan this image with your smart phone to access DNREC TRI data and reports.

Front Cover: *The TRI program celebrates its 25th year of providing important chemical release and other waste management information to the public, while Delaware facilities continue to report significant reductions in releases of these chemicals to the environment.*

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A Message from DNREC Secretary Collin O'Mara

The 2011 Toxics Release Inventory (TRI) data marks a banner year as we celebrate both the 25th year of TRI data's availability to the public and additional environmental progress with productivity up and emissions down. Since its inception, the TRI program has served as an easy-to-use source of important data about toxic chemicals that are released and managed as waste by the state's industrial facilities.

The TRI program does not mandate reductions in chemical releases, or control waste management activities. However, while many of the reductions in releases of TRI chemicals over the years have been the result of regulatory control programs, significant reductions have resulted solely from the public availability of the data and subsequent industry efforts to lower their TRI numbers. Delaware facilities have reduced on-site releases of original reportable chemicals by 91 percent since 1990 (typically used as a base year, since the reporting requirements were phased into TRI over the first several years). Delaware facilities have also reduced on-site releases of the original chemicals (those chemicals added to TRI reporting in 1995) and the electric generating facilities (added to TRI in 1998) by 71 percent. By any measure, TRI data facilitated by DNREC has proven to be a success.

For 2011, average production for all TRI facilities reporting in Delaware increased 31 percent. Contrary to this increase, however, total on-site releases of toxic chemicals declined an additional 9 percent compared to 2010. This is great news for Delaware – and shows that a healthy environment and strong economy are not mutually exclusive. As with last year, reductions in releases of acid gases from power plants account for a significant portion of the total reduction in TRI on-site releases. For 2011, the electric generating facilities reported 1,738,000 pounds, a significant reduction of 1,126,000 pounds (39 percent), down from the 2,864,000 pounds reported for 2010. DNREC's Regulation 1146, a two-phase air quality regulation designed to sharply reduce emissions from Delaware power plants (see page 53 of this report for details), continues to show results. Among them: NRG's Indian River power plant commissioned a major upgrade to its Unit 4 coal-powered generator; NRG in Dover will be completing a conversion to natural gas in early 2013, and the Calpine Edge Moor/Hay Road Power Plant converted from coal to natural gas in July 2010 and the Invista Seaford facility converted to natural gas in April 2009. On-site releases of Mercury to the air reported by the four power-generating facilities are down 94 percent since 2003 from 572 pounds to 33 pounds for 2011.

Total TRI waste for 2011, including on-site releases, transfers off-site, and on-site waste management, did increase by 26 percent over 2010, but this increase was less than the 31 percent increase in average production noted above for Delaware TRI facilities. Both the increase in production and the increase in total waste were due in large part to the Delaware City Refinery coming back on line in 2011, after being idled during 2010. While 2011 TRI reported releases and waste amounts for the refinery represent an increase over the idled operations in 2010, the amounts are lower than the production years immediately prior. TRI chemical releases and waste management activities reported for this and other Delaware facilities for 2011 are detailed within this report.

In Delaware, we are demonstrating that we can have a healthy environment and a strong economy – but there is still more work to do. TRI is an important scorecard for all Delawareans and I urge you to review the information in this report and use it to get involved concerning management of chemicals in and around your community. I also encourage our industrial partners to continue to reduce the releases of pollutants, making Delaware a cleaner and safer environment for everyone to enjoy.

Please see the ***For Further Information*** section of this report for details on accessing TRI data, and links to many other DNREC and EPA Internet sites devoted to Community Right-To-Know.

Sincerely,

Collin P. O'Mara, Secretary,
Department of Natural Resources and Environmental Control

TOXICS RELEASE INVENTORY

Executive Summary

The 2011 TRI data represents the 25th year of data collection from facilities for distribution to the public, and the TRI program continues to fulfill its goal of providing chemical use, release, and waste management information to the public.

For 2011, total on-site releases reported in Delaware show a net decrease of 385,000 pounds (9%) compared to 2010. Significant changes impacting on-site releases for 2011 were the increases from the restart of the Delaware City Refinery, more than offset by the reductions at the Indian River Generating Station as a result of installation of pollution controls, and the full year effect of the conversion to natural gas at the Calpine Edge Moor Energy Center. The total on-site release reported by these three facilities for 2011 resulted in a net decrease of 360,000 pounds. Changes in releases at other facilities were much smaller.

Each year, facilities in Delaware have strived to reduce their on-site releases. Although not always successful, the general trend has been downward. For 2011, even with the additions of chemicals in 1995 and facilities in 1998, this is the second consecutive year that total on-site releases have been lower than the amount reported in 1990. See the ***Trend Analysis*** section on page 44 for details.

Overall, results from the 2011 TRI data show (amounts rounded to the nearest 1,000 pounds):

- The total amount of TRI chemicals reported as released to air for 2011 decreased by 1,102,000 pounds (31%), compared to 2010. The largest change in this category was hydrochloric acid (HCl) aerosols released from the Indian River Generating Station, reporting 1,500,000 pounds HCl for 2011, which was 800,000 pounds less than the 2010 amount. The second largest change in release to air was reported by the Calpine Edge Moor/Hay Road Energy Center with a reduction of 265,000 pounds for HCl.
- The total amount released on-site to water increased by 630,000 pounds (105%); this was largely due to the nitrate compound report from the Delaware City Refinery with an increase of 594,000 pounds (156%).
- The total amount released on-site to land increased by 68,000 pounds (32%). This was primarily the result of the Indian River Generating Station increases in releases to their on-site landfill. The amount of TRI chemicals (mostly metal compounds) reported as sent to the on-site landfill increased by 113,000 pounds for 2011, and this was offset by a decrease in release of ammonia to land of 44,000 pounds by Mountaire Farms of Delaware.
- The trend for on-site release of carcinogens increased by 28,000 pounds, or 18% for 2011, but has declined 670,000 pounds, or 78%, since 1998. Significant increases in on-site releases for 2011 were reported for vinyl acetate, lead compounds, and benzene.
- The trend for on-site release of persistent bioaccumulative toxins (PBTs) was up by 4,600 pounds or 52% for 2011. This was primarily the result of higher Indian River Generating Station disposals to land and Dover Air Force Base release to air, both for lead compounds.
- Total TRI waste, including releases on-site, transfers off-site for treatment and disposal, and waste management on-site, increased by 26%, or 15,108,000 pounds. On-site release amounts, reported above, were down 9%. Transfers off-site increased 3%, led by recycle of n,n-dimethylformamide at Rohm & Haas, up by 1,279,000 pounds. Waste managed on-site increased by 37%, or 15,159,000 pounds, led by 9,173,000 pounds for on-site energy recovery of several chemicals at the Delaware City Refinery.

TOXICS RELEASE INVENTORY

Introduction

What is the Toxics Release Inventory?

The Toxics Release Inventory, or TRI, is a publicly available data set containing information reported annually for toxic chemicals manufactured, processed, or otherwise used by certain facilities in Delaware and throughout the United States. Each year, these facilities report releases and waste management information for covered chemicals. The reportable list of toxic chemicals for 2011 included 593 individual chemicals and 30 chemical categories. For 2011, U.S. Environmental Protection Agency (EPA) added 16 chemicals reasonably anticipated to be human carcinogens to the TRI list of reportable chemicals. See additional discussion about these chemicals on page 5. TRI was established in 1986 under Title III, Section 313, of the Federal Superfund Amendments and Reauthorization Act (SARA 313) to provide information to the public about the presence and release of toxic chemicals in their communities. Title III is also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). See ***Appendix A*** for more information.

Covered facilities report TRI information to the EPA and to the state in which the facility is located. In Delaware, the EPCRA Reporting Program within the Department of Natural Resources and Environmental Control (DNREC) receives and compiles TRI data from facilities located within the State. The DNREC EPCRA Reporting Program maintains a TRI database that is updated as new reports and revisions to old reports are received. The database currently contains 25 years of reported data. Most releases reported under TRI are also regulated through Federal and/or State permits.

This report contains detail from every 2011 TRI report or report revision from Delaware facilities filed with and received by DNREC as of October 1, 2012. Facilities must submit these reports to DNREC and the EPA by July 1 of each year. Several types of analyses are presented in this report based on this data and data from prior years. A second, less detailed report, is also available that provides a summary of the data presented here. See **Access to TRI Files** on page 62 for details.

Reporting Requirements

A facility is required to submit a report for a listed toxic chemical if the facility meets all of the following criteria:

1. Employs the equivalent of 10 or more full-time employees,
2. Is a covered industry, or is a Federal facility (See Table 1 on the next page for a list of reporting industries), and,
3. Manufactures or processes more than 25,000 pounds, or otherwise uses more than 10,000 pounds, of the listed toxic chemical during the course of the calendar year. Threshold limits for specific chemicals known as PBTs (Persistent Bioaccumulative Toxics) are lower (see Table 7 on page 32).

Note that from time to time, the EPA proposes changes in reporting requirements. It gives agencies, reporting facilities, and other interested parties time to comment on these changes prior to making a final decision about the proposed change. See page 5 for more details.

Facilities that meet the criteria for reporting must submit one report for each listed toxic chemical if it was manufactured, processed, or otherwise used above threshold quantities. The reports cover releases and waste management activities during the prior calendar year.

It is important to note that a facility may need to report even if it has no releases of toxic chemicals, because reporting is based on the amount manufactured, processed, or otherwise used, and not the amount released.

Table 1 is a list of covered industries reporting to the Delaware TRI program for 2011, along with the corresponding three primary digits of the North American Industrial Classification System (NAICS) Codes. NAICS 6-digit codes are used to identify the type of activities performed at a facility. Each industry sector represented by facilities reporting in Delaware for 2011 is shown in Table 5 on page 17. NAICS codes were used in TRI starting in 2006 to provide more discrimination between the various industry sectors reporting to TRI. They do not correspond directly to the Standard Industrial Classification (SIC) 4-digit codes that were in use through 2005. Because of this, the diversity of industries reporting to TRI, and the differences in code definitions, all the facilities that were in a particular SIC code may not remain together in a NAICS code.

TABLE 1
COVERED INDUSTRIES

NAICS CODES	INDUSTRY
212	Mining
221	Utilities
311	Food Manufacturing
313	Textile Products Mfg.
324	Petroleum and Coal Products Mfg.
325	Chemical Manufacturing
326	Plastics and Rubber Manufacturing
331	Primary Metal Manufacturing
332	Fabricated Metal Product Mfg.
334	Computer and Electronic Product Mfg.
335	Electrical Equipment Mfg.
337	Furniture Manufacturing
339	Misc. Manufacturing
424	Wholesalers, Non-Durable Goods
454	Non-Store Retailers
928	National Security

The standard Form R report (see ***Appendix M*** for Form R) contains general facility information and complete data about on-site releases, off-site transfers, and on-site waste management activities. Form R can be used for all TRI reports. In lieu of Form R, the optional short Form A report (see ***Appendix N*** for Form A) may be used provided certain criteria are met. Form A, initiated in the 1997 reporting year, is a two-page report that provides facility information (essentially the same as Form R) and identification of the chemical, but does not provide any release, transfer, or waste management data. Nationwide and in Delaware, 14% of the TRI reports were filed as Form A. After a facility determines that it must report on a given chemical, the facility is eligible to use Form A if:

For non-PBT chemicals:

1. The total annual reportable amount (including the sum of on and off-site releases, disposal, treatment, recovery for recycle or energy) is less than 500 pounds; and,
2. The total annual amount of the chemical manufactured, processed, or otherwise used does not exceed 1,000,000 pounds.

For Persistent Bioaccumulative Toxic (PBT) Chemicals including dioxins:

1. **PBTs, including dioxins and dioxin-like compounds, may not be reported on Form A.**
2. Starting in 2008, an additional form, Schedule 1, was also required for dioxins.

For reporting years 2006-2007, limited reporting on Form A of non-dioxin PBTs, which had no releases, was allowed but that provision was revoked starting in 2008 and PBT reporting requirements (Form R only) were returned to the PBT criteria shown here.

Because of the lack of data in the Form A reports, DNREC has been collaborating with the reporting facilities and emphasizing the importance of reporting on Form R.

Limitations of TRI Data

The user of TRI data should be aware of its limitations in order to interpret its significance accurately.

- **NOT ALL FACILITIES ARE REQUIRED TO REPORT.** A relatively small number of facilities in Delaware are required to report under TRI, based on the criteria listed on pages 2-3. TRI facilities are primarily industrial/manufacturing facilities and facilities report releases and other waste management activity to TRI. TRI does not account for amounts of hazardous material stored at facilities. The DNREC program addressing inventories of material stored on site, the Hazardous Chemical Reporting program known as "Tier II" (also administered under EPCRA), includes a much greater number of facilities. Facilities report amounts and the location of chemicals stored on-site to Tier II, but not releases. For further information, see ***Hazardous Chemical Reporting in Appendix A.***

- **OTHER SOURCES NOT COVERED UNDER TRI ALSO RELEASE TOXIC CHEMICALS.** Other significant sources of pollution include small businesses, motor vehicles and agricultural operations, as examples. For example, on-road motor vehicles released an estimated 7,633 tons to air in Delaware just for the chemicals ammonia (NH_3) and volatile organic compounds (VOCs), for 2008, the last year for which data is available. NH_3 and many VOCs are also TRI chemicals. See page 6, which shows that total TRI on-site releases for 2011 are 3,927,005 pounds, or 1,964 tons, about 26% of the on-road vehicle amount is for these TRI chemicals.

- **FACILITIES ARE REQUIRED TO BASE TRI DATA ON MEASUREMENTS AND MONITORED DATA ONLY IF THESE ARE AVAILABLE AT THE FACILITY.** If such data is not available, quantities may be estimated based on published emission factors, mass balance calculations, or good engineering judgment. Additional monitoring equipment and measurements are not required. For 2011, 11% of the reports representing 45% of reported on-site release amounts were estimated using monitoring data, with the balance being split between emission factors, mass balance calculations, and other methods.

- **THE DATA ESTIMATION METHODS MAY CHANGE OR VARY.** The methods of estimating, analytical methodology, or basis of calculating data used by different facilities, or even the same facility over time, may vary, and may result in significant changes in reporting while the actual release may remain relatively unchanged. DNREC performs cross-checks of the data with other information sources to verify its accuracy and contacts facilities concerning apparent discrepancies.

- **FACILITIES MAY REVISE FORM R DATA AT ANY TIME.** These revisions sometimes involve significant changes for data previously reported by the facility.

- **THE DATA DOES NOT INDICATE THE AMOUNT OF HUMAN EXPOSURE.** An important consideration to keep in mind is that TRI does not provide an indication of potential exposure to the reported releases and cannot be used by itself to determine the impact on public health. The chemical's release rate, toxicity, and environmental fate, as well as local weather and wind direction and the proximity of nearby communities to the release must be considered when assessing exposures. Small releases of highly toxic chemicals may pose greater risks than large releases of less toxic chemicals. The

potential for exposure increases the longer the chemical remains unchanged in the environment. Some chemicals may quickly break down into less toxic forms, while others may accumulate in the environment, becoming a potential source of long-term exposure. The chemical exposure of a population depends on the environmental media (air, water, land) into which the chemical is released. The media also affect the type of exposure possible, such as inhalation, dermal exposure, or ingestion.

Despite these limitations, TRI serves as a valuable screening tool to identify areas of concern that may require further investigation.

Recent Developments in TRI Reporting

The TRI reporting requirements change as the EPA seeks to improve the program through changes to the list of reportable chemicals and through program expansions. Because of these changes, considerable caution must be exercised when comparing TRI data from previous years. Notations will be made to indicate which data is presented with adjustments in order to show it on a uniform year-to-year basis.

- **New Chemicals.** Starting with the 2011 reporting year, 16 new carcinogens, four of which are in the polycyclic aromatic compounds (PAC) category, were added to the list of reportable chemicals. None of the 12 individually listed new chemicals were reported in Delaware for 2011. PACs are reported as a category, so it is not possible to determine if any of the 10 facilities reporting PACs reported any of the four new PAC chemicals.

- **Dioxin and Dioxin-Like Compounds.** Starting with the 2008 Reporting Year, additional detail was required. There are seventeen distinct members of this chemical category listed under TRI. Starting in 2008, facilities must report the quantity for each individual member on a new form (Schedule 1), in addition to the total grams released and/or managed as waste for the entire category. The mass quantity data of the individual members can then be used to calculate Toxic Equivalent Quantity (TEQ) values that can be considered along with the mass data. The dioxin data for Delaware facilities is presented in this report starting on page 34.

- **Electronic Reporting.** Starting with reporting year 2009, 100% of all Delaware TRI reports are received electronically. Typically, 7 pages are included in each report and the cover letters, and this equates to about 1600 pieces of paper saved each year. This reporting method had been an option through the EPA since Reporting Year (RY) 2005, and Delaware began to participate in electronic reporting for that year. TRI data is reported by July 1 for the previous calendar year. Before electronic reporting was available, this report was typically published in April-May of the following year. Now, with the ability to receive and process facility reports faster, this report and the associated data in it is published the same year in which the data was reported.

TOXICS RELEASE INVENTORY

2011 Data Summary

TABLE 2
2011 TRI DATA SUMMARY
(IN POUNDS)

	2011
No. of Facilities	63
No of Form As	34
No of Form Rs	209
No. of Chemicals	89
On-Site Releases	
Air	2,417,599
Water	1,230,737
Land	278,669
Total On-Site Releases	3,927,005
Off-Site Transfers	
POTWs	1,048,588
Recycle	8,028,698
Energy Recovery	2,110,293
Treatment	274,727
Disposal	2,307,392
Total Off-Site Transfers	13,769,699
On-Site Waste Mgmt.	
Recycle	7,974,584
Energy Recovery	9,172,883
Treatment	38,585,960
Total On-Site Mgmt.	55,733,427
Total Waste	73,430,130

Statewide totals of reported 2011 TRI on-site releases, off-site transfers, and wastes managed on-site are shown in Table 2. On-site releases were lower by 9% (404,000 pounds) compared to 2010. Reduction of hydrochloric acid releases reported by the Indian River and Edge Moor power plants was a major factor in the decrease. Changes in production levels and pollution controls at many facilities accounted for other decreases and increases. A total of 63 facilities submitted 243 reports on 89 different chemicals. Fifteen more reports were submitted and ten more chemicals were reported than for 2010. A major factor in these increases was the restart of the Delaware City Refinery. Polycyclic aromatic compounds, zinc compounds, manganese compounds, and lead compounds all had 10 or more reports. Releases to air, led by acid gases, are the largest portion (62%) of on-site releases. Hydrochloric acid had the largest decrease in reported releases for 2011, but remains the largest amount TRI chemical released on-site at 1.6 million pounds.

Types of Data

Table 2 lists all the categories of data reported to Delaware and the EPA under the TRI program. Within the reports received from facilities, the data is broken down into additional sub-categories. For ease of presentation in this report, the data has been grouped into these categories as described below.

On-Site Releases: On-site releases in Delaware are to **air, water,** or **land**. There are four TRI categories, but one of these, **underground injection** of TRI chemical waste to wells, is not permitted in Delaware; therefore, DNREC does not write any permits for this kind of disposal. The **release to air** category includes stack releases collected by mechanical means such as vents, ducts, or pipes and fugitive releases escaping collection, including equipment leaks and evaporation. **Releases to water** are to water bodies, including streams, rivers, lakes, bays, or oceans. This includes releases from contained sources, such as industrial process outflow or open trenches. Releases to water, which result from TRI-reportable chemicals in runoff and storm water runoff, are also reportable. **Releases to land** are to (1) RCRA (Resource Conservation and Recovery Act) landfills, in which wastes are buried, (2) surface impoundments, which are uncovered holding areas used to volatilize and/or settle waste materials, (3) other land disposal such as waste piles or releases to land such as spills or leaks, (4) land application/treatment in which waste containing a listed chemical is applied to or incorporated into soil, and (5) other non-RCRA landfills.

Off-Site Transfers: Off-site transfers include transfer of chemical waste to **POTWs** (publicly owned treatment works), **recycle** operations (five types), **energy recovery** operations (two types), **treatment** operations (six types), and **disposal** (fourteen types). The receiving facilities are separate from the facility generating the waste. This total of 27 sub-categories is provided for the purpose of classifying the types of final off-site waste management undertaken for each chemical.

On-Site Waste Management: Waste management operations at the facility generating the waste are categorized to include **recycle**, **energy recovery**, and **treatment.**

The diagram below shows these types of data and how they are related to the four main categories of on- and off-site releases, disposals, and other waste management.

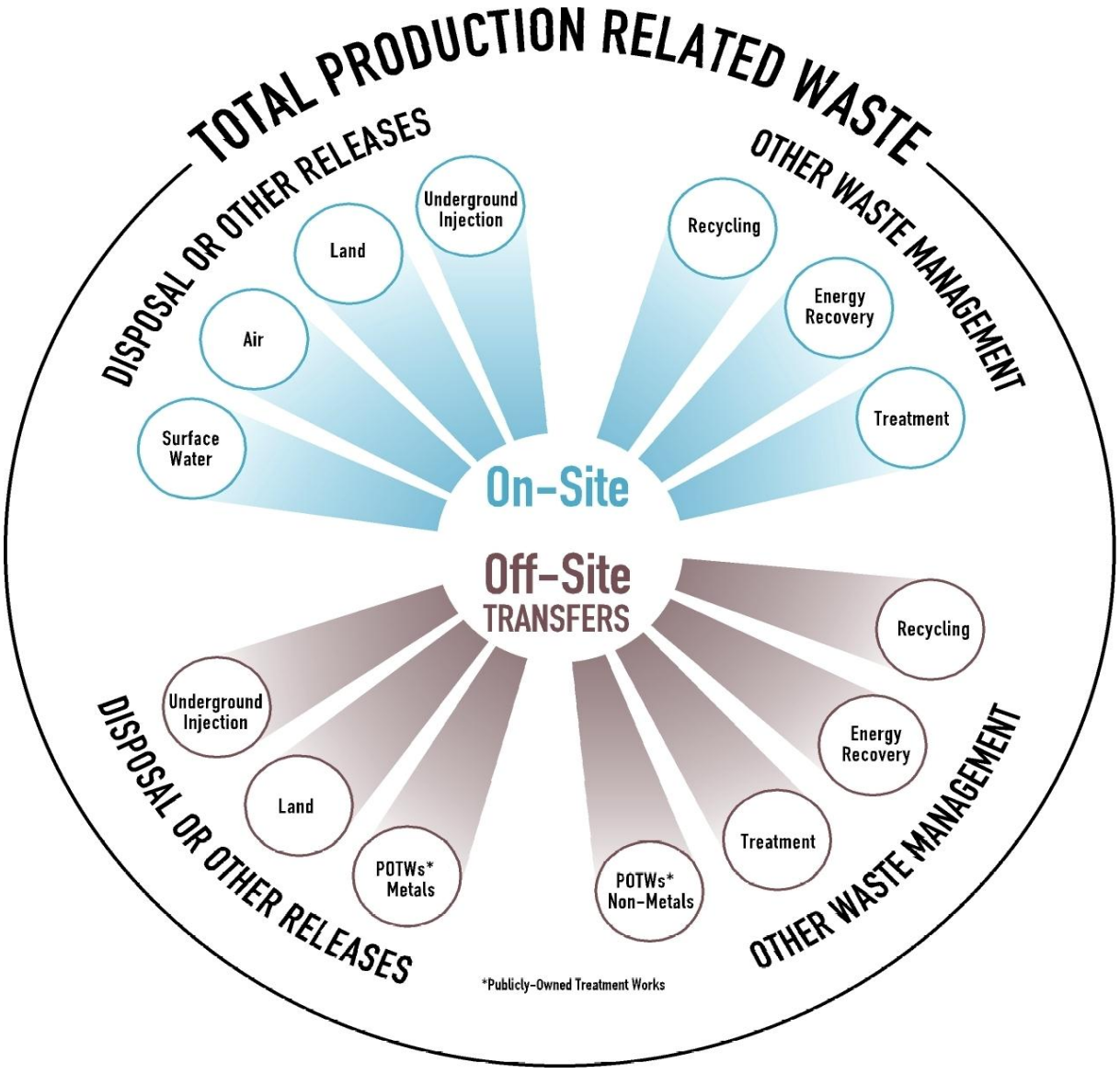
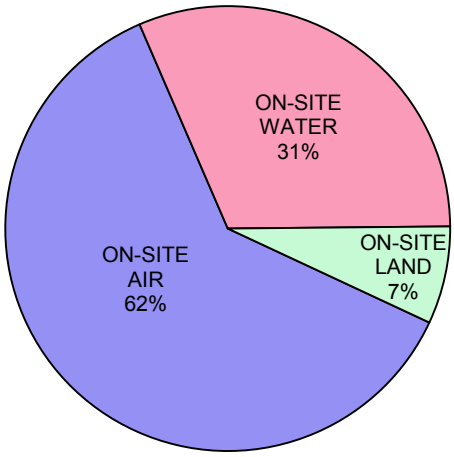


FIGURE 1
2011 ON-SITE RELEASES



TOTAL REPORTED
3,927,005 :POUNDS

On-Site Releases

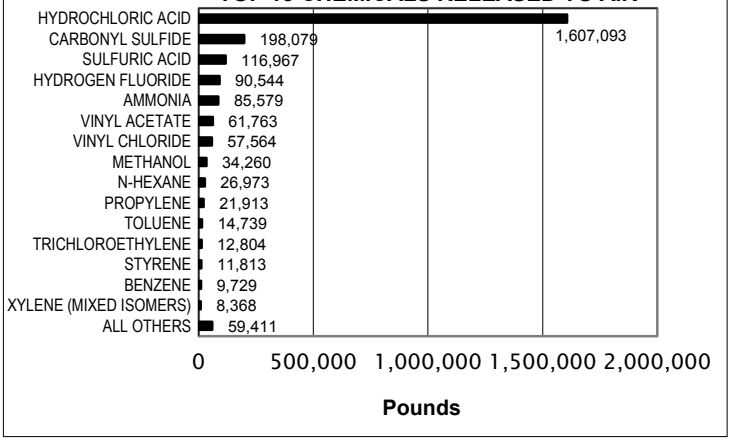
On-site TRI releases are emissions from a facility to the environment because of normal operations, including emissions to the air, discharges to surface water, and disposal onto or into the ground. These on-site releases to air, water, and land reported to TRI in 2011 made up 5.4% of all TRI-reported waste amounts. The remaining 94.6% of waste is managed on or off-site as shown in the diagram on the previous page.

Figure 1 shows the totals of on-site releases reported in Delaware. A large portion, 62% of the total on-site release, is to air. Additional analysis of on-site releases is presented in Figures 2, 3, and 4, which show the top 15 chemicals released to air, water, and land. A trend graph for 2001-2011 for all reported on-site releases in on page 47, and a trend graph for the top five chemicals is on page 48. Additional detail about on-site releases can be found in Appendices C, E, F, and H.

Releases to Air

Figure 2 is an illustration of the relative release of the top 15 chemicals compared to the other 62 chemicals reported as released to the air in 2011. The remaining 12 chemicals had no reported releases to air. As in all the years following the 1998 inclusion of the power generating facilities, acid gases are at or near the top of the list. Specifically, hydrochloric and sulfuric acid aerosols (gases) and hydrogen fluoride are released from the electric power generating facilities located in all three counties. These three chemicals comprise 75% of all Delaware-reported TRI on-site releases to air, down from 82% for 2010. Hydrochloric acid alone makes up 66% (1,607,093 pounds) of all on-site releases to air, with the Indian River Generating Station releasing 93% of that amount. DuPont Edge Moor and the Delaware City Refinery reported carbonyl sulfide. The DuPont facility accounted for almost all of the carbonyl sulfide releases. Carbonyl sulfide is a gas by-product of the titanium dioxide production process. Of all on-site releases to air, 8.2% were from carbonyl sulfide. Ammonia can be used as a refrigerant for petrochemical, food processing, and chemical facilities and is a by-product of air pollution control activities. Eight facilities reported ammonia, which accounted for 3.5% of all on-site releases to air.

FIGURE 2
TOP 15 CHEMICALS RELEASED TO AIR



Air Liquide Industrial and Formosa Plastics each reported 21% of the total on-site ammonia releases to air, and the Indian River Generating Station reported 32%. Formosa Plastics reported all of the releases for vinyl acetate, which made up 2.6% of the releases to on-site air. Formosa Plastics was also the only reporter for vinyl chloride, which accounted for 2.4% of all releases to on-site air. Vinyl chloride is used in the manufacture of polyvinylchloride (PVC). Methanol releases, 1.4% of all releases to air, were reported by nine facilities. BASF Newport reported the highest amount, 24,276 pounds, or 71% of the total methanol release to air. N-hexane was reported by four facilities. The Delaware City Refinery, the top reporter, reported 50% of all on-site n-hexane releases to air. The remaining chemicals in Figure 2 were each less than 1.0% of total on-site releases to air.

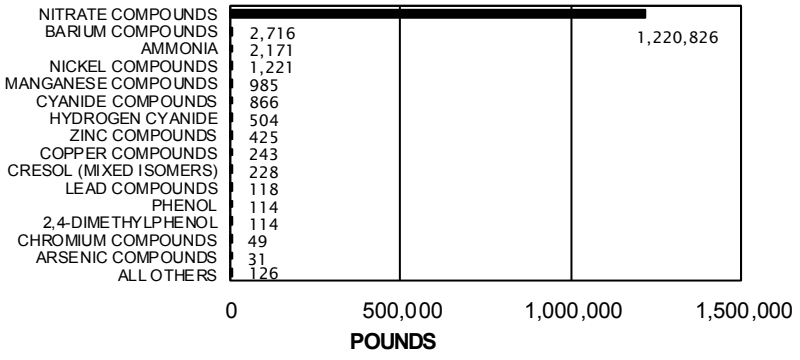
Releases to Water

As can be seen in Figure 1 on page 8, releases to water were about half the amount of releases to air. On-site releases to water made up 31% of the total on-site releases compared to 62% for air. Table 3 shows the total amount of TRI chemicals released to each water body that received a TRI chemical. Not every report to a water body in Table 3 shows a release quantity. In Delaware, 16 of the 72 reports listing a water body as a possible destination for a release to water did not report any quantities actually released to that water body. Ten of the 53 reports listing the Delaware River as their possible destination watershed did not report any release quantity to the Delaware River. The facilities not reporting an amount met the TRI reporting requirements and had the potential to release to the river, but did not report any amounts actually released to the river. However, these facilities may have released chemicals to other media (air or land).

TABLE 3
TRI CHEMICALS RELEASED TO WATER BY WATER BODY IN 2011

WATER BODY	NO. OF FACILITIES	NO. OF REPORTS	RELEASE (IN POUNDS)
ARMY CREEK	2	3	**202**
DELAWARE RIVER	6	60	**982,975**
DRAWYER CREEK TRIBUTARY	1	1	**10**
ISLAND CREEK	1	5	**760**
MUDDY RUN	1	1	**0**
MUDSTONE BRANCH	1	1	**0**
NAAMANS CREEK	1	6	**287**
RED LION CREEK	1	1	**0.0000**
SAVANNAH DITCH	1	1	**246,503**
STATE TOTAL		79	**1,230,737**

FIGURE 3
TOP 15 CHEMICALS RELEASED TO WATER



The Delaware River received 80% of all releases to water, the Savannah Ditch 20%, and all the others combined were less than 0.1%. Figure 3 shows the relative relationship of the top 15 TRI chemicals to all other chemicals (24) reported as released to water. This clearly shows the influence that nitrate compounds have on the total. The nitrate compounds category was the top chemical released, (99.2% of the total release to water), followed by barium compounds (0.22%), and ammonia (0.18%). The remaining chemicals released to water were each less than 0.10% of the total releases to water. The Delaware City Refinery reported a release of 974,323 pounds of nitrate compounds for 2011, and Perdue

Georgetown reported 246,503 pounds. The biological treatment of nitrogen-containing substances such as ammonia and animal waste is responsible for the formation of nitrate compounds, and some ammonia may remain in the water after treatment. Metallic compounds (barium, cobalt, chromium, copper, cyanide, lead, manganese, nickel, vanadium, and zinc) are generally products of fuel combustion, and petroleum, ore and metal refining. The Delaware City Refinery, DuPont Edge Moor, Indian River Generating Station, V&S Delaware Galvanizing, and the Evraz Claymont Steel facilities are the primary facilities releasing these compounds to water. DuPont Edge Moor reported 72% of the barium compounds and 97% of the manganese compounds released to water. Of the total amount of nickel compounds released to water (1,221 pounds), the Delaware City Refinery released 89% of that amount. More details of these releases can be found in the facility profiles on pages 20– 25 and in Appendices C and F.

Table 4 shows the total amount of TRI chemicals for 2011 released to each basin in the State of Delaware. The Inland Bays include lands that drain into the Indian River Bay/Rehoboth Bay area, then to the Atlantic Ocean. The Piedmont Basin contains lands that drain to the portion of the Delaware River above the City of New Castle. All the receiving streams, except the Island Creek eventually feed into the Delaware Bay. Island Creek feeds into the Inland Bays and then into the Atlantic Ocean. The total amount released to water increased by 630,252 pounds in 2011, largely the result of 594,323-pound increase in the reported release of nitrate compounds reported by the Delaware City Refinery. Additional discussion about these releases can be found in the ***Trend Analysis*** section starting on page 44 and in the ***Facility Profiles*** section starting on page 18.

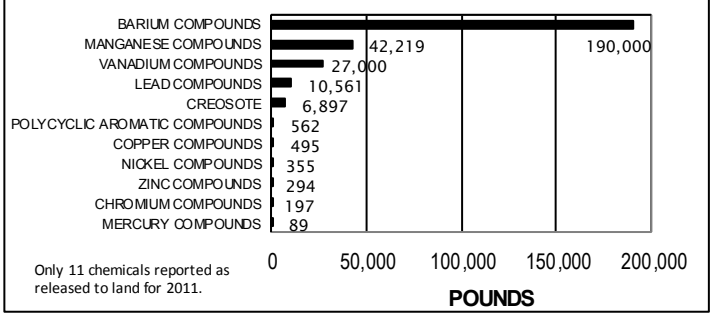
TABLE 4
TRI CHEMICALS
RELEASED TO WATER BY BASIN

BASIN	RELEASE (IN POUNDS)	PERCENT
CHESAPEAKE	0	0.0%
DELAWARE BAY	1,226,206	99.6%
INLAND BAYS	760	0.1%
PIEDMONT	3,771	0.3%
STATE TOTAL	1,230,737	100.0%

Releases to Land

Releases to land are shown in Figure 1 on page 8. These releases are relatively small, amounting to 7% of total on-site releases in 13 reports. Figure 4 shows the contribution for the 11 chemicals reported as being released to land. Nearly all the releases to land (97%) are metals and metal compounds except for creosote and polycyclic aromatic compounds (PACs).

FIGURE 4
TOP 15 CHEMICALS RELEASED TO LAND



Most of the metals and metal compounds reported are formed during combustion from metal impurities that exist in coal or oil, or in the base metal from metal working processes. Barium compounds are 68% of the total releases to land. Barium, manganese, vanadium, lead, copper, nickel, zinc, chromium, and mercury compounds released on-site to land by the Indian River Generating Station and shown as

part of Figure 4, accounted for over 92% of the total releases to land. Additional discussion about these releases to land and their trends can be found in the ***Trend Analysis*** section starting on page 44. Dupont Edge Moor reported all 6,897 pounds of creosote released to land from new railroad ties placed on the property.

Descriptions about some of the hazards that these chemicals, which were released to air, water, or land, may cause to humans, can be found in Appendix K.

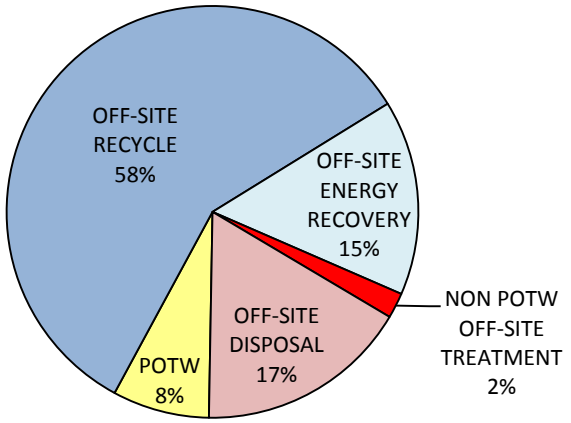
Off-Site Transfers

Off-site transfers are material transfers to off-site locations for the purpose of disposal, recycling, energy recovery, or treatment. Treatment could be at a private waste treatment facility or at a POTW, typically a city or county wastewater treatment plant. The total amounts of chemical wastes transferred off-site, slightly higher by 3% (352,743 pounds) since 2010, are 19% of total TRI waste and 3.5 times the amounts released on-site. The primary reason for the 3% increase was the 1,279,027-pound increase in n,-dimethylformamide transferred off-site for recycle and treatment by the Rohm & Haas B2 B3 B8 facility and the 497,320-pound increase in asbestos transferred off-site for disposal by the Delaware City Refinery as part of the repair and maintenance work in conjunction with the refinery restart. These amounts were offset by reductions in the disposal of several metallic compounds reported by DuPont Edge Moor.

Figure 5 shows the relative portions of the five off-site transfer categories. Table 2 on page 6 shows these amounts in tabular form, and Appendices D and G provide additional detail about transfers from each facility. Overall, significant increases occurred in recycle and energy recovery, and reductions occurred in treatment and disposal.

TRI chemicals in wastes are transported by various means from Delaware to their final destinations, many of which are out-of-state. For 2011, TRI chemicals were sent to 20 states, some as far away as Missouri and Texas, and also to Norway and Canada, in addition to locations in Delaware. Over 92% of TRI chemicals in all wastes transferred off-site were sent to out-of-state locations for further processing and/or disposal. However, over 99% of transfers to POTWs generated by Delaware facilities are treated in Delaware.

FIGURE 5
2011 OFF-SITE TRANSFERS



TOTAL REPORTED:
13,769,699
POUNDS

Off-site transfer to recycle operations accounted for 58.3% of the amounts within the five categories in off-site transfers, while energy recovery accounted for 15.3%, disposals accounted for 16.8% of the transfers, transfers to POTWs accounted for 7.6%, and non-

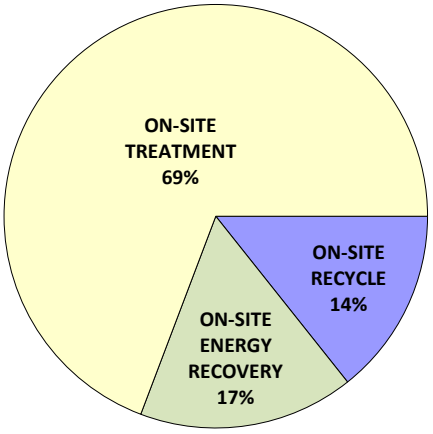
POTW treatment was 2.0%. Ninety-four percent of the transfers to POTWs were to the City of Wilmington POTW, and all but 5,714 pounds of the 1,048,588 pounds treated at all POTWs were treated at Delaware POTW facilities. BASF Newport and the Rohm & Haas B2 B3 B8 facility combined for 85% of the total TRI chemical transfers to the Wilmington POTW.

See page 52 for more information on Delaware facilities receiving TRI chemicals from other Delaware TRI facilities and from out-of-state TRI facilities.

On-Site Waste Management

On-site waste management is the amount of waste that never leaves the facility and is managed by the facility on-site. These activities represent a lower risk to the environment, as the materials are generally destroyed on site, although a small fraction may escape treatment and these amounts are reported on-site releases. The categories of **Recycle, Energy Recovery, and Treatment** are used to define on-site management activities related to TRI chemical wastes. The total amount of TRI chemicals managed on-site is 75.9% of the total TRI chemical waste and is over 14 times the amounts released on-site. Figure 6 shows the portions of these wastes processed on-site. Appendices D and G provide additional detail about management of this chemical waste.

FIGURE 6
2011 ON-SITE WASTE MANAGEMENT



TOTAL REPORTED:
55,733,427 POUNDS

Recycled waste (7,974,584 pounds) is the quantity of toxic material recovered at the facility and made available for further use. The Rohm & Haas B2 B3 B8 and Medal facilities combined to report 92% of the total amount recycled.

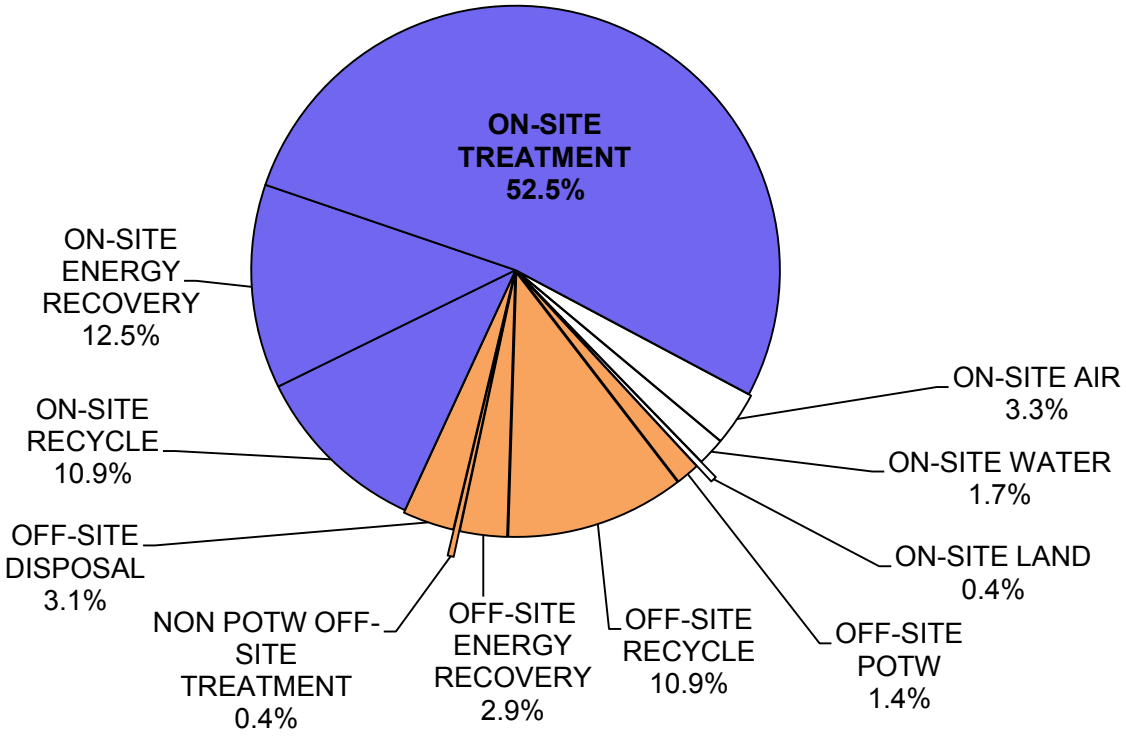
Energy Recovery from waste (9,172,883 pounds) includes the quantity of toxic material that had heat value and was combusted in some form of energy recovery device such as a furnace or waste heat boiler. The Delaware City Refinery was the only facility in the State to report on-site energy recovery for 2011. For 2008, the last year of full operation, the refinery reported 20,932,200 pounds of TRI chemicals processed on-site for energy recovery.

Waste Treatment (38,585,960 pounds) includes the amount of toxic material that was destroyed in on-site waste treatment operations. The Delaware City Refinery, DuPont Edge Moor, Noramco, and the Indian River Generating Station have the highest total amounts of on-site waste treatment, combining for 37,943,157 pounds (98%) of the TRI waste treated on-site. Treatment of hydrochloric acid at the DuPont Edge Moor facility in the amount of 18,627,140 pounds was the highest single on-site treatment amount.

Total TRI Waste

Total waste is the combined total of the on-site release, off-site transfer, and on-site waste management amounts in the TRI chemical reports. Figure 7 is a perspective of the total TRI chemical waste picture in Delaware. About 5.35% of the total reported TRI waste is released on-site, 18.75% is transferred off-site for treatment or disposal, and 75.9% is managed on-site through treatment, energy recovery, and recycle operations by the facilities generating the waste. Figure 7 shows the relative portions of each major and sub-segment of TRI release and waste management.

FIGURE 7
TOTAL 2011 TRI CHEMICAL MANAGEMENT
TOTAL REPORTED: 73,430,130 POUNDS



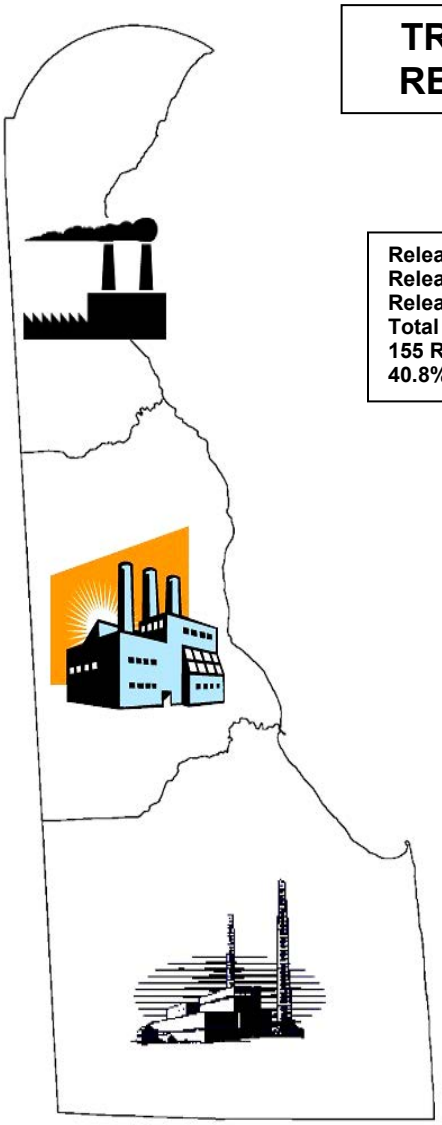
TOXICS RELEASE INVENTORY

2011 Data Detail

On-Site Releases by County

Figure 8 below provides basic on-site release information for each county in the State.

FIGURE 8



TRI ON-SITE RELEASES REPORTED BY COUNTY

NEW CASTLE

Releases to Air = 597,724 Pounds
Releases to Water = 983,474 Pounds
Releases to Land = 22,090 Pounds
Total On-Site Releases = 1,603,288 Pounds
155 Reports, 33 Facilities
40.8% of Statewide Releases

KENT

Releases to Air = 137,150 Pounds
Releases to Water = 0 Pounds
Releases to Land = 0 Pounds
Total On-Site Releases = 137,150 Pounds
32 Reports, 12 Facilities
3.5% of Statewide Releases

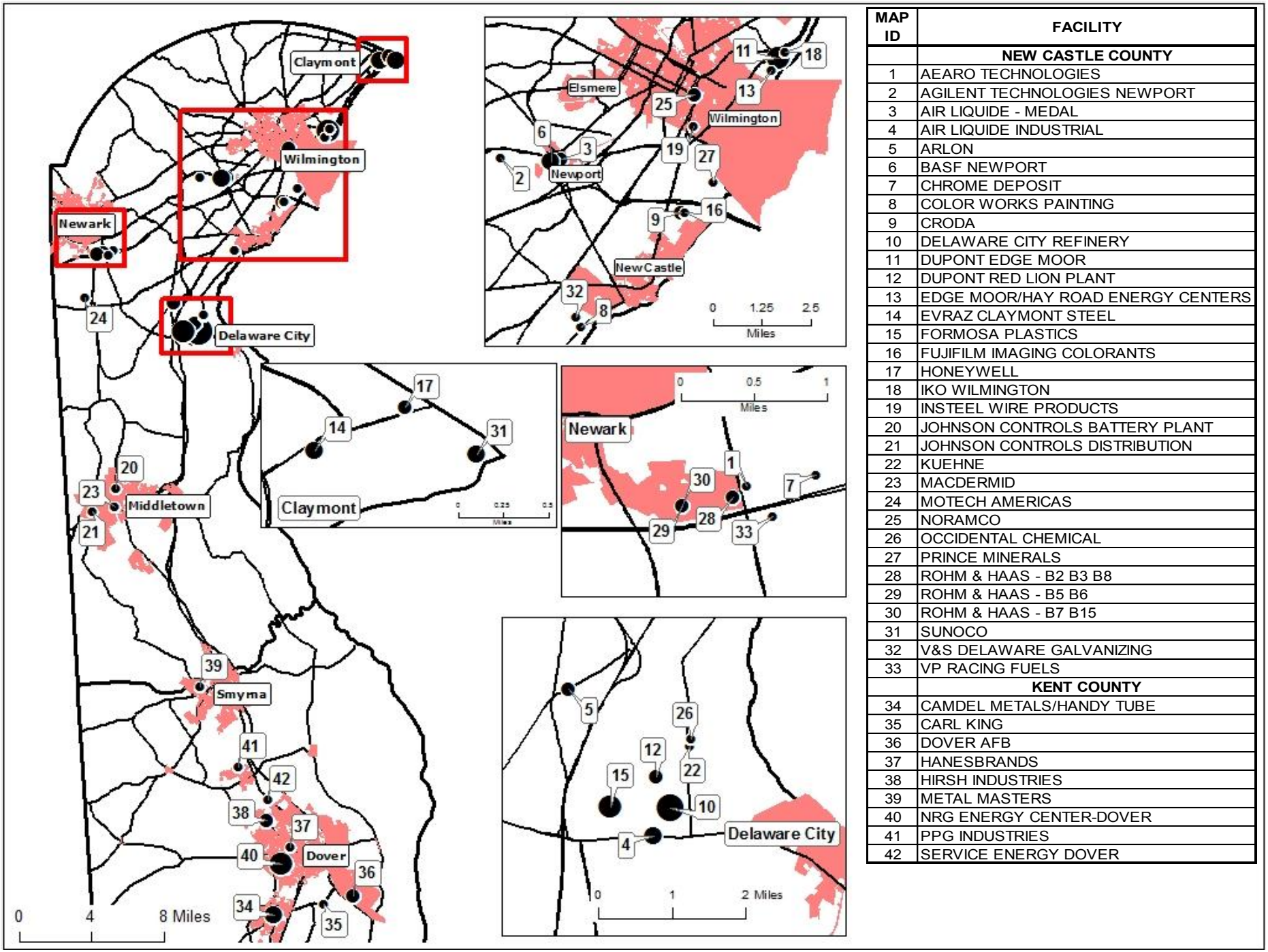
SUSSEX

Releases to Air = 1,682,725 Pounds
Releases to Water = 247,263 Pounds
Releases to Land = 256,579 Pounds
Total On-Site Releases = 2,186,567 Pounds
56 Reports, 18 Facilities
55.7% of Statewide Releases

Source: DNREC 2011 TRI Database 10-1-12

Facility Locations

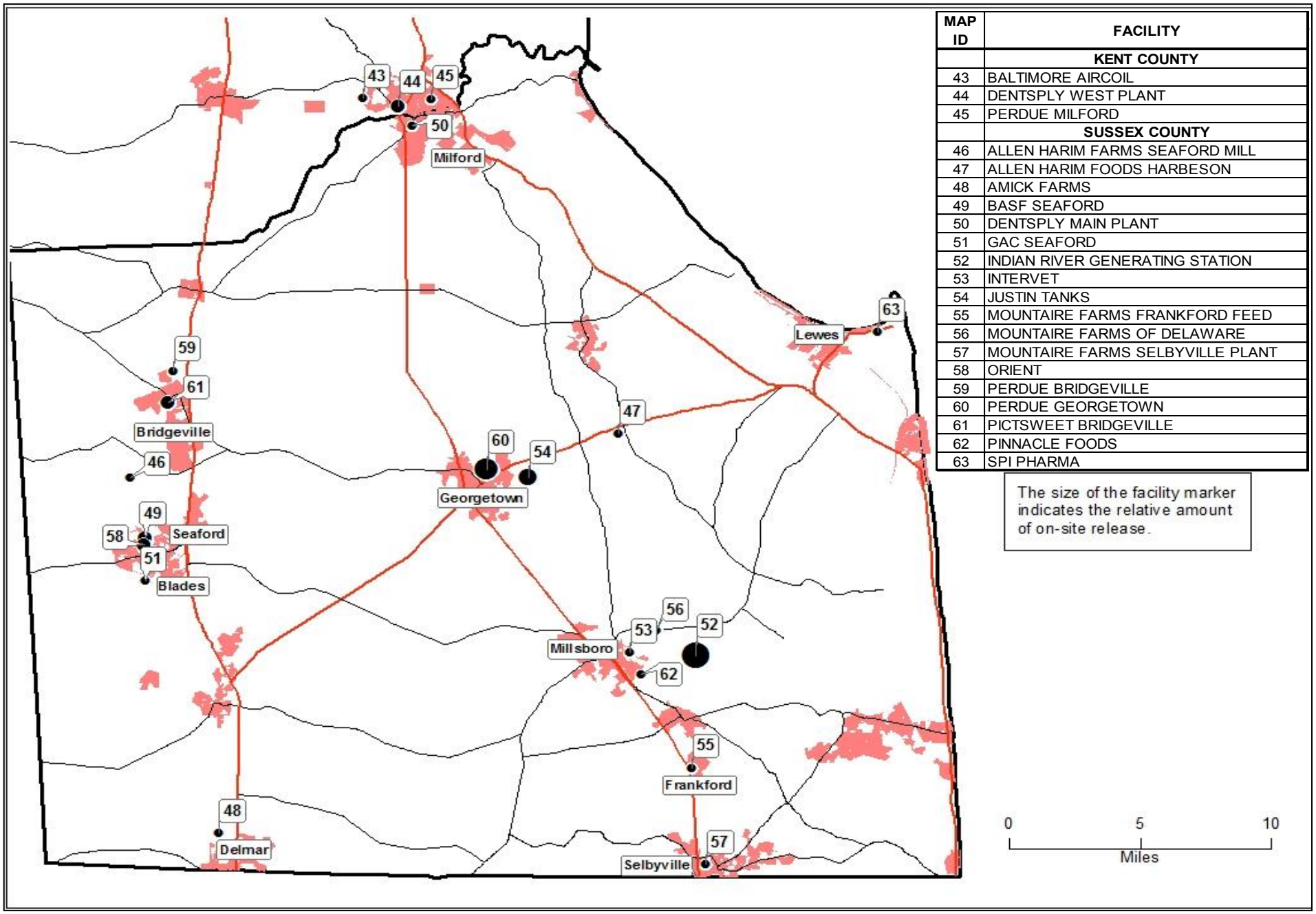
Figure 9 on the following two pages shows the location of each reporting facility in the State. The size of the facility location marker depicts the size of its on-site release relative to other facilities in Delaware. Facility contact information is in Appendix B.



MAP ID	FACILITY
	NEW CASTLE COUNTY
1	AEARO TECHNOLOGIES
2	AGILENT TECHNOLOGIES NEWPORT
3	AIR LIQUIDE - MEDAL
4	AIR LIQUIDE INDUSTRIAL
5	ARLON
6	BASF NEWPORT
7	CHROME DEPOSIT
8	COLOR WORKS PAINTING
9	CRODA
10	DELAWARE CITY REFINERY
11	DUPONT EDGE MOOR
12	DUPONT RED LION PLANT
13	EDGE MOOR/HAY ROAD ENERGY CENTERS
14	EVRAZ CLAYMONT STEEL
15	FORMOSA PLASTICS
16	FUJIFILM IMAGING COLORANTS
17	HONEYWELL
18	IKO WILMINGTON
19	INSTEEL WIRE PRODUCTS
20	JOHNSON CONTROLS BATTERY PLANT
21	JOHNSON CONTROLS DISTRIBUTION
22	KUEHNE
23	MACDERMID
24	MOTECH AMERICAS
25	NORAMCO
26	OCCIDENTAL CHEMICAL
27	PRINCE MINERALS
28	ROHM & HAAS - B2 B3 B8
29	ROHM & HAAS - B5 B6
30	ROHM & HAAS - B7 B15
31	SUNOCO
32	V&S DELAWARE GALVANIZING
33	VP RACING FUELS
	KENT COUNTY
34	CAMDEL METALS/HANDY TUBE
35	CARL KING
36	DOVER AFB
37	HANESBRANDS
38	HIRSH INDUSTRIES
39	METAL MASTERS
40	NRG ENERGY CENTER-DOVER
41	PPG INDUSTRIES
42	SERVICE ENERGY DOVER

FIGURE 9 TRI FACILITY LOCATOR MAP

FIGURE 9 TRI FACILITY LOCATOR MAP



MAP ID	FACILITY
	KENT COUNTY
43	BALTIMORE AIRCOIL
44	DENTSPLY WEST PLANT
45	PERDUE MILFORD
	SUSSEX COUNTY
46	ALLEN HARIM FARMS SEAFORD MILL
47	ALLEN HARIM FOODS HARBESON
48	AMICK FARMS
49	BASF SEAFORD
50	DENTSPLY MAIN PLANT
51	GAC SEAFORD
52	INDIAN RIVER GENERATING STATION
53	INTERVET
54	JUSTIN TANKS
55	MOUNTAIRE FARMS FRANKFORD FEED
56	MOUNTAIRE FARMS OF DELAWARE
57	MOUNTAIRE FARMS SELBYVILLE PLANT
58	ORIENT
59	PERDUE BRIDGEVILLE
60	PERDUE GEORGETOWN
61	PICTSWEET BRIDGEVILLE
62	PINNACLE FOODS
63	SPI PHARMA

The size of the facility marker indicates the relative amount of on-site release.

NAICS Industry Groups

Starting with the 2006 reporting year, NAICS (North American Industrial Classification System) codes replaced the SIC (Standard Industrial Classification) codes. Table 5 provides a description of each NAICS industry group and the number of facilities in each group that reported in Delaware, along with the total reported amounts for each NAICS code. This table also provides on-site releases, off-site transfers, and wastes managed on-site for each group.

TABLE 5

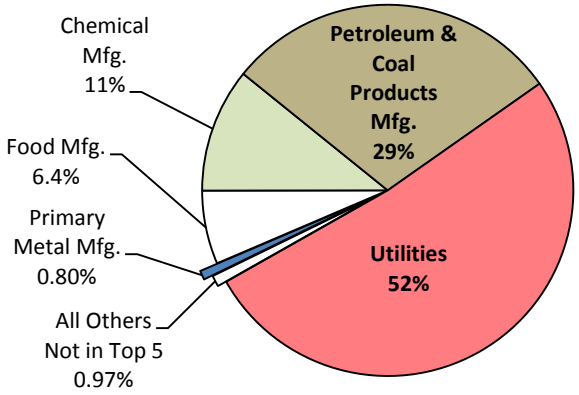
2011 TRI DATA BY PRIMARY NAICS GROUP

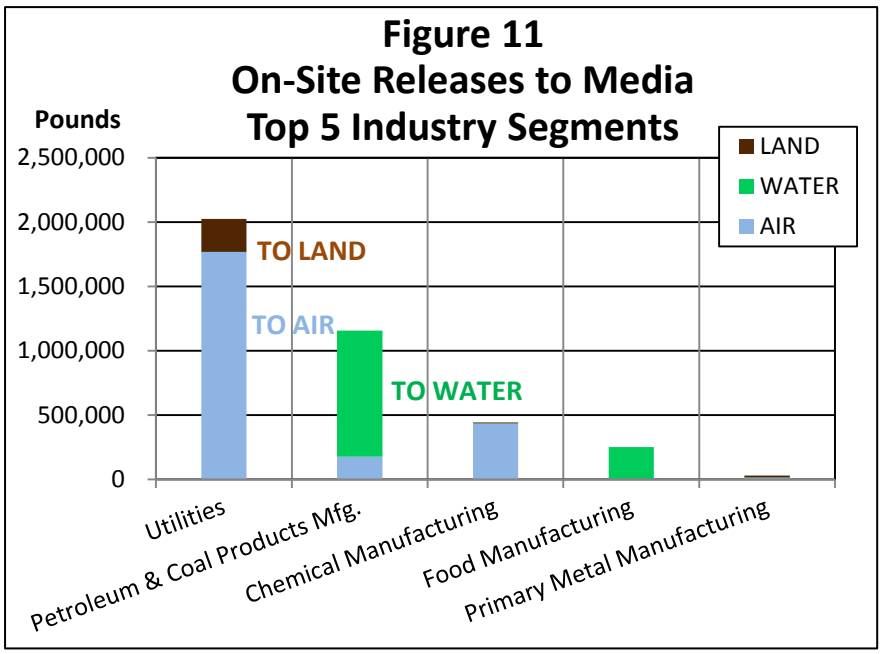
(in pounds)

NAICS CODE	INDUSTRY GROUP	REPORTS	FACILITIES	FORM A	FORM R	ON-SITE RELEASE	OFF-SITE TRANSFERS	ON-SITE WASTE MGMT.
212	Mining	4	1	2	2	182	71	0
221	Utilities	20	3	1	19	2,024,667	164	1,060,885
311	Food Manufacturing	29	11	17	12	251,529	0	32,462
313	Textile Products Mfg.	10	4	2	8	9,846	2,117,627	5,002,171
324	Petroleum & Coal Products Mfg.	48	5	4	44	1,156,342	631,725	20,687,658
325	Chemical Manufacturing	80	18	3	77	425,176	4,505,784	26,442,838
326	Plastics & Rubber Mfg.	10	4	0	10	15,088	144,354	2,506,513
331	Primary Metal Manufacturing	13	3	0	13	31,294	2,778,253	0
332	Fabricated Metal Product Mfg.	7	4	0	7	225	325,303	900
334	Computer and Electronic Product Mfg.	4	2	0	4	13	529,686	0
335	Electrical Equipment Mfg.	3	2	0	3	125	2,716,143	0
337	Furniture Manufacturing	1	1	0	1	5,271	0	0
339	Misc. Manufacturing	3	2	0	3	5,423	17,431	0
424	Wholesalers, Non-Durable Goods	2	1	2	0	0	0	0
454	Non-Store Retailers	3	1	3	0	0	0	0
928	National Security	6	1	0	6	1,823	3,157	0
	TOTAL	**243**	**63**	**34**	**209**	**3,927,005**	**13,769,699**	**55,733,427**

Figure 10 shows the percent contribution of each of the top five NAICS groups and all others not in the top five, compared to the reported total on-site releases. Three of these top five, NAICS groups 221 (Utilities), 324 (Petroleum and Coal Products Mfg.) and 325 (Chemical Mfg.), combine for 92% of the total on-site releases within the State. Facilities not in the top five NAICS industry groups contributed only 37,998 pounds of on-site releases, or 0.97% of the 2011 on-site release total. Utilities, even though down by 1,079,205 pounds since 2010, accounted for 52% of all on-site TRI releases.

FIGURE 10
TOP 5 NAICS INDUSTRIES FOR 2011
PERCENT ON-SITE RELEASE





Depending on the NAICS group, releases to air, water, and land can be very different. Figure 11 shows the top 5 NAICS groups in Delaware and to what media the releases occurred. For example, utilities and chemical manufacturing reported that most of their releases were to air, 87% for utilities and 97% for chemical mfg. For petroleum & coal products, and for food manufacturing, most of their releases were to water – 85% and 98%. The smaller amount of releases from primary metal manufacturing was split between air and land. Other states will have greatly different results, particularly those states whose industries have little presence in Delaware, such as mining or forestry/paper products manufacturing.

RELEASES FROM THE TOP 15 FACILITIES

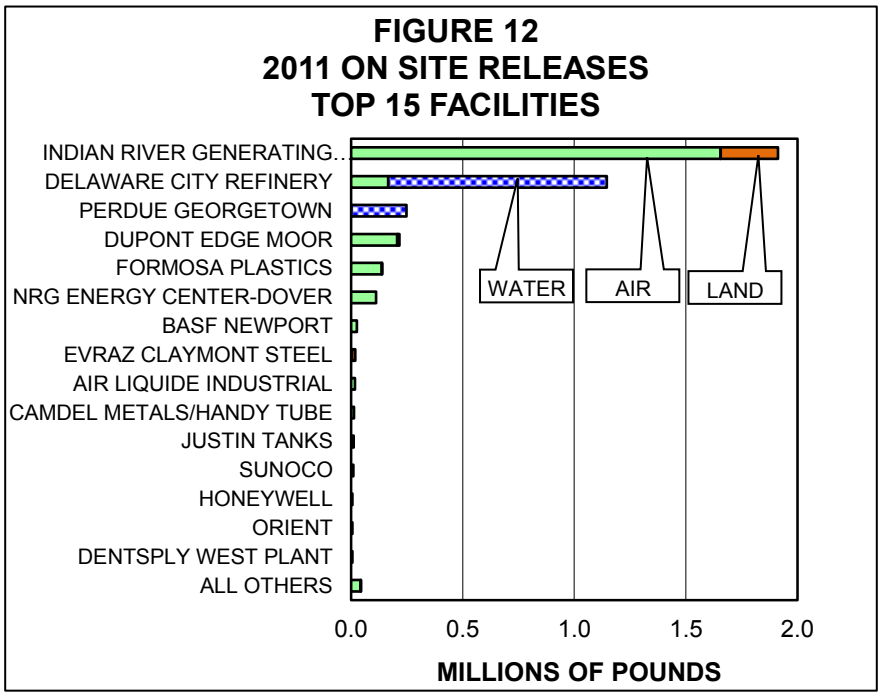


Figure 12 shows the relative contribution of each of the top 15 reporting facilities to on-site releases. The top two facilities accounted for 3,058,380 pounds, or 78% of all on-site releases. Of the 3,927,005 pounds that were reported as released on-site by all 63 facilities Statewide, the top 15 facilities accounted for total releases of 3,884,393 pounds, or 99% of the total on-site releases.

Table 6 shows the 2011 ranking of the top 15 facilities along with their 2010 ranking and the reported amounts of on-site releases for both years. Releases to the environment because of remedial actions, accidents, or one-time catastrophic events are included in these values. The percent change in total on-site releases for each of the top 15 facilities from 2010 to 2011 is also shown, and some of these changes are significant. Six facilities reported an increase in on-site releases, while eight reported a decrease. Changes at the facility, such as the way releases are estimated, how waste is managed, changes in raw materials or processing methods, or installation of new or improved equipment possibly used to limit or eliminate releases of specific chemicals or all chemicals, may affect reported releases.

TABLE 6

TOP 15 FACILITIES 2010 AND 2011 RANKING BY ON-SITE RELEASE

(in pounds)

2010 RANK	2011 RANK	FACILITY	2011 TOTAL AIR	2011 TOTAL WATER	2011 TOTAL LAND	2011 ON-SITE RELEASE	2010 ON-SITE RELEASE	2010 TO 2011 CHANGE IN RELEASES	
1	1	INDIAN RIVER GENERATING STATION	1,655,140	760	256,579	1,912,479	2,706,269	(793,790)	-29%
2	2	DELAWARE CITY REFINERY	166,423	979,479	-	1,145,902	432,302	713,599	165%
5	3	PERDUE GEORGETOWN	-	246,503	-	246,503	183,826	62,677	34%
3	4	DUPONT EDGE MOOR	206,018	3,424	7,459	216,900	315,239	(98,338)	-31%
7	5	FORMOSA PLASTICS	137,013	12	-	137,025	115,396	21,629	19%
6	6	NRG ENERGY CENTER-DOVER	111,550	-	-	111,550	117,613	(6,063)	-5%
9	7	BASF NEWPORT	25,642	-	-	25,642	26,851	(1,209)	-5%
10	8	EVRAZ CLAYMONT STEEL	3,513	346	14,631	18,490	15,510	2,980	19%
NR	9	AIR LIQUIDE INDUSTRIAL	17,773	-	-	17,773	NR		
11	10	CAMDEL METALS/HANDY TUBE	12,804	-	-	12,804	13,847	(1,043)	-8%
12	11	JUSTIN TANKS	11,494	-	-	11,494	13,464	(1,970)	-15%
13	12	SUNOCO	10,439	-	-	10,439	12,078	(1,639)	-14%
17	13	HONEYWELL	6,017	-	-	6,017	5,678	339	6%
20	14	ORIENT	5,952	-	-	5,952	3,498	2,454	70%
15	15	DENTSPLY WEST PLANT	5,422.88	-	-	5,422.88	6,570	(1,148)	-17%
		ALL OTHERS	**42,398**	**213**	**-**	**42,612**	**363,076**	**(302,691)**	**-88%**
		TOP 15	**2,375,200**	**1,230,524**	**278,669**	**3,884,393**	**3,968,143**	**(101,523)**	**-2%**
		STATE TOTALS, ALL FACILITIES	**2,417,599**	**1,230,737**	**278,669**	**3,927,005**	**4,331,218**	**(404,214)**	**-9%**

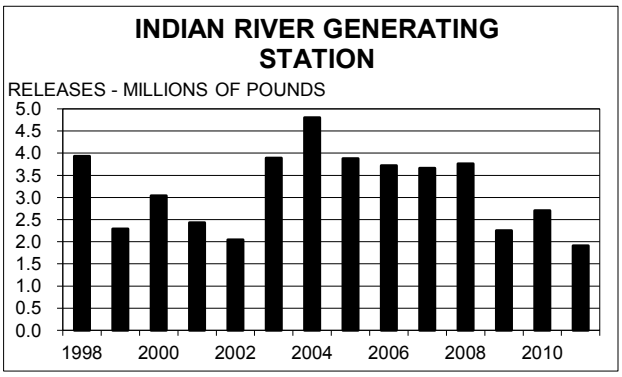
Changes in production may or also affect releases from a facility; five of the top 15 facilities reported increased production for 2011, but two of these five reported decreases in on-site releases. Details about some of these changes are provided on the following pages, and in the ***TRI and the Economy*** section starting on page 59. Interested individuals are also encouraged to contact facilities (see ***Appendix B*** for contact information) and inquire as to the reasons why changes occurred.

The DNREC TRI program visits select facilities Statewide during the year to get a better understanding of operations at the facilities, to discuss TRI issues such as data quality that may have developed in the course of reporting, and to introduce new facilities and\or facility coordinators to the TRI program and its reporting requirements.

Although the TRI program itself does not regulate or limit emissions, other DNREC and Federal programs do issue permits and limit emissions from operating facilities. TRI data is also shared with other programs within DNREC to verify data accuracy and to provide data and information to those programs.

The next several pages present a brief description of each of the top 15 facilities to provide an understanding of the use and importance of some of the TRI chemicals and basic operations at these facilities. As in Table 6, this rank for the 2011 reporting year is based on total reported on-site releases. The facility description explains the general types of products manufactured at the facility and how their TRI chemicals relate to the products and the overall plant operation. The graph included with the facility description shows the trend of the facility total on-site releases since 1998, the date of the last major TRI reporting revision. The graph for each facility includes all chemicals, including any newly reportable chemicals, which have been reported by the facility. Comparisons must be made carefully as **the scales on each of the facility graphs are different.** Appendix C provides a complete list of 2011 on-site release data grouped by facility and chemical.

Rank #1 – NRG Indian River Generating Station – This 589 megawatt facility, located near Millsboro, produces electricity, primarily from the combustion of coal. Oil- and coal-fired power plants were required to report under TRI for the first time for 1998. While ranked #1 in on-site release amounts, the facility has completed the installation of significant emissions reductions equipment and implementation of new operating strategies. On-site releases at this facility have decreased more than 60% since 2004 and by 29%, or 793,790 pounds, for 2011 compared to 2010.



The Indian River Generating Station reported on twelve TRI chemicals for 2011. Five of these were metal compounds, two were non-metallic PBTs, three were acid gases, and the remaining two were ammonia and naphthalene. All the compounds except ammonia are formed during the combustion process as a result of impurities within the coal and oil. Ammonia is a product of the Selective Non-Catalytic Reduction (SNCR) nitrogen oxide emissions reduction process. Chromium, copper, and zinc compounds, reported in 2010, were below the reporting thresholds for 2011. Their combined on-site release was 27,550 pounds for 2010. The acid gases hydrochloric acid, sulfuric acid, and hydrofluoric acid, accounted for 98% of the facility's on-site releases in 2011.

Ammonia is released in the power production process solely from the use of urea, a pollution control agent used in the SNCR technology for reducing NOx by limiting the formation of oxides of nitrogen to the atmosphere. Ammonia release decreased 46,000 pounds, or 63%, in 2011, which was due to an overall decrease in urea usage. Naphthalene is in the oil consumed at the facility.

Beginning in 2003, actual stack sample data (as compared to EPA emission factor methods) were used to calculate hydrochloric acid gas releases. These methods were applied to the entire year, and this resulted in reported release amounts for hydrochloric acid gas for 2003 and 2004 that were significantly higher than amounts reported for prior years. In 2005, coal analysis and emission factors were used to calculate the hydrochloric acid gas. This gave a more representative total release for the year because it represents all the data for the year, not just the data collected during a single stack test. Now, sulfur, chlorine, and mercury are checked for each trainload of coal, and emission factors are used for barium compounds.

Coal consumption was lower by 24% in 2009, 3.3% lower for 2010, and 44% lower for 2011 based on coal burn records. Indian River burned lower sulfur bituminous coal (25% lower typically) in 2008-2009, which contributed to lower TRI on-site release amounts of acid gases. In 2009, reported releases to air of acid gases decreased 1,107,134 pounds (40%). For 2010, a substantial change in the chlorine content of the coal consumed in Unit 4 caused a 55% increase in hydrochloric acid emissions and a 20% increase in total on-site releases, although the overall amount of coal combusted in Unit 4 decreased by about 7%. For 2011, coal use decreased by 44% and total on-site releases decreased by 29%, again because of variability in the contaminant (chlorine and metals) content in coal.

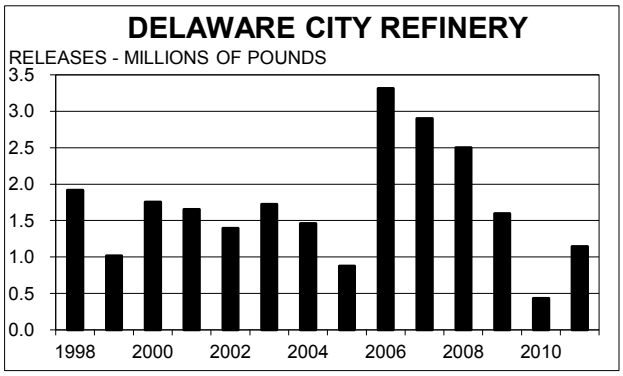
Metal compounds, formed as a result of impurities in the coal, are largely captured (99.2%) in the fly ash and bottom ash collection systems. For 2011, all coal ash was disposed of in the on-site landfill. Total on-site disposal of metallic compounds reported for 2011 increased by 126,212 pounds compared to 2010. Starting in 2004, coal analysis data and emissions data were used to calculate mercury and other metal compound values. In 2008, continuous mercury emission monitors were installed on the four units and were used for reporting the 2009-2011 mercury amounts. In addition to mercury emissions monitoring, the facility also analyzes for sulfur, chlorine, and mercury on each train load of coal.

Activated Carbon Injection installed on all units in 2009 captures mercury from the flue gas. The mercury is bound to the carbon particles, collected, disposed of in the on-site landfill and is reported as an on-site release. On- and off-site mercury releases and disposals decreased by 87 pounds (41%) to 127 pounds for 2009, by another 17 pounds for 2010, and by 13 pounds for 2011. These mercury release amounts had been reported in the range of 241-197 pounds for several years, significantly down from 397 pounds when reported in 2003. Much of the mercury previously released to air is now captured and sent to the on-site landfill. For 2010, the mercury release to air was 90 pounds; for 2011 it was 8 pounds, 91% less. The mercury content of the coal affected the total amount of mercury released and disposed for 2011.

In May 2010, Unit #2 was retired. This eliminated some of the on-site releases for 2010. Unit #1 was retired in May 2011, and additional reductions in on-site releases were reported for 2011. Also, Unit #3, the last of the older units, will be retired by the end of 2013. Along with these shutdowns, Air Quality Control Systems (AQCS) have been installed on Unit #4 and placed into operation in December 2011. Selective Catalytic Reduction and a Circulating Dry Scrubber with a baghouse will reduce on-site releases to air, including hydrochloric acid, even further. These controls were completed in 2011 and are now in operation. The full effect of these controls will be realized in the 2012 TRI Report. Plant-wide emissions for TRI pollutants are expected to drop significantly through 2014 compared to 2009.

As always, economic factors may influence total emissions as the facility will run at lower or higher rates to meet the demand for power as determined by the Regional Transmission Operator, PJM. For 2011, the demand was 66% of the 2010 rate.

Rank #2 – Delaware City Refinery - The Delaware City Refinery (DCR), formerly owned and operated by Valero, refines crude oil into automobile gasoline, home-heating oil, and a variety of other petroleum products. In November 2009 Valero idled many refinery process units in preparation for sale of the facility. In June 2010, PBF Energy purchased the refinery from Valero and began extensive maintenance activity to prepare the equipment for restart. The Delaware City Refinery began restarting process unit operations in 2011 and is now fully operational.



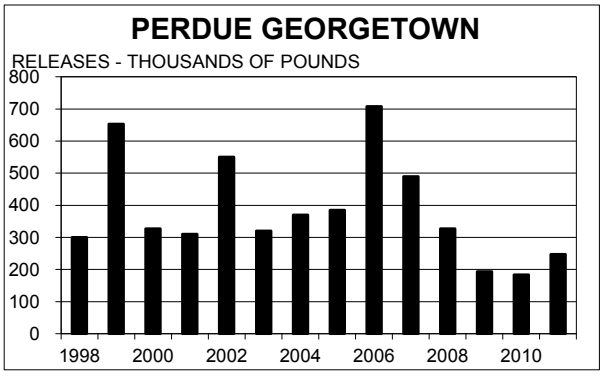
Although the facility had no production from refinery process units in 2010, some operations continued during all or part of the year, and these were responsible for the majority of the releases reported that year. These operations included storage of products in tanks, wastewater treatment operations, steam production from boilers, loading operations at the marine docks and sales terminal, and waste handling.

The refinery reported on 32 chemicals for 2011, up from the 16 TRI chemicals reported for 2010 and down from the 43 reported for 2008. The total facility-reported on-site releases increased by 713,599 pounds in 2011 because of restart activities and the associated 140% increase in processing activity, but are down by 1,355,114 pounds since 2008, the last year of full operation. The most notable decline is in nitrate compounds, down 1,176,000 pounds since 2008. All emission levels for 2011 were below the targets agreed on by DNREC and the DCR.

The largest contributors to on-site releases were the 974,323-pound release of nitrate compounds to water, the 68,400 pounds of sulfuric acid released to air, and 21,913 pounds of propylene released to air. These amounts represent an increase of 594,323 pounds for nitrate compounds, but a decrease of 12,887 pounds for propylene. Sulfuric acid was below the reporting threshold for 2010.

Significant transfers off-site were the 595,620 pounds of asbestos removed for disposal and the 30,231 pounds of nickel removed for recycle, both as part of the repair and maintenance activities in preparation of the restart of the refinery.

Rank #3 - Perdue Farms Georgetown - Perdue Farms is a producer of poultry products. The Georgetown facility processes chickens for sale to the retail market.



Perdue Georgetown reported on four TRI chemicals for 2011. All of the on-site releases were nitrate compounds. The Perdue wastewater treatment plant digests ammonia and production waste from the poultry processing plant's wastewater stream and converts some of these wastes to nitrate compounds, which are discharged into a local stream.

These reported on-site release amounts have varied in recent years because of changes in plant operation and in the way the amount of nitrate compounds released are estimated. In 2006, the reported amount increased as a result of optimization testing for the new NPDES permit. In 2007, the nitrate compound amount reported at the plant significantly decreased as a result of reduced nitrate

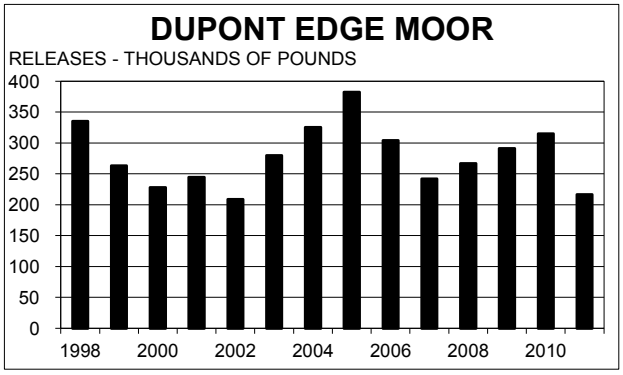
concentrations, reduced wastewater amounts, and application of a more accurate factor for nitrate releases. In 2008, nitrate compounds continued to decrease as the wastewater system operations continued to improve through revisions to the original operational concepts and engineered design. In 2011, the reported nitrate compound amount increased by 34% compared to 2010. The reason for this increase is that although there was a production increase requiring additional water to maintain product quality and safety, the majority of the change is a result of updated factors used to calculate the release values. The treatment plant has been optimized and in the future less fluctuation is expected.

Since 2006, release of nitrate compounds to water has declined by 65%. Over the years covered by the graph, changes in production levels had little influence on the change in release amounts.

This facility converted to natural gas in boilers in December 2010. This reduced harmful emissions such as sulfur dioxide (SO_2 and nitrogen oxides (NOx); however, all of the toxic chemicals reportable to TRI except benzo (g,h,i) perylene and polycyclic aromatic compounds are already below the TRI reporting thresholds. These two chemicals, although reportable, had no on-site releases.

Rank #4 - DuPont Edge Moor - The Edge Moor Plant is one of three domestic DuPont facilities that manufacture titanium dioxide, a white pigment that is used in the paint and paper industries. The facility also produces titanium tetrachloride and ferric chloride. The plant is located along the Delaware River a few miles north of the Port of Wilmington.

DuPont Edge Moor reported on 24 TRI chemicals for 2011. Production was higher by 5% in 2011, but total on-site releases decreased by 31% compared to 2010. The on-site release of carbonyl sulfide decreased by 66,827 pounds (25%) in 2011 as a result of improved process management techniques. Carbonyl sulfide is a gas by-product of the titanium dioxide production process, and is produced from the use of sulfur-bearing coke in the process of manufacturing the titanium dioxide from titanium-rich ores.



Release of manganese compounds to water decreased by 26,712 pounds (96%) because of lower concentration of the metal in the ore, and hydrochloric acid released to air decreased by 10,137 pounds (66%) because of new stack test data and improved process management techniques.

Of the 24 reported TRI chemicals, carbonyl sulfide accounted for 90% of the facility total reported on-site release amounts, and hydrochloric acid accounted for 2.35%.

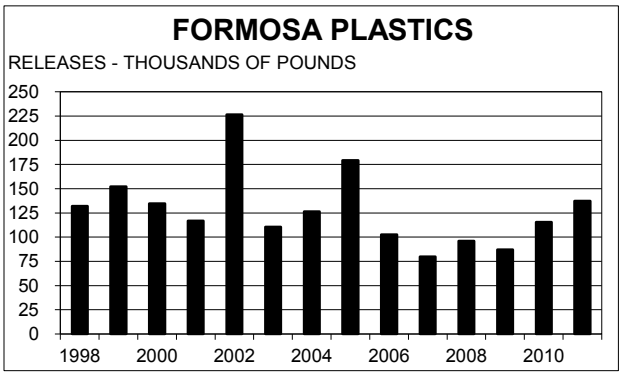
Since 2002 the Edge Moor site has reduced the generation of dioxin and dioxin like compounds (DLCs) by 99%. This has been achieved by implementing a capital project and

The term "dioxins" is used in this report to indicate a group of 17 dioxins and dioxin-like compounds (including furans) reportable to TRI, out of a family of several hundred dioxins and dioxin-like compounds. Among the "dioxins" included in TRI reports is the very toxic 2,3,7,8-TCDD dioxin, which is the congener generally of most concern, and most commonly covered by the news media. Toxicity levels of these 17 compounds vary greatly, and some compounds in this group have toxicity levels **3,000 times less** than the 2,3,7,8-TCDD dioxin. Because of this great variation, toxicity equivalent quantities (TEQ) are also calculated and presented in this report. The majority (81%) of the "dioxins" reported by DuPont Edge Moor is either a furan or dioxin of the lowest or next to lowest toxicity level. All TRI "dioxins" are reportable in grams and were converted to pounds for this report. (1 gram = 0.002205 pounds).

making process modifications. For 2011, over 99.78% (669.254 grams out of 670.727 grams generated) of the dioxins generated are contained within the solid material sent offsite. The remaining 0.22% (1.47 grams) of dioxins was released onsite.

The on-site release of (DLCs) (1.47 grams) increased by 0.92 grams in 2011 compared to 2010. This was predominantly due to an increase of DLCs released to water. The DLCs in water can change based on the process parameters. The dioxins released to water were calculated based on sampling analysis completed as required by the NPDES permit. The majority (94%) of the DLCs released to water reported by DuPont Edge Moor is either a dioxin or furan of the lowest toxicity level. The DLCs reported in 2011 are within the range of variability since the site made the process modification in 2007 via a capital project.

Rank #5 - Formosa Plastics - Formosa Plastics, located in the Delaware City complex, produces polyvinyl chloride (PVC) resin for bulk sale to other industries that produce PVC based products, such as containers, flooring, carpet backing, upholstery, toys, and gloves.

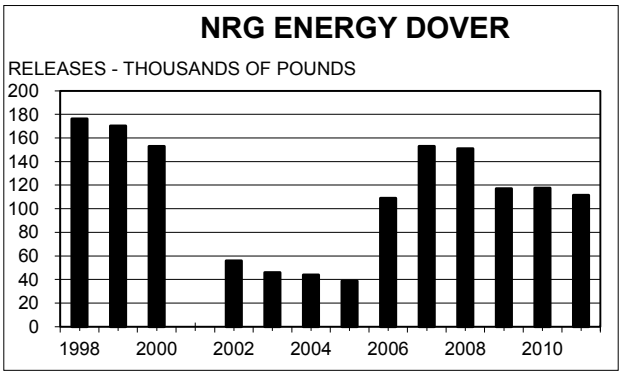


Formosa reported on four TRI chemicals for 2011; vinyl acetate monomer, vinyl chloride monomer, ammonia, and dioxins and dioxin-like compounds. Vinyl acetate monomer accounted for 45% of Formosa's on-site releases for 2011. Vinyl acetate monomer (VAM) is also a raw material used in certain products and is released through the drying process. Vinyl chloride monomer (VCM) accounted for 42% of the facility on-site releases. VCM is the primary ingredient for producing PVC and is released as residual unreacted monomer during the drying process of the PVC resin. Permits regulate the concentration of the residual monomer in the PVC before drying. Ammonia is also used in several of Formosa's products and is released during the PVC drying process. Ammonia accounted for 13% of Formosa's on-site releases in 2011. Formosa also reported a small amount of dioxin and dioxin-like compounds in both on-site releases (0.0051 grams) and off-site transfer for disposal (0.1045 grams).

Trace amounts of dioxins and dioxin-like compounds were detected in the plant emissions and waste and recycled solids, possibly the result of on-site incineration of waste gases. Scrubber water from the incinerator is processed by the wastewater treatment system.

For 2011, total on-site releases of all TRI chemicals were up by 19%, and production was 100% of the 2010 level. Reported release of vinyl acetate increased 34% and vinyl chloride increased 2.5%, while the ammonia release was 37% greater. These increases are related to the production mix.

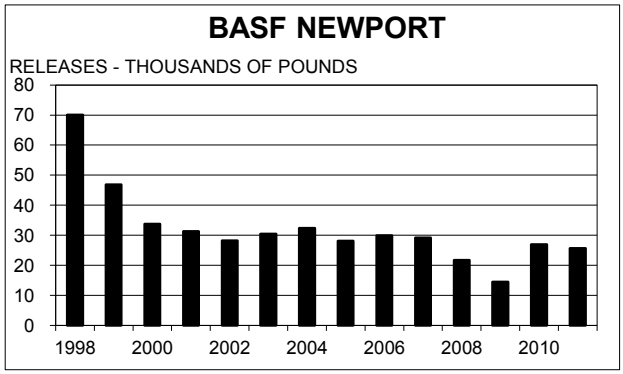
Rank #6 - NRG Dover Plant - Oil- and coal-fired power plants were required to report under TRI for the first time for 1998. This facility, located on the West side of Dover, produces electricity primarily from the combustion of coal and natural gas. Reported total on-site releases decreased 5% for 2011, while electricity production decreased 11%.



The NRG Dover Plant reported on four TRI chemicals for 2011. Two of these were acid gases - hydrochloric acid and sulfuric acid – which are formed during the combustion process. Acid gas releases on-site accounted for over 99.9% of the facility on-site releases. Small amounts of two metal compounds – mercury and lead compounds - formed during combustion because of impurities in the coal, were also reported in on-site releases. Of the lead compounds, 93.3% was captured in the fly ash and bottom ash and sent to an off-site landfill, and for mercury compounds, 12.5% was captured in the ash. The remaining 2.2 pounds of lead compounds and 6.7 pounds of mercury compounds were released on-site to air.

For 2010, electricity production was 113% of 2009, while coal usage was 101% of the 2009 usage and gas usage was 190% of 2009. For 2011, electricity production was 89% of 2010 production, while reported on-site releases declined only 5%. The reason for this was that the reduction in production from burning coal was limited by the need to keep the coal unit on-line in order to produce steam for the plant's thermal customers. The 2011 usage of coal for electric production was 93% of the 2010 amount, and gas usage was 88%. The trend for the future is to burn more gas and less coal, with the burning of coal ceasing in early 2013.

Rank #7 – BASF/Ciba Newport – Ciba Corporation transitioned to BASF Corporation in 2010. BASF is located in Newport and manufactures pigments for the paints, plastic, and printing industries. BASF reported on nine TRI chemicals for 2011. All on-site releases were to air.

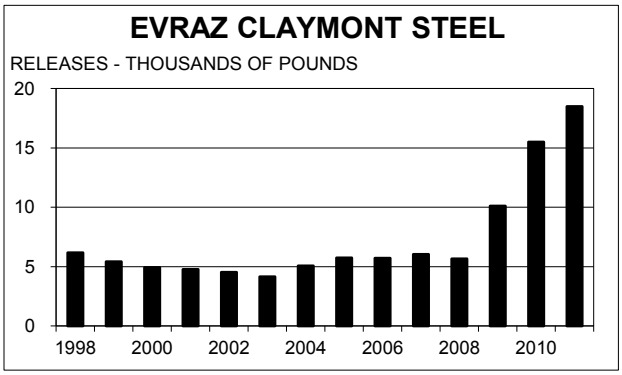


Methanol was the predominant chemical released on-site in 2011 (95% of total on-site releases). Methanol is used as a reactant

and a solvent in the pigment manufacturing process. About 19.5% of the 2.7 million pounds of methanol managed as waste is recycled, 78.3% is treated rather than released, and 1.2% is released to the on-site environment.

Total pigment production was down 2% in 2011, which resulted in a decrease of on-site releases by 4.5%. BASF has expanded and modernized the Newport facility since 1998. Although current facility production is almost double the 1998 production, the facility has achieved a 63% reduction in on-site releases during this time. The facility has also reduced transfers of methanol to off-site water treatment by 65% since 1998.

Rank #8 – Evraz Claymont Steel - Located on a 425 acre site in Claymont, Evraz Claymont Steel, formerly known as CitiSteel, manufactures high strength, low alloy carbon steel plate for heavy construction and industrial applications. The facility purchases and recycles up to 500,000 tons of scrap steel annually and melts it in an electric arc furnace, making this facility the largest metal recycler in the state of Delaware. The melted steel is cast into large slabs, which are rolled into plates of thicknesses from 1/4" to 5-1/2". The plates are sold throughout North America.



Evraz Claymont Steel (ECS) reported on-site releases of eight TRI chemicals; seven metallic compounds and dioxin compounds, for 2011. Most of the on-site releases, 79%, were to land. Manganese compounds was the largest on-site release, at 74% of the total. The increase in the 2008-11 total on-site release amounts was due, in significant part, to the large increase in manganese compounds released to land. This increase was caused by the use of more recent analytical data, which indicated a higher concentration of manganese in the on-site cooling water reservoir.

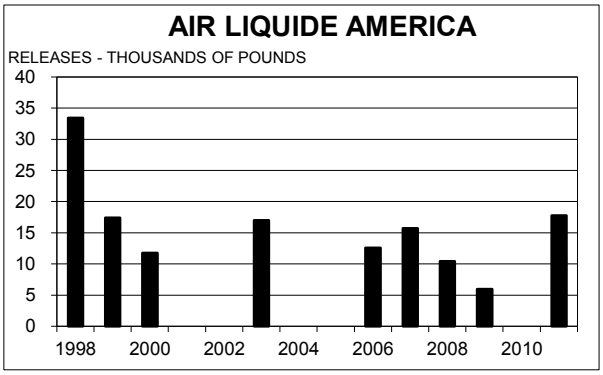
For 2011, production increased 5% and on-site releases increased 19%. Generally, the metal compounds showed increases in on-site releases that exceeded the 5% increase in production. For example, ECS reported an increase of 25 pounds (41%) for on-site release of mercury, to 84 pounds for 2011, but down 77% from the 361 pounds reported for 2005. Zinc compounds was an exception to the increases, showing an increase of only 2%. The reason that the reported on-site release for most metals exceeded the 5% production increase was the inherent variability in testing and in the chemical composition of the recycled iron and steel feedstock.

In 2006, ECS implemented a comprehensive Mercury Source Reduction Program. This program was designed to recover mercury switches used in lighting and braking systems in 2002 and older vehicles as they are being prepared for recycle. Mercury in these switches can contaminate steel scrap destined for recycling, and a portion of this mercury can be released to air during the steel melting process. In August 2006, ECS joined with other stakeholders and the EPA in announcing EPA's National Vehicle Mercury Switch Recovery Program. The EPA reimbursement phase of this program has now ended, but 9,989 pounds of mercury have been recovered from 4,540,379 switches collected throughout the nation.

Most states are still accepting the recovered switches. For 2012, Delaware recovered 1.22 pounds of mercury from 555 switches as of June 30.

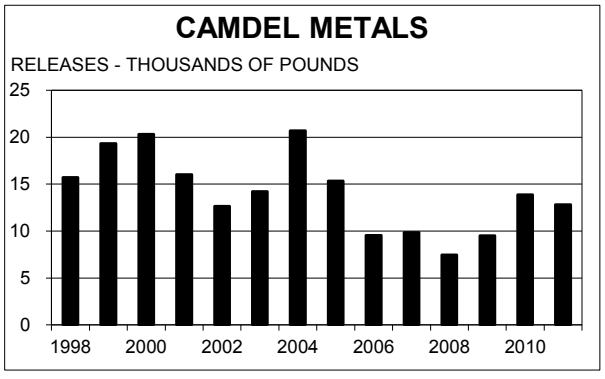
In addition to the federal rules mandating mercury minimization efforts, a consent decree was entered into between DNREC and ECS in 2010, requiring ECS to maintain its participation in the enhanced mercury pollution prevention program. Also, the consent decree requires the modifications of the meltshop Air Pollution Control system, to include installation of additional baghouse capacity to capture and collect dust directly from certain operations in the melt shop area, including the electric arc furnace, stir station, and ladle reheat operation. This work has begun and completion is expected no later than July 2014.

Rank #9 - Air Liquide America Air Liquide is located in Delaware City and produces liquified carbon dioxide from a gas stream received from the nearby Delaware City Refilery. The carbon dioxide is used by many industrial and food processing facilities in the region. Air Liquide reported on one chemical, ammonia, for 2011. Ammonia is used as a refrigerant to condense the carbon dioxide. In 2001, 2002, 2004, 2005, and 2010 this facility did not meet the minumum reporting threshold for reporting to the TRI program. This is reflected in the graph.



The facility was idle for 2010, as the refinery was also idle. Repair and maintenance work was conducted during the downtime period, including repair or replacement of many mechanical, safety, and control components. The facility resumed TRI reportIng for 2011. Units 2 and 3 were restarted in late 2011, and unit 1 was restarted in 2012.

Rank #10 – Camdel Metals/HandyTube - HandyTube Corporation specializes in the production of seamless stainless steel coiled and straight length tubing. These tubes are produced for numerous applications in the Petrochemical, Oil and Gas, Subsea and Downhole, Geothermal, Chromatography, Flow Measurement and Sensing, Medical, Ship Building, Military, Aerospace, Semiconductor and Instrumentation industries. HandyTube produces continuous seamless coils, which can be in excess of 6,000 feet. The tubing ranges in size from 0.020 to 0.75 inch outer diameter.

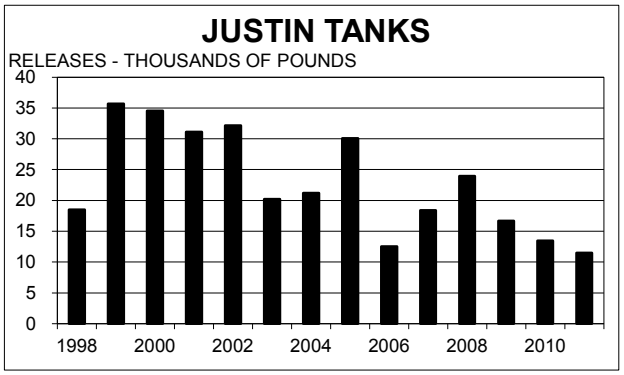


Trichloroethylene (TCE) is the primary TRI chemical reported by HandyTube, and makes up 100% of the on-site release amount. It is used as a solvent to clean the tubing. Production increases related to TCE use in 2003 (15%) and 2004 (43%) accounted for most of the on-site release increases since 2002, and releases generally tracked production. Although production volume related to use of trichloroethylene fell 15% in 2006, trichloroethylene releases fell by 38%, the result of improved process control and waste management. Additional process controls implemented in 2008, along with a production

decline, resulted in a further decrease in TCE release. More accurate release calculations in 2009-10 reported higher releases, and higher production in 2010 also caused an increase in TCE release. For 2011, production increased by 8% but releases declined 8%, the result of continued preventative maintenance and continuous improvement.

Of the scrap metal generated at the facility, 99% is sent off site for recycle.

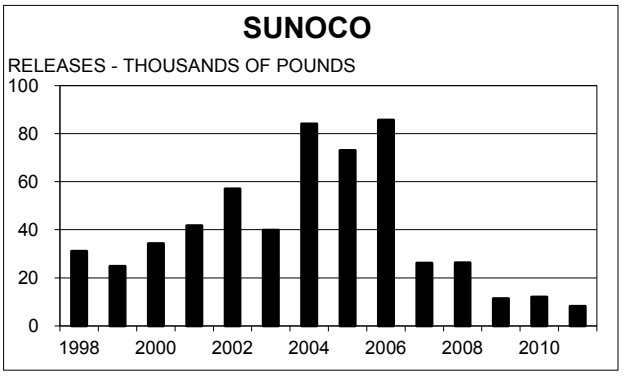
Rank #11 - Justin Tanks – Justin Tanks, located in Georgetown, manufactures a wide variety of Fiberglass Reinforced Plastic (FRP) tanks for use in the chemical, agricultural, and food industries.



Justin Tanks reported on one TRI chemical, styrene, for 2011. Styrene is used as a monomer in the polymerization of fiberglass resin. The majority of the styrene is released to the air during the process of applying fiberglass reinforcement to the tank. During polymerization and curing, small amounts of styrene are released, and the amount of styrene release diminishes to zero at full cure. No release occurs after the tank polymerization and curing process is complete.

Following increases in on-site releases of 47% in 2007 and 30% in 2008, partially related to increases in production, on-site releases have decreased each following year, which is the result of lower production levels, lower concentration styrene resin systems and enhanced spray equipment. On-site release of styrene was down 15% for 2011 compared to 2010.

Rank #12 – Sunoco Refining and Marketing – The Sunoco facility, located in Marcus Hook, Pennsylvania, and extends into the North Claymont area of Delaware. The Marcus Hook facility could process 180,000 barrels a day of crude oil into fuels – including gasoline, aviation fuel, heating oil, residual fuel, propane and butane, and petrochemicals. The major petrochemicals were benzene, cyclohexane, toluene, xylene, propylene, ethylene, and ethylene oxide; these were sold to chemical companies that use them to make a variety of other products.



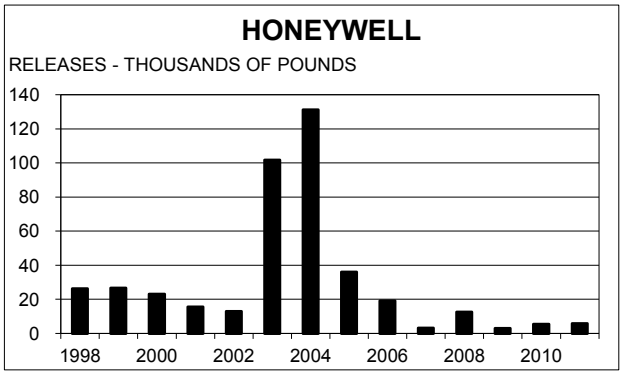
After an explosion and fire in the ethylene complex located mostly in the Delaware portion of the facility in May 2009, Sunoco closed that part of the facility due to insufficient demand for the ethylene-based products. The facility for 2011 only had a few tanks and two Sulfur Recovery Units on the site in Delaware. As of December 2011, the refinery is in an idle state.

The portion of the Sunoco facility in Delaware reported six TRI chemicals for 2011. N-hexane and benzene accounted for 99.5% of the total on-site Delaware releases for 2011, and smaller amounts of lead, naphthalene, nickel, and toluene were also reported as released to air from the tanks in Delaware. Ethylene, reported in 2010, was below the reporting thresholds for 2011.

For 2011, excluding ethylene, total on-site releases decreased by 1,434 pounds (12%), while production related to these chemicals was off 3% compared to 2010. Releases of benzene decreased 641 pounds, n-hexane releases decreased 729 pounds, toluene releases decreased 2 pounds, and xylene was down 62 pounds.

Rank #13 – Honeywell International - Honeywell, located in Claymont, manufactures specialty chemicals that are used in agricultural, pharmaceutical, and household products. This facility also produces boron trifluoride, used in the production of hydrocarbon resins, lubricants, and adhesives.

The Honeywell facility reported on five TRI chemicals for 2011. All on-site releases were to air. Releases of boron trifluoride, n-hexane, and hydrogen fluoride accounted for over 99% of the on-site releases, while releases of ammonia and n-hexane accounted for less than 1%.

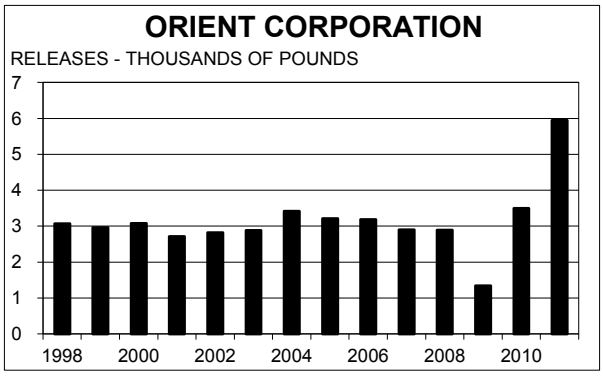


Although production increased 17% in 2003, the primary reason for the increase (89,000 pounds) in the reported amount that year was that Honeywell performed stack testing and is using this more accurate basis for estimating releases. In 2004, production increased 31% and the increase in on-site releases is a direct result of the production increase. During 2005, Honeywell completed a two phase emission control project that decreased on-site emissions by 72% even with a production increase of 11%. In 2006, the combination of 11% reduced production and the full year impact of the phase one of the emission reductions project further reduced on-site releases by another 47%. Most of this impact was for n-hexane, falling by 60% compared to 2005.

In 2007, total on-site releases fell by 15,865 pounds (82%) compared to 2006 due to the full year impact of the phase two emission reduction control project. Although production fell by 15%, releases of n-hexane fell by 8,827 pounds (82%), ammonia fell by 5,520 pounds (100%) as it was below the reporting threshold, and boron trifluoride fell by 1,173 pounds (70%). In 2008, production increased by 15%, but on-site releases increased by 9,400 pounds, largely the result of a 6,400-pound ammonia recharge. For 2009-2010, fluctuations in product lines impacted overall use of chemicals; overall production declined 35% in 2009, but increased 46% in 2010.

For 2011, on-site releases increased 6%. Ammonia decreased by 1,760 pounds, while n-hexane, increased by 2,080 pounds. The reason for this increase was that operating hours of plant increased.

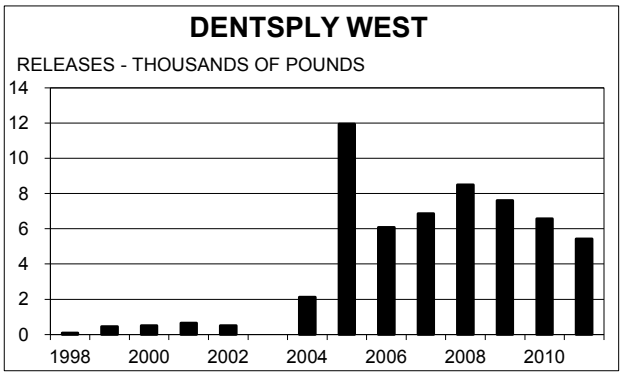
Rank #14 - Orient - Orient Corporation of America was established in Port Newark, NJ in 1979. Its parent company, Orient Chemical Industries, Ltd., is located in Osaka, Japan and was established in 1917. Orient distributes various dyes, pigment dispersions and charge control agents.



In order to meet the increasing demand for its products, Orient Corporation of America moved its manufacturing operations to Seaford in 1991 where it constructed a new manufacturing facility for the production of nigrosine dye, a product used in phenolic and polyamide resins and special paints. Orient supplies a large share of domestic demand for this type of dye.

Orient reported on four TRI chemicals for 2011, aniline, nitrobenzene, chromium compounds and zinc compounds. All on-site releases were to air. Aniline was the predominant on-site release accounting for 96% of the total, with the remaining 4% attributable to nitrobenzene. All the increase was from the aniline report. The reason for the increase compared to 2010 is that the 2011 TRI report included more detailed calculations and analytical testing that were not used in previous years, including a more accurate basis for estimations. Aniline and nitrobenzene are both used in the production of dyes. In 2012, aniline releases are expected to decrease from 5,700 pounds to less than 5 pounds with the incorporation of a thermal oxidizer to destroy the compound. Chromium and zinc compounds are purchased, stored, and sold as is, with no releases.

Rank #15 – Dentsply West – The Dentsply International, Caulk Division (Caulk) produces a line of consumable products for the dental industry. These products include dental adhesives, dental impression materials, and restoratives. These products are used in dental maintenance and restoration applications. Caulk's East Masten Circle facility (Dentsply West) and the West Clarke Avenue facility (Dentsply Main) are located in Milford.



Dentsply West reported two TRI chemicals for 2011, methanol and methyl methacrylate. The predominant chemical released on-site was methanol, and it accounted for 70% of the on-site releases. It is used as a processing aid in the manufacture of polymethacrylates.

Releases of methanol were reported as 3,781 pounds for 2011, down 11% from the 4,260 pounds reported for 2010. Methyl methacrylate (MMA) is the second chemical reported for 2011. It is also used in the manufacture of polymethacrylates. On-site releases of MMA were reported as 1,642 pounds, also down by 11% compared to 2010. Production of polymethacrylates from 2010 – 2011 was flat; however, actual production levels are related to customer demand, which can change throughout the years.

Reported on-site releases have increased significantly since 2002 because of increased production, addition of new equipment, and more accurate reporting methods. In 2005, the

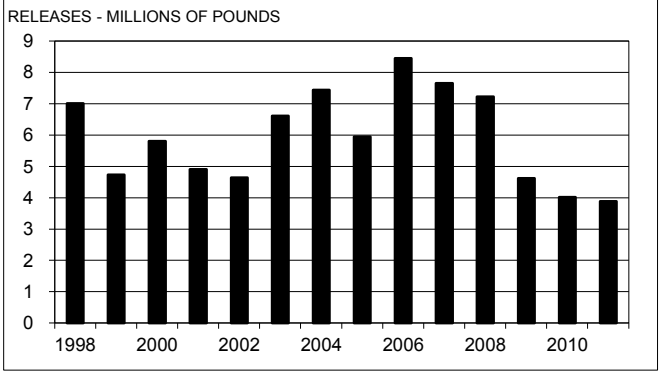
facility reported significant increases in on-site releases for toluene and MMA, and the facility reported on-site release of methanol in 2005 for the first time since 2002. This facility did not submit any TRI reports for 2003.

The other Dentsply facility, the Dentsply Main facility, is one of two facilities in the state that report on elemental mercury. Virtually all of their mercury is used in their products or recycled (4,380 pounds recycled), with reported on-site mercury releases to air of 0.31 pounds.

Combined Top 15 Facilities Trend - Figure 13 shows the totals for reported on-site releases for the top 15 facilities during 1998-2011. The total on-site release trend for these 15 facilities is down 83,902 pounds (2%) since 2010 and down 3,118,324 pounds (45%) since 1998 after reaching a peak of 8.4 million pounds in 2006. These facilities reported 99% of the total on-site releases in the State for 2011, while the remaining 48 facilities reported 1%.

Seven of the top 15 facilities reported decreases in on-site releases for 2011 and five reported increases. The largest change was the 800,000-pound decrease in hydrochloric acid aerosols released to air reported by the Indian River Generating Station. Also reporting a significant decrease in on-site releases, the Calpine Edge Moor/Hay Road Power Plant fell below the reporting threshold for hydrochloric acid, previously reporting 265,150 pounds for 2010. The largest increase was the 594,323-pound increase of nitrate compounds reported by the Delaware City Refinery.

FIGURE 13
TOP 15 FACILITIES
ON-SITE RELEASE



Facilities No Longer Reporting to TRI

In the normal annual cycle of TRI reporting, some facilities may fall below the reporting thresholds and some facilities may close. In recent years, this involved the annual loss of 3-4 facilities, offset by 1-2 new facilities that started to report each year. For 2010, Clariant Corp. in Milford closed and Hanover foods in Clayton fell below the reporting thresholds. Clariant reported 5 pounds of zinc compounds and Hanover Foods reported 10,000 pounds of ammonia as released on-site for 2009.

For 2009, Dow Reichhold and the Chrysler and General Motors assembly plants closed and an additional four smaller facilities (Air Liquide, AstraZeneca, The Marble Works, and McKee Run Power Plant) fell below the reporting thresholds, while one new facility (V&S Delaware Galvanizing) started to report. The three larger closed facilities reported a total of 191,600 pounds of on-site releases for 2008, their last year of declining production.
For 2011, INVISTA, formerly known as the DuPont Seaford nylon facility, fell below the reporting thresholds as a result of declining production and its power plant conversion from coal to natural gas. Buck Algonquin, a specialty manufacturer of marine hardware with headquarters in Stevensville, Maryland, closed its Smyrna facility.

Persistent Bioaccumulative Toxic (PBT) Chemicals, 2001-2011

For reporting year 2000 and beyond, the EPA established substantially lower reporting thresholds for 12 existing chemicals and one chemical category that are highly persistent and bioaccumulative in the environment. Six new chemicals and one new category were also added to the PBT list for 2000. The new thresholds apply regardless of whether the PBT chemical is manufactured, processed, or otherwise used. For 2011, four of the 16 new chemicals added (see page 5) are also PACs and they are now included in the PACs category.

TABLE 7

2011 DELAWARE PBT CHEMICALS AND REPORTING THRESHOLDS (pounds/year)

Chemical or Chemical Category	Threshold (Pounds)	2011 REPORTS
Aldrin	100	0
Benzo[g,h,I]perylene	10	4
Chlordane	10	0
Dioxin and dioxin-like compounds category	0.1 grams	6
Heptachlor	10	0
Hexachlorobenzene	10	1
Isodrin	10	0
Lead *	100	2
Lead and lead compounds *	100	13
Mercury	10	3
Mercury compounds	10	6
Methoxychlor	100	0
Octachlorostyrene	10	1
Pendimethalin	100	0
Pentachlorobenzene	10	1
Polychlorinated biphenyls (PCBs)	10	1
Polycyclic aromatic compounds category (PACs)	100	10
Tetrabromobisphenol A	100	0
Toxaphene	10	0
Trifluralin	100	0
* Lower Threshold For 2001 Reports	TOTAL	48

Table 7 provides a current list of the PBT chemicals and their thresholds, and the number of reports received for each chemical for 2011.

PBTs are receiving increased scrutiny as we learn more about them, and reporting of PBTs is being progressively more emphasized. These chemicals are of particular concern because they are not only toxic, but also because they remain in the environment for long periods of time, are not readily destroyed, and accumulate in body tissues. Beginning with reporting year 2001, the thresholds for lead and lead compounds were reduced to 100 pounds, down from the previous 25,000 pounds for manufactured and processed, and 10,000 pounds for otherwise used, except lead contained in stainless steel, brass, or bronze alloys.

Beginning with reporting year 2008, new data elements became available for dioxin and dioxin-like compounds (DLCs). The 17 compounds that fall under the TRI category of DLCs have a wide range (1.0000 to 0.0003) of toxicity; these values are called the Toxic Equivalent Factor (TEF). In order to compare them on an equal toxicity basis, we multiply the TEF by the pounds reported to get the Toxic Equivalent Quantity (TEQ). Facilities reporting on dioxins are also now required to report the amounts released or managed as waste for each of the 17 DLCs. See ***Appendix O*** for a copy of the DLC reporting form, Schedule 1. These amounts are provided along with the original amount reported in pounds. See pages 34-37 for additional detail on dioxins.

Table 8 shows the results of PBT reporting for 2009-2011 compared to total 2011 TRI data. The total count of PBT reports, 48, is lower than the counts of 49-54 for recent years. PBT on-site releases for 2011 comprise 0.35% of the total TRI on-site releases. Total PBT wastes are 4.1% of total TRI wastes. No PBT reports can be filed on Form A.

PBT on-site releases were higher for 2011 by 4,647 pounds (52%); the increase was almost entirely because of the increased amounts of lead compounds disposed of in the Indian River Generating Station on-site landfill and the increased amounts of lead compounds released to air by the Dover Air Force Base. These increases were offset by a decrease in lead compounds released to water by the Edge Moor/Hay Road Power plant. Lead compounds make up about 93% of all on-site PBT releases. Since 2001, the trend of PBT on-site releases is down 56%.

The total PBT waste amount increased by 288,448 pounds (10.6%) for 2011. The primary reason for this increase was the increased transfers of lead compounds to off-site recycle by the Johnson Controls facility.

TABLE 8

2011 TRI PBT DATA SUMMARY

(IN POUNDS)

	PBTs only 2009	PBTs only 2010	PBTs only 2011	All TRI Data 2011
No. of Facilities	25	26	26	63
No. of Form A's	NA	NA	NA	34
No. of Form R's	54	49	48	209
No. of Chemicals	11	11	11	89
On-Site Releases				
Air	1,568	1,768	2,253	2,418,770
Water	492	1,143	132	1,230,737
Land	18,052	6,039	11,212	278,669
On-Site Releases	20,112	8,949	13,596	3,928,176
Off-Site Transfers				
POTW's	2	5	8	1,048,588
Recycle	3,500,383	2,659,278	2,968,631	8,028,698
Energy Recovery	55	0	0	2,110,293
Treatment	0	0	0	274,727
Disposal	59,069	45,758	19,558	2,307,442
Total Transfers	3,559,509	2,705,041	2,988,197	13,769,749
On-Site Waste Mgmt.				
Recycle	3	3	280	7,974,584
Energy Recovery	0	0	0	9,172,883
Treatment	736	202	570	38,585,960
Total On-Site Mgmt.	739	205	850	55,733,427
Total PBT Waste	3,580,360	2,714,195	3,002,643	73,431,351

The discussion of PBT on-site releases continues on the next page. Table 9 shows the amounts of each PBT chemical reported as released by the TRI reporting facilities in 2011. Lead compounds, largely released from coal-fired power plants, made up 93% of the total on-site PBT releases for 2011.

Dover Air Force Base reported the largest PBT release to air, 1,073 pounds, and the Evraz Claymont Steel facility reported the largest releases to water, 63 pounds. The Indian River Generating Station reported the largest release to land, 10,490 pounds. These three reports were all for lead compounds. Over 91% of the PBT amounts transferred off-site for recycle was lead compounds from Johnson Controls, and Evraz Claymont Steel recycled another 8.4%. Additional detail for mercury and mercury compounds, another important PBT, is in a separate section on page 37.

IKO and the Delaware City Refinery reported the entire amount of on-site PBT chemical waste management. IKO recycled 280 pounds of PACs on-site, and the refinery treated 313 pounds of benzo(g,h,i)perylene and 257 pounds of polycyclic aromatic compounds (PACs) on-site. Appendix I shows the PBT data detail, listing each PBT chemical and the facilities reporting on it. Also, see additional facility information in the ***Top 15 Facilities*** section starting on page 18 regarding reasons for changes in reports from other PBT-reporting facilities.

TABLE 9

2011 PBT RELEASE SUMMARY BY CHEMICAL

(REPORTED AMOUNTS IN POUNDS)

2011 PBT CHEMICAL	FORM R REPORTS	ON-SITE RELEASES				TRANSFERS OFF SITE	ON-SITE WASTE MGMT.
		TOTAL AIR	TOTAL WATER	TOTAL LAND	ON-SITE TOTAL		
BENZO(G,H,I)PERYLENE	4	2.50	3.20	0.00	5.70	0.00	313.00
DIOXIN AND DIOXIN-LIKE COMPOUNDS	6	0.0224	0.0031	0.0000	0.0255	1.48	0.0005
HEXACHLOROBENZENE	1	0.1031	0.1108	0.0000	0.2139	62.00	0.00
LEAD	2	1.90	6.20	0.00	8.10	3,218.00	0.00
LEAD COMPOUNDS	13	1,927.26	118.23	10,561.00	12,606.49	2,980,331.38	0.00
MERCURY	3	18.11	0.08	0.00	18.19	4,381.37	0.00
MERCURY COMPOUNDS	6	121.00	1.20	89.00	211.20	21.62	0.00
OCTACHLOROSTYRENE	1	0.0007	0.00	0.00	0.00	2.90	0.00
PENTACHLOROBENZENE	1	0.1147	0.1000	0.00	0.2147	1.40	0.00
POLYCHLORINATED BIPHENYLS	1	0.0057	0.0061	0.00	0.0117	5.70	0.00
POLYCYCLIC AROMATIC COMPOUNDS	10	181.67	2.69	561.73	746.09	170.70	537.00
TOTALS	**48**	**2,253**	**132**	**11,212**	**13,596**	**2,988,197**	**850**

Source: 2011 DNREC TRI Database, October 2012

Dioxins are reportable in grams and have been converted to pounds for this report.

Four decimal places are used where small amountsa are not -0-.

Dioxin and Dioxin-Like Compounds

The term “dioxins” is used by the EPA TRI program and in this report to indicate the group of 17 dioxins and dioxin-like compounds (DLCs) reportable to TRI, out of a family of several hundred dioxins and dioxin-like compounds, including furans. These dioxins are also part of the PBT category, and you can see the totals for releases and other waste management in Table 9 above. Delaware ranks #35 in the nation for its 0.0255 pounds of on-site releases of dioxins for 2011. In recent years, on-site release of DLCs has been in the range of 5.2-15.8 grams. For 2011, the amount was 11.6 grams.

On May 10, 2007, the EPA Toxics Release Inventory Program issued a final rule expanding reporting requirements for the DLCs category. The final rule requires that, in addition to the total amount released for the entire category, facilities must report the amount of each individual member for each release and waste management activity on a new form (Schedule 1). The reporting requirements of the final rule applied to the 2008 reporting year and to following years.

The reason for this rule is that the toxicity levels of these 17 DLCs vary greatly, and some compounds in this group have Toxic Equivalent Factors (TEF) **3,333 times less** than others. Because of this great variation, the Toxicity Equivalent Quantity (TEQ) is a way to show toxic chemical amounts on an equal toxicity basis. The EPA and DNREC use the individual mass quantity data to calculate TEQ amounts (Weight X TEF = TEQ). This data is available to the public along with the mass data. Table 10 on the next page shows all 17 DLCs that are reportable to TRI and some basic information about them.

Among the "dioxins" included in TRI reports is the very toxic 2,3,7,8-TCDD dioxin (#1 in Table 10), which is the congener generally of most concern and most commonly covered by the news media. All TRI "dioxins" are reportable in grams and were converted to pounds for this report since all other chemicals are reported in pounds (1 gram = 0.002205 pounds). You can see that TRI dioxin numbers 1 and 2 have the highest TEF (1.0000), and numbers 7 and 17 have the lowest (0.0003). This is a range of 3,333 to 1. In order to show the toxicity effects of the 17 dioxins on an equal basis, the amounts released in pounds are multiplied by their TEF. The resulting TEQ allows them to be compared on an equal toxicity level.

TABLE 10

DIOXIN TOXIC EQUIVALENT FACTORS (TEF)

TRI No.	Dioxin Chemical (DLC) Name	Abbreviated Name	CAS	TEF
1	2,3,7,8-tetrachlorodibenzo-p-dioxin	2,3,7,8-TCDD	1746-01-6	1.0000
2	1,2,3,7,8-pentachlorodibenzo-p-dioxin	1,2,3,7,8-PeCDD	40321-76-4	1.0000
3	1,2,3,4,7,8-hexachlorodibenzo-p-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	0.1000
4	1,2,3,6,7,8-hexachlorodibenzo-p-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	0.1000
5	1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	0.1000
6	1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	0.0100
7	1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin	1,2,3,4,6,7,8,9-OCDD	3268-87-9	0.0003
8	2,3,7,8-tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	0.1000
9	1,2,3,7,8-pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	0.0300
10	2,3,4,7,8-pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	0.3000
11	1,2,3,4,7,8-hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	0.1000
12	1,2,3,6,7,8-hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	0.1000
13	1,2,3,7,8,9-hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	0.1000
14	2,3,4,6,7,8-hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	0.1000
15	1,2,3,4,6,7,8-heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	0.0100
16	1,2,3,4,7,8,9-heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	0.0100
17	1,2,3,4,6,7,8,9-octachlorodibenzofuran	1,2,3,4,6,7,8,9-OCDF	39001-02-0	0.0003

Figures 14 and 15 on the next page show the distribution of the weight and TEQ fractions of the 17 DLCs reported as on-site releases by each of the five facilities in Delaware that reported on dioxin distribution. The Delaware City Refinery reported on dioxins, but did not report on distribution of the 17 dioxin compounds. You can see in these figures, because of the different processes at the facilities, how the weight fractions of the 17 compounds reported vary between facilities.

Also, you can see how, for a dioxin like numbers 1 and 2, where the TEF is highest at 1.000, the TEQ amounts are greater than the weight percentages. Conversely, for dioxin numbers 7 and 17, where the TEF values are a low 0.003, the TEQ amounts are smaller than their weight percentages. For example, the Indian River Generating Station reported dioxin number 7 (TEF = 0.003) as 62% of the total weight in Figure 14, but this was only 1.13% of the TEQ in Figure 15.

FIGURE 14
2011 TRI DIOXIN WEIGHT DISTRIBUTION

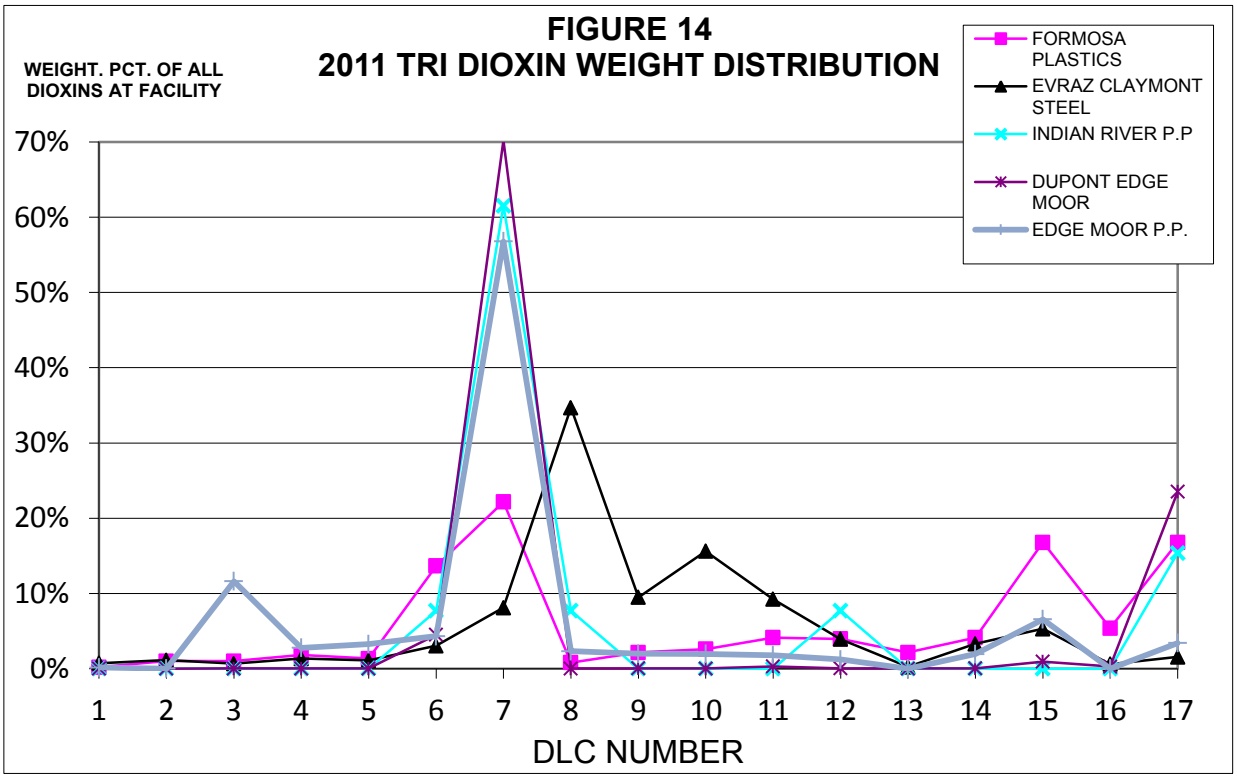
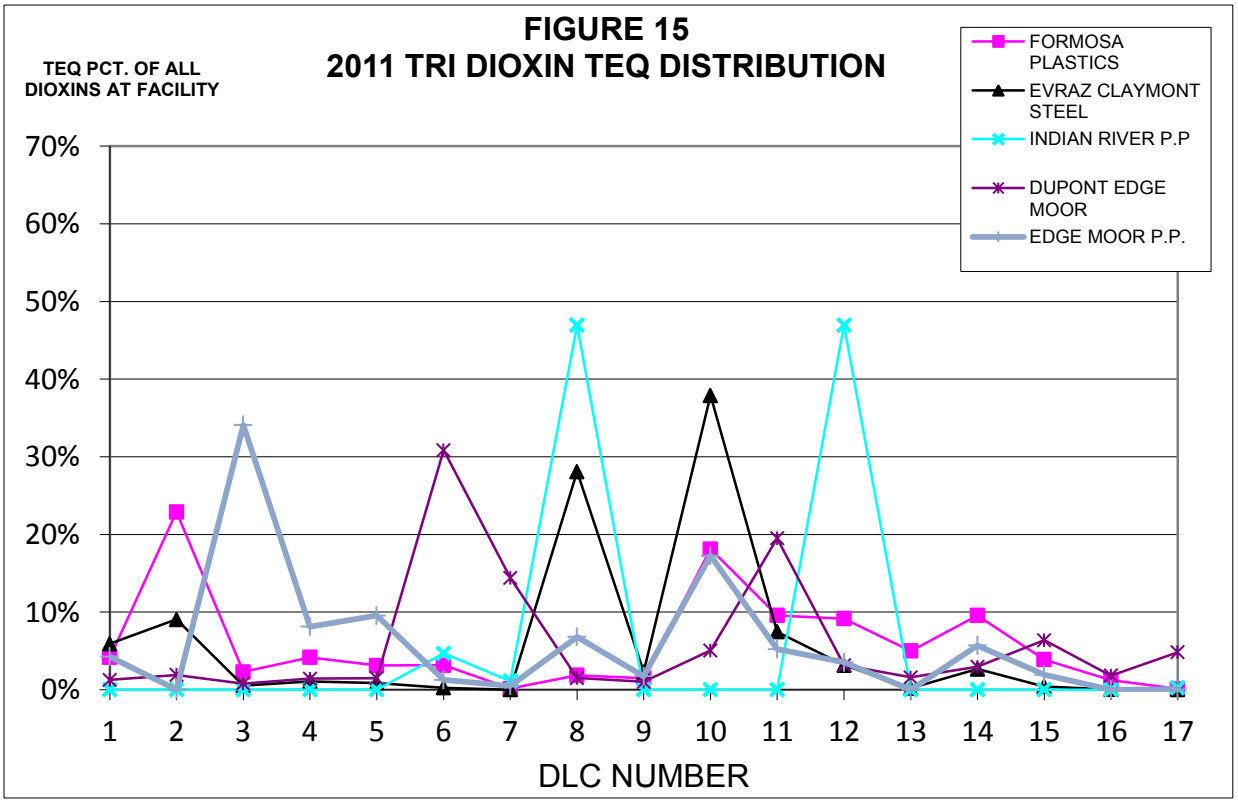


FIGURE 15
2011 TRI DIOXIN TEQ DISTRIBUTION



The total on-site release amounts in pounds and their corresponding TEQ amounts reported by the six facilities that reported on dioxins in Delaware for 2011 were calculated and are presented in the Table 11. The 2011 total of 0.002553 pounds, or 11.57930 grams, is down from the recent 2007 total of 0.034833 pounds, or 15.79986 grams, Because of the differences in distribution of individual dioxins and dioxin-like compounds, the rankings changed when comparing by pounds or by TEQ. In addition, the pounds released or managed as waste are shown in Appendix I.

TABLE 11

FACILITIES SORTED BY DIOXIN TOXIC EQUIVALENT QUANTITY (TEQ)

SORTED BY TOTAL ON-SITE TEQ FACILITY	TOTAL ON-SITE TEQ, LBS.	ON-SITE TEQ RANK	TOTAL ON-SITE LBS. RELEASE	ON-SITE LBS. RANK
EVRAZ CLAYMONT STEEL	0.00191975	1	0.015539	1
DELAWARE CITY REFINERY	0.00050927	2	0.000509	4
EDGE MOOR/HAY ROAD POWER PLANTS	0.00020200	3	0.005934	2
DUPONT EDGE MOOR	0.00000475	4	0.003247	3
INDIAN RIVER POWER PLANT	0.00000470	5	0.000287	5
FORMOSA PLASTICS	0.00000048	6	0.000011	6
TOTALS	**0.00264094**		**0.025528**	

Mercury and Mercury Compounds

Mercury (elemental mercury) and mercury compounds are an important part of the PBT category, and this section discusses some of the data in these reports. Control of mercury and mercury compounds is becoming increasingly important as we learn more about mercury, and that mercury is a serious pollutant. Children, including unborn babies, exposed to mercury compounds can have impaired functions, including verbal, attention, motor control, and intelligence. Adults may be at lower risk than children, but mercury in fish consumed by adults may lead to problems similar to those found in children, as well as reproductive and cardiovascular problems. A significant source of mercury pollution comes from the air, as mercury released from power plants is deposited on water and land, whose runoff may also migrate to the water. Many lakes and streams are impaired as a result of mercury contamination from coal-burning power plants. As mercury makes its way into the food chain, restrictions on eating fish harvested from these water bodies are becoming more commonplace.

For 2011, total on-site releases of mercury increased 42 pounds (22%) following a decline of 60 pounds for 2010 and a decline of 469 pounds for 2009. However, on-site releases of mercury and mercury compounds are down 86% since 2000. Releases to air declined by 29 pounds, the result of a reduction of 82 pounds reported by the Indian River Generating Station, but largely offset by increases of 25 pounds and 22 pounds reported by Evraz Claymont Steel and the Delaware City Refinery, respectively. Most of the Delaware City Refinery was idle for 2010 and many chemicals, including mercury, were below the reporting thresholds. The Refinery reported 23 pounds of mercury for 2011, down from 40 pounds reported for 2008, the last full year of operation for the refinery. Releases to land increased 69 pounds, the result of the report from the Indian River Generating Station, as much of the mercury previously released to air is now captured and sent to the on-site landfill. See more about mercury control at this facility in the discussion on pages 20-21.

In an effort to reduce mercury, sulfur dioxide (SO_2), and nitrogen oxides (NO_x) releases to the environment, Delaware enacted Regulation 1146 (Electric Generating Unit Multi-Pollutant Regulation) in 2006. With regard to mercury, Regulation 1146 requires coal-fired electric generating units with a rating of 25 megawatts or larger to control their mercury emissions to a rate no greater than 1.0 lb. /TBTU (trillion BTU), or an 80% reduction from baseline, starting January 1, 2009. Regulation 1146 further requires those same units to control their mercury emissions to a more restrictive rate of no greater than 0.6 lb. /TBTU, or a 90% reduction from baseline, starting January 1, 2013. At this time, all of the subject units in Delaware are in compliance with this regulation.

At the Indian River Generating Station, operation of the four units against the above criteria was also modified by a Consent Decree. This decree requires complete shutdown of Units 1 and 2 by the end 2011 and complete shutdown of Unit 3 by 2013, rather than allowing these units to operate even at reduced levels of emissions. Unit 4 will continue to operate, and pollution control equipment is being installed now to allow it to meet the Regulation 1146 criteria for 2013. The Calpine Edge Moor/Hay Road Energy Center converted to natural gas and no longer burns coal, and gas use increased significantly for 2011. The continuous emissions monitoring equipment associated with the coal system is no longer is use, and emissions factors are now used to estimate releases. As a result of these changes, hydrochloric and sulfuric acid fell below the reporting thresholds, but the estimated mercury/mercury compounds amount for the Calpine facilities increased by seven pounds for 2011. The power plant at the Invista facility has converted to natural gas and fell below the reporting thresholds for 2011.

FIGURE 16
DELAWARE MERCURY TRENDS
ON-SITE RELEASE, ALL FACILITIES

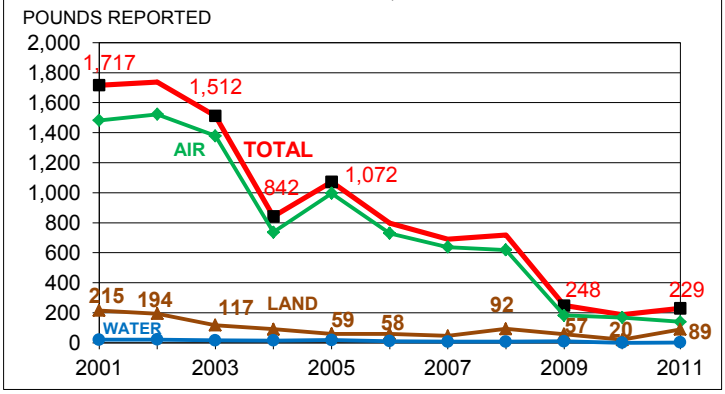


Figure 16 shows the combined trend for mercury and mercury compounds, and how the trend is greatly influenced by on-site releases to air. The reduction from 2002-2004 was from reduced amounts reported by Occidental Chemical as it began closing its Delaware facility.

Significant reductions in on-site mercury releases were expected as a result of Delaware's Regulation 1146 with the above conversions starting in 2009, and these expectations are verified in the data. The declining economy also played a part in the declining trend for 2009.

For the Indian River Generating Station, coal quality will continue to play an important part in mercury releases, as the mercury content in coal will vary from year to year. Although the control equipment will remove significant amounts of mercury from the air, it will place it into waste material that will require disposal in on-site or off-site destinations.

Although not covered by Regulation 1146, Evraz Claymont Steel, the second largest contributor, also reported on mercury. Production was up 5% for 2011, but the reported on-site release for mercury exceeded the 5% production increase because of the variability

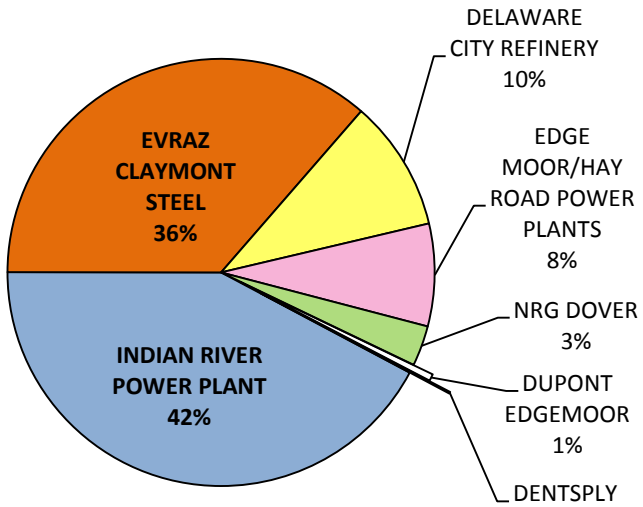
in the metal composition of the recycled iron and steel feedstock. See page 26 for additional discussion about pollution control at the Evraz Claymont Steel facility.

Reports of on-site releases of mercury in **mercury compounds** by Delaware facilities decreased 473 pounds (66%) in 2009 from the production decreases and pollution control improvements discussed above, which effected significant reductions in releases at the mercury-reporting facilities. For 2010, the reduction was 52 pounds. Half of this reduction was from the idle Delaware City Refinery, which reported no mercury compound releases for 2010, down from 26 pounds for 2009 and 40 pounds for 2008. After the restart, the refinery reported 23 pounds of on-site mercury compound releases for 2011.

For reported on-site release amounts of **elemental mercury**, Occidental Chemical did not report any amount released on-site in 2011 as the facility nears the end of cleanup activities related to its chlor-alkali plant shutdown. Occidental reported a peak release of 1,097 pounds in 2000. Occidental Chemical reported no mercury sent off-site for recycle in 2010 or 2011, following 540,000 pounds in 2005-6, 2,000 pounds in 2008, and 21 pounds in 2009 as part of the facility shutdown activity started in November 2005.

Figure 17 shows the percentage contributed by each of the facilities that reported a mercury or mercury compound release in 2011. The Intervet facility was required to report because of mercury manufacture, process, or otherwise use activities, but did not have any on-site mercury releases to report for 2011. On-site release amounts for mercury and mercury compounds can also be found in ***Appendix F*** on page F-9 and ***Appendix I*** on page I-2. A significant change for 2011 was that the Delaware City Refinery reported mercury. Most of the facility was idle for 2010 and mercury was below the reporting threshold that year.

FIGURE 17
2011 ON-SITE MERCURY RELEASES FROM DELAWARE FACILITIES



229 POUNDS REPORTED RELEASED ON-SITE

Nationwide, the top three states releasing mercury and mercury compounds on-site for 2011 were: Nevada, 4,658,496 pounds mostly to on-site land from several mining facilities; Alaska, 183,588 pounds mostly to on-site land from several mining facilities; and Texas, 62,104 pounds mostly to on-site land from several electric generating facilities. Delaware is #43 in the national rankings for its 229 pounds on-site release and #47 for its 22 pounds of off-site disposal of mercury and mercury compounds.

Carcinogenic TRI Chemicals

Some chemicals are reportable under TRI because they are carcinogens, and are known or suspected to cause cancer in humans. Table 12 shows those carcinogens that were reported by Delaware facilities for 2011. Next to each chemical is its International Agency for Research on Cancer (IARC) rating as a: Known (1), Probable (2A), or Possible (2B) carcinogen. Of the 3.9 million pounds of TRI chemicals reported by facilities in Delaware as released on-site to the environment in 2011, 4.8% (187,087 pounds) were known or suspected carcinogens. For additional information on cancer rates and causes, please go to the Department of Public Health cancer web site listed in the "***For Further Information"*** section on page 63.

TABLE 12
CARCINOGENS REPORTED BY DELAWARE FACILITIES FOR 2011

CHEMICAL NAME	IARC	NO. OF REPORTS
4,4'-METHYLENEBIS(2-CHLOROANILINE)	1	2
ARSENIC COMPOUNDS	1	2
ASBESTOS (FRIABLE)	1	1
BENZENE	1	2
CHROMIUM COMPOUNDS	1	5
ETHYLENE OXIDE	1	1
NICKEL COMPOUNDS	1	6
VINYL CHLORIDE	1	1
1,3-BUTADIENE	2A	1
CREOSOTE	2A	1
LEAD	2A	2
LEAD COMPOUNDS	2A	13
POLYCHLORINATED BIPHENYLS (PCBs)	2A	1
TRICHLOROETHYLENE	2A	1
COBALT COMPOUNDS	2B	1
DICHLOROMETHANE	2B	1
ETHYL ACRYLATE	2B	1
ETHYLBENZENE	2B	3
HEXACHLOROBENZENE	2B	1
NAPHTHALENE	2B	6
NICKEL	2B	2
NITROBENZENE	2B	1
P-CHLOROANILINE	2B	1
POLYCYCLIC AROMATIC COMPOUNDS (PACs)	2B	10
PROPYLENE OXIDE	2B	1
STYRENE	2B	3
TETRACHLOROETHYLENE	2B	1
TOLUENE DIISOCYANATE (MIXED ISOMERS)	2B	3
VINYL ACETATE	2B	1
CHEMICALS = **29**	REPORTS =	**75**

Source: 2011 DNREC TRI Database, October 2012

Carcinogen Trends, 2001-2011

Thirty-eight facilities reported on carcinogens for 2011, the same as for 2009 and 2010. However, releases on-site of all carcinogens increased 18% (28,254 pounds) compared to 2010, but have decreased 78% (669,824 pounds) since the peak in 1998. The number of carcinogen reports increased by five to 75 in 2011, and the total number of reported carcinogenic chemicals increased by three to 29. The reason for the increases for 2010 is the vinyl acetate release to air reported by Formosa Plastics increased by 15,735 pounds (34%) to a release of 61,763 pounds, and benzene released by the Delaware City Refinery increased by 5,668 pounds to a release of 6,923 pounds, returning to its normal level of 3,000-10,000 pounds reported in recent years (6,632 pounds for 2008). Lead compounds released to land also saw a 4,958-pound increase reported by the Indian River Generating Station. Creosote release increased 7,679 pounds, reported by the DuPont Edge Moor facility. Other carcinogens saw smaller increases in releases, with some facilities reporting decreases.

Additional information on lead and lead compounds is in the ***PBT*** section on pages 32-34, in ***Appendix I***, and in ***Appendix J.***

Table 13 shows amounts released on-site from 2001-2011, and Figure 18 shows the trend, which has been generally down during this time period, although many amounts were up for 2011.

TABLE 13
2001-2011 TRI CARCINOGENS
REPORTED ON-SITE RELEASES, NOT ADJUSTED

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
KNOWN											
AIR	209,295	177,473	123,191	96,562	98,107	66,475	56,287	69,781	60,664	63,975	70,033
WATER	9,114	9,682	9,339	9,817	4,643	5,222	6,435	4,452	2,059	576	1,318
LAND	169,197	170,074	312,576	173,414	134,194	143,115	46,021	104,112	26,843	8,843	552
KNOWN TOTAL	387,606	357,229	445,106	279,793	236,944	214,812	108,743	178,345	89,567	73,394	71,903
PROBABLE											
AIR	44,326	35,581	24,216	27,417	23,600	18,946	18,628	14,604	11,112	15,175	16,040
WATER	0	0	4	4	4	4	4	5	5	1,146	124
LAND	0	0	0	0	0	0	8,212	8,661	7,115	5,404	17,458
PROBABLE TOTAL	44,326	35,581	24,220	27,421	23,604	18,950	26,845	23,270	18,232	21,725	33,623
POSSIBLE											
AIR	91,851	189,296	98,699	99,543	104,480	102,414	70,722	77,436	56,817	63,059	80,974
WATER	4,873	2,109	1,431	2,308	3,416	1,544	1,655	1,170	522	38	25
LAND	21,607	17,475	21,714	49,266	44,500	44,251	24,005	28,203	17,459	615	562
POSSIBLE TOTAL	118,331	208,880	121,844	151,117	152,396	148,210	96,382	106,809	74,798	63,713	81,561
TOTAL AIR	345,472	402,350	246,106	223,522	226,188	187,836	145,637	161,821	128,593	142,210	167,047
TOAL WATER	13,987	11,791	10,773	12,129	8,062	6,770	8,094	5,627	2,586	1,761	1,468
TOTAL LAND	190,804	187,549	334,290	222,680	178,694	187,366	78,238	140,976	51,417	14,862	18,572
GRAND TOTAL	550,263	601,690	591,169	458,331	412,943	381,972	231,970	308,424	182,596	158,832	187,087

Source: DNREC TRI 2011 Database, October 2012

Although the pounds of carcinogen releases have generally declined over the 2008-2011 time period, the rate of decrease in total on-site chemical release has been greater than the rate of carcinogen decrease. Therefore, as shown in Figure 18, the carcinogen percent of total chemicals reported as released on-site has increased during this time. It was 3.7% for 2010 and 4.8% for 2011.

FIGURE 18
POUNDS OF CARCINOGENS AND PERCENT OF ALL CHEMICALS RELEASED ON-SITE, 2001-2011

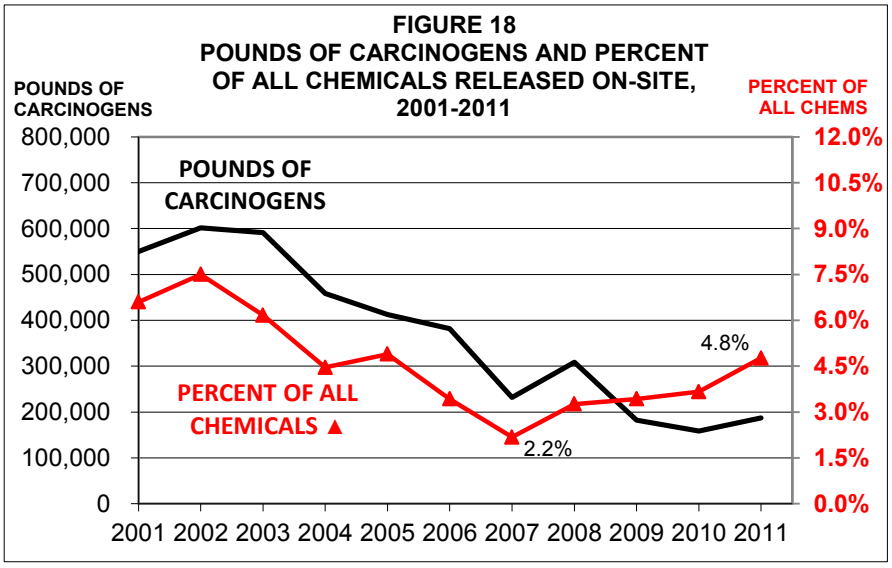
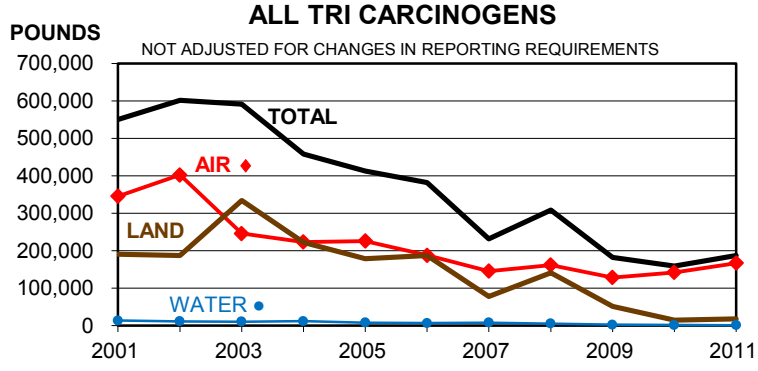
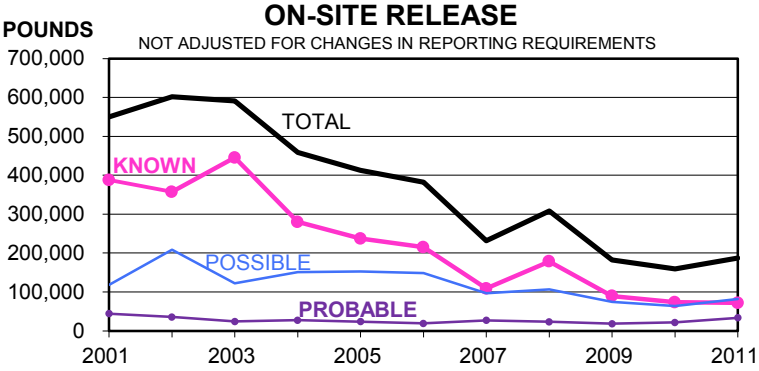


FIGURE 19
RELEASES TO AIR, WATER, AND LAND
ALL TRI CARCINOGENS



For 2011, on-site releases of all carcinogens are up 18%, or 28,254 pounds. Figure 19 shows a trend for each of the category releases by media and the total reported carcinogen release. As in Figure 18, the general trend has been down. Releases to air and land largely influenced the total, depending on the year, while releases to water play a much smaller part.

FIGURE 20
TOTAL TRI CARCINOGEN
ON-SITE RELEASE



Known Carcinogens

Known Carcinogens, although having the least number of reports, is significant because of its high toxicity classification. Known carcinogens reported 37% of the total on-site carcinogen releases for 2011. Figure 20 shows the trend of each of the three carcinogen groups and their effect on the total on-site release. On-site releases of known carcinogens are down 1,491 pounds (2%) since 2010, largely a result of declines in on-site releases of chromium compounds in ash to the on-site landfill at the Indian River Generating Station, but partially offset by the increase in release of benzene to air at the Delaware City Refinery and the increase in release to air for vinyl chloride at Formosa Plastics. On-site releases of known carcinogens are down 511,230 pounds (87.7%) since 1998.

About 97% of the total known carcinogen amount was reported released on-site to air, 2% to land, and 1% to water for 2011. Releases to air of known carcinogens are 42% of all carcinogen on-site releases to air. Reported releases to air of known carcinogens increased by 9.5% (6,058 pounds) in 2011, but are 33.5% of the amount reported in 1998.

Vinyl chloride, with a total release to air of 57,576 pounds and only reported by Formosa Plastics, is highest (81%) of the total releases in the known carcinogen category and second highest of all 29 carcinogens (only vinyl acetate, also only reported by Formosa Plastics, was higher). Vinyl chloride contributed 82% of the known carcinogen category releases to air in 2011, 34.5% of all carcinogen releases to air, and 30.8% of carcinogen total on-site releases in 2011. The second highest known carcinogen in 2011 was benzene. Benzene, largely released to air, and all from the Delaware City Refinery and Sunoco, has declined 83% from 57,959 pounds released in 1995 (from the Delaware City Refinery and the now closed Metachem facility) to 9,734 pounds in 2011. Benzene made up 14% of the known carcinogen releases to air for 2011, down from 23% for 1995.

Nickel compounds ranks third in total on-site releases in the known carcinogen category at 2,166 pounds. The Delaware City Refinery and Evraz Claymont Steel facilities reported most of the nickel compounds released for 2011. Total releases to air (27.2%), water (56.4%), and land (16.4%) were reported by six facilities. Nickel compounds contributed 92.6% (1,221 pounds) of all the known carcinogen releases to water (1,318 pounds), with chromium compounds contributing 3.7% (49 pounds).

Ethylene oxide, all of which was released to air (2,026 pounds), ranks fourth in total on-site releases in the known carcinogen category. Croda reported all of the ethylene oxide releases on-site for 2011, down from 2,475 pounds reported for 2010.

Possible Carcinogens

This category has the most chemicals, reports, and amounts, reporting 44% of all on-site release amounts. About 99.3% of the total possible carcinogen amount is reported as released on-site to air, 0.7% to land, and 0.03% to water. The trend for 2011 is up by 28%, or 17,848 pounds, but down 63%, or 138,659 pounds, since 1998. The highest chemical release in this category is vinyl acetate at 61,763 pounds, all of which was reported released to air by Formosa Plastics. Vinyl acetate makes up 76% of all possible carcinogen on-site releases. Reported on-site releases of vinyl acetate increased by 15,735 pounds (34%) for 2011.

Styrene is the second highest release in the possible carcinogen category for 2011, with reports totaling 11,818 pounds, all but 5 pounds to air. Justin Tanks reported 11,494 pounds, down from 13,464 pounds reported for 2010 and 97% of the total styrene release for 2011. The other facilities reporting styrene were BASF Seaford with 549 pounds and the Delaware City Refinery with 15 pounds. Reported styrene releases for 2011 declined by a total of 2,003 pounds (14.5%).

Ethylbenzene, with 2,445 pounds released on-site, is the third highest reported amount of possible carcinogens. All but 5 pounds were released to air. The Delaware City Refinery reported 1,961 pounds, or 80.4% of all the ethylbenzene releases. Arlon and the Dover Air Force Base contributed 13.5% and 6.1%, respectively.

Dichloromethane (methylene chloride) is the fourth highest amount of possible carcinogens released, with 2,216 pounds reported released to on-site air by Noramco. This is an increase of 1,728 pounds, up from the 488 pounds reported for 2010.

Probable Carcinogens

This category has the least number of chemicals (6) and amounts released on-site (18%), but has some important chemicals in it, such as lead, trichloroethylene (TCE), and polychlorinated biphenyls (PCBs). The majority (51.9%) of the six probable carcinogens reported was released to on-site land, while 47.7% was released to air, and 0.4% was released to water during 2011.

TCE reported by Camdel Metals was the highest release with 12,804 pounds reported, followed closely by lead compounds with 12,606 pounds. The trend for TCE on-site release decreased 1,043 pounds (7.5%) from 2010 even with the Camdel Metals 10% production increase. TCE has declined 56% from 1995-2011, down from 29,332 pounds reported for 1995 to 12,804 pounds for 2011.

Lead compounds had the second highest reported amount of on-site release of a probable carcinogen, with 12,606 pounds for 2011, an increase of 4,928 pounds since 2010. The Indian River Generating Station reported the highest release, 10,490 pounds to land and 216 pounds released to air, or 85% of the 13 facilities reporting lead compounds. Dover Air Force

Base was second, with 1,073 pounds released to air, and the Evraz Claymont Steel facility was third, reporting 462 pounds released to air, 71 pounds released to land, and 63 pounds released to water. The remaining 10 facilities had smaller amounts reported as released to air, water, or land. The probable carcinogen on-site release total increased by 11,897 pounds (55%) for 2010-2011 and is now at 33,623 pounds, 63% of the 1998 amount.

Creosote was the third highest probable carcinogen release reported with 7,679 pounds reported. The creosote was released to land and water by the DuPont Edge Moor facility, and made up 23% of the total releases for this category.

As before, in ***Limitations of TRI Data*** on Pages 4-5, we urge caution when using this data, as **the TRI data does not indicate the amount, if any, of human exposure**.

Discussion about specific facilities and their releases can be found on pages 18-31 in the ***Top 15 Facilities*** section.

Trend Analysis

Effect of Chemical and Facility Group Additions, 1990-2011

Although the TRI program began with reporting in 1987, the next two years were marked with a change each year in the manufacturing, processing, and otherwise use threshold amounts. For 1987, the thresholds were 75,000 pounds for manufacturing and processing, and 10,000 pounds for otherwise use. For 1988, the thresholds were 50,000/10,000 pounds, and for 1989 and beyond, the thresholds were 25,000/10,000 pounds. It is not possible to make a meaningful comparison of trends during this time, as the number of facilities and the number of reports was changing because of the changing reporting criteria.

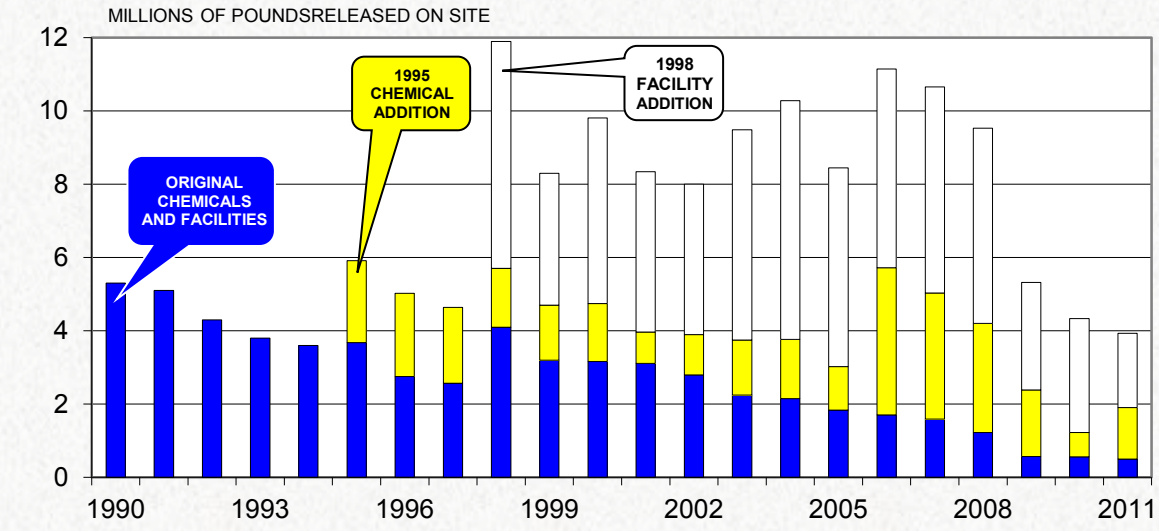
Significant groups of chemicals and facilities were added to the TRI program at two times:

- **Chemical List Changes – 1995 and 2011**
  For reporting year 1995 and beyond, the EPA significantly expanded the list of chemicals. The list increased by 282 chemicals and chemical categories, added to the original list of 238 chemicals. Also during 1989-1995, other chemicals and categories were added or deleted, including chemical categories which are highly persistent and bioaccumulative in the environment (PBTs), bringing the total chemical count for 1995 to 581 and the chemical category count to 30. See details on the PBT chemical reports starting on page 32, and in Appendix I. Starting with the 2011 reporting year, 16 new carcinogens, four of which are in the polycyclic aromatic compounds (PAC) category, were added to the list of reportable chemicals. The total chemical count after this addition is now 597.

- **Industry Expansion - 1998**
  Beginning with the 1998 reporting year, the EPA added seven industries to the list of facilities covered under TRI. Prior to the 1998 reporting year, only manufacturers (SIC codes 2000-3999) and Federal facilities were required to report (see Table 1 on page 3). The greatest impact to Delaware is the Electric Utilities (NAICS 221). The industry expansion significantly increased the amount of reported releases. This did not necessarily represent an increase in toxic releases in Delaware, but rather provided additional information to the public. Other smaller groups as noted above, or even individual chemicals, are also added or deleted over time.

Figure 21 shows these effects starting in 1990 and following the trend of each group since it was added to the TRI program. Data from the beginning of the TRI program in 1987-89 is excluded because reporting requirements changed significantly and a valid comparison of that data with later data is not feasible.

FIGURE 21
EFFECT OF CHEMICAL AND FACILITY GROUP ADDITIONS
1990-2011



Source: DNREC 2011 TRI Database, 10-1-12

The trend of each group and the reports affecting the trends will be discussed in this Trend Analysis section. All groups show generally decreasing trends over time, with increases and decreases reflecting both changes in business conditions and improvements in analysis. Table 14 shows the amount reported in millions of pounds for each group at the time it was added, the 2011 reported amount, and the amount of change since the time it was added. If each group had remained constant at the time of its addition, amounts reported for 2011 would be 13.73 million pounds instead of the 3.93 million pounds actually reported for 2011. This is the second year that the total on-site releases for all three groups have been less than the amount reported by original chemicals and facilities for 1990. Because of several factors, including facility efforts to reduce pollution, increased regulation, partial or complete shutdown of facilities, and declining business conditions, the reporting facilities in Delaware have effected a reduction of 9.80 million pounds, or 71%, in their reported TRI chemical releases since 1990.

TABLE 14
TREND OF ON-SITE RELEASES FOR CHEMICAL AND FACILITY ADDITIONS

GROUP	STARTING YEAR AMOUNT Millions of Pounds	2011 AMOUNT Millions of Pounds	CHANGE SINCE STARTING Millions of Pounds	PERCENT CHANGE
Original Facilities and Chemicals	5.30	0.50	- 4.80	-91%
1995 Chemical Addition	2.23	1.41	- 0.82	-37%
1998 Facility Addition	6.20	2.02	- 4.18	-67%
TOTAL	13.73	3.93	- 9.80	-71%

TABLE 15
2001-2011 TRI DATA SUMMARY
(IN POUNDS)

NOT ADJUSTED FOR CHANGES IN REPORTING REQUIREMENTS

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
No. of Facilities	82	83	85	74	73	70	69	69	63	61	63
No. of Form As	57	55	55	52	53	45	44	31	29	31	34
No. of Form Rs	316	317	327	310	294	287	295	288	227	197	209
No. of Chemicals	104	106	103	103	103	101	102	100	90	79	89
On-Site Releases											
Air	6,796,684	6,281,850	7,308,283	7,935,921	6,478,578	6,341,764	6,920,245	5,845,224	3,194,368	3,520,138	2,417,599
Water	573,937	928,813	918,650	1,231,061	1,211,798	4,022,175	3,327,675	2,796,686	1,590,679	600,479	1,230,737
Land	965,666	814,385	1,268,396	1,111,392	752,894	781,701	406,188	885,976	537,489	210,747	278,669
Unadjusted On-Site Release	8,336,287	8,025,048	9,495,329	10,278,374	8,443,270	11,145,640	10,654,109	9,527,887	5,322,536	4,331,364	3,927,005
Off-site Transfers											
POTWs	1,575,732	1,201,161	1,452,241	1,466,469	1,514,575	1,421,647	1,243,125	1,117,335	636,602	996,970	1,048,588
Recycle	8,845,326	9,248,730	8,376,865	9,910,935	11,345,835	8,534,537	8,181,423	7,535,371	5,367,592	5,662,694	8,028,698
Energy Recovery	2,642,626	2,538,090	2,834,075	2,755,903	2,724,080	4,180,596	4,910,600	3,695,215	2,330,189	1,857,131	2,110,293
Treatment	183,567	398,572	370,950	174,893	194,679	237,073	171,044	150,297	140,248	336,190	274,727
Disposal	3,878,689	4,196,691	4,084,899	3,919,638	4,400,538	4,739,232	7,145,314	3,129,281	2,785,524	4,563,328	2,307,392
Total Transfers	17,125,940	17,583,245	17,119,029	18,227,837	20,179,707	19,113,085	21,651,506	15,627,498	11,260,156	13,416,312	13,769,699
On-Site Waste Mgmt.											
Recycle	24,133,885	25,033,817	22,404,667	8,772,135	10,079,028	10,594,593	10,945,896	10,870,477	5,630,119	7,678,337	7,974,584
Energy Recovery	25,863,740	15,740,469	16,323,700	23,440,027	19,624,524	17,937,031	20,387,061	20,932,200	14,670,034	-	9,172,883
Treatment	40,734,134	33,392,650	30,443,585	31,807,455	38,330,991	39,516,068	39,879,302	42,281,742	38,179,139	32,895,795	38,585,960
Total On-Site Mgmt.	90,731,759	74,166,935	69,171,952	64,019,617	68,034,543	68,047,692	71,212,259	74,084,419	58,479,292	40,574,132	55,733,427
Total Waste	116,193,986	99,775,229	95,786,309	92,525,828	96,657,520	98,306,417	103,517,874	99,239,804	75,061,983	58,321,807	73,430,130

NOT ADJUSTED FOR CHANGES IN REPORTING REQUIREMENTS

SOURCE: DNREC 2011 DATABASE, OCTOBER 2012

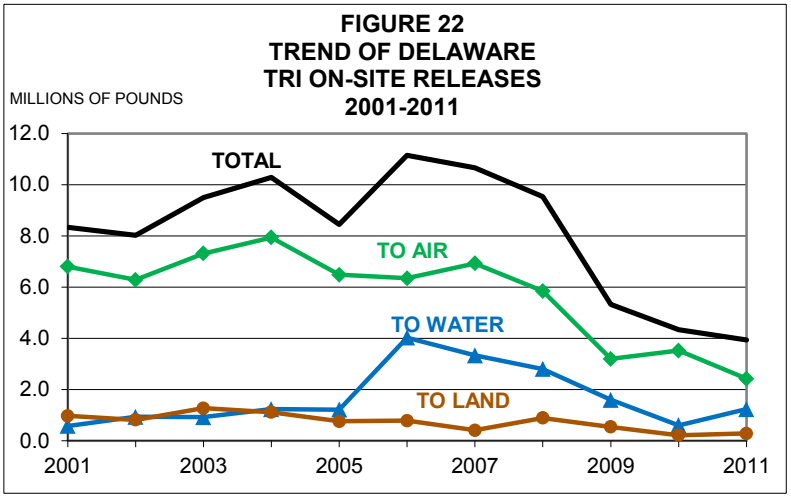
Release and Waste Management Trends, 2001-2011

Table 15 on page 46 shows amounts reported for each of the last 10 years. Earlier data is available back to 1987, the first year of the TRI program. Changes in reporting requirements over time have caused an increase both in the number of chemicals and in the number industries subject to reporting. Significant changes to the TRI reporting requirements occurred in 1995, 1998 and 2000, when large increases in chemicals (1995), industries subject to reporting (1998), and reductions in PBT thresholds (2000) occurred. Comparison of this data with earlier data must be done carefully, as some chemicals and/or industries may not have been required to report over the entire time.

The analysis presented in this section uses 2001 as a base year for presenting trends for all reportable chemicals and facilities, and is **not adjusted** for any changes in reporting requirements.

On-Site Releases, 2001-2011
Figure 22 shows the on-site release trends during 2001-2011. On-site releases include emissions to the air, and also discharges to bodies of water and releases at the facility to land, including on-site landfills. On-site release amounts decreased 9.3% for 2011 (404,366 pounds) following a 18.6% decrease (991,170 pounds) for 2010. Figure 22 shows the trend of on-site releases since 2001.

FIGURE 22
TREND OF DELAWARE TRI ON-SITE RELEASES 2001-2011



Significant changes in the amounts reported for 2010-2011 include the facilities and chemicals shown in Table 16 below. To put the changes in perspective for 2011, there were 89 reports with a higher amount and 79 reports with a lower amount. There were 10 reports with an increase greater than 10,000 pounds and 11 reports with a decrease greater than 10,000 pounds.

TABLE 16
REPORTS OF MAJOR CHANGES IN ON-SITE RELEASES for 2011

FACILITY	CHEMICAL	MEDIA	CHANGE IN ON-SITE RELEASES (pounds)
Indian River Generating Station	Hydrochloric acid	Air	-800,000
Edge Moor/Hay Rd. Power Plants	Hydrochloric acid	Air	-265,000
DuPont Edge Moor	Carbonyl sulfide	Air	-67,000
Indian River Generating Station	Hydrogen Fluoride	Air	-50,000
Perdue Georgetown	Nitrate Compounds	Water	+63,000
Delaware City Refinery	Sulfuric acid	Air	+68,000
Indian River Generating Station	Barium Compounds	Land	+92,000
Delaware City Refinery	Nitrate compounds	Water	+594,000

Some of these changes (higher or lower) like the changes in hydrochloric acid amounts may have been caused by normal year-to-year variations in production levels at the facility or in the chemical content of raw materials, or by the new Delaware Regulation 1146, which started to take effect in 2009. Some changes may also have been caused by improvements in the way facilities estimate amounts. These changes are the primary reasons for the reductions and increases in the totals for 2010-2011. Changes are also discussed in the ***Top 15 Facility Profiles*** and ***Facilities No Longer Reporting*** sections on pages 18-31. In addition, you may contact the facility (Appendix B) for a more in-depth discussion of the reasons for specific changes, and consult Table 15 on page 46 and the appendices in this report for the exact amounts that were reported.

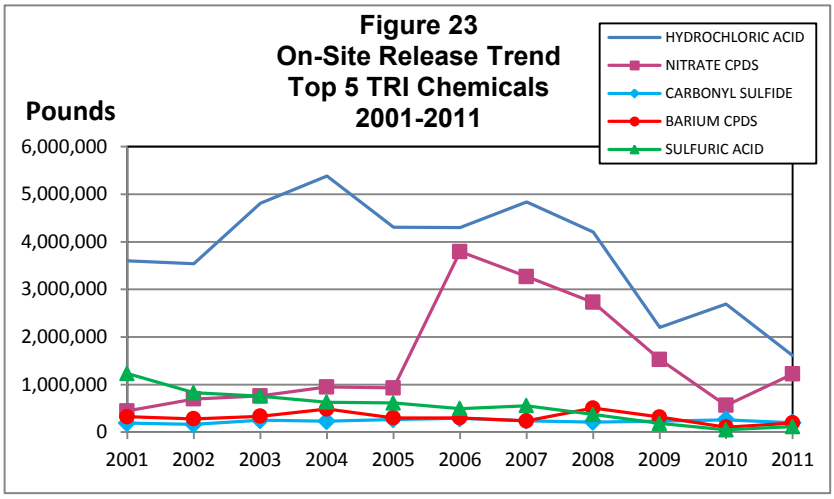


Figure 23 shows the trend since 2001 for the top five chemicals based on on-site release amounts reported for 2011 in Delaware. These five chemicals represent 85% of all on-site releases from the 89 chemicals reported. You can see that the trends for hydrochloric acid and nitrate compounds have trended down significantly since 2006. Part of the reason for the downward trend in hydrochloric acid is Delaware Regulation 1146, which began to be implemented in 2009 at the electric generating facilities (see pages 37, 38, 53, and page L-7 in ***Appendix L*** for details). Reported releases of nitrate compounds peaked in 2006, when the Delaware City Refinery started using a more accurate method for measuring its nitrate compound releases. As a group, on-site releases from these five chemicals are down 64% since 2006.

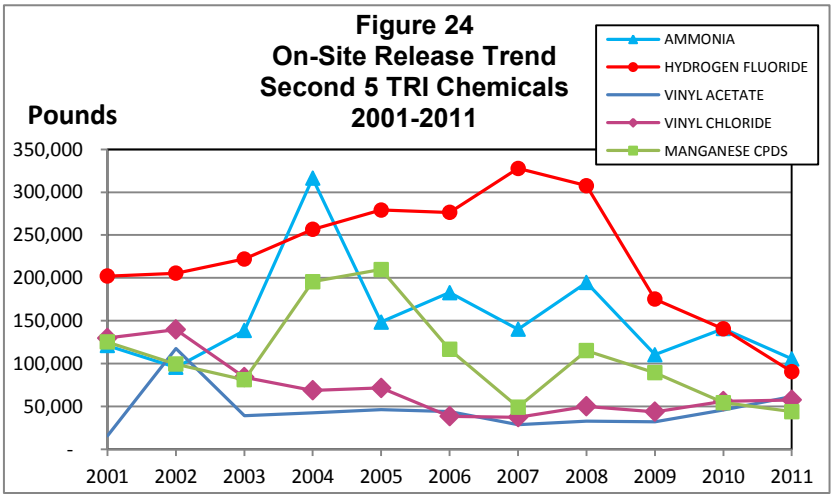


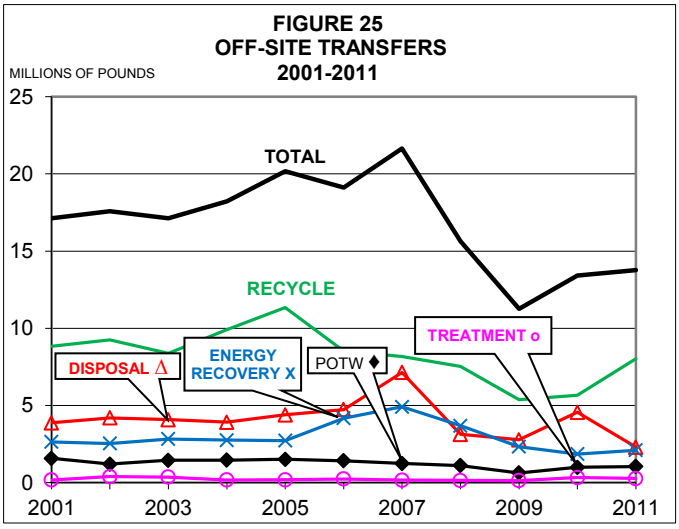
Figure 24 shows the trend of the second five chemicals (6-10), again showing the downward trends for most of these chemicals. As a group, on-site releases from these chemicals are down 18% since 2010 and down 45% since 2006, with hydrogen fluoride and ammonia providing most of the reductions during this time. These five chemicals represent 9% of all on-site releases from the 89 chemicals reported for 2011.

Five of the chemicals ranked in the remaining 15 of the top 25 chemicals also show downward trends with reductions ranging from 2% to 37%. The remaining ten chemicals in this group showed increases of 7% to 227%. However, the total on-site release amount for the 79 chemicals not in the top 10 reported for 2011 represents only 6% of total on-site releases.

Another reason for the change in on-site releases for many chemicals is that the economy, which affects production at the facilities and ultimately many of their on-site releases, has declined in recent years and indirectly caused part of the reduction. This effect is discussed later in this report on page 59 in the ***TRI and the Economy*** section.

Off-Site Transfers, 2001-2011

An off-site transfer is a transfer of toxic chemicals in wastes to another facility that is physically separate from the reporting facility and may even be out-of-state. Chemicals are reported as transferred to an off-site facility when they are transported away from the reporting facility for the purposes of treatment at a publicly-owned treatment works (POTW), recycle, disposal, energy recovery, or non-POTW treatment facility. Although the off-site transfers may be of less immediate local concern than on-site releases, the transfers to POTWs, treatment, and disposal still represent toxic chemicals in wastes that must be ultimately accounted for.



As noted on page 11 and seen in Table 15 on page 46, the amounts reported as transferred off-site are over three times greater than the amounts of on-site releases. Figures 25 and 26 show the trends in amounts of TRI chemicals in wastes transferred off-site for all facilities and chemicals reporting since 2001. To increase clarity, the lower portion (0 - 8 million pounds) of Figure 25 is expanded in Figure 26. For comparison, please look at the corresponding values in Table 15. Off-site transfers increased 3% (353,000 pounds) in 2011, driven by increases in amounts sent off-site for recycle and energy recovery, but partially offset by a decrease in disposal amounts.

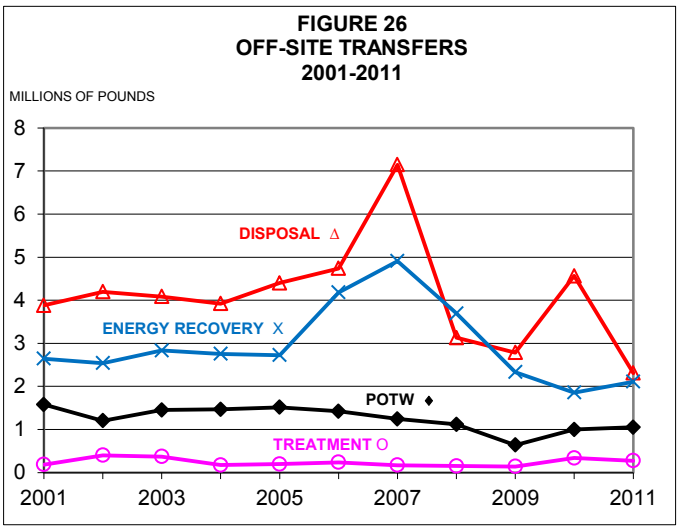


Table 17 shows that the largest off-site transfer decrease was for manganese compounds, followed by chromium and vanadium compounds disposed of by DuPont Edge Moor. Johnson Controls sent more lead compounds off site for recycle, Evraz Claymont Steel sent more zinc compounds off site for recycle, and Noramco sent more n-butyl alcohol off site for energy recovery in 2011, compared to 2010. Fifty-two reports showed decreases, while 73 reported increases for 2011.

TABLE 17
MAJOR CHANGES IN OFF-SITE TRANSFERS FOR 2011

FACILITY	CHEMICAL	OFF-SITE METHOD	CHANGE (pounds)
DuPont Edge Moor	Manganese Compounds	Disposal	-2,282,000
DuPont Edge Moor	Chromium Compounds	Disposal	-247,000
DuPont Edge Moor	Vanadium Compounds	Disposal	-166,000
Noramco	N-Butyl alcohol	Energy Recovery	+118,000
Evraz Claymont Steel	Zinc Compounds	Recycle	+195,000
Johnson Controls	Lead Compounds	Recycle	+271,000
Delaware City Refinery	Asbestos	Disposal	+497,000
Rohm & Haas B2 B3 B8	N,N,-Dimethylformamide	Recycle	+1,355,000

On-Site Waste Management, 2001-2011

In some facilities, wastes are managed on-site instead of being sent off-site for processing or disposal. On-site waste management (recycle, recovered for energy, or treated at the facility) is the processing of chemicals in wastes that do not leave the site of the reporting facility. These activities represent a lower risk to the environment, as the materials are generally destroyed, although a small fraction escapes treatment and these amounts are reported on-site releases.

Although these amounts represent a loss of raw materials and/or finished product to the facility as waste, they are not as much of a threat to the environment as the on-site release categories since these amounts are treated or recycled and not disposed of or released to the on-site environment. There is, of course, the risk that these chemicals may be accidentally released on-site to the environment during the waste management process. Also, most waste management operations are not 100% efficient, so a portion of the waste being treated in these operations will be released on-site and must be accounted for in the on-site releases reported by the facility.

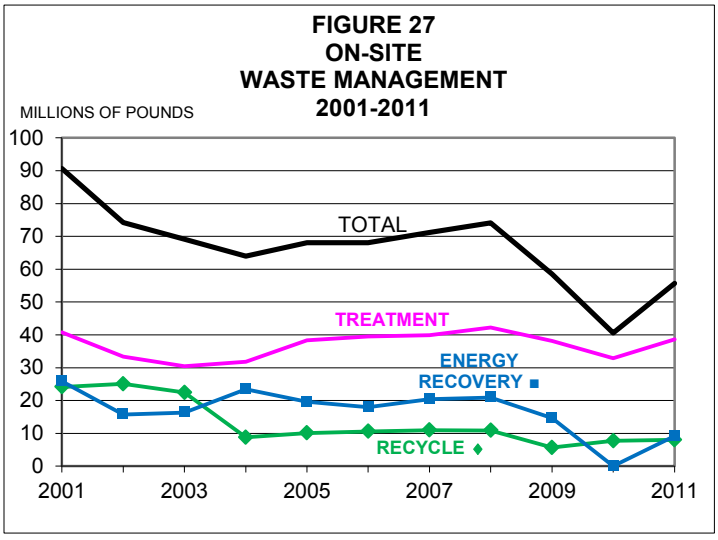


Figure 27 shows the trends for the three on-site waste management activities since 2001. Overall, on-site waste management amounts increased 37% (15,159,000 pounds)

in 2011. The Delaware City Refinery restarted in 2011, and many on-site waste management amounts at the refinery showed increases; 22 of the top 36 reports showing an increase for 2011 were from the refinery.

The decrease (20%) in 2008-2009 was due to several reported decreases, six each of over one million pounds and one of those over nine million pounds. The decrease (31%) in 2009-2010 was again due to several significant reported decreases, four each of over one million pounds and one of those over 17 million pounds. Three of these four large decreases were a result of the Delaware City Refinery being idle in 2010.

The Delaware City Refinery is the only facility in the state that performs on-site energy recovery. Comparing energy recovery reports for 2011 at the refinery to the reports for 2008, the last year of full operation, we saw that energy recovery for ammonia decreased 8,798,778 pounds (56%) and carbon disulfide decreased by 2,590,113 pounds (58%). Although the refinery is now back to full operation, some units may have been modified and some products may now be produced in different quantities than during 2008 and prior years. The facility reported 1,355,114 pounds less of on-site releases compared to 2008. Most notably, on-site release of nitrate compounds is down 1,175,900 pounds since 2008.

Changes greater than one million pounds reported in on-site waste management for 2011 are:

TABLE 18

MAJOR CHANGES IN ON-SITE WASTE MANAGEMENT FOR 2011

FACILITY	CHEMICAL	ON-SITE WASTE MANAGEMENT METHOD	AMOUNT OF CHANGE (pounds)
DuPont Edge Moor	Hydrochloric Acid	Treatment	-2,284,000
DuPont Edge Moor	Phosgene	Treatment	-1,828,000
Indian River Generating Station	Ammonia	Treatment	-1,650,000
Delaware City Refinery	Carbon Disulfide	Energy Recovery	+1,900,000
Delaware City Refinery	Ammonia	Energy Recovery	+6,832,000
Delaware City Refinery	Carbonyl Sulfide	Treatment	+8,952,000

These changes were balanced by smaller increases and decreases from other reports. Forty reports showed an increase in a waste management amount, while 24 reports showed a decrease for 2011. Total pounds for on-site waste management have decreased by 63 million pounds, or 53%, since 1998. The on-site waste management amount totals are in Table 15 on page 46, and Figure 6 on page 12 shows the relative amounts.

Receiving TRI Chemicals in Wastes

When a facility transfers TRI chemical waste off-site, these wastes go to a receiving facility. Table 19 shows the total amounts of TRI chemicals reported as sent to 20 Delaware facilities from both in-state and out-of-state TRI facilities for 2011. Only the Indian River Generating Station Landfill in Delaware was required to report to the TRI program based on the reporting requirements shown on pages 2-4. Historically, few TRI facilities in Delaware receive wastes from other TRI facilities. The DNREC TRI program does not receive reports from any out-of-state TRI facilities that transfer wastes into Delaware; this data was obtained from the EPA.

TABLE 19
SUMMARY OF REPORTED TRI TRANSFERS TO DELAWARE FACILITIES FROM OTHER TRI FACILITIES IN 2011
(IN POUNDS)

DELAWARE RECEIVING FACILITY	TOTAL TRANSFERS TO DELAWARE FROM DELAWARE TRI FACILITIES	TOTAL TRANSFERS TO DELAWARE FROM OUT-OF-STATE TRI FACILITIES	TOTAL TRANSFERS RECEIVED BY DELAWARE FACILITIES
CLEAN EARTH OF DELAWARE	32	626	658
CORRADO AMERICAN	122		122
CREATIVE FLOORS		84	84
DELAWARE RECYCABLE PRODUCTS	16,785		16,785
DIAMOND STATE RECYCLING CORP.	591		591
DSWA CHERRY ISLAND LANDFILL	93		93
DSWA GEORGETOWN LANDFILL	72		72
DSWA SANDTOWN LANDFILL	257		257
DUPONT EXPERIMENTAL STATION	6	8,063	8,069
FCC ENVIRONMENTAL		31,048	31,048
FITZGERALDS SALVAGE & RECYCING	529,607		529,607
GENERAL CHEMICAL		8,658	8,658
INDIAN RIVER POWER PLANT LANDFILL *	26		26
INDUSTRIAL RESOURCE NETWORK		250	250
KENT COUNTY WASTEWATER TREATMENT PLANT	53,727		53,727
KENT SCRAP METAL	82,277		82,277
MIDDLETOWN-TOWNSEND-ODESSA TREATMENT PLANT	7		7
NEW CASTLE WASTEWATER TREATMENT PLANT	118		118
SEAFORD WASTEWATER TREATMENT PLANT	1,049		1,049
WILMINGTON WASTEWATER TREATMENT PLANT	987,973		987,973
TOTAL TRI TRANSFERS REPORTED	**1,672,742**	**48,729**	**1,721,471**

Source: U.S. EPA 2011 Data Run, August 21, 2012
* TRI FACILITY

The top receiving facility is the Wilmington Wastewater Treatment Plant, receiving TRI chemicals in wastewater from regional customers. Fitzgerald's Salvage and Recycling received the second largest amount, for recycle, from one Delaware customer. Kent Scrap Metal received the third highest amount, from one facility. The fourth largest amount transferred to a Delaware facility was to the Kent County Wastewater Treatment Plant, receiving TRI chemicals for treatment from two facilities in the county. FCC Environmental in Wilmington received the fifth highest amount, from a variety of petrochemical and electric generating facilities, all out of state. The sixth largest transfer amount was to Delaware Recyclable Products, receiving mostly metal compounds from two Delaware facilities. These six receiving facilities accounted for 99% of all TRI chemicals received in Delaware from all in-state and out-of-state TRI facilities.

Pollution Prevention/Reduction Programs in Delaware

Data for TRI reportable chemicals and other chemicals is becoming increasingly more available to the public. This data availability has focused public attention and awareness on the existence and quantity of these chemicals and on their management and possible reduction. Although EPCRA does not require a facility to reduce releases of chemicals reportable under its programs, many companies and facilities are aware of the public availability of the data in this and other EPCRA reports and have implemented programs to reduce or eliminate releases of these chemicals. These programs may take the form of efficiency improvements, reuse, recycle, energy and material recovery, or material substitutions. The benefits of these programs are reduced raw material and waste disposal costs and reduced risks associated with the toxic chemicals. Also, these reductions demonstrate corporate responsibility to the facility's neighbors and improve the corporate image with the public.

There are numerous programs within DNREC that impact the management of TRI chemicals through the issuance of permits or through other regulatory and non-regulatory activities. Most releases reported under TRI are also regulated through air emission, water discharge, and/or land disposal permits. Potential sources of toxics undergo technical reviews through which potential threats to the environment and to human health are reviewed and identified prior to issuance of a permit. For example, the Engineering and Compliance Branch in the Division of Air Quality enforces a provision in the Clean Air Act Amendment of 1990 that targets the control of hazardous air pollutants (HAPs). Nearly all HAPs are also reportable TRI chemicals. In addition, the Engineering and Compliance staff monitors TRI data to assess whether a facility complies with its air permits for TRI chemicals. Another example is the work performed by the Accidental Release Prevention (ARP) program. The ARP staff uses the TRI data to detect deficiencies at a facility that might result in an increased risk of an accidental release.

The DNREC Solid and Hazardous Waste Management Section uses the TRI report to measure reductions of releases for the Waste Minimization Priority Chemicals list. The list is a result of EPA's Waste Minimization Program and has measurable goals that Delaware is working to attain. During 2011, DNREC's Division of Air Quality monitored ambient air quality at ten locations around the State. For more information, please refer to the Delaware Air Quality Report paragraph in the ***For Further Information*** section on page 63 of this report.

In 2006, Delaware promulgated Regulation 1146, Electric Generating Unit (EGU) Multi-Pollutant Regulation, to establish sulfur dioxide (SO_2), nitrogen oxides (NOx), and mercury (Hg) air emissions limitations for coal-fired and residual oil-fired EGUs located in Delaware. Regulation 1146 established two phases of emissions limitations, with the first phase becoming effective in 2009, and a more restrictive second phase of emissions limitations becoming effective in 2013. Reductions in NOx, SO_2 and Hg emissions have been achieved by the Delaware EGUs subject to Delaware Regulation 1146, and full compliance with the Regulation's more restrictive second phase emissions limitations for 2013 is anticipated.

The reduction in NOx, SO_2, and mercury emissions is:

1. Reducing the impact of those emissions on public health;
2. Aiding in Delaware's attainment of the State and National Ambient Air Quality Standard (NAAQS) for ground level ozone and fine particulate matter;
3. Helping to address local scale fine particulate and mercury problems attributable to coal and residual oil-fired electric generating units;
4. Improving visibility and helping to satisfy Delaware's EGU-related haze obligations.

In May 2011, the EPA proposed its "National Emissions Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance (http://www.epa.gov/ttn/atw/utility/fr16fe12.pdf update for 2011) for Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units". The EPA finalized these standards effective April 16, 2012 for new or reconstructed units and effective April 15, 2015 for existing units. The rule establishes emissions standards intended to:

1. Reduce the emissions of hazardous air pollutant (HAP) metals such as mercury (Hg), arsenic (As), nickel (Ni), cadmium (Cd), chromium (Cr), lead (Pb) and selenium (Se).
2. Reduce the emissions of acid gases including hydrogen chloride (HCl) and hydrogen fluoride (HF).
3. Reduce the emissions of particulate matter.

Subsequent to publishing the final rule "National Emissions Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units", EPA received petitions for reconsideration of the rule that may affect the new source standards. In July 2012, EPA indicated that it was staying portions of the rule related to measurement issues related to mercury and the data set used to which the variability calculation was applied when establishing the new source performance standards for particulate matter and hydrochloric acid, and that may affect the new source performance standards. EPA has indicated that it intends to expedite this reconsideration and complete the rulemaking by March 2013.

National Perspective

The national 2011 TRI preliminary data was recently released by the EPA. Placing the 2011 Delaware reports alongside the 2011 EPA data yields some rankings that provide a perspective for Delaware in the national TRI picture. Changes in the 2011 final national values because of report additions or revisions may change these rankings.

TABLE 20
RANKING OF ON-SITE RELEASES FOR SELECT STATES

State	Rank, Based on Pounds	Total On-Site Release (Pounds)	Rank, Based on Release Per Person	Rank, Based on Pounds Release Per Square Mile
Alaska	1	1,048,115,535	1	8
Nevada	2	527,493,320	2	1
Utah	3	195,360,086	3	5
Texas	4	192,214,467	24	23
Delaware	45	3,927,005	35	9

The reported totals for six states were each over 100 million pounds in 2011.

This data shows that Delaware ranks 45th in the nation in total on-site releases by state for all TRI chemicals. This is 0.11% of the total on-site release amounts nationwide. Rankings can also be based on other criteria. Because Delaware has a small population (#45) and area (#49), releases are spread over fewer people and a smaller area, increasing the ranking on a per-person or per-square mile basis. Although Alaska reports, by far, had the highest amount of on-site releases, this state only received 211 reports from 33 facilities, less than Delaware's

243 reports from 63 facilities. Alaska reports are largely from mining operations, with over 1.03 billion pounds (98.6% of the state total) reported released on-site from just two chemicals; lead compounds and zinc compounds.

Figure 28 shows the amounts of TRI on-site releases reported by four nearby states for 2008-2011. Pennsylvania reported 54,483,951 pounds of TRI chemicals released on-site for 2011. These states generally showed decreases in their reported on-site release amounts every year since 2008 (15%-21% for 2011), except New Jersey had a small increase for 2010 and Maryland was flat for 2011. Maryland, however, did report the largest recent decline (60.4%), in the region for 2010.

FIGURE 28
TOTAL TRI ON-SITE RELEASE TRENDS
DELAWARE AND NEARBY STATES

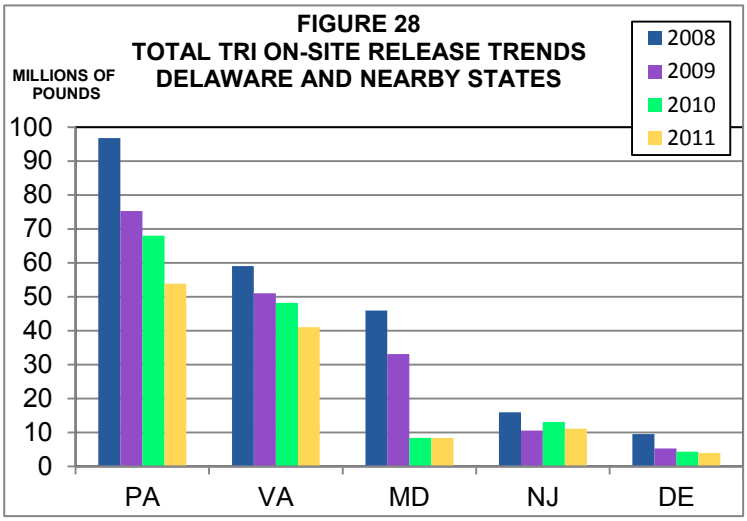


Table 21 shows that over 100 facilities had more **total on-site releases** than all the facilities in Delaware combined. EPA only ranks the top 100 facilities.

TABLE 21
SELECT FACILITY TOTAL ON-SITE RELEASES COMPARED TO DELAWARE

Facility, State	Rank	Total On-Site Release (Pounds)
Red Dog Operations, Alaska	1	989,392,511
Kennecott Copper Mine, Utah	2	145,317,602
Newmont Mining, Golconda, Nevada	3	134,408,149
All Facilities Combined, Delaware	Lower than #100	3,927,005

Fifteen facilities each reported over 20 million pounds released on-site in 2011.

Nationwide, forty-one facilities each released more **dioxins* on-site** than all the facilities in Delaware combined. Table 22 shows the top three facilities in the nation compared to the Delaware total on-site release of dioxins.

TABLE 22
COMPARISON OF DIOXIN TOTALS FOR TOP 3 FACILITIES TO DELAWARE TOTAL

Facility, State	Rank	Total On-Site Dioxin Release (Grams)
Dow Chemical, Texas	1	8,923.26
US Magnesium, Utah	2	7,237.90
Millennium Chemicals, Ohio	3	1,409.78
All Facilities Combined, Delaware	38	11.58

Fourteen facilities each reported over 50 grams on dioxins* released on site in 2011 and four of these released over 1,000 grams. These amounts reported do not differentiate between the highly toxic and the less toxic dioxins and dioxin-like compounds in this group.

* See pages 3, 5, 23-24, 32-37 for notes on “Dioxins.”

Table 23 shows that nine states had more **total production of dioxins** (total on-and off-site release and disposal) than Delaware.

TABLE 23
COMPARISON OF DIOXIN TOTAL PRODUCTION AND ON-SITE RELEASES FOR SELECT STATES

State	Total Prod. Rank	Total Production of Dioxins, Grams *	On-Site Dioxin Release or Disposal - Grams (On-Site Rank)
Texas	1	33,424.93	9,042.38 (1)
Utah	2	7,291.50	7,270.29 (3)
Kentucky	3	2,671.40	189.18 (2)
Ohio	4	2,469.43	2,360.80 (4)
Delaware	**10**	**680.94**	**11.58 (38)**

Nationwide, for on-site release of **dioxins***, Delaware ranked #38 based on amount released on-site.

* Delaware total dioxin production was #10 for 2011, largely based on the report from the DuPont Edge Moor facility. Almost the entire amount (669.25 grams out of the 670.73 grams produced) was transferred off-site to a secure, permitted, out-of-state landfill. For more information, read the DuPont Edge Moor facility profile on pages 23-24.

Some facilities in Delaware do rank near the top of the national rankings for specific releases. **Formosa Plastics** ranks #1 for on-site release of vinyl chloride and #7 for on-site release of vinyl acetate. **DuPont Edge Moor** facility ranks #5 for off-site transfer to disposal of dioxin and dioxin-like compounds, #20 for off-site transfer to disposal of chromium compounds, #12 for off-site transfer to disposal of vanadium compounds, and #13 for off-site transfer to disposal of manganese compounds. **DuPont Edge Moor** ranks #14 for on-site release of carbonyl sulfide. The **Delaware City Refinery** ranks #52 for on-site release of nitrate compounds. **Evraz Claymont Steel** ranks #68 for on-site release of dioxins. The **Dover Air Force Base** ranks #27 within all 79 Air Force facilities total for on-site releases.

Delaware is ranked #23 for 2011 in the state rankings for on-site release of hydrochloric acid. The **Indian River Generating Station** ranks #21 within all U.S. facilities for on-site release of hydrochloric acid. The **Calpine Edge Moor/Hay Road Energy Center** was #31 within the coal and oil-site electric generating facilities group (NAICS 2211) for on-site release of dioxins.

Occidental Chemical, closed as of November 2005, but continuing remediation activities, no longer ranks in the top 100 for on-site release or off-site disposal of mercury. **Delaware** ranks #43 within the states for on-site release of mercury and mercury compounds for 2011. Every Delaware facility reporting on mercury compounds is far below the top 100 facilities for on-site release or off-site transfer to disposal of mercury compounds.

Nearby Facilities in Adjacent States

Some facilities, although not in Delaware, may be important to the environment in Delaware. These facilities are located near our border and may release TRI chemicals, particularly to the air or water, which may migrate into Delaware. Table 24 on the next page is a listing of some nearby facilities with significant TRI release amounts. This data is from the EPA's TRI Electronic Facility Data Release (e-FDR) database using individual facility data for the 2011 reporting year.

TABLE 24

On-Site Releases From Nearby Facilities in Adjacent States

Facility	State	Chemical	Media	Amount (Pounds)
DuPont Chambers Works, Deepwater ★1	New Jersey	Nitrate Compounds	Water	4,260,000 **
DuPont Chambers Works, Deepwater	New Jersey	Sodium Nitrite	Water	329,200 ***
DuPont Chambers Works, Deepwater	New Jersey	Ammonia	Air	135,100 **
National Refrigerants, Rosenhayn ★2	New Jersey	HCFC-22	Air	115,800 ***
Paulsboro Refining Co.	New Jersey	Hydrogen Cyanide	Air	271,100 **
QG, LLC, Altglen	Pennsylvania	Toluene	Air	680,600 **
Sunoco, Philadelphia ★3	Pennsylvania	Sulfuric Acid	Air	324,800 **
Sunoco, Philadelphia	Pennsylvania	N-Hexane	Air	118,700 **
Sunoco, Philadelphia	Pennsylvania	Benzene	Air	93,400 **
Sunoco, Philadelphia	Pennsylvania	Hydrogen Cyanide	Air	118,900 **
Arkema, Bristol	Pennsylvania	Methyl Methacrylate	Air	39,400 **
RR Donnelley, Lancaster ★4	Pennsylvania	Toluene	Air	202,100 **
Accellent, Collegeville ★5	Pennsylvania	Trichloroethylene	Air	69,000 **
Montgomery Chemical, Conshohocken ★6	Pennsylvania	Methanol	Air	121,700 **
Grace Davison, Baltimore ★7	Maryland	Ammonia	Air	195,500 **
Crown Food Packaging, Baltimore ★8	Maryland	N-Butyl Alcohol	Air	125,100 **
Salisbury Feed & Grain ★9	Maryland	N-Hexane	Air	214,500 **
Plymouth Tube, Salisbury	Maryland	Trichloroethylene	Air	51,800 **
Brandon Shores Power Plant, Baltimore ★10	Maryland	Hydrochloric acid	Air	1,400,000 *
Erachem, Baltimore ★11	Maryland	Nitrate Compounds	Water	1,141,000 *
Brandon Shores Power Plant, Baltimore	Maryland	Sulfuric acid	Air	300,000 **
Brandon Shores Power Plant, Baltimore	Maryland	Hydrogen Fluoride	Air	120,000 **
Perdue Farms, Accomack ★12	Virginia	Nitrate compounds	Water	2,064,900 **

* Near the Delaware State total for this chemical

** Exceeds the Delaware State total for this chemical

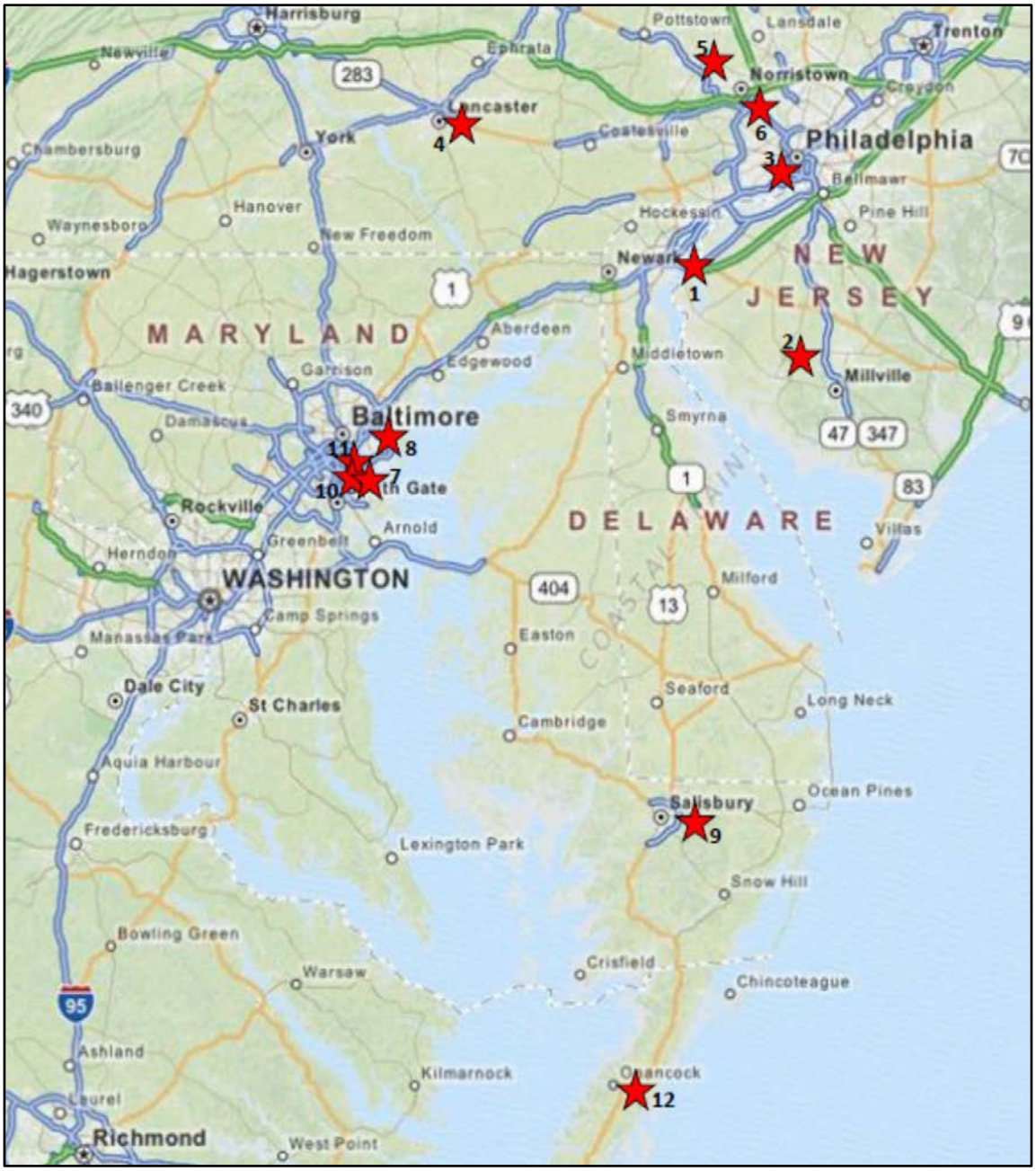
*** Chemical not reported in Delaware for 2011

★ See location number on the Figure 29 map on next page

As noted on pages 4-5, these amounts do not indicate the amount of human exposure. However, they do provide a comparison between releases in Delaware and some TRI chemicals released by some nearby facilities in neighboring states.

Figure 29 shows some of the above nearby facilities and their proximity to Delaware. Each star represents a facility location that reported an on-site release for a TRI chemical exceeds the Delaware State total for the same chemical.

FIGURE 29
FACILITIES IN NEARBY STATES



TRI and the Economy

The Production Index (PI) that is reported along with TRI release and waste management data is one way to estimate the impact of the economy, because the PI is the amount of production or activity directly associated with the demand for the chemical being reported. Some facilities, such as the power plants, can report the same PI for almost all of their chemicals, as they are directly related to the production of power. Other facilities, such as the ones in chemical manufacturing, report different PIs for different chemicals, as they are related more to the manufacture, process, or otherwise use of a specific chemical or line of chemicals. For some facilities, the determination of a PI is not precise, and therefore the PI may not be an exact indicator of production or chemical activity.

Business conditions played an especially strong role in the 2009 and 2010 declines in on-site releases, as the reported Production Indexes (PI) for most of the top 15 facilities were lower than for the previous year. Facility closings in 2009 accounted for only 191,000 pounds of the decline, but other factors, such as increased pollution control at the facilities, were at work in effecting a much larger reduction in TRI waste in general, and in on-site releases in particular.

The top 15 facilities represented 99 percent of all on-site releases for 2011. The PI for this group was in a range of 0.79 to 2.40 with an average of 1.31 (31% more than last year). This number was greatly influenced by the restart of the refinery. Also, the environmental control work and reduced use of coal at the Indian River Generating Station, and the conversion to natural gas at the Edge Moor Power Plant, contributed significantly to reductions in on-site releases. The amount of change in on-site release predicted by the PI for this group was a total increase of 41,364 pounds compared to 2010. The actual total change in on-site releases for this group was a reduction of 83,750 pounds, 125,114 pounds less than predicted. This 125,114-pound difference between the predicted amount and the actual 2010 amount represents the total effect of pollution control efforts and demand for production at the facilities. In addition to the above changes, in some facilities where production decreased, a larger decrease in on-site releases occurred, and in some facilities that increased their production, their on-site releases were less than predicted. For 2011, then combined production index for all facilities of 1.31 predicted an increase, but the actual report totals were 9% less than for 2010. The collective pollution control efforts for all Delaware facilities were the reason less releases were reported than were expected.

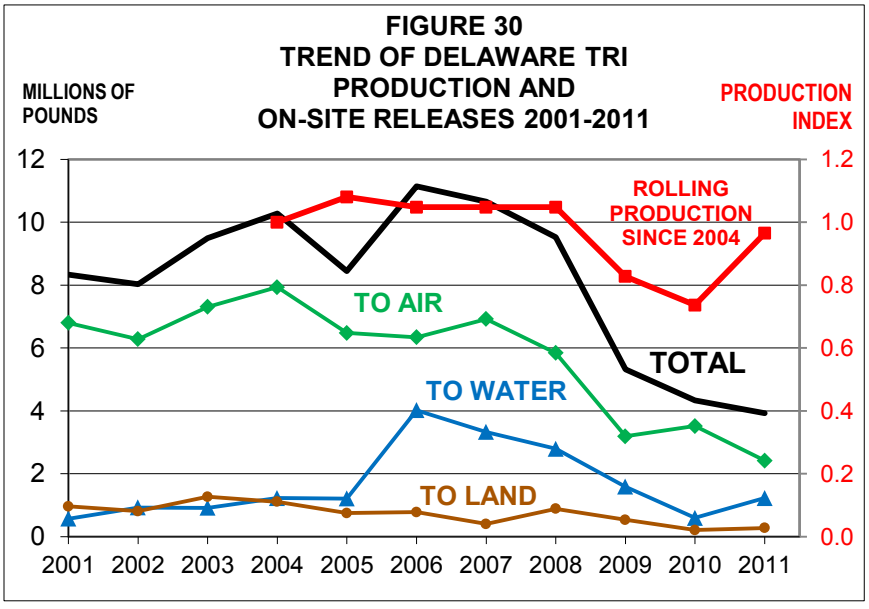


FIGURE 30
TREND OF DELAWARE TRI PRODUCTION AND ON-SITE RELEASES 2001-2011

Figure 30 shows the on-site release trend since 2001 and the PI trend since 2004. This is the same graph as Figure 22 on page 47, but with the PI trend added. Until 2008, the PI loosely

followed the on-site releases, remembering that there was a change in the basis for calculating the nitrate release to water at the refinery in 2006. However, starting in 2009, the on-site release trend disconnected from the PI and began an even stronger downward trend, suggesting that other factors in addition to the declining economy were at work. These factors were related to the emissions control work at the power plants, particularly the conversions to natural gas and the installation of control equipment at the Indian River Generating Station. The benefit of this work continues for 2010 and 2011, where the PI started to recover but the on-site releases were even lower than for the previous year.

As an example, the Indian River Generating Station had a PI of 0.79 (79%) for 2011 so their predicted on-site release amount was lower by 21%, or 568,000 pounds. The facility reported reductions for many of its TRI chemicals because of the lower PI, and also used 44% less coal in 2011. The actual release of hydrochloric acid decreased 35% because of the PI, pollution control efforts, and the coal quality and use rate. As a result, the facility reported total on-site releases 794,000 pounds (29%) lower, or 226,000 pounds lower than predicted for 2011. The Calpine Edge Moor/Hay Road Power Plants reported a PI of 1.46 yet had a reduction of 99% because of conversion to natural gas. This dropped the Calpine facility rank from #4 in 2010 to #30 in 2011.

However, there were some cases where release amounts were more than predicted. For example, the Formosa Plastics facility reported a PI of 1.00 (100%), but on-site releases increased 19% because of changes in the product line mix. The effects of pollution control efforts at other facilities may have been because of increased regulation or because of plant or company-sponsored pollution control initiatives.

Although many of the changes noted in this report were the result of normal changes within the facilities, changes in several reports were the result of the Delaware City Refinery shutdown. Production does not translate directly into releases, because some facilities may have releases during times of no production when pollution control systems such as wastewater treatment must continue to operate. This was true for the Delaware City Refinery, as it was shut down for all of 2010, yet reported on-site releases of 432,000 pounds, down from the 1,596,000 pounds reported for 2009. The refinery has re-started, and on-site releases increased to 1,145,900 pounds for 2011. However, some facilities may be able to incrementally increase production with no increase in releases because of increased pollution control efforts that occur at the same time.

International "TRI"

The United States Toxics Release Inventory (TRI), the oldest and most comprehensive Pollutant Release and Transfer Register (PRTR) system in the world, is one of several similar programs established, or being established, by countries around the world. Industrial facilities in these countries are required to report their emissions and other waste management of toxic chemicals to databases in their respective countries. These databases are designed to track the quantities of chemicals that are released to the air, land or water, or transferred to another site for recycle, treatment or disposal. The term used internationally for these TRI-like systems is Pollutant Release and Transfer Register (PRTR). Corporate leaders, environmental advocates, policy makers and the public alike can use this PRTR information to track pollution performance and develop strategies to reduce emissions and protect our shared environment and improve quality of life. The web site for these PRTR programs is http://www.prtr.net/. EPA also has a web site for PRTR, and it is http://www.epa.gov/tri/programs/international/index.htm. There are now over 50 countries participating in PRTR programs, and links to several international environmental agencies and programs, with more being developed each year.

Each country that develops a PRTR often expands on or modifies the basic program elements. The Canadian PRTR, called the National Pollutant Release Inventory (NPRI) collects data on many, but not all, of the same chemicals on the US TRI list, including dioxins and PACs. Mexico implemented a mandatory PRTR, Registro de Emisiones y Transferencia de Contaminantes (RETC), which reported for the first time for 2004, but fewer chemicals than in the U.S. or Canada are reported at this time. Although seven criteria air contaminants (CACs) were subject to Canadian NPRI reporting and four greenhouse gases (GHGs) were subject to Mexican RETC reporting, these substances were not subject to reporting under the US TRI. In each country, other programs collect and report data on these groups of substances. Criteria pollutants in the U.S. are reported by EPA's National Emissions Inventory program.

In North America, the governments of the U.S., Canada and Mexico are working together to improve the ability to compare data from their three PRTR systems. This work is coordinated by the North American Commission for Environmental Cooperation (NACEC), an organization created with the North American Free Trade Association (NAFTA). The NACEC's work includes publishing an annual report titled *Taking Stock* that compiles and compares the PRTR data, and operating a searchable website of comparable North American PRTR data. The link to the EPA PRTR web site, which in turn has links to several additional programs, is http://www.epa.gov/tri/programs/international/index.htm. Links include the *North American Commission for Environmental Cooperation (CEC)* and the *Organization for Economic Cooperation and Development (OCED).*

European countries, Japan, and Australia also have their own pollution inventory programs. Reporting requirements, including reportable chemicals, reporting thresholds, and reporting dates, for these programs vary by country.

TOXICS RELEASE INVENTORY

FOR FURTHER INFORMATION

Access to the TRI Files - DNREC is responsible for collecting, processing, and distributing information submitted by Delaware facilities under the TRI program. This 2011 TRI report may be viewed at: http://www.dnrec.delaware.gov/SERC/Pages/Reports.aspx. Additional information not contained in this report is available to the public through the EPCRA Reporting Program located within DNREC. A second, less technical data summary is available at the same location. A searchable database for TRI and other EPCRA programs is located at: http://www.dnrec.delaware.gov/SERC/Information/Pages/DataSearch.aspx.

Scan this image with your smart phone to access DNREC TRI data and reports.

The reports submitted by facilities are available for review through the Freedom of Information Act (FIOA) process from DNREC's EPCRA Reporting Program located at 655 South Bay Road, Suite 5N, in Dover. Custom reports can also be generated from the database. For information on placing a request, call the TRI Coordinator at (302) 739-9405 during business hours. An on-line FOIA application is also available at: http://www.dnrec.state.de.us/air/aqm_page/foia.htm.

Chemical Data Fact Sheets - A two-page fact sheet is available for most TRI chemicals reported in Delaware and contains information on chemical characteristics, health hazards, and ecological effects. The two-page fact sheets (ToxFAQ's) are available upon request from DNREC's TRI program or available through the Agency for Toxic Substances and Disease Registry (ATSDR) at: http://www.atsdr.cdc.gov/toxfaqs/index.asp or from the New Jersey Department of Health at: http://web.doh.state.nj.us/rtkhsfs/indexFs.aspx

EPA's TRI Home Page - The TRI home page provides information on the many facets of the TRI program at the EPA, including an Executive Summary, Q&A's, a link now to the preliminary 2011 national TRI data and later this year to the complete 2011 data, a current list of reportable chemicals, state and federal program contacts, and various guidance documents available for downloading. This website has many links to other EPA and non-EPA sites associated with TRI: www.epa.gov/tri/.

TRI Reporting Forms – Reporting instructions, reporting guidance, and examples of the traditional paper reporting forms are at epa.gov/tri/report/index.htm.

Toxics Release Inventory National Analysis - The EPA's annual TRI report. It covers national information and provides a good perspective on how Delaware compares to other states: http://www.epa.gov/tri/tridata/tri10/nationalanalysis/index.htm The 2011 edition of this report will be available in late 2012. It can also be obtained by calling the Federal EPCRA Information Hotline at 1-800-424-9346. Other searchable database programs such as Envirofacts, TRI.net, and TRI-CHIP are EPA-developed programs that provide public access to multiple environmental databases, including TRI. Links are available at http://www.epa.gov/tri/tridata/index.html for data about hazardous waste, water permits, drinking water, Superfund sites, air, water, toxics, and more.

Chemical Reporting Rule – The EPA has issued the final Chemical Data Reporting (CDR) Rule. The purpose of this program is to collect information from manufacturers and importers of chemical substances and to make that information available for use by EPA. The rule was enhanced for 2012 reporting. More information can be found at: http://www.epa.gov/iur/.

Delaware Dept. of Public Health Cancer Rates and Causes - This site provides data and answers to many cancer-related questions: http://www.state.de.us/dhss/dph/dpc/cancer.html.

Right-to-Know Network (RTK NET) - Searchable nationwide TRI data is available through RTK NET. RTK NET was established by two non-profit organizations to provide access to TRI and chemical data, link TRI with other environmental data, and exchange information among public interest groups: www.rtknet.org .

The Office of Pollution Prevention & Toxics - (OPPTS) is a part of the EPA that:

- Promotes pollution prevention as the guiding principle for controlling industrial pollution;
- Promotes safer chemicals through a combination of regulatory and voluntary efforts;
- Promotes risk reduction so as to minimize exposure to existing substances such as lead, asbestos, dioxin, and polychlorinated biphenyls; and,
- Promotes public understanding of risks by providing understandable, accessible and complete information on chemical risks to the broadest audience possible.
  OPPTS is at: http://www.epa.gov/oppt/index.htm

Risk Screening Environmental Indicators (RSEI). This model was developed by the EPA's Office of Pollution Prevention & Toxics as a risk-screening tool that provides a relative comparison of TRI releases. This application is available by download through the Internet at: http://www.epa.gov/oppt/rsei/pubs/get_rsei.html#new.

Delaware Air Quality Report - The annual air quality report is prepared by the Air Surveillance Branch in the Air Quality Management Section of DNREC. This report presents data gathered from a statewide network of air monitoring stations, and includes analyses, trends, and other information regarding Delaware's ambient air quality. For more information, please call (302) 323-4542. This report is available on-line at:

http://www.awm.delaware.gov/AQM/Pages/AQMPublicationsandReports.aspx and air toxics information is at: http://www.awm.delaware.gov/AQM/Pages/DATAS1.aspx. The EPA site for additional air quality information is: http://www.epa.gov/oar/oaqps/publicat.html.

Delaware's Department of Natural Resources and Environmental Control has a variety of environmental information, including this report and other publications and reports, which are available at: http://www.dnrec.delaware.gov/info/pages/ELibrary.aspx.

In addition to TRI, there are other provisions of the Emergency Planning and Community Right to Know Act (EPCRA), which provide information to the public as well as to local emergency planning and response organizations. Delaware has its own EPCRA statute, which established these provisions under State law. For additional information, visit the Delaware EPCRA website and Public Information tab at: http://www.serc.delaware.gov/epcra.shtml.

Questions or comments regarding the TRI program are welcome. Please direct questions, comments, or requests to:

TRI Coordinator
EPCRA Reporting Program
Emergency Prevention and Response Section
DNREC Division of Waste and Hazardous Substances
655 S. Bay Rd., Suite 5N
Dover, DE 19901
Tel. (302) 739-9405, Fax (302) 739-3106
E-mail: john.parker@state.de.us

APPENDICES

2011

APPENDIX A

WHAT IS COMMUNITY RIGHT-TO-KNOW?

TOXICS RELEASE INVENTORY

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

A dramatic and fatal accident involving the release of a large quantity of methyl isocyanate gas occurred in Bhopal, India on December 3, 1984. As a result of this release and similar, although less tragic, accidents that occurred in the United States, Congress enacted the Emergency Planning and Community Right to Know Act (EPCRA), as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986. EPCRA requires certain facilities to report information about hazardous chemicals and substances at their facilities to Federal, state, and local authorities. The objective is to improve the ability of the facility and of local emergency response agencies to plan for and respond to chemical emergencies, and to give citizens information about chemicals present in their communities. Presidents have also issued Executive Orders to Federal agencies, which mandate their compliance with certain EPCRA requirements. In 1991, Delaware established its own EPCRA legislation that enhanced the Federal requirements.

EMERGENCY PLANNING

Each state was required to establish a State Emergency Response Commission (SERC) to oversee planning efforts. The SERC must appoint Local Emergency Planning Committees (LEPC), which in turn develop emergency response plans for their respective districts. In Delaware, the SERC is chaired by the Secretary of the Department of Public Safety. Emergency planning districts have been established in each county and for the City of Wilmington. Facilities having specifically identified Extremely Hazardous Substances above established threshold quantities are required to notify their LEPC. These facilities are the primary focus of planning activities.

EMERGENCY RELEASE NOTIFICATION

In the event of an accidental chemical release above an established amount, a facility is required to provide immediate notification of the release. A follow up written report is also required to provide details about the sequence of events, the actual response actions, and to identify any known or anticipated health risks associated with the release. The public may receive notification through the Environmental Release Notification System.

In response to Senate Bill 33, which became law in July 2001, the Department of Natural Resources and Environmental Control (DNREC) developed a system to allow Delawareans to learn promptly of releases or discharges of contaminants or pollutants that meet or exceed certain thresholds in their neighborhoods or throughout the state. When you register, you choose to be notified in one of three ways: By phone, by e-mail or by fax. You also can choose to be notified about releases from specific facilities or about all releases that occur in one or more zip codes throughout the state. Interested individuals may register for notification at: http://www.dnrec.state.de.us/dnrec2000/notification/pub/.

HAZARDOUS CHEMICAL REPORTING

Under U.S. Occupational Safety and Health Administration (OSHA) regulations, facilities are required to maintain a Material Safety Data Sheet (MSDS) for each chemical on site. Under EPCRA, facilities are required to submit a list of their MSDSs for hazardous chemicals on site above specific threshold amounts. This list must be updated as new chemicals are brought on site. In addition, facilities having such chemicals are required to file Hazardous Chemical Inventory Reports annually. These reports, also known as Tier II forms, can be filed on-line

using Tier II Manager™ and data is available immediately for use by the EPCRA Reporting Program and emergency planning and response agencies. The data provides information on the identity, hazards, amounts, and locations of reportable chemicals at the facility, as well as emergency contacts, and a site plan.

Fees are also collected based on the number and type of chemicals reported. The fees are primarily used to support operations of the LEPCs.

TOXICS RELEASE INVENTORY (TRI) REPORTING

Facilities covered under TRI are required to file annual reports for on-site releases, off-site transfers, and on-site waste management activities related to their use of certain toxic chemicals. These reports can be filed electronically at the same time to EPA and DNREC using EPA's TRI-ME (TRI Made Easy) program. This data is compiled and made available to the public through this report and other means. For more information regarding TRI, please refer to the **Introduction** and **For Further Information** sections contained in this report.

RISK MANAGEMENT PLANS

Additional information regarding hazardous chemicals is available to the public due to the requirements contained in Title I, Section 112(r) of the Federal Clean Air Act Amendments of 1990. Section 112(r) requires that facilities handling substances with catastrophic potential submit a Risk Management Plan (RMP) that contains an executive summary, registration, off-site consequence analysis (OCA), five-year accident history, and a summary of their prevention and emergency response programs. The OCA consists of a "worst case" release scenario and an "alternative" release scenario. The "worst case" scenario estimates the area and populations affected by a catastrophic release. The 'worst case" scenario is a hypothetical, conservative modeling exercise. Emergency planners use the toxic "alternative" scenario as a more realistic modeling exercise.

The information contained in the RMP builds upon the right-to-know principles of EPCRA by making all of the information including the OCA and five-year accident history available to local communities, emergency planners, and other stakeholders. Concerned citizens or the media may ask facilities to explain the risk management programs that they use to prevent or minimize the consequence of a catastrophic release. EPA encourages this communication to reduce the risk. This is similar to the way public knowledge of chemical releases to the environment through the availability of TRI data has led reporting facilities to reduce their toxic releases. Because of security concerns, the RMP information is restricted. However, this information is available for Delaware facilities by contacting the Accidental Release Prevention Program (ARP) http://www.awm.delaware.gov/EPR/Pages/AccidentalReleasePrevention.aspx or by contacting the EPA Region 3 reading room at: http://www.epa.gov/libraries/region3.html.

In Delaware, the Extremely Hazardous Substances Risk Management Act first passed in 1988, and amended in 1998, adopted new federal guidelines that enhance the community right-to-know information. The Delaware Accidental Release Program (ARP) has been granted full authority by the US EPA to administer the program within DNREC, reviews the facility RMPs for accuracy and completeness and inspects facilities to ensure that appropriate accidental release prevention programs have been implemented. For more information on accidental release prevention in Delaware, please refer to the DNREC ARP website above.

APPENDIX B

WHAT IS COMMUNITY RIGHT-TO-KNOW?

AEARO TECHNOLOGIES
650 DAWSON DR
NEWARK DE 19713
TOM FLAHERTY
(302) 286-2415

AGILENT TECHNOLOGIES NEWPORT
538 FIRST STATE BLVD.
NEWPORT DE 19804
RENEE LEWANDOWSKI
(302) 636-3668

AIR LIQUIDE - MEDAL
305 WATER ST
NEWPORT DE 19804
STEVE POORMAN
(302) 225-2137

AIR LIQUIDE INDUSTRIAL
4442 WRANGLE HILL RD
DELAWARE CITY DE 19706
WENDY D'ATTILIO
(713) 624-8131

ALLEN HARIM FARMS SEAFORD MILL
20799 ALLEN ROAD
SEAFORD DE 19973-6547
HENRY QUATHAMER
(410) 829-2100

ALLEN HARIM FOODS HARBESON
18752 HARBESON ROAD
HARBESON DE 19951-2802
HENRY QUATHAMER
(410) 820-2100

AMICK FARMS
10281 AMICK DRIVE
DELMAR DE 19940-3492
SCOTT LEE
(302) 846-9511

ARLON
1100 GOVERNOR LEA RD
BEAR DE 19701
ROBERT CARINI
(302) 834-2100

BALTIMORE AIRCOIL
1162 HOLLY HILL RD
MILFORD DE 19963
TOM O'HARA
(410) 799-6215

BASF NEWPORT
205 S JAMES ST
NEWPORT DE 19804
MAUREEN PAUKERT
(973) 245-6077

BASF SEAFORD
100 INDUSTRIAL BLVD
SEAFORD DE 19973
MAUREEN PAUKERT
(973) 245-6077

CAMDEL METALS/HANDY TUBE
124 VEPCO BOULEVARD
CAMDEN DE 19934
JOHN P. COATES
(302) 697-9521

CARL KING
1400 E LEBANON RD
DOVER DE 19901
JOHN HALL
(301) 322-3111

CHROME DEPOSIT
9 TYLER WAY
NEWARK DE 19713
JOHN BLASKO
(302) 368-7525

COLOR WORKS PAINTING
251 EDWARDS AVE
NEW CASTLE DE 19720
SEAN HISTED
(302) 324-8411

CRODA
315 CHERRY LN
NEW CASTLE DE 19720
ROBERT J. TOUHEY
(302) 429-5269

DELAWARE CITY REFINERY
4550 WRANGLE HILL RD
DELAWARE CITY DE 19706
LISA LINDSEY
(856) 224-4354

DENTSPLY MAIN PLANT
38 W CLARKE AVE
MILFORD DE 19963
ANDY JOHNSON
(302) 422-4511

DENTSPLY WEST PLANT
779 E MASTEN CIR
MILFORD DE 19963
ANDY JOHNSON
(302) 422-4511

DOVER AFB
436 CES/CC 600 CHEVRON AVE
DOVER AFB DE 19902
JENNIFER VALLEE
(302) 677-3370

DUPONT EDGE MOOR
104 HAY RD
EDGEMOOR DE 19809
RICHARD A. STRAITMAN
(302) 999-5226

DUPONT RED LION PLANT
766 GOVERNOR LEA RD
DELAWARE CITY DE 19706
KRISTIN D. CECIL
(302) 999-6403

EDGE MOOR/HAY ROAD ENERGY CTR.
200 HAY RD
WILMINGTON DE 19809
NORMA DUNN
(713) 830-8833

EVRAZ CLAYMONT STEEL
4001 PHILADELPHIA PIKE
CLAYMONT DE 19703
TOMASZ WESOLOWSKI
(302) 792-5400

FORMOSA PLASTICS
780 SCHOOLHOUSE RD
DELAWARE CITY DE 19706-0320
KIMBERLY BENNETT
(302) 836-2256

FUJIFILM IMAGING COLORANTS
233 CHERRY LN
NEW CASTLE DE 19720
HAROLD WILLIAMS
(914) 789-8497

GAC SEAFORD
25938 NANTICOKE ST
SEAFORD DE 19973
MICHAEL THRASHER
(813) 248-2101

HANESBRANDS
631 RIDGELY ST - SUITE #1
DOVER DE 19904-2772
TOMMY THOMPSON
(336) 519-2715

HIRSH INDUSTRIES
1525 MCKEE RD
DOVER DE 19904
KEN MURR
(302) 678-3454

HONEYWELL
6100 PHILADELPHIA PIKE
CLAYMONT DE 19703
HILLARY SENCER
(302) 791-6745

IKO WILMINGTON
120 HAY RD
WILMINGTON DE 19809
CHRISTINE SMITH
(302) 764-3100

INDIAN RIVER GENERATING STATION
29416 POWER PLANT RD
DAGSBORO DE 19939
MEREDITH MOORE
(609) 524-4522

INSTEEL WIRE PRODUCTS
800 NEW CASTLE AVE
WILMINGTON DE 19801
RICHARD STARR
(336) 786-2141

INTERVET
29160 INTERVET LN
MILLSBORO DE 19966
RONALD VEROSKO
(302) 934-4265

JOHNSON CONTROLS BATTERY PLANT
700 N BROAD ST
MIDDLETOWN DE 19709
CORY HULSING
(302) 376-4052

JOHNSON CONTROLS DIST. CENTER
50 PATRIOT DR
MIDDLETOWN DE 19709
RICK THOMPSON
(302) 696-3209

JUSTIN TANKS
21413 CEDAR CREEK AVE
GEORGETOWN DE 19947-6306
EDWARD M. SHORT, PRESIDENT
(302) 856-3521

KUEHNE
1645 RIVER RD
DELAWARE CITY DE 19706
ALAN ROGERS
(302) 824-4557

MACDERMID
701 INDUSTRIAL DR
MIDDLETOWN DE 19709
ROGER SHELDON
(302) 378-3100

METAL MASTERS
100 INDUSTRIAL BLVD
CLAYTON DE 19938
RICHARD J. MURPHY
(302) 653-3000

MOTECH AMERICAS
231 LAKE DR., PENCADER
NEWARK DE 19702
JAMES TOMPKINS
(302) 451-2692

MOUNTAIRE FARMS FRANKFORD FEED MILL
11 DAISEY ST
FRANKFORD DE 19945
ROGER MARINO
(302) 934-3123

MOUNTAIRE FARMS OF DELAWARE
29106 JOHN J WILLIAMS HWY
MILLSBORO DE 19966
ROGER MARINO
(302) 934-3123

MOUNTAIRE FARMS SELBYVILLE PLANT
HOOSIER ST & RAILROAD AVE
SELBYVILLE DE 19975
ROGER MARINO
(302) 934-3123

NORAMCO
500 SWEDES LANDING RD
WILMINGTON DE 19801
JOHN DALY
(302) 888-4477

NRG ENERGY CENTER-DOVER
1280 W NORTH ST
DOVER DE 19904-7756
MEREDITH MOORE
(609) 524-4522

OCCIDENTAL CHEMICAL
1657 RIVER RD
NEW CASTLE DE 19720-5194
JOHN B. ARMSTRONG
(302) 834-3831

ORIENT
111 PARK AVE
SEAFORD DE 19973
DAVE CURRY
(302) 628-1300

PERDUE BRIDGEVILLE
16447 ADAMS RD
BRIDGEVILLE DE 19933
JULIE DEYOUNG
(410) 543-3166

PERDUE GEORGETOWN
20621 SAVANNAH RD
GEORGETOWN DE 19947
JULIE DEYOUNG
(410) 543-3166

PERDUE MILFORD
255 N REHOBOTH BLVD
MILFORD DE 19963
JULIE DEYOUNG
(410) 543-3166

PICTSWEET BRIDGEVILLE
18215 WESLEY CHURCH RD
BRIDGEVILLE DE 19933
ALLEN WATTS
(731) 663-7600

PINNACLE FOODS
29984 PINNACLE WAY
MILLSBORO DE 19966
DOUG EMMETT
(973) 541-8646

PPG INDUSTRIES
1886 LYNNBURY WOODS RD
DOVER DE 19904
MITCH MAGEE
(302) 678-9800

PRINCE MINERALS
301 PIGEON POINT RD
NEW CASTLE DE 19720
MARY SIMPLER
(646) 747-4176

ROHM & HAAS - B2 B3 B8
451 BELLEVUE RD
NEWARK DE 19713
PETER PALENA
(302) 366-0500

ROHM & HAAS - B5 B6
351 BELLEVUE RD
NEWARK DE 19713
PETER PALENA
(302) 366-0500

ROHM & HAAS - B7 B15
50 BELLEVUE RD
NEWARK DE 19713
PETER PALENA
(302) 366-0500

SERVICE ENERGY DOVER
3799 N DUPONT HWY
DOVER DE 19901
DON STEINER
(302) 734-7433

SPI PHARMA
40 CAPE HENLOPEN DR
LEWES DE 19958-1196
SEAN COSTELLO
(302) 360-7218

SUNOCO
100 GREEN STREET
MARCUS HOOK DE 19061
CHERICE CORLEY
(215) 977-3833

V&S DELAWARE GALVANIZING
511 CARROLL DRIVE
NEW CASTLE DE 19720
JOHNNY ROIBU
(302) 322-1420

VP RACING FUELS
16 BROOKHILL DR
NEWARK DE 19714
JIM KELLY
(302) 368-1500

APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
AEARO TECHNOLOGIES							
DIISOCYANATES	1	3	0	0	3	750	0
TOLUENE DIISOCYANATE (MIXED ISOMERS)	1	4	0	0	4	250	0
AEARO TECHNOLOGIES Total	**2**	**6**	**0**	**0**	**6**	**1,000**	**0**
AGILENT TECHNOLOGIES NEWPORT							
ACETONITRILE	1	33	0	0	33	14,328	0
METHANOL	1	746	0	0	746	37,054	0
TOLUENE	1	22	0	0	22	152,301	0
AGILENT TECHNOLOGIES NEWPORT Total	**3**	**801**	**0**	**0**	**801**	**203,683**	**0**
AIR LIQUIDE - MEDAL							
METHANOL	1	285	0	0	285	37,697	1,292,306
N,N-DIMETHYLFORMAMIDE	1	19	0	0	19	40,447	0
N-HEXANE	1	1,085	0	0	1,085	0	1,070,207
N-METHYL-2-PYRROLIDONE	1	545	0	0	545	55,992	0
AIR LIQUIDE - MEDAL Total	**4**	**1,934**	**0**	**0**	**1,934**	**134,136**	**2,362,513**
AIR LIQUIDE INDUSTRIAL							
AMMONIA	1	17,773	0	0	17,773	0	0
AIR LIQUIDE INDUSTRIAL Total	**1**	**17,773**	**0**	**0**	**17,773**	**0**	**0**
ALLEN HARIM FARMS SEAFORD MILL							
COPPER COMPOUNDS	1	0	0	0	0	0	0
MANGANESE COMPOUNDS	1	0	0	0	0	0	0
ZINC COMPOUNDS	1	0	0	0	0	0	0
ALLEN HARIM FARMS SEAFORD MILL Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
ALLEN HARIM FOODS HARBESON							
NITRATE COMPOUNDS	1	0	0	0	0	0	0
ALLEN HARIM FOODS HARBESON Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
AMICK FARMS							
COPPER COMPOUNDS	1	0	0	0	0	0	0
MANGANESE COMPOUNDS	1	0	0	0	0	0	0
ZINC COMPOUNDS	1	0	0	0	0	0	0
AMICK FARMS Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
ARLON							
COPPER	1	5	0	0	5	4,700	0
ETHYLBENZENE	1	329	0	0	329	640	29,000
XYLENE (MIXED ISOMERS)	1	1,320	0	0	1,320	3,600	115,000
ARLON Total	**3**	**1,654**	**0**	**0**	**1,654**	**8,940**	**144,000**
BALTIMORE AIRCOIL							
CHROMIUM COMPOUNDS	1	4	0	0	4	195,276	0
MANGANESE COMPOUNDS	1	8	0	0	8	111,789	0
NICKEL COMPOUNDS	1	1	0	0	1	222,542	0
BALTIMORE AIRCOIL Total	**3**	**13**	**0**	**0**	**13**	**529,607**	**0**
BASF NEWPORT							
ANILINE	1	31	0	0	31	218,808	1,313
BIPHENYL	1	120	0	0	120	320,794	2,321
CYCLOHEXANE	1	59	0	0	59	20,559	3,458
METHANOL	1	24,276	0	0	24,276	835,419	1,245,820
NITRATE COMPOUNDS	1	0	0	0	0	55,294	0
NITRIC ACID	1	0	0	0	0	0	28,093
N-METHYL-2-PYRROLIDONE	1	0	0	0	0	25,536	10
P-CHLOROANILINE	1	7	0	0	7	15,762	359
XYLENE (MIXED ISOMERS)	1	1,149	0	0	1,149	761	5,347
BASF NEWPORT Total	**9**	**25,642**	**0**	**0**	**25,642**	**1,492,933**	**1,286,721**

Source: DNREC 2011 TRI Database, October, 2012
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
BASF SEAFORD							
AMMONIA	1	4,173	0	0	4,173	813	6,742
BUTYL ACRYLATE	1	181	0	0	181	192	88
CERTAIN GLYCOL ETHERS	1	5	0	0	5	797	0
ETHYL ACRYLATE	1	199	0	0	199	188	10
METHYL METHACRYLATE	1	246	0	0	246	188	357
STYRENE	1	309	0	0	309	349	805
BASF SEAFORD Total	**6**	**5,113**	**0**	**0**	**5,113**	**2,527**	**8,002**
CAMDEL METALS/HANDY TUBE							
CHROMIUM	1	0	0	0	0	41,131	0
MANGANESE	1	0	0	0	0	4,147	0
NICKEL	1	0	0	0	0	37,962	0
TRICHLOROETHYLENE	1	12,804	0	0	12,804	9,903	0
CAMDEL METALS/HANDY TUBE Total	**4**	**12,804**	**0**	**0**	**12,804**	**93,143**	**0**
CARL KING							
1,2,4-TRIMETHYLBENZENE	1	0	0	0	0	0	0
NAPHTHALENE	1	0	0	0	0	0	0
XYLENE (MIXED ISOMERS)	1	0	0	0	0	0	0
CARL KING Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
CHROME DEPOSIT							
CHROMIUM COMPOUNDS	1	0	0	0	0	2,030	900
LEAD COMPOUNDS	1	0	0	0	0	7,800	0
CHROME DEPOSIT Total	**2**	**0**	**0**	**0**	**0**	**9,830**	**900**
COLOR WORKS PAINTING							
MANGANESE	1	0	0	0	0	591	0
COLOR WORKS PAINTING Total	**1**	**0**	**0**	**0**	**0**	**591**	**0**

Source: DNREC 2011 TRI Database, October, 2012
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
CRODA							
CERTAIN GLYCOL ETHERS	1	2	0	0	2	1,417	0
DIETHANOLAMINE	1	4	0	0	4	38	0
ETHYLENE OXIDE	1	2,027	0	0	2,027	0	0
METHANOL	1	654	0	0	654	27,275	0
NAPHTHALENE	1	6	0	0	6	0	0
PROPYLENE OXIDE	1	549	0	0	549	0	0
CRODA Total	**6**	**3,243**	**0**	**0**	**3,243**	**28,730**	**0**
DELAWARE CITY REFINERY							
1,2,4-TRIMETHYLBENZENE	1	984	5	0	989	0	9,396
1,3-BUTADIENE	1	525	0	0	525	0	5,985
2,4-DIMETHYLPHENOL	1	0	114	0	114	0	262,037
AMMONIA	1	13,310	2,170	0	15,480	0	6,831,652
ANTHRACENE	1	10	5	0	15	0	0
ASBESTOS (FRIABLE)	1	0	0	0	0	595,620	0
BENZENE	1	6,918	5	0	6,923	1,093	96,786
BENZO(G,H,I)PERYLENE	1	2	3	0	5	0	313
CARBON DISULFIDE	1	343	0	0	343	0	1,900,010
CARBONYL SULFIDE	1	2,827	0	0	2,827	0	8,951,853
CRESOL (MIXED ISOMERS)	1	10	228	0	238	129	332,212
CUMENE	1	229	5	0	234	0	628
CYANIDE COMPOUNDS	1	379	866	0	1,245	0	246,536
CYCLOHEXANE	1	1,246	5	0	1,251	0	1,041
DIOXIN AND DIOXIN-LIKE COMPOUNDS	1	0	0	0	0	0	0
ETHYLBENZENE	1	1,961	5	0	1,966	74	9,368
ETHYLENE	1	3,701	0	0	3,701	0	214,925
HYDROCHLORIC ACID	1	51	0	0	51	0	90,931
HYDROGEN CYANIDE	1	4,736	504	0	5,240	0	210,747
LEAD COMPOUNDS	1	54	2	0	55	57	0
MERCURY COMPOUNDS	1	22	1	0	23	8	0
METHANOL	1	4,193	5	0	4,198	0	0

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APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
NAPHTHALENE	1	1,378	5	0	1,383	0	2,102
N-HEXANE	1	13,503	5	0	13,508	0	36,397
NICKEL COMPOUNDS	1	549	1,086	0	1,635	30,524	0
NITRATE COMPOUNDS	1	0	974,323	0	974,323	0	0
PHENANTHRENE	1	7	5	0	12	0	0
PHENOL	1	259	114	0	373	0	303,541
POLYCYCLIC AROMATIC COMPOUNDS	1	92	3	0	95	122	257
PROPYLENE	1	21,913	0	0	21,913	0	1,044,103
STYRENE	1	10	5	0	15	0	1
SULFURIC ACID	1	68,400	0	0	68,400	0	0
TETRACHLOROETHYLENE	1	10	0	0	10	0	0
TOLUENE	1	13,053	5	0	13,058	1,578	82,514
XYLENE (MIXED ISOMERS)	1	5,749	5	0	5,754	2,458	54,043
DELAWARE CITY REFINERY Total	**35**	**166,423**	**979,479**	**0**	**1,145,902**	**631,663**	**20,687,378**
DENTSPLY MAIN PLANT							
MERCURY	1	0	0	0	0	4,380	0
DENTSPLY MAIN PLANT Total	**1**	**0**	**0**	**0**	**0**	**4,380**	**0**
DENTSPLY WEST PLANT							
METHANOL	1	3,781	0	0	3,781	9,345	0
METHYL METHACRYLATE	1	1,642	0	0	1,642	3,706	0
DENTSPLY WEST PLANT Total	**2**	**5,423**	**0**	**0**	**5,423**	**13,051**	**0**
DOVER AFB							
1,2,4-TRIMETHYLBENZENE	1	150	0	0	150	0	0
CUMENE	1	150	0	0	150	0	0
ETHYLBENZENE	1	150	0	0	150	0	0
LEAD COMPOUNDS	1	1,073	0	0	1,073	3,157	0
NAPHTHALENE	1	150	0	0	150	0	0
XYLENE (MIXED ISOMERS)	1	150	0	0	150	0	0
DOVER AFB Total	**6**	**1,823**	**0**	**0**	**1,823**	**3,157**	**0**

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2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
DUPONT EDGE MOOR							
ARSENIC COMPOUNDS	1	0	31	0	31	53	0
BARIUM COMPOUNDS	1	2	1,966	0	1,968	12,833	0
CARBONYL SULFIDE	1	195,252	0	0	195,252	0	0
CHLORINE	1	3,042	0	0	3,042	0	3,386,198
CHROMIUM COMPOUNDS	1	1	46	0	47	141,358	0
COBALT COMPOUNDS	1	0	7	0	7	3,200	0
COPPER COMPOUNDS	1	0	187	0	187	937	0
CREOSOTE	1	782	0	6,897	7,679	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	1	0	0	0	0	1	0
HEXACHLOROBENZENE	1	0	0	0	0	62	0
HYDROCHLORIC ACID	1	5,105	0	0	5,105	0	18,627,140
LEAD COMPOUNDS	1	0	43	0	43	15,605	0
MANGANESE COMPOUNDS	1	1	958	0	959	1,232,226	0
MERCURY COMPOUNDS	1	1	0	0	1	9	0
NICKEL COMPOUNDS	1	1	117	0	118	10,187	0
OCTACHLOROSTYRENE	1	0	0	0	0	3	0
PENTACHLOROBENZENE	1	0	0	0	0	1	0
PHOSGENE	1	359	0	0	359	0	165,815
POLYCHLORINATED BIPHENYLS	1	0	0	0	0	6	0
POLYCYCLIC AROMATIC COMPOUNDS	1	64	0	562	625	0	0
TITANIUM TETRACHLORIDE	1	22	0	0	22	0	1,199,985
TOLUENE	1	1,371	0	0	1,371	58	0
VANADIUM COMPOUNDS	1	1	23	0	24	167,161	0
ZINC COMPOUNDS	1	14	45	0	59	14,465	0
DUPONT EDGE MOOR Total	**24**	**206,018**	**3,424**	**7,459**	**216,900**	**1,598,166**	**23,379,138**
DUPONT RED LION PLANT							
SULFURIC ACID	1	2,963	0	0	2,963	0	0
DUPONT RED LION PLANT Total	**1**	**2,963**	**0**	**0**	**2,963**	**0**	**0**

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APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
EDGE MOOR/HAY ROAD ENERGY CENTERS							
AMMONIA	1	619	1	0	620	117	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	1	0	0	0	0	0	0
MERCURY	1	18	0	0	18	1	0
POLYCYCLIC AROMATIC COMPOUNDS	1	0	0	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS Total	**4**	**637**	**1**	**0**	**638**	**118**	**0**
EVRAZ CLAYMONT STEEL							
CHROMIUM COMPOUNDS	1	118	3	197	318	35,922	0
COPPER COMPOUNDS	1	147	56	495	698	41,347	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	1	0	0	0	0	0	0
LEAD COMPOUNDS	1	462	63	71	596	248,017	0
MANGANESE COMPOUNDS	1	399	22	13,219	13,640	249,248	0
MERCURY COMPOUNDS	1	84	0	0	84	3	0
NICKEL COMPOUNDS	1	30	18	355	403	5,534	0
ZINC COMPOUNDS	1	2,273	184	294	2,751	2,105,012	0
EVRAZ CLAYMONT STEEL Total	**8**	**3,513**	**346**	**14,631**	**18,490**	**2,685,083**	**0**
FORMOSA PLASTICS							
AMMONIA	1	17,686	0	0	17,686	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	1	0	0	0	0	0	0
VINYL ACETATE	1	61,763	0	0	61,763	0	0
VINYL CHLORIDE	1	57,564	12	0	57,576	233	239,600
FORMOSA PLASTICS Total	**4**	**137,013**	**12**	**0**	**137,025**	**233**	**239,600**
FUJIFILM IMAGING COLORANTS							
ETHYLENE GLYCOL	1	1	0	0	1	273	0
NITRATE COMPOUNDS	1	0	0	0	0	1,126	0
FUJIFILM IMAGING COLORANTS Total	**2**	**1**	**0**	**0**	**1**	**1,398**	**0**

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APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
GAC SEAFORD							
1,2,4-TRIMETHYLBENZENE	1	0	0	0	0	0	0
GAC SEAFORD Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
HANESBRANDS							
NITRATE COMPOUNDS	1	0	0	0	0	53,540	0
HANESBRANDS Total	**1**	**0**	**0**	**0**	**0**	**53,540**	**0**
HIRSH INDUSTRIES							
CERTAIN GLYCOL ETHERS	1	5,271	0	0	5,271	0	0
HIRSH INDUSTRIES Total	**1**	**5,271**	**0**	**0**	**5,271**	**0**	**0**
HONEYWELL							
AMMONIA	1	18	0	0	18	53	0
BORON TRIFLUORIDE	1	461	0	0	461	20	132,717
HYDROGEN FLUORIDE	1	544	0	0	544	0	87
METHANOL	1	4	0	0	4	620	60
N-HEXANE	1	4,990	0	0	4,990	13,395	174,960
HONEYWELL Total	**5**	**6,017**	**0**	**0**	**6,017**	**14,088**	**307,824**
IKO WILMINGTON							
POLYCYCLIC AROMATIC COMPOUNDS	1	0	0	0	0	49	280
IKO WILMINGTON Total	**1**	**0**	**0**	**0**	**0**	**49**	**280**
INDIAN RIVER GENERATING STATION							
AMMONIA	1	27,000	0	0	27,000	0	850,000
BARIUM COMPOUNDS	1	1,405	750	190,000	192,155	17	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	1	0	0	0	0	0	0
HYDROCHLORIC ACID	1	1,500,000	0	0	1,500,000	0	0
HYDROGEN FLUORIDE	1	90,000	0	0	90,000	0	10,000
LEAD COMPOUNDS	1	216	0	10,490	10,706	0	0

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2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
MANGANESE COMPOUNDS	1	255	5	29,000	29,260	0	0
MERCURY COMPOUNDS	1	8	0	89	97	0	0
NAPHTHALENE	1	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	1	1	0	0	1	0	0
SULFURIC ACID	1	36,000	0	0	36,000	0	180,000
VANADIUM COMPOUNDS	1	255	5	27,000	27,260	0	0
INDIAN RIVER GENERATING STATION Total	**12**	**1,655,140**	**760**	**256,579**	**1,912,479**	**17**	**1,040,000**
INSTEEL WIRE PRODUCTS							
LEAD COMPOUNDS	1	0	0	0	0	27	0
INSTEEL WIRE PRODUCTS Total	**1**	**0**	**0**	**0**	**0**	**27**	**0**
INTERVET							
MERCURY COMPOUNDS	1	0	0	0	0	0	0
INTERVET Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
JOHNSON CONTROLS BATTERY PLANT							
ANTIMONY COMPOUNDS	1	0	0	0	0	10,518	0
LEAD COMPOUNDS	1	115	10	0	125	2,705,625	0
JOHNSON CONTROLS BATTERY PLANT Total	**2**	**115**	**10**	**0**	**125**	**2,716,143**	**0**
JOHNSON CONTROLS DIST. CENTER							
LEAD COMPOUNDS	1	0	0	0	0	0	0
JOHNSON CONTROLS DIST. CENTER Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
JUSTIN TANKS							
STYRENE	1	11,494	0	0	11,494	278	0
JUSTIN TANKS Total	**1**	**11,494**	**0**	**0**	**11,494**	**278**	**0**

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APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
KUEHNE							
CHLORINE	1	750	0	0	750	0	0
KUEHNE Total	**1**	**750**	**0**	**0**	**750**	**0**	**0**
MACDERMID							
TOLUENE DIISOCYANATE (MIXED ISOMERS)	1	0	0	0	0	0	0
MACDERMID Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
METAL MASTERS							
CHROMIUM	1	1	0	0	1	148,399	0
NICKEL	1	1	0	0	1	48,396	0
METAL MASTERS Total	**2**	**1**	**0**	**0**	**1**	**196,795**	**0**
MOTECH AMERICAS							
LEAD	1	0	0	0	0	79	0
MOTECH AMERICAS Total	**1**	**0**	**0**	**0**	**0**	**79**	**0**
MOUNTAIRE FARMS FRANKFORD MILL							
ARSENIC COMPOUNDS	1	0	0	0	0	0	0
COPPER COMPOUNDS	1	0	0	0	0	0	0
MANGANESE COMPOUNDS	1	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	1	1	0	0	1	0	0
ZINC COMPOUNDS	1	0	0	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL Total	**5**	**1**	**0**	**0**	**1**	**0**	**0**
MOUNTAIRE FARMS OF DELAWARE							
COPPER COMPOUNDS	1	0	0	0	0	0	0
MANGANESE COMPOUNDS	1	0	0	0	0	0	0
ZINC COMPOUNDS	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**

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2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
MOUNTAIRE FARMS SELBYVILLE PLANT							
BENZO(G,H,I)PERYLENE	1	1	0	0	1	0	0
POLYCYCLIC AROMATIC COMPOUNDS	1	23	0	0	23	0	0
MOUNTAIRE FARMS SELBYVILLE PLANT Total	**2**	**23**	**0**	**0**	**23**	**0**	**0**
NORAMCO							
DICHLOROMETHANE	1	2,216	0	0	2,216	121,203	121,203
FORMIC ACID	1	10	0	0	10	0	0
METHANOL	1	321	0	0	321	178,358	178,359
N,N-DIMETHYLANILINE	1	0	0	0	0	10,023	0
N-BUTYL ALCOHOL	1	10	0	0	10	519,742	519,742
TOLUENE	1	174	0	0	174	324,249	324,249
NORAMCO Total	**6**	**2,731**	**0**	**0**	**2,731**	**1,153,575**	**1,143,553**
NRG ENERGY CENTER-DOVER							
HYDROCHLORIC ACID	1	101,937	0	0	101,937	0	0
LEAD COMPOUNDS	1	2	0	0	2	28	0
MERCURY COMPOUNDS	1	7	0	0	7	1	0
SULFURIC ACID	1	9,604	0	0	9,604	0	20,885
NRG ENERGY CENTER-DOVER Total	**4**	**111,550**	**0**	**0**	**111,550**	**29**	**20,885**
OCCIDENTAL CHEMICAL							
MERCURY	1	0	0	0	0	0	0
OCCIDENTAL CHEMICAL Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
ORIENT							
ANILINE	1	5,700	0	0	5,700	354	78,000
CHROMIUM COMPOUNDS	1	0	0	0	0	0	0
NITROBENZENE	1	252	0	0	252	1	0
ZINC COMPOUNDS	1	0	0	0	0	0	0
ORIENT Total	**4**	**5,952**	**0**	**0**	**5,952**	**355**	**78,000**

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FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
PERDUE BRIDGEVILLE							
COPPER COMPOUNDS	1	0	0	0	0	0	0
MANGANESE COMPOUNDS	1	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	1	0	0	0	0	0	0
ZINC COMPOUNDS	1	0	0	0	0	0	0
PERDUE BRIDGEVILLE Total	**4**	**0**	**0**	**0**	**0**	**0**	**0**
PERDUE GEORGETOWN							
BENZO(G,H,I)PERYLENE	1	0	0	0	0	0	0
NITRATE COMPOUNDS	1	0	246,503	0	246,503	0	0
PERACETIC ACID	1	0	0	0	0	0	14,462
POLYCYCLIC AROMATIC COMPOUNDS	1	0	0	0	0	0	0
PERDUE GEORGETOWN Total	**4**	**0**	**246,503**	**0**	**246,503**	**0**	**14,462**
PERDUE MILFORD							
PERACETIC ACID	1	0	0	0	0	0	18,000
PERDUE MILFORD Total	**1**	**0**	**0**	**0**	**0**	**0**	**18,000**
PICTSWEET BRIDGEVILLE							
AMMONIA	1	5,000	0	0	5,000	0	0
PICTSWEET BRIDGEVILLE Total	**1**	**5,000**	**0**	**0**	**5,000**	**0**	**0**
PINNACLE FOODS							
BENZO(G,H,I)PERYLENE	1	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	1	1	0	0	1	0	0
PINNACLE FOODS Total	**2**	**1**	**0**	**0**	**1**	**0**	**0**
PPG INDUSTRIES							
CERTAIN GLYCOL ETHERS	1	5	0	0	5	1,782	0
ETHYLENE GLYCOL	1	5	0	0	5	2,826	0
ZINC COMPOUNDS	1	255	0	0	255	5,487	0
PPG INDUSTRIES Total	**3**	**265**	**0**	**0**	**265**	**10,095**	**0**

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FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
PRINCE MINERALS							
BARIUM COMPOUNDS	1	0	0	0	0	0	0
LEAD COMPOUNDS	1	1	0	0	1	1	0
MANGANESE COMPOUNDS	1	181	0	0	181	70	0
NICKEL COMPOUNDS	1	0	0	0	0	0	0
PRINCE MINERALS Total	**4**	**182**	**0**	**0**	**182**	**71**	**0**
ROHM & HAAS - B2 B3 B8							
DIISOCYANATES	1	0	0	0	0	0	0
N,N-DIMETHYLFORMAMIDE	1	4,163	0	0	4,163	1,914,587	4,997,671
PHTHALIC ANHYDRIDE	1	1	0	0	1	1,559	0
ROHM & HAAS - B2 B3 B8 Total	**3**	**4,164**	**0**	**0**	**4,164**	**1,916,146**	**4,997,671**
ROHM & HAAS - B5 B6							
4,4'-METHYLENEBIS(2-CHLOROANILINE)	1	0	0	0	0	0	0
DIISOCYANATES	1	2	0	0	2	3,338	0
N-METHYL-2-PYRROLIDONE	1	2,911	0	0	2,911	124,048	0
TOLUENE DIISOCYANATE (MIXED ISOMERS)	1	2	0	0	2	751	4,500
ROHM & HAAS - B5 B6 Total	**4**	**2,915**	**0**	**0**	**2,915**	**128,137**	**4,500**
ROHM & HAAS - B7 B15							
4,4'-METHYLENEBIS(2-CHLOROANILINE)	1	0	0	0	0	0	0
N-METHYL-2-PYRROLIDONE	1	2,767	0	0	2,767	19,804	0
ROHM & HAAS - B7 B15 Total	**2**	**2,767**	**0**	**0**	**2,767**	**19,804**	**0**
SERVICE ENERGY DOVER							
1,2,4-TRIMETHYLBENZENE	1	0	0	0	0	0	0
TOLUENE	1	0	0	0	0	0	0
SERVICE ENERGY DOVER Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**

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All Amounts Are in Pounds

APPENDIX C

2011 ON-SITE RELEASES BY FACILITY AND CHEMICAL

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
SPI PHARMA							
CHLORINE	1	0	0	0	0	0	0
NITRIC ACID	1	0	0	0	0	0	0
SPI PHARMA Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**
SUNOCO							
BENZENE	1	2,811	0	0	2,811	0	0
LEAD COMPOUNDS	1	3	0	0	3	0	0
NAPHTHALENE	1	3	0	0	3	0	0
N-HEXANE	1	7,395	0	0	7,395	0	0
NICKEL COMPOUNDS	1	9	0	0	9	0	0
TOLUENE	1	119	0	0	119	0	0
XYLENE	1	99	0	0	99	0	0
SUNOCO Total	**7**	**10,439**	**0**	**0**	**10,439**	**0**	**0**
V&S DELAWARE GALVANIZING							
LEAD	1	2	6	0	8	3,139	0
ZINC COMPOUNDS	1	20	196	0	216	114,948	0
V&S DELAWARE GALVANIZING Total	**2**	**22**	**202**	**0**	**224**	**118,087**	**0**
VP RACING FUELS							
LEAD COMPOUNDS	1	1	0	0	1	14	0
METHANOL	1	0	0	0	0	0	0
TOLUENE	1	0	0	0	0	0	0
XYLENE (MIXED ISOMERS)	1	0	0	0	0	0	0
VP RACING FUELS Total	**4**	**1**	**0**	**0**	**1**	**14**	**0**
STATE TOTALS	**243**	**2,417,599**	**1,230,737**	**278,669**	**3,927,005**	**13,769,699**	**55,733,427**

Source: DNREC 2011 TRI Database, October, 2012
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
AEARO TECHNOLOGIES										
DIISOCYANATES	0	0	0	750	0	750	0	0	0	0
TOLUENE DIISOCYANATE (MIXED ISOMERS)	0	0	0	250	0	250	0	0	0	0
AEARO TECHNOLOGIES Total	**0**	**0**	**0**	**1,000**	**0**	**1,000**	**0**	**0**	**0**	**0**
AGILENT TECHNOLOGIES NEWPORT										
ACETONITRILE	0	0	14,328	0	0	14,328	0	0	0	0
METHANOL	0	0	36,940	114	0	37,054	0	0	0	0
TOLUENE	0	0	149,871	2,430	0	152,301	0	0	0	0
AGILENT TECHNOLOGIES NEWPORT Total	**0**	**0**	**201,139**	**2,544**	**0**	**203,683**	**0**	**0**	**0**	**0**
AIR LIQUIDE - MEDAL										
METHANOL	0	0	0	37,697	0	37,697	1,292,306	0	0	1,292,306
N,N-DIMETHYLFORMAMIDE	38,987	0	0	1,460	0	40,447	0	0	0	0
N-HEXANE	0	0	0	0	0	0	1,070,207	0	0	1,070,207
N-METHYL-2-PYRROLIDONE	50,962	0	0	5,030	0	55,992	0	0	0	0
AIR LIQUIDE - MEDAL Total	**89,949**	**0**	**0**	**44,187**	**0**	**134,136**	**2,362,513**	**0**	**0**	**2,362,513**
AIR LIQUIDE INDUSTRIAL										
AMMONIA	0	0	0	0	0	0	0	0	0	0
AIR LIQUIDE INDUSTRIAL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ALLEN HARIM FARMS SEAFORD MILL										
COPPER COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ALLEN HARIM FARMS SEAFORD MILL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ALLEN HARIM FOODS HARBESON										
NITRATE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ALLEN HARIM FOODS HARBESON Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
AMICK FARMS										
COPPER COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
AMICK FARMS Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ARLON										
COPPER	0	4,500	0	0	200	4,700	0	0	0	0
ETHYLBENZENE	0	0	0	640	0	640	0	0	29,000	29,000
XYLENE (MIXED ISOMERS)	0	0	0	3,600	0	3,600	0	0	115,000	115,000
ARLON Total	**0**	**4,500**	**0**	**4,240**	**200**	**8,940**	**0**	**0**	**144,000**	**144,000**
BALTIMORE AIRCOIL										
CHROMIUM COMPOUNDS	0	195,276	0	0	0	195,276	0	0	0	0
MANGANESE COMPOUNDS	0	111,789	0	0	0	111,789	0	0	0	0
NICKEL COMPOUNDS	0	222,542	0	0	0	222,542	0	0	0	0
BALTIMORE AIRCOIL Total	**0**	**529,607**	**0**	**0**	**0**	**529,607**	**0**	**0**	**0**	**0**
BASF NEWPORT										
ANILINE	23,252	0	116,873	77,520	1,163	218,808	0	0	1,313	1,313
BIPHENYL	17,386	0	182,485	120,054	869	320,794	0	0	2,321	2,321
CYCLOHEXANE	0	20,559	0	0	0	20,559	0	0	3,458	3,458
METHANOL	682,621	115,478	3,189	0	34,131	835,419	420,750	0	825,070	1,245,820
NITRATE COMPOUNDS	27,647	0	0	0	27,647	55,294	0	0	0	0
NITRIC ACID	0	0	0	0	0	0	0	0	28,093	28,093
N-METHYL-2-PYRROLIDONE	1,043	24,441	0	0	52	25,536	0	0	10	10
P-CHLOROANILINE	2,718	0	7,408	5,500	136	15,762	0	0	359	359
XYLENE (MIXED ISOMERS)	264	0	311	173	13	761	0	0	5,347	5,347
BASF NEWPORT Total	**754,931**	**160,478**	**310,266**	**203,247**	**64,011**	**1,492,933**	**420,750**	**0**	**865,971**	**1,286,721**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
BASF SEAFORD										
AMMONIA	749	0	0	0	64	813	0	0	6,742	6,742
BUTYL ACRYLATE	0	0	192	0	0	192	0	0	88	88
CERTAIN GLYCOL ETHERS	0	0	0	0	797	797	0	0	0	0
ETHYL ACRYLATE	0	0	188	0	0	188	0	0	10	10
METHYL METHACRYLATE	0	0	188	0	0	188	0	0	357	357
STYRENE	0	0	349	0	0	349	0	0	805	805
BASF SEAFORD Total	**749**	**0**	**917**	**0**	**861**	**2,527**	**0**	**0**	**8,002**	**8,002**
CAMDEL METALS/HANDY TUBE										
CHROMIUM	0	40,766	0	0	365	41,131	0	0	0	0
MANGANESE	0	4,114	0	0	33	4,147	0	0	0	0
NICKEL	0	37,397	0	0	565	37,962	0	0	0	0
TRICHLOROETHYLENE	0	0	0	9,903	0	9,903	0	0	0	0
CAMDEL METALS/HANDY TUBE Total	**0**	**82,277**	**0**	**9,903**	**963**	**93,143**	**0**	**0**	**0**	**0**
CARL KING										
1,2,4-TRIMETHYLBENZENE	0	0	0	0	0	0	0	0	0	0
NAPHTHALENE	0	0	0	0	0	0	0	0	0	0
XYLENE (MIXED ISOMERS)	0	0	0	0	0	0	0	0	0	0
CARL KING Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CHROME DEPOSIT										
CHROMIUM COMPOUNDS	0	1,400	0	0	630	2,030	900	0	0	900
LEAD COMPOUNDS	0	4,700	0	0	3,100	7,800	0	0	0	0
CHROME DEPOSIT Total	**0**	**6,100**	**0**	**0**	**3,730**	**9,830**	**900**	**0**	**0**	**900**
COLOR WORKS PAINTING										
MANGANESE	0	591	0	0	0	591	0	0	0	0
COLOR WORKS PAINTING Total	**0**	**591**	**0**	**0**	**0**	**591**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
CRODA										
CERTAIN GLYCOL ETHERS	1,417	0	0	0	0	1,417	0	0	0	0
DIETHANOLAMINE	38	0	0	0	0	38	0	0	0	0
ETHYLENE OXIDE	0	0	0	0	0	0	0	0	0	0
METHANOL	6,025	0	21,250	0	0	27,275	0	0	0	0
NAPHTHALENE	0	0	0	0	0	0	0	0	0	0
PROPYLENE OXIDE	0	0	0	0	0	0	0	0	0	0
CRODA Total	**7,480**	**0**	**21,250**	**0**	**0**	**28,730**	**0**	**0**	**0**	**0**
DELAWARE CITY REFINERY										
1,2,4-TRIMETHYLBENZENE	0	0	0	0	0	0	0	0	9,396	9,396
1,3-BUTADIENE	0	0	0	0	0	0	0	0	5,985	5,985
2,4-DIMETHYLPHENOL	0	0	0	0	0	0	0	0	262,037	262,037
AMMONIA	0	0	0	0	0	0	0	6,817,367	14,285	6,831,652
ANTHRACENE	0	0	0	0	0	0	0	0	0	0
ASBESTOS (FRIABLE)	0	0	0	0	595,620	595,620	0	0	0	0
BENZENE	0	199	848	45	1	1,093	0	73,585	23,201	96,786
BENZO(G,H,I)PERYLENE	0	0	0	0	0	0	0	0	313	313
CARBON DISULFIDE	0	0	0	0	0	0	0	1,900,010	0	1,900,010
CARBONYL SULFIDE	0	0	0	0	0	0	0	0	8,951,853	8,951,853
CRESOL (MIXED ISOMERS)	0	0	120	8	1	129	0	18,691	313,521	332,212
CUMENE	0	0	0	0	0	0	0	0	628	628
CYANIDE COMPOUNDS	0	0	0	0	0	0	0	160,863	85,673	246,536
CYCLOHEXANE	0	0	0	0	0	0	0	0	1,041	1,041
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	0	5	47	22	0	74	0	0	9,368	9,368
ETHYLENE	0	0	0	0	0	0	0	0	214,925	214,925
HYDROCHLORIC ACID	0	0	0	0	0	0	0	0	90,931	90,931
HYDROGEN CYANIDE	0	0	0	0	0	0	0	160,863	49,884	210,747
LEAD COMPOUNDS	0	0	0	0	57	57	0	0	0	0
MERCURY COMPOUNDS	0	0	0	0	8	8	0	0	0	0
METHANOL	0	0	0	0	0	0	0	0	0	0

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
NAPHTHALENE	0	0	0	0	0	0	0	0	2,102	2,102
N-HEXANE	0	0	0	0	0	0	0	0	36,397	36,397
NICKEL COMPOUNDS	0	30,231	0	0	293	30,524	0	0	0	0
NITRATE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
PHENANTHRENE	0	0	0	0	0	0	0	0	0	0
PHENOL	0	0	0	0	0	0	0	41,504	262,037	303,541
POLYCYCLIC AROMATIC COMPOUNDS	0	122	0	0	0	122	0	0	257	257
PROPYLENE	0	0	0	0	0	0	0	0	1,044,103	1,044,103
STYRENE	0	0	0	0	0	0	0	0	1	1
SULFURIC ACID	0	0	0	0	0	0	0	0	0	0
TETRACHLOROETHYLENE	0	0	0	0	0	0	0	0	0	0
TOLUENE	0	2	1,512	64	0	1,578	0	0	82,514	82,514
XYLENE (MIXED ISOMERS)	0	25	2,347	86	0	2,458	0	0	54,043	54,043
DELAWARE CITY REFINERY Total	**0**	**30,583**	**4,874**	**225**	**595,980**	**631,663**	**0**	**9,172,883**	**11,514,495**	**20,687,378**
DENTSPLY MAIN PLANT										
MERCURY	0	4,380	0	0	0	4,380	0	0	0	0
DENTSPLY MAIN PLANT Total	**0**	**4,380**	**0**	**0**	**0**	**4,380**	**0**	**0**	**0**	**0**
DENTSPLY WEST PLANT										
METHANOL	120	0	9,225	0	0	9,345	0	0	0	0
METHYL METHACRYLATE	66	0	3,640	0	0	3,706	0	0	0	0
DENTSPLY WEST PLANT Total	**187**	**0**	**12,865**	**0**	**0**	**13,051**	**0**	**0**	**0**	**0**
DOVER AFB										
1,2,4-TRIMETHYLBENZENE	0	0	0	0	0	0	0	0	0	0
CUMENE	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE	0	0	0	0	0	0	0	0	0	0
LEAD COMPOUNDS	0	2,951	0	0	206	3,157	0	0	0	0
NAPHTHALENE	0	0	0	0	0	0	0	0	0	0
XYLENE (MIXED ISOMERS)	0	0	0	0	0	0	0	0	0	0
DOVER AFB Total	**0**	**2,951**	**0**	**0**	**206**	**3,157**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
DUPONT EDGE MOOR										
ARSENIC COMPOUNDS	0	0	0	0	53	53	0	0	0	0
BARIUM COMPOUNDS	0	0	0	0	12,833	12,833	0	0	0	0
CARBONYL SULFIDE	0	0	0	0	0	0	0	0	0	0
CHLORINE	0	0	0	0	0	0	0	0	3,386,198	3,386,198
CHROMIUM COMPOUNDS	0	0	0	0	141,358	141,358	0	0	0	0
COBALT COMPOUNDS	0	0	0	0	3,200	3,200	0	0	0	0
COPPER COMPOUNDS	0	0	0	0	937	937	0	0	0	0
CREOSOTE	0	0	0	0	0	0	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	0	0	0	1	1	0	0	0	0
HEXACHLOROBENZENE	0	0	0	0	62	62	0	0	0	0
HYDROCHLORIC ACID	0	0	0	0	0	0	0	0	18,627,140	18,627,140
LEAD COMPOUNDS	0	0	0	0	15,605	15,605	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	1,232,226	1,232,226	0	0	0	0
MERCURY COMPOUNDS	0	0	0	0	9	9	0	0	0	0
NICKEL COMPOUNDS	0	0	0	0	10,187	10,187	0	0	0	0
OCTACHLOROSTYRENE	0	0	0	0	3	3	0	0	0	0
PENTACHLOROBENZENE	0	0	0	0	1	1	0	0	0	0
PHOSGENE	0	0	0	0	0	0	0	0	165,815	165,815
POLYCHLORINATED BIPHENYLS	0	0	0	0	6	6	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
TITANIUM TETRACHLORIDE	0	0	0	0	0	0	0	0	1,199,985	1,199,985
TOLUENE	0	52	0	6	0	58	0	0	0	0
VANADIUM COMPOUNDS	0	0	0	0	167,161	167,161	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	14,465	14,465	0	0	0	0
DUPONT EDGE MOOR Total	**0**	**52**	**0**	**6**	**1,598,107**	**1,598,166**	**0**	**0**	**23,379,138**	**23,379,138**
DUPONT RED LION PLANT										
SULFURIC ACID	0	0	0	0	0	0	0	0	0	0
DUPONT RED LION PLANT Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
EDGE MOOR/HAY ROAD ENERGY CENTERS										
AMMONIA	117	0	0	0	0	117	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MERCURY	1	0	0	0	1	1	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS Total	**118**	**0**	**0**	**0**	**1**	**118**	**0**	**0**	**0**	**0**
EVRAZ CLAYMONT STEEL										
CHROMIUM COMPOUNDS	0	33,832	0	0	2,090	35,922	0	0	0	0
COPPER COMPOUNDS	0	38,610	0	0	2,737	41,347	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
LEAD COMPOUNDS	0	247,929	0	0	88	248,017	0	0	0	0
MANGANESE COMPOUNDS	0	238,890	0	0	10,358	249,248	0	0	0	0
MERCURY COMPOUNDS	0	0	0	0	3	3	0	0	0	0
NICKEL COMPOUNDS	0	4,223	0	0	1,311	5,534	0	0	0	0
ZINC COMPOUNDS	0	2,104,812	0	0	200	2,105,012	0	0	0	0
EVRAZ CLAYMONT STEEL Total	**0**	**2,668,296**	**0**	**0**	**16,787**	**2,685,083**	**0**	**0**	**0**	**0**
FORMOSA PLASTICS										
AMMONIA	0	0	0	0	0	0	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
VINYL ACETATE	0	0	0	0	0	0	0	0	0	0
VINYL CHLORIDE	0	106	0	0	127	233	0	0	239,600	239,600
FORMOSA PLASTICS Total	**0**	**106**	**0**	**0**	**127**	**233**	**0**	**0**	**239,600**	**239,600**
FUJIFILM IMAGING COLORANTS										
ETHYLENE GLYCOL	91	0	182	0	0	273	0	0	0	0
NITRATE COMPOUNDS	751	0	375	0	0	1,126	0	0	0	0
FUJIFILM IMAGING COLORANTS Total	**841**	**0**	**557**	**0**	**0**	**1,398**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
GAC SEAFORD										
1,2,4-TRIMETHYLBENZENE	0	0	0	0	0	0	0	0	0	0
GAC SEAFORD Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HANESBRANDS										
NITRATE COMPOUNDS	53,540	0	0	0	0	53,540	0	0	0	0
HANESBRANDS Total	**53,540**	**0**	**0**	**0**	**0**	**53,540**	**0**	**0**	**0**	**0**
HIRSH INDUSTRIES										
CERTAIN GLYCOL ETHERS	0	0	0	0	0	0	0	0	0	0
HIRSH INDUSTRIES Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HONEYWELL										
AMMONIA	53	0	0	0	0	53	0	0	0	0
BORON TRIFLUORIDE	0	0	0	0	20	20	0	0	132,717	132,717
HYDROGEN FLUORIDE	0	0	0	0	0	0	0	0	87	87
METHANOL	60	0	560	0	0	620	0	0	60	60
N-HEXANE	5	0	11,760	400	1,230	13,395	131,220	0	43,740	174,960
HONEYWELL Total	**118**	**0**	**12,320**	**400**	**1,250**	**14,088**	**131,220**	**0**	**176,604**	**307,824**
IKO WILMINGTON										
POLYCYCLIC AROMATIC COMPOUNDS	0	27	0	0	22	49	280	0	0	280
IKO WILMINGTON Total	**0**	**27**	**0**	**0**	**22**	**49**	**280**	**0**	**0**	**280**
INDIAN RIVER GENERATING STATION										
AMMONIA	0	0	0	0	0	0	0	0	850,000	850,000
BARIUM COMPOUNDS	0	0	0	0	17	17	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID	0	0	0	0	0	0	0	0	0	0
HYDROGEN FLUORIDE	0	0	0	0	0	0	0	0	10,000	10,000
LEAD COMPOUNDS	0	0	0	0	0	0	0	0	0	0

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
MANGANESE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MERCURY COMPOUNDS	0	0	0	0	0	0	0	0	0	0
NAPHTHALENE	0	0	0	0	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
SULFURIC ACID	0	0	0	0	0	0	0	0	180,000	180,000
VANADIUM COMPOUNDS	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION Total	**0**	**0**	**0**	**0**	**17**	**17**	**0**	**0**	**1,040,000**	**1,040,000**
INSTEEL WIRE PRODUCTS										
LEAD COMPOUNDS	0	27	0	0	0	27	0	0	0	0
INSTEEL WIRE PRODUCTS Total	**0**	**27**	**0**	**0**	**0**	**27**	**0**	**0**	**0**	**0**
INTERVET										
MERCURY COMPOUNDS	0	0	0	0	0	0	0	0	0	0
INTERVET Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
JOHNSON CONTROLS BATTERY PLANT										
ANTIMONY COMPOUNDS	0	10,518	0	0	0	10,518	0	0	0	0
LEAD COMPOUNDS	7	2,705,418	0	0	200	2,705,625	0	0	0	0
JOHNSON CONTROLS BATTERY PLANT Total	**7**	**2,715,936**	**0**	**0**	**200**	**2,716,143**	**0**	**0**	**0**	**0**
JOHNSON CONTROLS DIST. CENTER										
LEAD COMPOUNDS	0	0	0	0	0	0	0	0	0	0
JOHNSON CONTROLS DIST. CENTER Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
JUSTIN TANKS										
STYRENE	0	0	0	278	0	278	0	0	0	0
JUSTIN TANKS Total	**0**	**0**	**0**	**278**	**0**	**278**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
KUEHNE										
CHLORINE	0	0	0	0	0	0	0	0	0	0
KUEHNE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
MACDERMID										
TOLUENE DIISOCYANATE (MIXED ISOMERS)	0	0	0	0	0	0	0	0	0	0
MACDERMID Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
METAL MASTERS										
CHROMIUM	0	148,104	0	0	295	148,399	0	0	0	0
NICKEL	0	47,609	0	0	787	48,396	0	0	0	0
METAL MASTERS Total	**0**	**195,713**	**0**	**0**	**1,082**	**196,795**	**0**	**0**	**0**	**0**
MOTECH AMERICAS										
LEAD	0	69	0	0	10	79	0	0	0	0
MOTECH AMERICAS Total	**0**	**69**	**0**	**0**	**10**	**79**	**0**	**0**	**0**	**0**
MOUNTAIRE FARMS FRANKFORD MILL										
ARSENIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
COPPER COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
MOUNTAIRE FARMS OF DELAWARE										
COPPER COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
MOUNTAIRE FARMS SELBYVILLE PLANT										
BENZO(G,H,I)PERYLENE	0	0	0	0	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS SELBYVILLE PLANT Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
NORAMCO										
DICHLOROMETHANE	1,212	0	119,991	0	0	121,203	0	0	121,203	121,203
FORMIC ACID	0	0	0	0	0	0	0	0	0	0
METHANOL	8,917	0	169,441	0	0	178,358	0	0	178,359	178,359
N,N-DIMETHYLANILINE	10,023	0	0	0	0	10,023	0	0	0	0
N-BUTYL ALCOHOL	25,987	0	493,755	0	0	519,742	0	0	519,742	519,742
TOLUENE	3,242	0	321,007	0	0	324,249	0	0	324,249	324,249
NORAMCO Total	**49,381**	**0**	**1,104,194**	**0**	**0**	**1,153,575**	**0**	**0**	**1,143,553**	**1,143,553**
NRG ENERGY CENTER-DOVER										
HYDROCHLORIC ACID	0	0	0	0	0	0	0	0	0	0
LEAD COMPOUNDS	0	0	0	0	28	28	0	0	0	0
MERCURY COMPOUNDS	0	0	0	0	1	1	0	0	0	0
SULFURIC ACID	0	0	0	0	0	0	0	0	20,885	20,885
NRG ENERGY CENTER-DOVER Total	**0**	**0**	**0**	**0**	**29**	**29**	**0**	**0**	**20,885**	**20,885**
OCCIDENTAL CHEMICAL										
MERCURY	0	0	0	0	0	0	0	0	0	0
OCCIDENTAL CHEMICAL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ORIENT										
ANILINE	300	0	0	0	54	354	62,000	0	16,000	78,000
CHROMIUM COMPOUNDS	0	0	0	0	0	0	0	0	0	0
NITROBENZENE	0	0	0	0	1	1	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ORIENT Total	**300**	**0**	**0**	**0**	**55**	**355**	**62,000**	**0**	**16,000**	**78,000**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
PERDUE BRIDGEVILLE										
COPPER COMPOUNDS	0	0	0	0	0	0	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
ZINC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PERDUE GEORGETOWN										
BENZO(G,H,I)PERYLENE	0	0	0	0	0	0	0	0	0	0
NITRATE COMPOUNDS	0	0	0	0	0	0	0	0	0	0
PERACETIC ACID	0	0	0	0	0	0	0	0	14,462	14,462
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
PERDUE GEORGETOWN Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14,462**	**14,462**
PERDUE MILFORD										
PERACETIC ACID	0	0	0	0	0	0	0	0	18,000	18,000
PERDUE MILFORD Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18,000**	**18,000**
PICTSWEET BRIDGEVILLE										
AMMONIA	0	0	0	0	0	0	0	0	0	0
PICTSWEET BRIDGEVILLE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PINNACLE FOODS										
BENZO(G,H,I)PERYLENE	0	0	0	0	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS	0	0	0	0	0	0	0	0	0	0
PINNACLE FOODS Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PPG INDUSTRIES										
CERTAIN GLYCOL ETHERS	1,277	0	5	0	500	1,782	0	0	0	0
ETHYLENE GLYCOL	2,071	0	250	0	505	2,826	0	0	0	0
ZINC COMPOUNDS	2,366	0	0	0	3,121	5,487	0	0	0	0
PPG INDUSTRIES Total	**5,714**	**0**	**255**	**0**	**4,126**	**10,095**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
PRINCE MINERALS										
BARIUM COMPOUNDS	0	0	0	0	0	0	0	0	0	0
LEAD COMPOUNDS	0	0	0	0	1	1	0	0	0	0
MANGANESE COMPOUNDS	0	0	0	0	70	70	0	0	0	0
NICKEL COMPOUNDS	0	0	0	0	0	0	0	0	0	0
PRINCE MINERALS Total	**0**	**0**	**0**	**0**	**71**	**71**	**0**	**0**	**0**	**0**
ROHM & HAAS - B2 B3 B8										
DIISOCYANATES	0	0	0	0	0	0	0	0	0	0
N,N-DIMETHYLFORMAMIDE	83,973	1,386,774	441,657	2,183	0	1,914,587	4,996,921	0	750	4,997,671
PHTHALIC ANHYDRIDE	1,300	0	0	259	0	1,559	0	0	0	0
ROHM & HAAS - B2 B3 B8 Total	**85,273**	**1,386,774**	**441,657**	**2,442**	**0**	**1,916,146**	**4,996,921**	**0**	**750**	**4,997,671**
ROHM & HAAS - B5 B6										
4,4'-METHYLENEBIS(2-CHLOROANILINE)	0	0	0	0	0	0	0	0	0	0
DIISOCYANATES	0	0	0	3,338	0	3,338	0	0	0	0
N-METHYL-2-PYRROLIDONE	0	122,094	0	1,954	0	124,048	0	0	0	0
TOLUENE DIISOCYANATE (MIXED ISOMERS)	0	0	0	751	0	751	0	0	4,500	4,500
ROHM & HAAS - B5 B6 Total	**0**	**122,094**	**0**	**6,043**	**0**	**128,137**	**0**	**0**	**4,500**	**4,500**
ROHM & HAAS - B7 B15										
4,4'-METHYLENEBIS(2-CHLOROANILINE)	0	0	0	0	0	0	0	0	0	0
N-METHYL-2-PYRROLIDONE	0	19,592	0	212	0	19,804	0	0	0	0
ROHM & HAAS - B7 B15 Total	**0**	**19,592**	**0**	**212**	**0**	**19,804**	**0**	**0**	**0**	**0**
SERVICE ENERGY DOVER										
1,2,4-TRIMETHYLBENZENE	0	0	0	0	0	0	0	0	0	0
TOLUENE	0	0	0	0	0	0	0	0	0	0
SERVICE ENERGY DOVER Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX D

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY FACILITY

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
SPI PHARMA										
CHLORINE	0	0	0	0	0	0	0	0	0	0
NITRIC ACID	0	0	0	0	0	0	0	0	0	0
SPI PHARMA Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SUNOCO										
BENZENE	0	0	0	0	0	0	0	0	0	0
LEAD COMPOUNDS	0	0	0	0	0	0	0	0	0	0
NAPHTHALENE	0	0	0	0	0	0	0	0	0	0
N-HEXANE	0	0	0	0	0	0	0	0	0	0
NICKEL COMPOUNDS	0	0	0	0	0	0	0	0	0	0
TOLUENE	0	0	0	0	0	0	0	0	0	0
XYLENE	0	0	0	0	0	0	0	0	0	0
SUNOCO Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
V&S DELAWARE GALVANIZING										
LEAD	0	2,996	0	0	143	3,139	0	0	0	0
ZINC COMPOUNDS	0	95,537	0	0	19,411	114,948	0	0	0	0
V&S DELAWARE GALVANIZING Total	**0**	**98,533**	**0**	**0**	**19,554**	**118,087**	**0**	**0**	**0**	**0**
VP RACING FUELS										
LEAD COMPOUNDS	0	12	0	0	2	14	0	0	0	0
METHANOL	0	0	0	0	0	0	0	0	0	0
TOLUENE	0	0	0	0	0	0	0	0	0	0
XYLENE (MIXED ISOMERS)	0	0	0	0	0	0	0	0	0	0
VP RACING FUELS Total	**0**	**12**	**0**	**0**	**2**	**14**	**0**	**0**	**0**	**0**
STATE TOTALS	**1,048,588**	**8,028,698**	**2,110,293**	**274,727**	**2,307,392**	**13,769,699**	**7,974,584**	**9,172,883**	**38,585,960**	**55,733,427**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX E

2011 ON-SITE RELEASE SUMMARY BY FACILITY

63 FACILITIES - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS	ON-SITE
	TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE	WASTE MGMT.
INDIAN RIVER GENERATING STATION	1,655,140	760	256,579	1,912,479	17	1,040,000
DELAWARE CITY REFINERY	166,423	979,479	0	1,145,902	631,663	20,687,378
PERDUE GEORGETOWN	0	246,503	0	246,503	0	14,462
DUPONT EDGE MOOR	206,018	3,424	7,459	216,900	1,598,166	23,379,138
FORMOSA PLASTICS	137,013	12	0	137,025	233	239,600
NRG ENERGY CENTER-DOVER	111,550	0	0	111,550	29	20,885
BASF NEWPORT	25,642	0	0	25,642	1,492,933	1,286,721
EVRAZ CLAYMONT STEEL	3,513	346	14,631	18,490	2,685,083	0
AIR LIQUIDE INDUSTRIAL	17,773	0	0	17,773	0	0
CAMDEL METALS/HANDY TUBE	12,804	0	0	12,804	93,143	0
JUSTIN TANKS	11,494	0	0	11,494	278	0
SUNOCO	10,439	0	0	10,439	0	0
HONEYWELL	6,017	0	0	6,017	14,088	307,824
ORIENT	5,952	0	0	5,952	355	78,000
DENTSPLY WEST PLANT	5,423	0	0	5,423	13,051	0
HIRSH INDUSTRIES	5,271	0	0	5,271	0	0
BASF SEAFORD	5,113	0	0	5,113	2,527	8,002
PICTSWEET BRIDGEVILLE	5,000	0	0	5,000	0	0
ROHM & HAAS - B2 B3 B8	4,164	0	0	4,164	1,916,146	4,997,671
CRODA	3,243	0	0	3,243	28,730	0
DUPONT RED LION PLANT	2,963	0	0	2,963	0	0
ROHM & HAAS - B5 B6	2,915	0	0	2,915	128,137	4,500
ROHM & HAAS - B7 B15	2,767	0	0	2,767	19,804	0
NORAMCO	2,731	0	0	2,731	1,153,575	1,143,553
AIR LIQUIDE - MEDAL	1,934	0	0	1,934	134,136	2,362,513
DOVER AFB	1,823	0	0	1,823	3,157	0
ARLON	1,654	0	0	1,654	8,940	144,000
AGILENT TECHNOLOGIES NEWPORT	801	0	0	801	203,683	0
KUEHNE	750	0	0	750	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	637	1	0	638	118	0
PPG INDUSTRIES	265	0	0	265	10,095	0
V&S DELAWARE GALVANIZING	22	202	0	224	118,087	0
PRINCE MINERALS	182	0	0	182	71	0
JOHNSON CONTROLS BATTERY PLANT	115	10	0	125	2,716,143	0
MOUNTAIRE FARMS SELBYVILLE PLANT	23	0	0	23	0	0

Source: DNREC 2011 TRI Database, October, 2012
All amounts are in pounds

APPENDIX E

2011 ON-SITE RELEASE SUMMARY BY FACILITY

63 FACILITIES - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS	ON-SITE
	TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE	WASTE MGMT.
BALTIMORE AIRCOIL	13	0	0	13	529,607	0
AEARO TECHNOLOGIES	6	0	0	6.4	1,000	0
MOUNTAIRE FARMS FRANKFORD MILL	1	0	0	1.5	0	0
FUJIFILM IMAGING COLORANTS	1	0	0	1.10	1,398	0
VP RACING FUELS	1	0	0	1.05	14	0
METAL MASTERS	1	0	0	1.00	196,795	0
PINNACLE FOODS	1	0	0	1.00	0	0
DENTSPLY MAIN PLANT	0	0	0	0.3100	4,380	0
OCCIDENTAL CHEMICAL	0	0	0	0.0706	0	0
INSTEEL WIRE PRODUCTS	0	0	0	0.0009	27	0
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0
ALLEN HARIM FOODS HARBESON	0	0	0	0	0	0
AMICK FARMS	0	0	0	0	0	0
CARL KING	0	0	0	0	0	0
CHROME DEPOSIT	0	0	0	0	9,830	900
COLOR WORKS PAINTING	0	0	0	0	591	0
GAC SEAFORD	0	0	0	0	0	0
HANESBRANDS	0	0	0	0	53,540	0
IKO WILMINGTON	0	0	0	0	49	280
INTERVET	0	0	0	0	0	0
JOHNSON CONTROLS DIST. CENTER	0	0	0	0	0	0
MACDERMID	0	0	0	0	0	0
MOTECH AMERICAS	0	0	0	0	79	0
MOUNTAIRE FARMS OF DELAWARE	0	0	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0
PERDUE MILFORD	0	0	0	0	0	18,000
SERVICE ENERGY DOVER	0	0	0	0	0	0
SPI PHARMA	0	0	0	0	0	0
FACILITY TOTALS	**2,417,599**	**1,230,737**	**278,669**	**3,927,005**	**13,769,699**	**55,733,427**

Source: DNREC 2011 TRI Database, October, 2012
All amounts are in pounds

APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	ON-SITE RELEASES TO WATER	ON-SITE RELEASES TO LAND	ON-SITE RELEASES TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
1,2,4-TRIMETHYLBENZENE							
CARL KING	1	0	0	0	0	0	0
DELAWARE CITY REFINERY	1	984	5	0	989	0	9,396
DOVER AFB	1	150	0	0	150	0	0
GAC SEAFORD	1	0	0	0	0	0	0
SERVICE ENERGY DOVER	1	0	0	0	0	0	0
1,2,4-TRIMETHYLBENZENE Total	**5**	**1,134**	**5**	**0**	**1,139**	**0**	**9,396**
1,3-BUTADIENE							
DELAWARE CITY REFINERY	1	525	0	0	525	0	5,985
1,3-BUTADIENE Total	1	525	0	0	525	0	5,985
2,4-DIMETHYLPHENOL							
DELAWARE CITY REFINERY	1	0	114	0	114	0	262,037
2,4-DIMETHYLPHENOL Total	1	0	114	0	114	0	262,037
4,4'-METHYLENEBIS(2-CHLOROANILINE)							
ROHM & HAAS - B5 B6	1	0	0	0	0	0	0
ROHM & HAAS - B7 B15	1	0	0	0	0	0	0
4,4'-METHYLENEBIS(2-CHLOROANILINE) Total	2	0	0	0	0	0	0
ACETONITRILE							
AGILENT TECHNOLOGIES NEWPORT	1	33	0	0	33	14,328	0
ACETONITRILE Total	1	33	0	0	33	14,328	0
AMMONIA							
AIR LIQUIDE INDUSTRIAL	1	17,773	0	0	17,773	0	0
BASF SEAFORD	1	4,173	0	0	4,173	813	6,742
DELAWARE CITY REFINERY	1	13,310	2,170	0	15,480	0	6,831,652
EDGE MOOR/HAY ROAD ENERGY CENTERS	1	619	1	0	620	117	0
FORMOSA PLASTICS	1	17,686	0	0	17,686	0	0
HONEYWELL	1	18	0	0	18	53	0

Source: DNREC 2011 TRI Database, October, 2012
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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
INDIAN RIVER GENERATING STATION	1	27,000	0	0	27,000	0	850,000
PICTSWEET BRIDGEVILLE	1	5,000	0	0	5,000	0	0
AMMONIA Total	8	85,579	2,171	0	87,750	983	7,688,394
ANILINE							
BASF NEWPORT	1	31	0	0	31	218,808	1,313
ORIENT	1	5,700	0	0	5,700	354	78,000
ANILINE Total	2	5,731	0	0	5,731	219,162	79,313
ANTHRACENE							
DELAWARE CITY REFINERY	1	10	5	0	15	0	0
ANTHRACENE Total	1	10	5	0	15	0	0
ANTIMONY COMPOUNDS							
JOHNSON CONTROLS BATTERY PLANT	1	0	0	0	0	10,518	0
ANTIMONY COMPOUNDS Total	1	0	0	0	0	10,518	0
ARSENIC COMPOUNDS							
DUPONT EDGE MOOR	1	0	31	0	31	53	0
MOUNTAIRE FARMS FRANKFORD MILL	1	0	0	0	0	0	0
ARSENIC COMPOUNDS Total	2	0	31	0	31	53	0
ASBESTOS (FRIABLE)							
DELAWARE CITY REFINERY	1	0	0	0	0	595,620	0
ASBESTOS (FRIABLE) Total	1	0	0	0	0	595,620	0
BARIUM COMPOUNDS							
DUPONT EDGE MOOR	1	2	1,966	0	1,968	12,833	0
INDIAN RIVER GENERATING STATION	1	1,405	750	190,000	192,155	17	0
PRINCE MINERALS	1	0	0	0	0	0	0
BARIUM COMPOUNDS Total	3	1,407	2,716	190,000	194,123	12,850	0

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	ON-SITE RELEASES TO WATER	ON-SITE RELEASES TO LAND	ON-SITE RELEASES TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
BENZENE							
DELAWARE CITY REFINERY	1	6,918	5	0	6,923	1,093	96,786
SUNOCO	1	2,811	0	0	2,811	0	0
BENZENE Total	2	9,729	5	0	9,734	1,093	96,786
BENZO(G,H,I)PERYLENE							
DELAWARE CITY REFINERY	1	2	3	0	5	0	313
MOUNTAIRE FARMS SELBYVILLE PLANT	1	1	0	0	1	0	0
PERDUE GEORGETOWN	1	0	0	0	0	0	0
PINNACLE FOODS	1	0	0	0	0	0	0
BENZO(G,H,I)PERYLENE Total	4	3	3	0	6	0	313
BIPHENYL							
BASF NEWPORT	1	120	0	0	120	320,794	2,321
BIPHENYL Total	1	120	0	0	120	320,794	2,321
BORON TRIFLUORIDE							
HONEYWELL	1	461	0	0	461	20	132,717
BORON TRIFLUORIDE Total	1	461	0	0	461	20	132,717
BUTYL ACRYLATE							
BASF SEAFORD	1	181	0	0	181	192	88
BUTYL ACRYLATE Total	1	181	0	0	181	192	88
CARBON DISULFIDE							
DELAWARE CITY REFINERY	1	343	0	0	343	0	1,900,010
CARBON DISULFIDE Total	1	343	0	0	343	0	1,900,010
CARBONYL SULFIDE							
DELAWARE CITY REFINERY	1	2,827	0	0	2,827	0	8,951,853
DUPONT EDGE MOOR	1	195,252	0	0	195,252	0	0
CARBONYL SULFIDE Total	2	198,079	0	0	198,079	0	8,951,853

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	ON-SITE RELEASES TO WATER	ON-SITE RELEASES TO LAND	ON-SITE RELEASES TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
CERTAIN GLYCOL ETHERS							
BASF SEAFORD	1	5	0	0	5	797	0
CRODA	1	2	0	0	2	1,417	0
HIRSH INDUSTRIES	1	5,271	0	0	5,271	0	0
PPG INDUSTRIES	1	5	0	0	5	1,782	0
CERTAIN GLYCOL ETHERS Total	4	5,283	0	0	5,283	3,996	0
CHLORINE							
DUPONT EDGE MOOR	1	3,042	0	0	3,042	0	3,386,198
KUEHNE	1	750	0	0	750	0	0
SPI PHARMA	1	0	0	0	0	0	0
CHLORINE Total	3	3,792	0	0	3,792	0	3,386,198
CHROMIUM							
CAMDEL METALS/HANDY TUBE	1	0	0	0	0	41,131	0
METAL MASTERS	1	1	0	0	1	148,399	0
CHROMIUM Total	2	1	0	0	1	189,530	0
CHROMIUM COMPOUNDS							
BALTIMORE AIRCOIL	1	4	0	0	4	195,276	0
CHROME DEPOSIT	1	0	0	0	0	2,030	900
DUPONT EDGE MOOR	1	1	46	0	47	141,358	0
EVRAZ CLAYMONT STEEL	1	118	3	197	318	35,922	0
ORIENT	1	0	0	0	0	0	0
CHROMIUM COMPOUNDS Total	5	123	49	197	369	374,586	900
COBALT COMPOUNDS							
DUPONT EDGE MOOR	1	0	7	0	7	3,200	0
COBALT COMPOUNDS Total	1	0	7	0	7	3,200	0

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
COPPER							
ARLON	1	5	0	0	5	4,700	0
COPPER Total	1	5	0	0	5	4,700	0
COPPER COMPOUNDS							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
AMICK FARMS	1	0	0	0	0	0	0
DUPONT EDGE MOOR	1	0	187	0	187	937	0
EVRAZ CLAYMONT STEEL	1	147	56	495	698	41,347	0
MOUNTAIRE FARMS FRANKFORD MILL	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	1	0	0	0	0	0	0
PERDUE BRIDGEVILLE	1	0	0	0	0	0	0
COPPER COMPOUNDS Total	7	147	243	495	885	42,284	0
CREOSOTE							
DUPONT EDGE MOOR	1	782	0	6,897	7,679	0	0
CREOSOTE Total	1	782	0	6,897	7,679	0	0
CRESOL (MIXED ISOMERS)							
DELAWARE CITY REFINERY	1	10	228	0	238	129	332,212
CRESOL (MIXED ISOMERS) Total	1	10	228	0	238	129	332,212
CUMENE							
DELAWARE CITY REFINERY	1	229	5	0	234	0	628
DOVER AFB	1	150	0	0	150	0	0
CUMENE Total	2	379	5	0	384	0	628
CYANIDE COMPOUNDS							
DELAWARE CITY REFINERY	1	379	866	0	1,245	0	246,536
CYANIDE COMPOUNDS Total	1	379	866	0	1,245	0	246,536

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
CYCLOHEXANE							
BASF NEWPORT	1	59	0	0	59	20,559	3,458
DELAWARE CITY REFINERY	1	1,246	5	0	1,251	0	1,041
CYCLOHEXANE Total	2	1,305	5	0	1,310	20,559	4,499
DICHLOROMETHANE							
NORAMCO	1	2,216	0	0	2,216	121,203	121,203
DICHLOROMETHANE Total	1	2,216	0	0	2,216	121,203	121,203
DIETHANOLAMINE							
CRODA	1	4	0	0	4	38	0
DIETHANOLAMINE Total	1	4	0	0	4	38	0
DIISOCYANATES							
AEARO TECHNOLOGIES	1	3	0	0	3	750	0
ROHM & HAAS - B2 B3 B8	1	0	0	0	0	0	0
ROHM & HAAS - B5 B6	1	2	0	0	2	3,338	0
DIISOCYANATES Total	3	5	0	0	5	4,088	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS							
DELAWARE CITY REFINERY	1	0	0	0	0	0	0
DUPONT EDGE MOOR	1	0	0	0	0	1	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	1	0	0	0	0	0	0
EVRAZ CLAYMONT STEEL	1	0	0	0	0	0	0
FORMOSA PLASTICS	1	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	1	0	0	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS Total	6	0	0	0	0	1	0
ETHYL ACRYLATE							
BASF SEAFORD	1	199	0	0	199	188	10
ETHYL ACRYLATE Total	1	199	0	0	199	188	10

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
ETHYLBENZENE							
ARLON	1	329	0	0	329	640	29,000
DELAWARE CITY REFINERY	1	1,961	5	0	1,966	74	9,368
DOVER AFB	1	150	0	0	150	0	0
ETHYLBENZENE Total	3	2,440	5	0	2,445	714	38,368
ETHYLENE							
DELAWARE CITY REFINERY	1	3,701	0	0	3,701	0	214,925
ETHYLENE Total	1	3,701	0	0	3,701	0	214,925
ETHYLENE GLYCOL							
FUJIFILM IMAGING COLORANTS	1	1	0	0	1	273	0
PPG INDUSTRIES	1	5	0	0	5	2,826	0
ETHYLENE GLYCOL Total	2	6	0	0	6	3,099	0
ETHYLENE OXIDE							
CRODA	1	2,027	0	0	2,027	0	0
ETHYLENE OXIDE Total	1	2,027	0	0	2,027	0	0
FORMIC ACID							
NORAMCO	1	10	0	0	10	0	0
FORMIC ACID Total	1	10	0	0	10	0	0
HEXACHLOROBENZENE							
DUPONT EDGE MOOR	1	0	0	0	0	62	0
HEXACHLOROBENZENE Total	1	0	0	0	0	62	0
HYDROCHLORIC ACID							
DELAWARE CITY REFINERY	1	51	0	0	51	0	90,931
DUPONT EDGE MOOR	1	5,105	0	0	5,105	0	18,627,140
INDIAN RIVER GENERATING STATION	1	1,500,000	0	0	1,500,000	0	0
NRG ENERGY CENTER-DOVER	1	101,937	0	0	101,937	0	0
HYDROCHLORIC ACID Total	4	1,607,093	0	0	1,607,093	0	18,718,071

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	ON-SITE RELEASES TO WATER	ON-SITE RELEASES TO LAND	ON-SITE RELEASES TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
HYDROGEN CYANIDE							
DELAWARE CITY REFINERY	1	4,736	504	0	5,240	0	210,747
HYDROGEN CYANIDE Total	1	4,736	504	0	5,240	0	210,747
HYDROGEN FLUORIDE							
HONEYWELL	1	544	0	0	544	0	87
INDIAN RIVER GENERATING STATION	1	90,000	0	0	90,000	0	10,000
HYDROGEN FLUORIDE Total	2	90,544	0	0	90,544	0	10,087
LEAD							
MOTECH AMERICAS	1	0	0	0	0	79	0
V&S DELAWARE GALVANIZING	1	2	6	0	8	3,139	0
LEAD Total	2	2	6	0	8	3,218	0
LEAD COMPOUNDS							
CHROME DEPOSIT	1	0	0	0	0	7,800	0
DELAWARE CITY REFINERY	1	54	2	0	55	57	0
DOVER AFB	1	1,073	0	0	1,073	3,157	0
DUPONT EDGE MOOR	1	0	43	0	43	15,605	0
EVRAZ CLAYMONT STEEL	1	462	63	71	596	248,017	0
INDIAN RIVER GENERATING STATION	1	216	0	10,490	10,706	0	0
INSTEEL WIRE PRODUCTS	1	0	0	0	0	27	0
JOHNSON CONTROLS BATTERY PLANT	1	115	10	0	125	2,705,625	0
JOHNSON CONTROLS DIST. CENTER	1	0	0	0	0	0	0
NRG ENERGY CENTER-DOVER	1	2	0	0	2	28	0
PRINCE MINERALS	1	1	0	0	1	1	0
SUNOCO	1	3	0	0	3	0	0
VP RACING FUELS	1	1	0	0	1	14	0
LEAD COMPOUNDS Total	13	1,927	118	10,561	12,606	2,980,331	0

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2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
MANGANESE							
CAMDEL METALS/HANDY TUBE	1	0	0	0	0	4,147	0
COLOR WORKS PAINTING	1	0	0	0	0	591	0
MANGANESE Total	2	0	0	0	0	4,738	0
MANGANESE COMPOUNDS							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
AMICK FARMS	1	0	0	0	0	0	0
BALTIMORE AIRCOIL	1	8	0	0	8	111,789	0
DUPONT EDGE MOOR	1	1	958	0	959	1,232,226	0
EVRAZ CLAYMONT STEEL	1	399	22	13,219	13,640	249,248	0
INDIAN RIVER GENERATING STATION	1	255	5	29,000	29,260	0	0
MOUNTAIRE FARMS FRANKFORD MILL	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	1	0	0	0	0	0	0
PERDUE BRIDGEVILLE	1	0	0	0	0	0	0
PRINCE MINERALS	1	181	0	0	181	70	0
MANGANESE COMPOUNDS Total	10	844	985	42,219	44,048	1,593,333	0
MERCURY							
DENTSPLY MAIN PLANT	1	0	0	0	0	4,380	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	1	18	0	0	18	1	0
OCCIDENTAL CHEMICAL	1	0	0	0	0	0	0
MERCURY Total	3	18	0	0	18	4,381	0
MERCURY COMPOUNDS							
DELAWARE CITY REFINERY	1	22	1	0	23	8	0
DUPONT EDGE MOOR	1	1	0	0	1	9	0
EVRAZ CLAYMONT STEEL	1	84	0	0	84	3	0
INDIAN RIVER GENERATING STATION	1	8	0	89	97	0	0
INTERVET	1	0	0	0	0	0	0
NRG ENERGY CENTER-DOVER	1	7	0	0	7	1	0
MERCURY COMPOUNDS Total	6	121	1	89	211	22	0

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2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
METHANOL							
AGILENT TECHNOLOGIES NEWPORT	1	746	0	0	746	37,054	0
AIR LIQUIDE - MEDAL	1	285	0	0	285	37,697	1,292,306
BASF NEWPORT	1	24,276	0	0	24,276	835,419	1,245,820
CRODA	1	654	0	0	654	27,275	0
DELAWARE CITY REFINERY	1	4,193	5	0	4,198	0	0
DENTSPLY WEST PLANT	1	3,781	0	0	3,781	9,345	0
HONEYWELL	1	4	0	0	4	620	60
NORAMCO	1	321	0	0	321	178,358	178,359
VP RACING FUELS	1	0	0	0	0	0	0
METHANOL Total	9	34,260	5	0	34,265	1,125,768	2,716,545
METHYL METHACRYLATE							
BASF SEAFORD	1	246	0	0	246	188	357
DENTSPLY WEST PLANT	1	1,642	0	0	1,642	3,706	0
METHYL METHACRYLATE Total	2	1,888	0	0	1,888	3,894	357
N,N-DIMETHYLANILINE							
NORAMCO	1	0	0	0	0	10,023	0
N,N-DIMETHYLANILINE Total	1	0	0	0	0	10,023	0
N,N-DIMETHYLFORMAMIDE							
AIR LIQUIDE - MEDAL	1	19	0	0	19	40,447	0
ROHM & HAAS - B2 B3 B8	1	4,163	0	0	4,163	1,914,587	4,997,671
N,N-DIMETHYLFORMAMIDE Total	2	4,182	0	0	4,182	1,955,034	4,997,671
NAPHTHALENE							
CARL KING	1	0	0	0	0	0	0
CRODA	1	6	0	0	6	0	0
DELAWARE CITY REFINERY	1	1,378	5	0	1,383	0	2,102
DOVER AFB	1	150	0	0	150	0	0
INDIAN RIVER GENERATING STATION	1	0	0	0	0	0	0
SUNOCO	1	3	0	0	3	0	0
NAPHTHALENE Total	6	1,537	5	0	1,542	0	2,102

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FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
N-BUTYL ALCOHOL							
NORAMCO	1	10	0	0	10	519,742	519,742
N-BUTYL ALCOHOL Total	1	10	0	0	10	519,742	519,742
N-HEXANE							
AIR LIQUIDE - MEDAL	1	1,085	0	0	1,085	0	1,070,207
DELAWARE CITY REFINERY	1	13,503	5	0	13,508	0	36,397
HONEYWELL	1	4,990	0	0	4,990	13,395	174,960
SUNOCO	1	7,395	0	0	7,395	0	0
N-HEXANE Total	4	26,973	5	0	26,978	13,395	1,281,564
NICKEL							
CAMDEL METALS/HANDY TUBE	1	0	0	0	0	37,962	0
METAL MASTERS	1	1	0	0	1	48,396	0
NICKEL Total	2	1	0	0	1	86,358	0
NICKEL COMPOUNDS							
BALTIMORE AIRCOIL	1	1	0	0	1	222,542	0
DELAWARE CITY REFINERY	1	549	1,086	0	1,635	30,524	0
DUPONT EDGE MOOR	1	1	117	0	118	10,187	0
EVRAZ CLAYMONT STEEL	1	30	18	355	403	5,534	0
PRINCE MINERALS	1	0	0	0	0	0	0
SUNOCO	1	9	0	0	9	0	0
NICKEL COMPOUNDS Total	6	590	1,221	355	2,166	268,787	0
NITRATE COMPOUNDS							
ALLEN HARIM FOODS HARBESON	1	0	0	0	0	0	0
BASF NEWPORT	1	0	0	0	0	55,294	0
DELAWARE CITY REFINERY	1	0	974,323	0	974,323	0	0
FUJIFILM IMAGING COLORANTS	1	0	0	0	0	1,126	0
HANESBRANDS	1	0	0	0	0	53,540	0
PERDUE GEORGETOWN	1	0	246,503	0	246,503	0	0
NITRATE COMPOUNDS Total	6	0	1,220,826	0	1,220,826	109,960	0

Source: DNREC 2011 TRI Database, October, 2012
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
NITRIC ACID							
BASF NEWPORT	1	0	0	0	0	0	28,093
SPI PHARMA	1	0	0	0	0	0	0
NITRIC ACID Total	2	0	0	0	0	0	28,093
NITROBENZENE							
ORIENT	1	252	0	0	252	1	0
NITROBENZENE Total	1	252	0	0	252	1	0
N-METHYL-2-PYRROLIDONE							
AIR LIQUIDE - MEDAL	1	545	0	0	545	55,992	0
BASF NEWPORT	1	0	0	0	0	25,536	10
ROHM & HAAS - B5 B6	1	2,911	0	0	2,911	124,048	0
ROHM & HAAS - B7 B15	1	2,767	0	0	2,767	19,804	0
N-METHYL-2-PYRROLIDONE Total	4	6,223	0	0	6,223	225,380	10
OCTACHLOROSTYRENE							
DUPONT EDGE MOOR	1	0	0	0	0	3	0
OCTACHLOROSTYRENE Total	1	0	0	0	0	3	0
P-CHLOROANILINE							
BASF NEWPORT	1	7	0	0	7	15,762	359
P-CHLOROANILINE Total	1	7	0	0	7	15,762	359
PENTACHLOROBENZENE							
DUPONT EDGE MOOR	1	0	0	0	0	1	0
PENTACHLOROBENZENE Total	1	0	0	0	0	1	0
PERACETIC ACID							
PERDUE GEORGETOWN	1	0	0	0	0	0	14,462
PERDUE MILFORD	1	0	0	0	0	0	18,000
PERACETIC ACID Total	2	0	0	0	0	0	32,462

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
PHENANTHRENE							
DELAWARE CITY REFINERY	1	7	5	0	12	0	0
PHENANTHRENE Total	1	7	5	0	12	0	0
PHENOL							
DELAWARE CITY REFINERY	1	259	114	0	373	0	303,541
PHENOL Total	1	259	114	0	373	0	303,541
PHOSGENE							
DUPONT EDGE MOOR	1	359	0	0	359	0	165,815
PHOSGENE Total	1	359	0	0	359	0	165,815
PHTHALIC ANHYDRIDE							
ROHM & HAAS - B2 B3 B8	1	1	0	0	1	1,559	0
PHTHALIC ANHYDRIDE Total	1	1	0	0	1	1,559	0
POLYCHLORINATED BIPHENYLS							
DUPONT EDGE MOOR	1	0	0	0	0	6	0
POLYCHLORINATED BIPHENYLS Total	1	0	0	0	0	6	0
POLYCYCLIC AROMATIC COMPOUNDS							
DELAWARE CITY REFINERY	1	92	3	0	95	122	257
DUPONT EDGE MOOR	1	64	0	562	625	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	1	0	0	0	0	0	0
IKO WILMINGTON	1	0	0	0	0	49	280
INDIAN RIVER GENERATING STATION	1	1	0	0	1	0	0
MOUNTAIRE FARMS FRANKFORD MILL	1	1	0	0	1	0	0
MOUNTAIRE FARMS SELBYVILLE PLANT	1	23	0	0	23	0	0
PERDUE BRIDGEVILLE	1	0	0	0	0	0	0
PERDUE GEORGETOWN	1	0	0	0	0	0	0
PINNACLE FOODS	1	1	0	0	1	0	0
POLYCYCLIC AROMATIC COMPOUNDS Total	10	182	3	562	746	171	537

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
PROPYLENE							
DELAWARE CITY REFINERY	1	21,913	0	0	21,913	0	1,044,103
PROPYLENE Total	1	21,913	0	0	21,913	0	1,044,103
PROPYLENE OXIDE							
CRODA	1	549	0	0	549	0	0
PROPYLENE OXIDE Total	1	549	0	0	549	0	0
STYRENE							
BASF SEAFORD	1	309	0	0	309	349	805
DELAWARE CITY REFINERY	1	10	5	0	15	0	1
JUSTIN TANKS	1	11,494	0	0	11,494	278	0
STYRENE Total	3	11,813	5	0	11,818	627	806
SULFURIC ACID							
DELAWARE CITY REFINERY	1	68,400	0	0	68,400	0	0
DUPONT RED LION PLANT	1	2,963	0	0	2,963	0	0
INDIAN RIVER GENERATING STATION	1	36,000	0	0	36,000	0	180,000
NRG ENERGY CENTER-DOVER	1	9,604	0	0	9,604	0	20,885
SULFURIC ACID Total	4	116,967	0	0	116,967	0	200,885
TETRACHLOROETHYLENE							
DELAWARE CITY REFINERY	1	10	0	0	10	0	0
TETRACHLOROETHYLENE Total	1	10	0	0	10	0	0
TITANIUM TETRACHLORIDE							
DUPONT EDGE MOOR	1	22	0	0	22	0	1,199,985
TITANIUM TETRACHLORIDE Total	1	22	0	0	22	0	1,199,985

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
TOLUENE							
AGILENT TECHNOLOGIES NEWPORT	1	22	0	0	22	152,301	0
DELAWARE CITY REFINERY	1	13,053	5	0	13,058	1,578	82,514
DUPONT EDGE MOOR	1	1,371	0	0	1,371	58	0
NORAMCO	1	174	0	0	174	324,249	324,249
SERVICE ENERGY DOVER	1	0	0	0	0	0	0
SUNOCO	1	119	0	0	119	0	0
VP RACING FUELS	1	0	0	0	0	0	0
TOLUENE Total	7	14,739	5	0	14,744	478,186	406,763
TOLUENE DIISOCYANATE (MIXED ISOMERS)							
AEARO TECHNOLOGIES	1	4	0	0	4	250	0
MACDERMID	1	0	0	0	0	0	0
ROHM & HAAS - B5 B6	1	2	0	0	2	751	4,500
TOLUENE DIISOCYANATE (MIXED ISOMERS) Tot	3	6	0	0	6	1,001	4,500
TRICHLOROETHYLENE							
CAMDEL METALS/HANDY TUBE	1	12,804	0	0	12,804	9,903	0
TRICHLOROETHYLENE Total	1	12,804	0	0	12,804	9,903	0
VANADIUM COMPOUNDS							
DUPONT EDGE MOOR	1	1	23	0	24	167,161	0
INDIAN RIVER GENERATING STATION	1	255	5	27,000	27,260	0	0
VANADIUM COMPOUNDS Total	2	256	28	27,000	27,284	167,161	0
VINYL ACETATE							
FORMOSA PLASTICS	1	61,763	0	0	61,763	0	0
VINYL ACETATE Total	1	61,763	0	0	61,763	0	0
VINYL CHLORIDE							
FORMOSA PLASTICS	1	57,564	12	0	57,576	233	239,600
VINYL CHLORIDE Total	1	57,564	12	0	57,576	233	239,600

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APPENDIX F

2011 ON-SITE RELEASES BY CHEMICAL AND FACILITY

FACILITY/CHEMICAL	FORM A	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE TRANSFERS	ON-SITE WASTE MANAGEMENT
XYLENE							
SUNOCO	1	99	0	0	99	0	0
XYLENE Total	1	99	0	0	99	0	0
XYLENE (MIXED ISOMERS)							
ARLON	1	1,320	0	0	1,320	3,600	115,000
BASF NEWPORT	1	1,149	0	0	1,149	761	5,347
CARL KING	1	0	0	0	0	0	0
DELAWARE CITY REFINERY	1	5,749	5	0	5,754	2,458	54,043
DOVER AFB	1	150	0	0	150	0	0
VP RACING FUELS	1	0	0	0	0	0	0
XYLENE (MIXED ISOMERS) Total	**6**	**8,368**	**5**	**0**	**8,373**	**6,819**	**174,390**
ZINC COMPOUNDS							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
AMICK FARMS	1	0	0	0	0	0	0
DUPONT EDGE MOOR	1	14	45	0	59	14,465	0
EVRAZ CLAYMONT STEEL	1	2,273	184	294	2,751	2,105,012	0
MOUNTAIRE FARMS FRANKFORD MILL	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	1	0	0	0	0	0	0
ORIENT	1	0	0	0	0	0	0
PERDUE BRIDGEVILLE	1	0	0	0	0	0	0
PPG INDUSTRIES	1	255	0	0	255	5,487	0
V&S DELAWARE GALVANIZING	1	20	196	0	216	114,948	0
ZINC COMPOUNDS Total	**10**	**2,562**	**425**	**294**	**3,281**	**2,239,912**	**0**
STATE TOTALS	**243**	**2,417,599**	**1,230,737**	**278,669**	**3,927,005**	**13,769,699**	**55,733,427**

Source: DNREC 2011 TRI Database, October, 2012
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APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
1,2,4-TRIMETHYLBENZENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	9,396	9,396
DOVER AFB	0	0	0	0	0	0	0	0	0	0
CARL KING	0	0	0	0	0	0	0	0	0	0
GAC SEAFORD	0	0	0	0	0	0	0	0	0	0
SERVICE ENERGY DOVER	0	0	0	0	0	0	0	0	0	0
1,2,4-TRIMETHYLBENZENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,396**	**9,396**
1,3-BUTADIENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	5,985	5,985
1,3-BUTADIENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,985**	**5,985**
2,4-DIMETHYLPHENOL										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	262,037	262,037
2,4-DIMETHYLPHENOL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**262,037**	**262,037**
4,4'-METHYLENEBIS(2-CHLOROANILINE)										
ROHM & HAAS - B5 B6	0	0	0	0	0	0	0	0	0	0
ROHM & HAAS - B7 B15	0	0	0	0	0	0	0	0	0	0
4,4'-METHYLENEBIS(2-CHLOROANILINE) Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ACETONITRILE										
AGILENT TECHNOLOGIES NEWPORT	0	0	14,328	0	0	14,328	0	0	0	0
ACETONITRILE Total	**0**	**0**	**14,328**	**0**	**0**	**14,328**	**0**	**0**	**0**	**0**
AMMONIA										
BASF SEAFORD	749	0	0	0	64	813	0	0	6,742	6,742
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	6,817,367	14,285	6,831,652
EDGE MOOR/HAY ROAD ENERGY CENTERS	117	0	0	0	0	117	0	0	0	0
AIR LIQUIDE INDUSTRIAL	0	0	0	0	0	0	0	0	0	0
FORMOSA PLASTICS	0	0	0	0	0	0	0	0	0	0

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
HONEYWELL	53	0	0	0	0	53	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	850,000	850,000
PICTSWEET BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
AMMONIA Total	**919**	**0**	**0**	**0**	**64**	**983**	**0**	**6,817,367**	**871,027**	**7,688,394**
ANILINE										
BASF NEWPORT	23,252	0	116,873	77,520	1,163	218,808	0	0	1,313	1,313
ORIENT	300	0	0	0	54	354	62,000	0	16,000	78,000
ANILINE Total	**23,552**	**0**	**116,873**	**77,520**	**1,217**	**219,162**	**62,000**	**0**	**17,313**	**79,313**
ANTHRACENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
ANTHRACENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
ANTIMONY COMPOUNDS										
JOHNSON CONTROLS BATTERY PLANT	0	10,518	0	0	0	10,518	0	0	0	0
ANTIMONY COMPOUNDS Total	**0**	**10,518**	**0**	**0**	**0**	**10,518**	**0**	**0**	**0**	**0**
ARSENIC COMPOUNDS										
DUPONT EDGE MOOR	0	0	0	0	53	53	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL	0	0	0	0	0	0	0	0	0	0
ARSENIC COMPOUNDS Total	**0**	**0**	**0**	**0**	**53**	**53**	**0**	**0**	**0**	**0**
ASBESTOS (FRIABLE)										
DELAWARE CITY REFINERY	0	0	0	0	595,620	595,620	0	0	0	0
ASBESTOS (FRIABLE) Total	**0**	**0**	**0**	**0**	**595,620**	**595,620**	**0**	**0**	**0**	**0**
BARIUM COMPOUNDS										
DUPONT EDGE MOOR	0	0	0	0	12,833	12,833	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	17	17	0	0	0	0
PRINCE MINERALS	0	0	0	0	0	0	0	0	0	0
BARIUM COMPOUNDS Total	**0**	**0**	**0**	**0**	**12,850**	**12,850**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
BENZENE										
DELAWARE CITY REFINERY	0	199	848	45	1	1,093	0	73,585	23,201	96,786
SUNOCO	0	0	0	0	0	0	0	0	0	0
BENZENE Total	**0**	**199**	**848**	**45**	**1**	**1,093**	**0**	**73,585**	**23,201**	**96,786**
BENZO(G,H,I)PERYLENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	313	313
MOUNTAIRE FARMS SELBYVILLE PLANT	0	0	0	0	0	0	0	0	0	0
PERDUE GEORGETOWN	0	0	0	0	0	0	0	0	0	0
PINNACLE FOODS	0	0	0	0	0	0	0	0	0	0
BENZO(G,H,I)PERYLENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**313**	**313**
BIPHENYL										
BASF NEWPORT	17,386	0	182,485	120,054	869	320,794	0	0	2,321	2,321
BIPHENYL Total	**17,386**	**0**	**182,485**	**120,054**	**869**	**320,794**	**0**	**0**	**2,321**	**2,321**
BORON TRIFLUORIDE										
HONEYWELL	0	0	0	0	20	20	0	0	132,717	132,717
BORON TRIFLUORIDE Total	**0**	**0**	**0**	**0**	**20**	**20**	**0**	**0**	**132,717**	**132,717**
BUTYL ACRYLATE										
BASF SEAFORD	0	0	192	0	0	192	0	0	88	88
BUTYL ACRYLATE Total	**0**	**0**	**192**	**0**	**0**	**192**	**0**	**0**	**88**	**88**
CARBON DISULFIDE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	1,900,010	0	1,900,010
CARBON DISULFIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,900,010**	**0**	**1,900,010**
CARBONYL SULFIDE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	8,951,853	8,951,853
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	0	0
CARBONYL SULFIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8,951,853**	**8,951,853**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
CERTAIN GLYCOL ETHERS										
BASF SEAFORD	0	0	0	0	797	797	0	0	0	0
CRODA	1,417	0	0	0	0	1,417	0	0	0	0
HIRSH INDUSTRIES	0	0	0	0	0	0	0	0	0	0
PPG INDUSTRIES	1,277	0	5	0	500	1,782	0	0	0	0
CERTAIN GLYCOL ETHERS Total	**2,694**	**0**	**5**	**0**	**1,297**	**3,996**	**0**	**0**	**0**	**0**
CHLORINE										
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	3,386,198	3,386,198
KUEHNE	0	0	0	0	0	0	0	0	0	0
SPI PHARMA	0	0	0	0	0	0	0	0	0	0
CHLORINE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,386,198**	**3,386,198**
CHROMIUM										
CAMDEL METALS/HANDY TUBE	0	40,766	0	0	365	41,131	0	0	0	0
METAL MASTERS	0	148,104	0	0	295	148,399	0	0	0	0
CHROMIUM Total	**0**	**188,870**	**0**	**0**	**660**	**189,530**	**0**	**0**	**0**	**0**
CHROMIUM COMPOUNDS										
DUPONT EDGE MOOR	0	0	0	0	141,358	141,358	0	0	0	0
EVRAZ CLAYMONT STEEL	0	33,832	0	0	2,090	35,922	0	0	0	0
BALTIMORE AIRCOIL	0	195,276	0	0	0	195,276	0	0	0	0
CHROME DEPOSIT	0	1,400	0	0	630	2,030	900	0	0	900
ORIENT	0	0	0	0	0	0	0	0	0	0
CHROMIUM COMPOUNDS Total	**0**	**230,508**	**0**	**0**	**144,078**	**374,586**	**900**	**0**	**0**	**900**
COBALT COMPOUNDS										
DUPONT EDGE MOOR	0	0	0	0	3,200	3,200	0	0	0	0
COBALT COMPOUNDS Total	**0**	**0**	**0**	**0**	**3,200**	**3,200**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
COPPER										
ARLON	0	4,500	0	0	200	4,700	0	0	0	0
COPPER Total	**0**	**4,500**	**0**	**0**	**200**	**4,700**	**0**	**0**	**0**	**0**
COPPER COMPOUNDS										
AMICK FARMS	0	0	0	0	0	0	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	937	937	0	0	0	0
EVRAZ CLAYMONT STEEL	0	38,610	0	0	2,737	41,347	0	0	0	0
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	0	0	0	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL	0	0	0	0	0	0	0	0	0	0
COPPER COMPOUNDS Total	**0**	**38,610**	**0**	**0**	**3,674**	**42,284**	**0**	**0**	**0**	**0**
CREOSOTE										
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	0	0
CREOSOTE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CRESOL (MIXED ISOMERS)										
DELAWARE CITY REFINERY	0	0	120	8	1	129	0	18,691	313,521	332,212
CRESOL (MIXED ISOMERS) Total	**0**	**0**	**120**	**8**	**1**	**129**	**0**	**18,691**	**313,521**	**332,212**
CUMENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	628	628
DOVER AFB	0	0	0	0	0	0	0	0	0	0
CUMENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**628**	**628**
CYANIDE COMPOUNDS										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	160,863	85,673	246,536
CYANIDE COMPOUNDS Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**160,863**	**85,673**	**246,536**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
CYCLOHEXANE										
BASF NEWPORT	0	20,559	0	0	0	20,559	0	0	3,458	3,458
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	1,041	1,041
CYCLOHEXANE Total	**0**	**20,559**	**0**	**0**	**0**	**20,559**	**0**	**0**	**4,499**	**4,499**
DICHLOROMETHANE										
NORAMCO	1,212	0	119,991	0	0	121,203	0	0	121,203	121,203
DICHLOROMETHANE Total	**1,212**	**0**	**119,991**	**0**	**0**	**121,203**	**0**	**0**	**121,203**	**121,203**
DIETHANOLAMINE										
CRODA	38	0	0	0	0	38	0	0	0	0
DIETHANOLAMINE Total	**38**	**0**	**0**	**0**	**0**	**38**	**0**	**0**	**0**	**0**
DIISOCYANATES										
AEARO TECHNOLOGIES	0	0	0	750	0	750	0	0	0	0
ROHM & HAAS - B2 B3 B8	0	0	0	0	0	0	0	0	0	0
ROHM & HAAS - B5 B6	0	0	0	3,338	0	3,338	0	0	0	0
DIISOCYANATES Total	**0**	**0**	**0**	**4,088**	**0**	**4,088**	**0**	**0**	**0**	**0**
DIOXIN AND DIOXIN-LIKE COMPOUNDS										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	1	1	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	0	0	0	0	0	0	0	0	0
EVRAZ CLAYMONT STEEL	0	0	0	0	0	0	0	0	0	0
FORMOSA PLASTICS	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS Total	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**
ETHYL ACRYLATE										
BASF SEAFORD	0	0	188	0	0	188	0	0	10	10
ETHYL ACRYLATE Total	**0**	**0**	**188**	**0**	**0**	**188**	**0**	**0**	**10**	**10**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
ETHYLBENZENE										
ARLON	0	0	0	640	0	640	0	0	29,000	29,000
DELAWARE CITY REFINERY	0	5	47	22	0	74	0	0	9,368	9,368
DOVER AFB	0	0	0	0	0	0	0	0	0	0
ETHYLBENZENE Total	**0**	**5**	**47**	**662**	**0**	**714**	**0**	**0**	**38,368**	**38,368**
ETHYLENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	214,925	214,925
ETHYLENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**214,925**	**214,925**
ETHYLENE GLYCOL										
FUJIFILM IMAGING COLORANTS	91	0	182	0	0	273	0	0	0	0
PPG INDUSTRIES	2,071	0	250	0	505	2,826	0	0	0	0
ETHYLENE GLYCOL Total	**2,162**	**0**	**432**	**0**	**505**	**3,099**	**0**	**0**	**0**	**0**
ETHYLENE OXIDE										
CRODA	0	0	0	0	0	0	0	0	0	0
ETHYLENE OXIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
FORMIC ACID										
NORAMCO	0	0	0	0	0	0	0	0	0	0
FORMIC ACID Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HEXACHLOROBENZENE										
DUPONT EDGE MOOR	0	0	0	0	62	62	0	0	0	0
HEXACHLOROBENZENE Total	**0**	**0**	**0**	**0**	**62**	**62**	**0**	**0**	**0**	**0**
HYDROCHLORIC ACID										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	90,931	90,931
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	18,627,140	18,627,140
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
NRG ENERGY CENTER-DOVER	0	0	0	0	0	0	0	0	0	0
HYDROCHLORIC ACID Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18,718,071**	**18,718,071**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
HYDROGEN CYANIDE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	160,863	49,884	210,747
HYDROGEN CYANIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**160,863**	**49,884**	**210,747**
HYDROGEN FLUORIDE										
HONEYWELL	0	0	0	0	0	0	0	0	87	87
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	10,000	10,000
HYDROGEN FLUORIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10,087**	**10,087**
LEAD										
V&S DELAWARE GALVANIZING	0	2,996	0	0	143	3,139	0	0	0	0
MOTECH AMERICAS	0	69	0	0	10	79	0	0	0	0
LEAD Total	**0**	**3,065**	**0**	**0**	**153**	**3,218**	**0**	**0**	**0**	**0**
LEAD COMPOUNDS										
DELAWARE CITY REFINERY	0	0	0	0	57	57	0	0	0	0
DOVER AFB	0	2,951	0	0	206	3,157	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	15,605	15,605	0	0	0	0
EVRAZ CLAYMONT STEEL	0	247,929	0	0	88	248,017	0	0	0	0
SUNOCO	0	0	0	0	0	0	0	0	0	0
VP RACING FUELS	0	12	0	0	2	14	0	0	0	0
CHROME DEPOSIT	0	4,700	0	0	3,100	7,800	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
INSTEEL WIRE PRODUCTS	0	27	0	0	0	27	0	0	0	0
JOHNSON CONTROLS BATTERY PLANT	7	2,705,418	0	0	200	2,705,625	0	0	0	0
NRG ENERGY CENTER-DOVER	0	0	0	0	28	28	0	0	0	0
PRINCE MINERALS	0	0	0	0	1	1	0	0	0	0
JOHNSON CONTROLS DIST. CENTER	0	0	0	0	0	0	0	0	0	0
LEAD COMPOUNDS Total	**7**	**2,961,037**	**0**	**0**	**19,287**	**2,980,331**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
MANGANESE										
COLOR WORKS PAINTING	0	591	0	0	0	591	0	0	0	0
CAMDEL METALS/HANDY TUBE	0	4,114	0	0	33	4,147	0	0	0	0
MANGANESE Total	**0**	**4,705**	**0**	**0**	**33**	**4,738**	**0**	**0**	**0**	**0**
MANGANESE COMPOUNDS										
AMICK FARMS	0	0	0	0	0	0	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	1,232,226	1,232,226	0	0	0	0
EVRAZ CLAYMONT STEEL	0	238,890	0	0	10,358	249,248	0	0	0	0
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
BALTIMORE AIRCOIL	0	111,789	0	0	0	111,789	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	0	0	0	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
PRINCE MINERALS	0	0	0	0	70	70	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL	0	0	0	0	0	0	0	0	0	0
MANGANESE COMPOUNDS Total	**0**	**350,679**	**0**	**0**	**1,242,654**	**1,593,333**	**0**	**0**	**0**	**0**
MERCURY										
DENTSPLY MAIN PLANT	0	4,380	0	0	0	4,380	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	1	0	0	0	1	1	0	0	0	0
OCCIDENTAL CHEMICAL	0	0	0	0	0	0	0	0	0	0
MERCURY Total	**1**	**4,380**	**0**	**0**	**1**	**4,381**	**0**	**0**	**0**	**0**
MERCURY COMPOUNDS										
DELAWARE CITY REFINERY	0	0	0	0	8	8	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	9	9	0	0	0	0
EVRAZ CLAYMONT STEEL	0	0	0	0	3	3	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
INTERVET	0	0	0	0	0	0	0	0	0	0
NRG ENERGY CENTER-DOVER	0	0	0	0	1	1	0	0	0	0
MERCURY COMPOUNDS Total	**0**	**0**	**0**	**0**	**21**	**22**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
METHANOL										
BASF NEWPORT	682,621	115,478	3,189	0	34,131	835,419	420,750	0	825,070	1,245,820
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
DENTSPLY WEST PLANT	120	0	9,225	0	0	9,345	0	0	0	0
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
AGILENT TECHNOLOGIES NEWPORT	0	0	36,940	114	0	37,054	0	0	0	0
AIR LIQUIDE - MEDAL	0	0	0	37,697	0	37,697	1,292,306	0	0	1,292,306
CRODA	6,025	0	21,250	0	0	27,275	0	0	0	0
HONEYWELL	60	0	560	0	0	620	0	0	60	60
NORAMCO	8,917	0	169,441	0	0	178,358	0	0	178,359	178,359
METHANOL Total	**697,743**	**115,478**	**240,605**	**37,811**	**34,131**	**1,125,768**	**1,713,056**	**0**	**1,003,489**	**2,716,545**
METHYL METHACRYLATE										
BASF SEAFORD	0	0	188	0	0	188	0	0	357	357
DENTSPLY WEST PLANT	66	0	3,640	0	0	3,706	0	0	0	0
METHYL METHACRYLATE Total	**66**	**0**	**3,828**	**0**	**0**	**3,894**	**0**	**0**	**357**	**357**
N,N-DIMETHYLANILINE										
NORAMCO	10,023	0	0	0	0	10,023	0	0	0	0
N,N-DIMETHYLANILINE Total	**10,023**	**0**	**0**	**0**	**0**	**10,023**	**0**	**0**	**0**	**0**
N,N-DIMETHYLFORMAMIDE										
AIR LIQUIDE - MEDAL	38,987	0	0	1,460	0	40,447	0	0	0	0
ROHM & HAAS - B2 B3 B8	83,973	1,386,774	441,657	2,183	0	1,914,587	4,996,921	0	750	4,997,671
N,N-DIMETHYLFORMAMIDE Total	**122,960**	**1,386,774**	**441,657**	**3,643**	**0**	**1,955,034**	**4,996,921**	**0**	**750**	**4,997,671**
NAPHTHALENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	2,102	2,102
DOVER AFB	0	0	0	0	0	0	0	0	0	0
SUNOCO	0	0	0	0	0	0	0	0	0	0
CARL KING	0	0	0	0	0	0	0	0	0	0
CRODA	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
NAPHTHALENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,102**	**2,102**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
N-BUTYL ALCOHOL										
NORAMCO	25,987	0	493,755	0	0	519,742	0	0	519,742	519,742
N-BUTYL ALCOHOL Total	**25,987**	**0**	**493,755**	**0**	**0**	**519,742**	**0**	**0**	**519,742**	**519,742**
N-HEXANE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	36,397	36,397
SUNOCO	0	0	0	0	0	0	0	0	0	0
AIR LIQUIDE - MEDAL	0	0	0	0	0	0	1,070,207	0	0	1,070,207
HONEYWELL	5	0	11,760	400	1,230	13,395	131,220	0	43,740	174,960
N-HEXANE Total	**5**	**0**	**11,760**	**400**	**1,230**	**13,395**	**1,201,427**	**0**	**80,137**	**1,281,564**
NICKEL										
CAMDEL METALS/HANDY TUBE	0	37,397	0	0	565	37,962	0	0	0	0
METAL MASTERS	0	47,609	0	0	787	48,396	0	0	0	0
NICKEL Total	**0**	**85,006**	**0**	**0**	**1,352**	**86,358**	**0**	**0**	**0**	**0**
NICKEL COMPOUNDS										
DELAWARE CITY REFINERY	0	30,231	0	0	293	30,524	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	10,187	10,187	0	0	0	0
EVRAZ CLAYMONT STEEL	0	4,223	0	0	1,311	5,534	0	0	0	0
SUNOCO	0	0	0	0	0	0	0	0	0	0
BALTIMORE AIRCOIL	0	222,542	0	0	0	222,542	0	0	0	0
PRINCE MINERALS	0	0	0	0	0	0	0	0	0	0
NICKEL COMPOUNDS Total	**0**	**256,996**	**0**	**0**	**11,791**	**268,787**	**0**	**0**	**0**	**0**
NITRATE COMPOUNDS										
BASF NEWPORT	27,647	0	0	0	27,647	55,294	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
HANESBRANDS	53,540	0	0	0	0	53,540	0	0	0	0
ALLEN HARIM FOODS HARBESON	0	0	0	0	0	0	0	0	0	0
FUJIFILM IMAGING COLORANTS	751	0	375	0	0	1,126	0	0	0	0
PERDUE GEORGETOWN	0	0	0	0	0	0	0	0	0	0
NITRATE COMPOUNDS Total	**81,938**	**0**	**375**	**0**	**27,647**	**109,960**	**0**	**0**	**0**	**0**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
NITRIC ACID										
BASF NEWPORT	0	0	0	0	0	0	0	0	28,093	28,093
SPI PHARMA	0	0	0	0	0	0	0	0	0	0
NITRIC ACID Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**28,093**	**28,093**
NITROBENZENE										
ORIENT	0	0	0	0	1	1	0	0	0	0
NITROBENZENE Total	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**
N-METHYL-2-PYRROLIDONE										
BASF NEWPORT	1,043	24,441	0	0	52	25,536	0	0	10	10
AIR LIQUIDE - MEDAL	50,962	0	0	5,030	0	55,992	0	0	0	0
ROHM & HAAS - B5 B6	0	122,094	0	1,954	0	124,048	0	0	0	0
ROHM & HAAS - B7 B15	0	19,592	0	212	0	19,804	0	0	0	0
N-METHYL-2-PYRROLIDONE Total	**52,005**	**166,127**	**0**	**7,196**	**52**	**225,380**	**0**	**0**	**10**	**10**
OCTACHLOROSTYRENE										
DUPONT EDGE MOOR	0	0	0	0	3	3	0	0	0	0
OCTACHLOROSTYRENE Total	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**0**
P-CHLOROANILINE										
BASF NEWPORT	2,718	0	7,408	5,500	136	15,762	0	0	359	359
P-CHLOROANILINE Total	**2,718**	**0**	**7,408**	**5,500**	**136**	**15,762**	**0**	**0**	**359**	**359**
PENTACHLOROBENZENE										
DUPONT EDGE MOOR	0	0	0	0	1	1	0	0	0	0
PENTACHLOROBENZENE Total	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**
PERACETIC ACID										
PERDUE GEORGETOWN	0	0	0	0	0	0	0	0	14,462	14,462
PERDUE MILFORD	0	0	0	0	0	0	0	0	18,000	18,000
PERACETIC ACID Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**32,462**	**32,462**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
PHENANTHRENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
PHENANTHRENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHENOL										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	41,504	262,037	303,541
PHENOL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**41,504**	**262,037**	**303,541**
PHOSGENE										
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	165,815	165,815
PHOSGENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**165,815**	**165,815**
PHTHALIC ANHYDRIDE										
ROHM & HAAS - B2 B3 B8	1,300	0	0	259	0	1,559	0	0	0	0
PHTHALIC ANHYDRIDE Total	**1,300**	**0**	**0**	**259**	**0**	**1,559**	**0**	**0**	**0**	**0**
POLYCHLORINATED BIPHENYLS										
DUPONT EDGE MOOR	0	0	0	0	6	6	0	0	0	0
POLYCHLORINATED BIPHENYLS Total	**0**	**0**	**0**	**0**	**6**	**6**	**0**	**0**	**0**	**0**
POLYCYCLIC AROMATIC COMPOUNDS										
DELAWARE CITY REFINERY	0	122	0	0	0	122	0	0	257	257
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	0	0	0	0	0	0	0	0	0
IKO WILMINGTON	0	27	0	0	22	49	280	0	0	280
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS SELBYVILLE PLANT	0	0	0	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
PERDUE GEORGETOWN	0	0	0	0	0	0	0	0	0	0
PINNACLE FOODS	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL	0	0	0	0	0	0	0	0	0	0
POLYCYCLIC AROMATIC COMPOUNDS Total	**0**	**148**	**0**	**0**	**22**	**171**	**280**	**0**	**257**	**537**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
PROPYLENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	1,044,103	1,044,103
PROPYLENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,044,103**	**1,044,103**
PROPYLENE OXIDE										
CRODA	0	0	0	0	0	0	0	0	0	0
PROPYLENE OXIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
STYRENE										
BASF SEAFORD	0	0	349	0	0	349	0	0	805	805
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	1	1
JUSTIN TANKS	0	0	0	278	0	278	0	0	0	0
STYRENE Total	**0**	**0**	**349**	**278**	**0**	**627**	**0**	**0**	**806**	**806**
SULFURIC ACID										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
DUPONT RED LION PLANT	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	180,000	180,000
NRG ENERGY CENTER-DOVER	0	0	0	0	0	0	0	0	20,885	20,885
SULFURIC ACID Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**200,885**	**200,885**
TETRACHLOROETHYLENE										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
TETRACHLOROETHYLENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TITANIUM TETRACHLORIDE										
DUPONT EDGE MOOR	0	0	0	0	0	0	0	0	1,199,985	1,199,985
TITANIUM TETRACHLORIDE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,199,985**	**1,199,985**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
TOLUENE										
DELAWARE CITY REFINERY	0	2	1,512	64	0	1,578	0	0	82,514	82,514
DUPONT EDGE MOOR	0	52	0	6	0	58	0	0	0	0
SUNOCO	0	0	0	0	0	0	0	0	0	0
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
AGILENT TECHNOLOGIES NEWPORT	0	0	149,871	2,430	0	152,301	0	0	0	0
NORAMCO	3,242	0	321,007	0	0	324,249	0	0	324,249	324,249
SERVICE ENERGY DOVER	0	0	0	0	0	0	0	0	0	0
TOLUENE Total	**3,242**	**54**	**472,390**	**2,500**	**0**	**478,186**	**0**	**0**	**406,763**	**406,763**
TOLUENE DIISOCYANATE (MIXED ISOMERS)										
AEARO TECHNOLOGIES	0	0	0	250	0	250	0	0	0	0
MACDERMID	0	0	0	0	0	0	0	0	0	0
ROHM & HAAS - B5 B6	0	0	0	751	0	751	0	0	4,500	4,500
TOLUENE DIISOCYANATE (MIXED ISOMERS) Total	**0**	**0**	**0**	**1,001**	**0**	**1,001**	**0**	**0**	**4,500**	**4,500**
TRICHLOROETHYLENE										
CAMDEL METALS/HANDY TUBE	0	0	0	9,903	0	9,903	0	0	0	0
TRICHLOROETHYLENE Total	**0**	**0**	**0**	**9,903**	**0**	**9,903**	**0**	**0**	**0**	**0**
VANADIUM COMPOUNDS										
DUPONT EDGE MOOR	0	0	0	0	167,161	167,161	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
VANADIUM COMPOUNDS Total	**0**	**0**	**0**	**0**	**167,161**	**167,161**	**0**	**0**	**0**	**0**
VINYL ACETATE										
FORMOSA PLASTICS	0	0	0	0	0	0	0	0	0	0
VINYL ACETATE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
VINYL CHLORIDE										
FORMOSA PLASTICS	0	106	0	0	127	233	0	0	239,600	239,600
VINYL CHLORIDE Total	**0**	**106**	**0**	**0**	**127**	**233**	**0**	**0**	**239,600**	**239,600**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX G

2011 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
CHEMICAL/FACILITY	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
XYLENE										
SUNOCO	0	0	0	0	0	0	0	0	0	0
XYLENE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
XYLENE (MIXED ISOMERS)										
ARLON	0	0	0	3,600	0	3,600	0	0	115,000	115,000
BASF NEWPORT	264	0	311	173	13	761	0	0	5,347	5,347
DELAWARE CITY REFINERY	0	25	2,347	86	0	2,458	0	0	54,043	54,043
DOVER AFB	0	0	0	0	0	0	0	0	0	0
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
CARL KING	0	0	0	0	0	0	0	0	0	0
XYLENE (MIXED ISOMERS) Total	**264**	**25**	**2,658**	**3,859**	**13**	**6,819**	**0**	**0**	**174,390**	**174,390**
ZINC COMPOUNDS										
AMICK FARMS	0	0	0	0	0	0	0	0	0	0
DUPONT EDGE MOOR	0	0	0	0	14,465	14,465	0	0	0	0
EVRAZ CLAYMONT STEEL	0	2,104,812	0	0	200	2,105,012	0	0	0	0
V&S DELAWARE GALVANIZING	0	95,537	0	0	19,411	114,948	0	0	0	0
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	0	0	0	0	0	0	0	0	0	0
ORIENT	0	0	0	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
PPG INDUSTRIES	2,366	0	0	0	3,121	5,487	0	0	0	0
MOUNTAIRE FARMS FRANKFORD MILL	0	0	0	0	0	0	0	0	0	0
ZINC COMPOUNDS Total	**2,366**	**2,200,349**	**0**	**0**	**37,197**	**2,239,912**	**0**	**0**	**0**	**0**
STATE TOTALS	**1,048,588**	**8,028,698**	**2,110,293**	**274,727**	**2,307,392**	**13,769,699**	**7,974,584**	**9,172,883**	**38,585,960**	**55,733,427**

Source: DNREC 2011 TRI Database, October, 2012

All Amounts Are in Pounds

APPENDIX H

2011 ON-SITE RELEASE SUMMARY BY CHEMICAL

89 CHEMICALS - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS	ON-SITE
	TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE	WASTE MGMT.
HYDROCHLORIC ACID	1,607,093	0	0	1,607,093	0	18,718,071
NITRATE COMPOUNDS	0	1,220,826	0	1,220,826	109,960	0
CARBONYL SULFIDE	198,079	0	0	198,079	0	8,951,853
BARIUM COMPOUNDS	1,407	2,716	190,000	194,123	12,850	0
SULFURIC ACID	116,967	0	0	116,967	0	200,885
HYDROGEN FLUORIDE	90,544	0	0	90,544	0	10,087
AMMONIA	85,579	2,171	0	87,750	983	7,688,394
VINYL ACETATE	61,763	0	0	61,763	0	0
VINYL CHLORIDE	57,564	12	0	57,576	233	239,600
MANGANESE COMPOUNDS	844	985	42,219	44,048	1,593,333	0
METHANOL	34,260	5	0	34,265	1,125,768	2,716,545
VANADIUM COMPOUNDS	256	28	27,000	27,284	167,161	0
N-HEXANE	26,973	5	0	26,978	13,395	1,281,564
PROPYLENE	21,913	0	0	21,913	0	1,044,103
TOLUENE	14,739	5	0	14,744	478,186	406,763
TRICHLOROETHYLENE	12,804	0	0	12,804	9,903	0
LEAD COMPOUNDS	1,927	118	10,561	12,606	2,980,331	0
STYRENE	11,813	5	0	11,818	627	806
BENZENE	9,729	5	0	9,734	1,093	96,786
XYLENE (MIXED ISOMERS)	8,368	5	0	8,373	6,819	174,390
CREOSOTE	782	0	6,897	7,679	0	0
N-METHYL-2-PYRROLIDONE	6,223	0	0	6,223	225,380	10
ANILINE	5,731	0	0	5,731	219,162	79,313
CERTAIN GLYCOL ETHERS	5,283	0	0	5,283	3,996	0
HYDROGEN CYANIDE	4,736	504	0	5,240	0	210,747
N,N-DIMETHYLFORMAMIDE	4,182	0	0	4,182	1,955,034	4,997,671
CHLORINE	3,792	0	0	3,792	0	3,386,198
ETHYLENE	3,701	0	0	3,701	0	214,925
ZINC COMPOUNDS	2,562	425	294	3,281	2,239,912	0
ETHYLBENZENE	2,440	5	0	2,445	714	38,368
DICHLOROMETHANE	2,216	0	0	2,216	121,203	121,203
NICKEL COMPOUNDS	590	1,221	355	2,166	268,787	0
ETHYLENE OXIDE	2,027	0	0	2,027	0	0
METHYL METHACRYLATE	1,888	0	0	1,888	3,894	357
NAPHTHALENE	1,537	5	0	1,542	0	2,102
CYCLOHEXANE	1,305	5	0	1,310	20,559	4,499
CYANIDE COMPOUNDS	379	866	0	1,245	0	246,536
1,2,4-TRIMETHYLBENZENE	1,134	5	0	1,139	0	9,396
COPPER COMPOUNDS	147	243	495	885	42,284	0
POLYCYCLIC AROMATIC COMPOUNDS	182	3	562	746	171	537
PROPYLENE OXIDE	549	0	0	549	0	0
1,3-BUTADIENE	525	0	0	525	0	5,985
BORON TRIFLUORIDE	461	0	0	461	20	132,717
CUMENE	379	5	0	384	0	628
PHENOL	259	114	0	373	0	303,541

APPENDIX H

2011 ON-SITE RELEASE SUMMARY BY CHEMICAL

89 CHEMICALS - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS OFF-SITE	ON-SITE WASTE MGMT.
	TO AIR	TO WATER	TO LAND	TOTAL		
CHROMIUM COMPOUNDS	123	49	197	369	374,586	900
PHOSGENE	359	0	0	359	0	165,815
CARBON DISULFIDE	343	0	0	343	0	1,900,010
NITROBENZENE	252	0	0	252	1	0
CRESOL (MIXED ISOMERS)	10	228	0	238	129	332,212
MERCURY COMPOUNDS	121	1	89	211	22	0
ETHYL ACRYLATE	199	0	0	199	188	10
BUTYL ACRYLATE	181	0	0	181	192	88
BIPHENYL	120	0	0	120	320,794	2,321
2,4-DIMETHYLPHENOL	0	114	0	114	0	262,037
XYLENE	99	0	0	99	0	0
ACETONITRILE	33	0	0	33	14,328	0
ARSENIC COMPOUNDS	0	31	0	31	53	0
TITANIUM TETRACHLORIDE	22	0	0	22	0	1,199,985
MERCURY	18	0	0	18.19	4,381	0
ANTHRACENE	10	5	0	15	0	0
PHENANTHRENE	7	5	0	12	0	0
FORMIC ACID	10	0	0	10	0	0
N-BUTYL ALCOHOL	10	0	0	10	519,742	519,742
TETRACHLOROETHYLENE	10	0	0	10	0	0
LEAD	2	6	0	8	3,218	0
P-CHLOROANILINE	7	0	0	7	15,762	359
COBALT COMPOUNDS	0	7	0	7	3,200	0
ETHYLENE GLYCOL	6	0	0	6	3,099	0
TOLUENE DIISOCYANATE (MIXED ISOMERS)	6	0	0	6	1,001	4,500
BENZO(G,H,I)PERYLENE	3	3	0	6	0	313
COPPER	5	0	0	5	4,700	0
DIISOCYANATES	5	0	0	5	4,088	0
DIETHANOLAMINE	4	0	0	4	38	0
PHTHALIC ANHYDRIDE	1.00	0.00	0.00	1.00	1,559	0
CHROMIUM	0.50	0.00	0.00	0.50	189,530	0
NICKEL	0.50	0.00	0.00	0.50	86,358	0
PENTACHLOROBENZENE	0.1147	0.1000	0.0000	0.2147	1.4	0
HEXACHLOROBENZENE	0.1031	0.1108	0.0000	0.2139	62	0
DIOXIN AND DIOXIN-LIKE COMPOUNDS	0.0224	0.0031	0.0000	0.0255	1.5	0
POLYCHLORINATED BIPHENYLS	0.0057	0.0061	0.0000	0.0117	5.7	0
OCTACHLOROSTYRENE	0.0007	0.0000	0.0000	0.0007	2.9	0
ANTIMONY COMPOUNDS	0	0	0	0	10,518	0
ASBESTOS (FRIABLE)	0	0	0	0	595,620	0
4,4'-METHYLENEBIS(2-CHLOROANILINE)	0	0	0	0	0	0
N,N-DIMETHYLANILINE	0	0	0	0	10,023	0
MANGANESE	0	0	0	0	4,738	0
NITRIC ACID	0	0	0	0	0	28,093
PERACETIC ACID	0	0	0	0	0	32,462
STATE TOTALS	**2,417,599**	**1,230,737**	**278,669**	**3,927,005**	**13,769,699**	**55,733,427**

All amounts are in pounds

Source: DNREC 2011 TRI Database, October, 2012

APPENDIX I

2011 PBT RELEASE AND TRANSFER DETAIL

PBT CHEMICAL / FACILITY	ON-SITE RELEASES AIR	WATER	LAND	TOTAL	TRANSFERS OFF SITE	ON-SITE WASTE MGMT.
BENZO(G,H,I)PERYLENE						
DELAWARE CITY REFINERY	2.00	3.20	0.00	5.20	0.00	313.00
MOUNTAIRE FARMS SELBYVILLE PLANT	0.50	0.00	0.00	0.50	0.00	0.00
PERDUE GEORGETOWN	0.00	0.00	0.00	0.00	0.00	0.00
PINNACLE FOODS	0.00	0.00	0.00	0.00	0.00	0.00
BENZO(G,H,I)PERYLENE Total	**2.50**	**3.20**	**0.00**	**5.70**	**0.00**	**313.00**
DIOXIN AND DIOXIN-LIKE COMPOUNDS						
DELAWARE CITY REFINERY	0.000509	0.000000	0.000000	0.000509	0.000000	0.000509
DUPONT EDGE MOOR	0.000101	0.003146	0.000000	0.003247	1.475000	0.000000
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.005934	0.000000	0.000000	0.005934	0.000000	0.000000
EVRAZ CLAYMONT STEEL	0.015539	0.000000	0.000000	0.015539	0.000000	0.000000
FORMOSA PLASTICS	0.000011	0.000000	0.000000	0.000011	0.000271	0.000000
INDIAN RIVER GENERATING STATION	0.000287	0.000000	0.000000	0.000287	0.000000	0.000000
DIOXIN AND DIOXIN-LIKE COMPOUNDS Total	**0.022382**	**0.003146**	**0.000000**	**0.025528**	**1.475271**	**0.000509**
HEXACHLOROBENZENE						
DUPONT EDGE MOOR	0.10	0.11	0.00	0.21	62.00	0.00
HEXACHLOROBENZENE Total	**0.10**	**0.11**	**0.00**	**0.21**	**62.00**	**0.00**
LEAD						
MOTECH AMERICAS	0.00	0.00	0.00	0.00	79.00	0.00
V&S DELAWARE GALVANIZING	1.90	6.20	0.00	8.10	3,139.00	0.00
LEAD Total	**1.90**	**6.20**	**0.00**	**8.10**	**3,218.00**	**0.00**
LEAD COMPOUNDS						
CHROME DEPOSIT	0.00	0.00	0.00	0.00	7,800.00	0.00
DELAWARE CITY REFINERY	53.70	1.70	0.00	55.40	57.00	0.00
DOVER AFB	1,073.00	0.00	0.00	1,073.00	3,157.00	0.00
DUPONT EDGE MOOR	0.00	43.40	0.00	43.40	15,605.30	0.00
EVRAZ CLAYMONT STEEL	462.00	63.03	71.00	596.03	248,017.00	0.00
INDIAN RIVER GENERATING STATION	216.30	0.00	10,490.00	10,706.30	0.00	0.00
INSTEEL WIRE PRODUCTS	0.00	0.00	0.00	0.00	27.00	0.00
JOHNSON CONTROLS BATTERY PLANT	115.10	10.10	0.00	125.20	2,705,625.04	0.00
JOHNSON CONTROLS DIST. CENTER	0.00	0.00	0.00	0.00	0.04	0.00
NRG ENERGY CENTER-DOVER	2.20	0.00	0.00	2.20	28.00	0.00
PRINCE MINERALS	0.90	0.00	0.00	0.90	1.00	0.00
SUNOCO	3.00	0.00	0.00	3.00	0.00	0.00
VP RACING FUELS	1.05	0.00	0.00	1.05	14.00	0.00
LEAD COMPOUNDS Total	**1,927.26**	**118.23**	**10,561.00**	**12,606.49**	**2,980,331.38**	**0.00**

Source: DNREC TRI 2011 Database, October 2012.
All Amounts are in Pounds.

APPENDIX I

2011 PBT RELEASE AND TRANSFER DETAIL

PBT CHEMICAL / FACILITY	ON-SITE RELEASES AIR	WATER	LAND	TOTAL	TRANSFERS OFF SITE	ON-SITE WASTE MGMT.
MERCURY						
DENTSPLY MAIN PLANT	0.31	0.00	0.00	0.31	4,379.97	0.00
EDGE MOOR/HAY ROAD ENERGY CENTERS	17.80	0.00	0.00	17.80	1.40	0.00
OCCIDENTAL CHEMICAL	0.00	0.07	0.00	0.07	0.00	0.00
MERCURY Total	**18.11**	**0.08**	**0.00**	**18.19**	**4,381.37**	**0.00**
MERCURY COMPOUNDS						
DELAWARE CITY REFINERY	21.80	1.00	0.00	22.80	8.40	0.00
DUPONT EDGE MOOR	1.00	0.20	0.00	1.20	9.10	0.00
EVRAZ CLAYMONT STEEL	83.50	0.00	0.00	83.50	3.23	0.00
INDIAN RIVER GENERATING STATION	8.00	0.00	89.00	97.00	0.00	0.00
INTERVET	0.00	0.00	0.00	0.00	0.39	0.00
NRG ENERGY CENTER-DOVER	6.70	0.00	0.00	6.70	0.50	0.00
MERCURY COMPOUNDS Total	**121.00**	**1.20**	**89.00**	**211.20**	**21.62**	**0.00**
OCTACHLOROSTYRENE						
DUPONT EDGE MOOR	0.00	0.00	0.00	0.00	2.90	0.00
OCTACHLOROSTYRENE Total	**0.00**	**0.00**	**0.00**	**0.00**	**2.90**	**0.00**
PENTACHLOROBENZENE						
DUPONT EDGE MOOR	0.11	0.10	0.00	0.21	1.40	0.00
PENTACHLOROBENZENE Total	**0.11**	**0.10**	**0.00**	**0.21**	**1.40**	**0.00**
POLYCHLORINATED BIPHENYLS						
DUPONT EDGE MOOR	0.01	0.01	0.00	0.01	5.70	0.00
POLYCHLORINATED BIPHENYLS Total	**0.01**	**0.01**	**0.00**	**0.01**	**5.70**	**0.00**
POLYCYCLIC AROMATIC COMPOUNDS						
DELAWARE CITY REFINERY	92.00	2.60	0.00	94.60	121.80	257.00
DUPONT EDGE MOOR	63.72	0.00	561.73	625.45	0.00	0.00
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.20	0.09	0.00	0.29	0.00	0.00
IKO WILMINGTON	0.00	0.00	0.00	0.00	48.60	280.00
INDIAN RIVER GENERATING STATION	0.67	0.00	0.00	0.67	0.30	0.00
MOUNTAIRE FARMS FRANKFORD MILL	1.48	0.00	0.00	1.48	0.00	0.00
MOUNTAIRE FARMS SELBYVILLE PLANT	22.60	0.00	0.00	22.60	0.00	0.00
PERDUE BRIDGEVILLE	0.00	0.00	0.00	0.00	0.00	0.00
PERDUE GEORGETOWN	0.00	0.00	0.00	0.00	0.00	0.00
PINNACLE FOODS	1.00	0.00	0.00	1.00	0.00	0.00
POLYCYCLIC AROMATIC COMPOUNDS Total	**181.67**	**2.69**	**561.73**	**746.09**	**170.70**	**537.00**
STATE PBT TOTALS	**2,252.68**	**131.82**	**11,211.73**	**13,596.23**	**2,988,196.55**	**850.00**

Source: DNREC TRI 2011 Database, October 2012.
All Amounts are in Pounds.

APPENDIX J

2011 CARCINOGEN RELEASE AND TRANSFER DETAIL

	TOTAL ON-SITE RELEASES				TRANSFERS	ON-SITE
CARCINOGEN / FACILITY	**AIR**	**WATER**	**LAND**	**TOTAL**	**OFF SITE**	**WASTE MGMT.**
4,4'-METHYLENEBIS(2-CHLOROANILINE)						
ROHM & HAAS - B5 B6	0.00	0.00	0.00	0.00	0.00	0.00
ROHM & HAAS - B7 B15	0.00	0.00	0.00	0.00	0.00	0.00
4,4'-METHYLENEBIS(2-CHLOROANILINE) Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
ARSENIC COMPOUNDS						
DUPONT EDGE MOOR	0.00	31.00	0.00	31.00	53.00	0.00
MOUNTAIRE FARMS FRANKFORD MILL	0.00	0.00	0.00	0.00	0.00	0.00
ARSENIC COMPOUNDS Total	**0.00**	**31.00**	**0.00**	**31.00**	**53.00**	**0.00**
ASBESTOS (FRIABLE)						
DELAWARE CITY REFINERY	0.00	0.00	0.00	0.00	595,620.00	0.00
ASBESTOS (FRIABLE) Total	**0.00**	**0.00**	**0.00**	**0.00**	**595,620.00**	**0.00**
BENZENE						
DELAWARE CITY REFINERY	6,918.00	5.00	0.00	6,923.00	1,092.90	96,786.00
SUNOCO	2,811.00	0.00	0.00	2,811.00	0.00	0.00
BENZENE Total	**9,729.00**	**5.00**	**0.00**	**9,734.00**	**1,092.90**	**96,786.00**
CHROMIUM COMPOUNDS						
BALTIMORE AIRCOIL	3.80	0.00	0.00	3.80	195,276.00	0.00
CHROME DEPOSIT	0.00	0.00	0.00	0.00	2,030.00	900.00
DUPONT EDGE MOOR	1.00	46.00	0.00	47.00	141,358.00	0.00
EVRAZ CLAYMONT STEEL	118.00	3.00	197.00	318.00	35,922.00	0.00
ORIENT	0.00	0.00	0.00	0.00	0.00	0.00
CHROMIUM COMPOUNDS Total	**122.80**	**49.00**	**197.00**	**368.80**	**374,586.00**	**900.00**
COBALT COMPOUNDS						
DUPONT EDGE MOOR	0.00	7.00	0.00	7.00	3,200.00	0.00
COBALT COMPOUNDS Total	**0.00**	**7.00**	**0.00**	**7.00**	**3,200.00**	**0.00**
DICHLOROMETHANE						
NORAMCO	2,216.00	0.00	0.00	2,216.00	121,203.00	121,203.00
DICHLOROMETHANE Total	**2,216.00**	**0.00**	**0.00**	**2,216.00**	**121,203.00**	**121,203.00**
ETHYL ACRYLATE						
BASF SEAFORD	199.00	0.00	0.00	199.00	188.00	10.00
ETHYL ACRYLATE Total	**199.00**	**0.00**	**0.00**	**199.00**	**188.00**	**10.00**

Source: DNREC 2011 TRI Database, October 2012
All amounts are in pounds

APPENDIX J

2011 CARCINOGEN RELEASE AND TRANSFER DETAIL

	TOTAL ON-SITE RELEASES				TRANSFERS	ON-SITE
CARCINOGEN / FACILITY	**AIR**	**WATER**	**LAND**	**TOTAL**	**OFF SITE**	**WASTE MGMT.**
ETHYLBENZENE						
ARLON	329.00	0.00	0.00	329.00	640.00	29,000.00
DELAWARE CITY REFINERY	1,961.00	5.00	0.00	1,966.00	73.90	9,368.00
DOVER AFB	150.00	0.00	0.00	150.00	0.00	0.00
ETHYLBENZENE Total	**2,440.00**	**5.00**	**0.00**	**2,445.00**	**713.90**	**38,368.00**
ETHYLENE OXIDE						
CRODA	2,026.60	0.00	0.00	2,026.60	0.00	0.00
ETHYLENE OXIDE Total	**2,026.60**	**0.00**	**0.00**	**2,026.60**	**0.00**	**0.00**
HEXACHLOROBENZENE						
DUPONT EDGE MOOR	0.10	0.11	0.00	0.21	62.00	0.00
HEXACHLOROBENZENE Total	**0.10**	**0.11**	**0.00**	**0.21**	**62.00**	**0.00**
LEAD						
MOTECH AMERICAS	0.00	0.00	0.00	0.00	79.00	0.00
V&S DELAWARE GALVANIZING	1.90	6.20	0.00	8.10	3,139.00	0.00
LEAD Total	**1.90**	**6.20**	**0.00**	**8.10**	**3,218.00**	**0.00**
LEAD COMPOUNDS						
CHROME DEPOSIT	0.00	0.00	0.00	0.00	7,800.00	0.00
DELAWARE CITY REFINERY	53.70	1.70	0.00	55.40	57.00	0.00
DOVER AFB	1,073.00	0.00	0.00	1,073.00	3,157.00	0.00
DUPONT EDGE MOOR	0.00	43.40	0.00	43.40	15,605.30	0.00
EVRAZ CLAYMONT STEEL	462.00	63.03	71.00	596.03	248,017.00	0.00
INDIAN RIVER GENERATING STATION	216.30	0.00	10,490.00	10,706.30	0.00	0.00
INSTEEL WIRE PRODUCTS	0.00	0.00	0.00	0.00	27.00	0.00
JOHNSON CONTROLS BATTERY PLANT	115.10	10.10	0.00	125.20	2,705,625.04	0.00
JOHNSON CONTROLS DIST. CENTER	0.00	0.00	0.00	0.00	0.04	0.00
NRG ENERGY CENTER-DOVER	2.20	0.00	0.00	2.20	28.00	0.00
PRINCE MINERALS	0.90	0.00	0.00	0.90	1.00	0.00
SUNOCO	3.00	0.00	0.00	3.00	0.00	0.00
VP RACING FUELS	1.05	0.00	0.00	1.05	14.00	0.00
LEAD COMPOUNDS Total	**1,927.26**	**118.23**	**10,561.00**	**12,606.49**	**2,980,331.38**	**0.00**
NAPHTHALENE						
CARL KING	0.00	0.00	0.00	0.00	0.00	0.00
CRODA	6.40	0.00	0.00	6.40	0.00	0.00
DELAWARE CITY REFINERY	1,378.00	5.00	0.00	1,383.00	0.00	2,102.00
DOVER AFB	150.00	0.00	0.00	150.00	0.00	0.00
INDIAN RIVER GENERATING STATION	0.00	0.00	0.00	0.00	0.00	0.00
SUNOCO	3.00	0.00	0.00	3.00	0.00	0.00
NAPHTHALENE Total	**1,537.40**	**5.00**	**0.00**	**1,542.40**	**0.00**	**2,102.00**

Source: DNREC 2011 TRI Database, October 2012
All amounts are in pounds

APPENDIX J

2011 CARCINOGEN RELEASE AND TRANSFER DETAIL

	TOTAL ON-SITE RELEASES				TRANSFERS	ON-SITE
CARCINOGEN / FACILITY	**AIR**	**WATER**	**LAND**	**TOTAL**	**OFF SITE**	**WASTE MGMT.**
NICKEL						
CAMDEL METALS/HANDY TUBE	0.00	0.00	0.00	0.00	37,962.00	0.00
METAL MASTERS	0.50	0.00	0.00	0.50	48,396.00	0.00
NICKEL Total	**0.50**	**0.00**	**0.00**	**0.50**	**86,358.00**	**0.00**
NICKEL COMPOUNDS						
BALTIMORE AIRCOIL	1.30	0.00	0.00	1.30	222,542.00	0.00
DELAWARE CITY REFINERY	549.00	1,086.00	0.00	1,635.00	30,523.50	0.00
DUPONT EDGE MOOR	1.00	117.00	0.00	118.00	10,187.00	0.00
EVRAZ CLAYMONT STEEL	30.00	18.00	355.00	403.00	5,534.00	0.00
PRINCE MINERALS	0.00	0.00	0.00	0.00	0.00	0.00
SUNOCO	9.00	0.00	0.00	9.00	0.00	0.00
NICKEL COMPOUNDS Total	**590.30**	**1,221.00**	**355.00**	**2,166.30**	**268,786.50**	**0.00**
NITROBENZENE						
ORIENT	252.00	0.00	0.00	252.00	1.00	0.00
NITROBENZENE Total	**252.00**	**0.00**	**0.00**	**252.00**	**1.00**	**0.00**
P-CHLOROANILINE						
BASF NEWPORT	7.00	0.00	0.00	7.00	15,762.00	359.00
P-CHLOROANILINE Total	**7.00**	**0.00**	**0.00**	**7.00**	**15,762.00**	**359.00**
POLYCHLORINATED BIPHENYLS						
DUPONT EDGE MOOR	0.01	0.01	0.00	0.01	5.70	0.00
POLYCHLORINATED BIPHENYLS Total	**0.01**	**0.01**	**0.00**	**0.01**	**5.70**	**0.00**
POLYCYCLIC AROMATIC COMPOUNDS						
DELAWARE CITY REFINERY	92.00	2.60	0.00	94.60	121.80	257.00
DUPONT EDGE MOOR	63.72	0.00	561.73	625.45	0.00	0.00
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.20	0.09	0.00	0.29	0.00	0.00
IKO WILMINGTON	0.00	0.00	0.00	0.00	48.60	280.00
INDIAN RIVER GENERATING STATION	0.67	0.00	0.00	0.67	0.30	0.00
MOUNTAIRE FARMS FRANKFORD MILL	1.48	0.00	0.00	1.48	0.00	0.00
MOUNTAIRE FARMS SELBYVILLE PLANT	22.60	0.00	0.00	22.60	0.00	0.00
PERDUE BRIDGEVILLE	0.00	0.00	0.00	0.00	0.00	0.00
PERDUE GEORGETOWN	0.00	0.00	0.00	0.00	0.00	0.00
PINNACLE FOODS	1.00	0.00	0.00	1.00	0.00	0.00
POLYCYCLIC AROMATIC COMPOUNDS Total	**181.67**	**2.69**	**561.73**	**746.09**	**170.70**	**537.00**
PROPYLENE OXIDE						
CRODA	549.16	0.00	0.00	549.16	0.00	0.00
PROPYLENE OXIDE Total	**549.16**	**0.00**	**0.00**	**549.16**	**0.00**	**0.00**

Source: DNREC 2011 TRI Database, October 2012
All amounts are in pounds

APPENDIX J

2011 CARCINOGEN RELEASE AND TRANSFER DETAIL

	TOTAL ON-SITE RELEASES				TRANSFERS	ON-SITE
CARCINOGEN / FACILITY	**AIR**	**WATER**	**LAND**	**TOTAL**	**OFF SITE**	**WASTE MGMT.**
STYRENE						
BASF SEAFORD	309.00	0.00	0.00	309.00	349.00	805.00
DELAWARE CITY REFINERY	10.00	5.00	0.00	15.00	0.00	1.00
JUSTIN TANKS	11,494.00	0.00	0.00	11,494.00	278.00	0.00
STYRENE Total	**11,813.00**	**5.00**	**0.00**	**11,818.00**	**627.00**	**806.00**
TOLUENE DIISOCYANATE (MIXED ISOMERS)						
AEARO TECHNOLOGIES	3.94	0.00	0.00	3.94	250.00	0.00
MACDERMID	0.00	0.00	0.00	0.00	0.00	0.00
ROHM & HAAS - B5 B6	1.80	0.00	0.00	1.80	751.00	4,500.00
TOLUENE DIISOCYANATE (MIXED ISOMERS) Total	**5.74**	**0.00**	**0.00**	**5.74**	**1,001.00**	**4,500.00**
TRICHLOROETHYLENE						
CAMDEL METALS/HANDY TUBE	12,804.00	0.00	0.00	12,804.00	9,903.00	0.00
TRICHLOROETHYLENE Total	**12,804.00**	**0.00**	**0.00**	**12,804.00**	**9,903.00**	**0.00**
VINYL ACETATE						
FORMOSA PLASTICS	61,763.00	0.00	0.00	61,763.00	0.00	0.00
VINYL ACETATE Total	**61,763.00**	**0.00**	**0.00**	**61,763.00**	**0.00**	**0.00**
VINYL CHLORIDE						
FORMOSA PLASTICS	57,564.00	12.43	0.00	57,576.43	233.00	239,600.00
VINYL CHLORIDE Total	**57,564.00**	**12.43**	**0.00**	**57,576.43**	**233.00**	**239,600.00**
1,3-BUTADIENE						
DELAWARE CITY REFINERY	525.00	0.00	0.00	525.00	0.00	5,985.00
1,3-BUTADIENE Total	**525.00**	**0.00**	**0.00**	**525.00**	**0.00**	**5,985.00**
TETRACHLOROETHYLENE						
DELAWARE CITY REFINERY	9.70	0.00	0.00	9.70	0.00	0.00
TETRACHLOROETHYLENE Total	**9.70**	**0.00**	**0.00**	**9.70**	**0.00**	**0.00**
CREOSOTE						
DUPONT EDGE MOOR	782.00	0.00	6,897.00	7,679.00	0.00	0.00
CREOSOTE Total	**782.00**	**0.00**	**6,897.00**	**7,679.00**	**0.00**	**0.00**
STATE TOTAL	**167,047**	**1,468**	**18,572**	**187,087**	**4,463,116**	**511,156**

Source: DNREC 2011 TRI Database, October 2012
All amounts are in pounds

COMMON TOXIC CHEMICALS AND THEIR HAZARDS

Presented here are the top 15 TRI chemicals in descending order of the amount released to on-site to air, water, and/or land for 2011. See Figures 2-4 on pages 8-11. This information is presented as a quick reference summary of information for these toxic chemicals. This is not a detailed source of information on the sources, uses, or hazards of these chemicals. This information was obtained from the *Hazardous Substance Fact Sheets* provided by the New Jersey Department of Health and distributed by the EPA. The source for this information is listed under "Chemical Data fact Sheets" in the *For Further Information* section on page 59 of this report. The reader may also consult other chemical or toxicology reference materials to learn more about chemicals of interest. Another source is the *Agency For Toxic Substances And Disease Registry.* This source has a web site that has extensive information about many of the toxic chemicals in this report and a link to the web site is also on page 59. Excerpts for Nitrate Compounds came from EPA *The National Nitrate Compliance Initiative,* April 2002. Excerpts for metallic compounds came from EPA *Risk Burn Guidance for Hazardous Waste Combustion Facilities.*

AIR - From Figure 2 on page 8

Hydrochloric Acid/Hydrogen Chloride (Aerosol portion only is reportable)
Used in: Metal processing and cleaning, analytical chemistry, and making other chemicals. Also produced during coal and oil combustion at power generating facilities.
Hazard: Corrosive. Liquid phase can cause skin and eye burns, aerosol phase can irritate the mouth, nose and throat. People working in occupations in which hydrochloric acid gas is being used or manufactured have the highest risk of being exposed. Most families will not be exposed to significant levels of hydrochloric acid gas.

Carbonyl Sulfide
Used in: Chemical manufacturing, also a by-product of petroleum refining.
Hazard: Can irritate the eyes, nose, and throat and skin, toxic by inhalation and ingestion or skin absorption. High exposure may cause nausea, dizziness, confusion, and vomiting, increased or irregular heartbeat.

Sulfuric Acid (Aerosol portion only is reportable)
Used in: Fertilizers, chemicals, dyes, petroleum refining, etching, analytical chemistry, metal manufacturing and plating, and explosives. Also produced during coal and oil combustion at power generating facilities.
Hazard: Corrosive. Liquid phase can cause skin and eye burns, aerosol phase can irritate the mouth, nose and throat. People working in occupations in which sulfuric acid gas is being used or manufactured have the highest risk of being exposed.

Ammonia
Used in: Refrigerant, in manufacturing fertilizer, plastics, dyes, and textiles. A product of human activity, including natural organic decomposition, run-off from fields and feedlots, waste treatment plant and refinery/chemical manufacturing effluents. Ammonia is applied directly into soil on farm fields, and is used to make fertilizers for farm crops, lawns, and plants. Many household and industrial cleaners contain ammonia.
Hazard: May irritate lungs, eyes, nose, throat, and mouth. Corrosive, can severely damage eyes and cause permanent damage. Not normally a liquid at room temperatures, workplace contact with liquid can freeze skin.

APPENDIX K

COMMON TOXIC CHEMICALS AND THEIR HAZARDS

Hydrogen Fluoride
Used in: Etching glass, manufacturing chemicals and gasoline. Also produced during coal and oil combustion at power generating facilities.
Hazard: Corrosive. Liquid phase can cause skin and eye burns, aerosol phase can irritate the mouth, nose and throat. Exposures in the community, except possibly in cases of fires or spills, are usually much lower than those found in the workplace. Toxic by inhalation and ingestion or skin absorption.

Vinyl Acetate
Used for: Plastics and chemical manufacturing.
Hazard: Inhalation can irritate the eyes, skin, nose, and throat. High levels of exposure can cause dizziness. May damage the lungs. Is a hazardous substance, is flammable and reactive. Is soluble in water and toxic to wildlife.

Vinyl Chloride
Used in: Plastics, adhesives and chemical manufacturing.
Hazard: Known carcinogen, mutagen. Toxic by inhalation and ingestion or skin absorption. May cause damage to developing fetus. May damage liver, kidneys, bones, blood vessels, and skin. Exposure may cause you to feel drowsy or lightheaded. Vinyl chloride is not normally found in urban, suburban, or rural air in amounts that are detectable by the usual methods of analysis. Vinyl chloride is also in tobacco smoke.

Methanol
Used in: Solvents, cleaners, production of other chemicals.
Hazard: Toxic when inhaled, ingested, or by skin contact. Exposure may cause blindness, nausea, headaches, vomiting, and dizziness. Flammable and a fire hazard.

N-Hexane
Used in: Chief constituent of petroleum ether, gasoline, and rubber solvents. Also used in solvents for adhesives, in organic analysis, to extract vegetable oils from crops such as soybeans, and in denaturing alcohols.
Hazard: Toxic when inhaled, ingested, or by skin contact. Exposure can cause numbness, lightheadedness, giddiness, headaches, and nausea. The only people known to have been affected by exposure to n-hexane used it at work. Flammable liquid and a fire hazard.

Propylene
Used in: Propylene is used in the production of many organic chemicals including resins, plastics, synthetic rubber and gasoline.
Hazard: Toxic by inhalation. Exposure to high levels can cause you to feel dizzy, lightheaded, and may cause unconsciousness. Boils at a low temperature ($-47^{O}C$) and is a highly flammable gas. Contact with liquid may cause frostbite. Exposure may damage the liver, and affect the nervous system.

Toluene
Used in: As a solvent, in making gasoline, chemicals, perfumes, medicines, dyes, explosives, and detergents.
Hazard: Toxic by inhalation and skin exposure. Exposure can irritate the skin nasal membranes, and eyes, and can cause birth defects. May cause headache, dizziness, and in high concentrations, cause you to pass out. Chronic or prolonged exposure may cause liver, kidney, and brain damage. Toluene is a flammable liquid.

Trichloroethylene
Used in: As a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers.
Hazard: Toxic when inhaled. Breathing small amounts may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating. Breathing large amounts of trichloroethylene may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage. Nonflammable, colorless liquid.

Styrene
Used in: Making polystyrene plastics, protective coatings, polyesters, resins, and as a chemical intermediate.
Hazard: Possible carcinogen, mutagen. Toxic by inhalation or skin absorption. Found in some foods, styrene can also be transferred in low levels to food from polystyrene packaging material. Can cause eye, nose, and throat irritation. Repeated exposure may cause concentration and memory problems. Higher levels may cause dizziness. Very high levels of exposure may be fatal or cause brain and liver damage. You can also be exposed to styrene in the air through tobacco smoke.

Benzene
Used in: Making other chemicals which are used to make plastics, resins, and nylon and synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.
Hazard: Toxic when inhaled or by skin contact. Can cause dizziness, nose and throat irritation, and irregular heartbeat. Higher concentrations can cause convulsions and death. Is a carcinogen and is highly flammable.

Xylene – Mixed Isomers
Used in: Xylene is used as a solvent and in the printing, rubber, and leather industries. It is also used as a cleaning agent, a thinner for paint, and in paints and varnishes. It is found in small amounts in airplane fuel and gasoline.
Hazard: Toxic by inhalation and ingestion. Exposure to high levels for short times can irritate the skin, eyes, nose, and throat. Exposure for long periods of time may cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Repeated exposure may cause low blood cell count. No health effects have been noted at the background levels that people are exposed to on a daily basis.

WATER – From Figure 3 on page 9 - Chemicals not reported in the Air section above

Nitrate & Nitrite Compounds (Sodium Nitrate, Sodium Nitrite)
Nitrates are toxic chemicals that can pose serious risks to human health and the environment. High levels of nitrates may cause significant environmental damage to streams, lakes, and rivers. Elevated levels of nitrates may damage surface water and ground water with excess nutrients and can cause algae blooms in coastal waters, which can remove oxygen from the water and result in fish kills. High levels can displace oxygen from the bloodstream and produce blue color in the skin and lips. The National Academy of Sciences recently reported that pollution by nitrogen and phosphorous were causing damage in most of the nation's coastal inlets, and severe problems were identified in 44 of the 139 coastal areas examined.

APPENDIX K

COMMON TOXIC CHEMICALS AND THEIR HAZARDS

Barium and Barium Compounds *
Used in: Spark plugs and engine rod bearings, and to remove gas from vacuum tubes and television picture tubes.
Hazard: Toxic when inhaled, may irritate skin, eyes, nose and throat.

Ammonia – See Air Section above

Nickel and Nickel Compounds *
Used in: Alloys and electroplating, catalysts, dyes, and textile printing.
Hazard: Carcinogenic. Toxic by inhalation. Eye and skin irritant. Repeated exposure may cause scarring of the lungs and may affect the kidneys.

Manganese and Manganese Compounds *
Used in: Dry-cell batteries, steelmaking, matches, fireworks, in animal feed, fertilizer, livestock nutritional supplements, in glazes and varnishes, and in ceramics, for water purification purposes in water and waste-treatment plants.
Hazard: Toxic when inhaled. Repeated exposure can cause brain damage, may damage kidneys and liver.

Cyanide Compounds and Hydrogen Cyanide
Used in: As insecticide for closed spaces, metal electroplating, and metal treatment.
Hazard: Extremely toxic by inhalation. Will depress the central nervous system. Will cause weakness and loss of coordination, headache, nausea, eye and skin irritation, and in higher concentrations will cause death in humans.

Zinc and Zinc Compounds *
Used in: Rustproof coating on iron and steel, making brass alloys, car parts, electroplating, batteries, electrical products, paints, and fungicides.
Hazard: Zinc oxide fumes (released during welding on galvanized metal) are toxic when inhaled. Zinc dust is a skin irritant.

Copper and Copper Compounds *
Used in: Electrical wiring, plumbing, fungicides, pesticides, electroplating, paint pigments and catalysts.
Hazard: Toxic when inhaled. Can irritate the eyes, nose and throat. May cause a skin allergy. Repeated high exposure to copper may affect the liver.

Cresol (Mixed Isomers)
Used in: Making synthetic resins, photographic developers, disinfectants and fumigants.
Hazard: Toxic by inhalation or skin exposure. Corrosive, will cause skin and eye burns, possibly blindness. Soluble in water, toxic fish life. Is on the hazardous substances list.

Lead and Lead Compounds *
Used in: Batteries, ammunition, cable covering, ceramic glazes, metal alloys, and solders.
Hazard: Toxic by ingestion. Can cause brain damage, particularly in children. Listed as a possible carcinogen.

* These metallic compounds are usually by-products produced from impurities in the fuel associated with coal or oil combustion and/or ore processing.

Phenol
Used in: Making plywood, pharmaceuticals, plastics, and rubber. Common product of refinery wastes.
Hazard: Toxic by inhalation or skin exposure. Mutagen; can cause genetic changes, will cause skin and eye burns, possibly permanent eye damage. Soluble in water, toxic to fish life. Is on hazardous substances list.

2,4-Dimethylphenol
Used in: Disinfectants, solvents, pharmaceuticals, herbicides, and insecticides. Is present in petroleum and coal tar.
Hazard: Toxic by inhalation or skin exposure. Will irritate and burn the skin and eyes. Can irritate the nose, throat, and lungs causing coughing and shortness of breath. High exposure can cause headache, nausea, and fainting. Repeated exposure nay affect the liver and kidneys. Is on the hazardous substances list.

Chromium Compounds *
Used in: Stainless and alloy steels, refractory products, tanning agents for leather, pigments, electroplating, catalysts, and corrosion-resistant products.
Hazard: Irritant and corrosive to human tissue, chromium compounds are carcinogens. Hexavalent compounds are more toxic than trivalent compounds.

Arsenic compounds
Used in: Inorganic arsenic compounds are used in production of weed and insect killers, in medicine and chemistry, as a feed additive, and to preserve wood. Copper chromated arsenate (CCA) was used to make "pressure-treated" lumber, but is no longer used in the U.S. for residential uses. Organic arsenic compounds are used as pesticides, primarily on cotton plants. Found in abundance in the earth's soil and rocks.
Hazard: Toxic when inhaled, and may be absorbed through the skin. Contact with the eyes and skin may cause irritation and burns. Exposure may cause nervous system damage. Arsenic compounds are carcinogens.

LAND – From Figure 4 on page 11 - Chemicals not reported in the Air and/or Water sections above. There were only 11 chemicals reported for 2011 as released to land and 8 of those have been described in the air and water sections above.

Barium, manganese, vanadium, lead, copper, nickel, zinc, and chromium compounds – See Water Section above

Creosote Compounds
Used in: Wood preservation and water protection for products like railroad ties and utility poles, and for roofing products.
Hazard: By inhalation and skin contact. Listed as a probable carcinogen. Skin contact may cause irritation, burning, and itching, made worse by exposure to sunlight. Contact with eyes will cause severe eye irritation with possible loss of vision.

* These metallic compounds are usually by-products produced from impurities in the fuel associated with coal or oil combustion and/or ore processing.

Polycyclic Aromatic Compounds (PACs)
Used in: Limited use, but a few of these compounds are used in manufacture of dyes, plastics, and pesticides.
Hazard: By inhalation and eating foods containing PACs. Inhalation hazard is from breathing air in areas where substances like coal, oil, and garbage are not burned completely, and in vicinity of agricultural burns and coal-tar and asphalt production facilities. Ingestion hazard is from eating foods such as charred meats, or drinking contaminated water or milk, which may contain PACs. Listed as a probable carcinogen.

Mercury and Mercury Compounds *
Used in: Thermometers, barometers, vapor lamps, mirror coatings, and in making chemicals and electrical equipment.
Hazard: The nervous system is very sensitive to all forms of mercury. Methylmercury and metallic mercury vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of metallic, inorganic, or organic mercury may permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

* These metallic compounds are usually by-products produced from impurities in the fuel associated with coal or oil combustion and/or ore processing.

GLOSSARY AND ACRONYMS

Aerosol - A gaseous form of a chemical, which includes mists, vapors, gases, and fogs, would be considered an aerosol. Hydrochloric and sulfuric acid aerosols are the reportable form of these two chemicals. These acids in aqueous solutions are no longer reportable under TRI, but an aerosol that is generated from a solution is reportable.

Air Releases **-** Point and non-point air emissions, or releases to air. Point releases are those chemicals released through **stacks**, vents, or other confined spaces and are usually regulated by permit. Non-point, or **fugitive**, releases include chemical leaks from valves, pump seals, etc., evaporative losses from surface impoundments (ponds) or spills, or releases from building ventilation systems.

ARP - DNREC's Accidental Release Program - Formerly known as the Industrial Disaster Prevention program, ARP provides protection for the lives and health of the citizens of Delaware by ensuring that companies with extremely hazardous substances have proper control plans and operations in place to prevent disasters.

Article - The term "Article" in 40 CFR Section 372.3, is defined as a manufactured item: (1) which is formed to a specific shape or design during manufacture; (2) which has end use functions dependent in whole or in part upon shape or design; and (3) which does not release an EPCRA section 313 chemical under normal conditions of processing or use of that item at the facility or establishment.

ATSDR - Agency for Toxic Substances and Disease Registry – A federal public health agency of the U.S. Department of Health and Human Services**.** ATSDR serves the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances.

Bioaccumulate - Bioaccumulate means to increase the concentration of a chemical in a biological organism such as humans over time, compared to the chemical's concentration in the environment. Compounds accumulate in living things any time they are taken up and stored faster than they are broken down or excreted.

Bottom Ash - Ash that falls to the bottom of the combustion chamber in a process burning fuels like coal and oil. Bottom ash is removed for disposal on a regular basis. Also see **Fly Ash.**

BTU – British Thermal Unit – A unit of heat; the amount of heat required to raise one pound of water one Fahrenheit degree (39^{o}F to 40^{o}F). TBTU = one trillion BTUs.

CAA - Clean Air Act - The Clean Air Act is the law that defines EPA's responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer. The last major change in the law was enacted by Congress in 1990. Legislation passed since then has made several minor changes.

Carcinogen - A carcinogen is a substance that can cause cancer of some form.

CEM - Continuous Emissions Monitoring - A continuous emission monitoring system (CEMS) is the total equipment necessary for the determination of a gas or particulate matter concentration or emission rate using continuous pollutant analyzer measurements. CEMS are required under some of the EPA regulations for either continual compliance determinations or determination of when standards have been exceeded.

APPENDIX L

Glossary and Acronyms

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA on October 17, 1986. SARA made several important changes and additions to the program, including provision for the TRI Program in the Emergency Planning and Community Right-to-Know Act. (See **EPCRA** and **SARA** below).

Chemical Abstracts Service (CAS) Registry Number - A numerical identification given to each unique chemical, which aids in the identification of a chemical with multiple synonyms (e.g., CAS 78-93-3 - methyl ethyl ketone, is also known as 2-butanone). Chemical categories under TRI do not possess a CAS numbers and are assigned category codes by the EPA. Lead compounds, for example, is category code N420.

Disposal - Any underground injection, placement in landfills/surface impoundments, land treatment, or other intentional land disposal.

DNREC - Delaware Department of Natural Resources and Environmental Control – The State agency in Delaware that is responsible for environmental concerns. It has seven divisions, and the Cabinet Secretary reports to the Governor. The Division of Waste and Hazardous Substances is responsible for this report, and the Divisions of Air Quality, Watershed Stewardship, Parks and Recreation, Water, Fish and Wildlife, and the Office of the Secretary complete the Department.

Emission Factors – An Emission factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. Emission factors are published emission rates of chemicals in particular processes, which are based on averaging a large sampling of representative processes.

Energy Recovery - The use of a waste product to create and utilize energy to generate steam, electricity, etc. A TRI chemical in waste must contain enough heating value to sustain the combustion process; otherwise it is considered only treatment or incineration of the waste.

Environmental Fate - The disposition, over time, of a chemical in the environment. The bioaccumulation of a chemical in fish and the decomposition of a chemical when exposed to sunlight are examples of environmental fate.

EPA - United States Environmental Protection Agency.

EPCRA - Emergency Planning and Community Right-to-Know Act. Congress enacted the Emergency Planning and Community Right to Know Act as Title III of the Superfund Amendments and Reauthorization Act **(SARA**) of 1986. This act includes the TRI program, and more information can be found in Appendix A of this report.

EPCRA Section 313 Chemical - A chemical or chemical category listed in 40 CFR Section 372.65 (40 CFR Section 372.3) - see **Toxic Chemical and Modified Chemicals** below.

Facility - All buildings, equipment, structures, and other stationary items that are located on a single site or on contiguous or adjacent sites and are owned or operated by the same person (or by any person that controls, is controlled by, or under common control with such person). A facility may contain more than one establishment, or distinct business unit.

Fluid Bed - A fluid bed process uses a gas introduced under a bed of fine solid material to separate and fluidize the material, creating a condition of rapid mixing. The bed has the appearance of a vigorously boiling liquid, and the bed of material takes on many of the properties of a fluid. It exerts pressure and the material will flow through a hole in the vessel and over or under a weir within the bed. The fluid bed process is used to improve reaction time, heat transfer, processing uniformity, and process yield or conversions.

Fluid Catalytic Cracker - In petroleum chemistry, cracking is the process whereby complex organic molecules are converted to simpler molecules (light hydrocarbons) by the breaking of carbon-carbon bonds. Fluid Catalytic Cracking (FCC) produces a high yield of gasoline and LPG from heavier crude oil distillation fractions and residues. FCC uses a very active hot catalyst where it contacts the heavy feed material in a reactor, vaporizes it, and the cracking reactions break down the high molecular weight oil into lighter components including LPG, gasoline, and diesel fuel.

Fluid Coker - Used in refineries, fluid coking is a continuous fluid bed technology that thermally converts heavy hydrocarbons to lighter products.

Fly Ash - Ash that becomes airborne and escapes in the exhaust air from a combustion process that burns fuels like coal or oil. Fly ash can be controlled with air pollution control devices like precipitators and filters. Also see **Bottom Ash.**

FOIA - Freedom of Information Act – Originally signed into law on July 4, 1966 and amended in 1996, 2002 and 2007. This act allows for the full or partial disclosure of previously unreleased information and documents controlled by the United States Government. The Act defines agency records subject to disclosure, outlines disclosure procedures and grants some exemptions to the statute. Many states, including Delaware, have their own FOIA statutes.

Form A - A two-page report that a facility may use when certain criteria are met for a given chemical that must be reported. Refer to page 2 in this report for general reporting requirements, and pages 3-4 for details on eligibility and a description of the Form A data elements. The Form A provides basic facility information and the chemical identity, but does not provide other data that is given on the Form R. The Form A form is shown in Appendix N.

Form R- A five-page report that a facility must use (except when Form A eligibility applies) for reporting on each TRI chemical that the facility exceeds an applicable threshold. The Form R form is shown in Appendix M.

Fugitive Emissions - See **Air Releases.**

Hazardous Air Pollutants (HAPs) - Air pollutants that are not covered by ambient air quality standards but which, as defined in the Clean Air Act, may present a threat of adverse human health effects or adverse environmental effects. Such pollutants include asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides, and vinyl chloride.

IARC - International Agency for Research on Cancer (IARC) – IARC is part of the World Health Organization. IARC coordinates and conducts research on the causes of human cancer, the mechanisms of carcinogenesis, and develops scientific strategies for cancer control.

Import - To cause a chemical to be imported into the customs territory of the United States. For purposes of the definition, “to cause” means to intend that the chemical be imported and to control the identity of the imported chemical and the location and amount of the imported chemical. For TRI reporting purposes, “import” is the same as “manufacture”, as in either case the facility has caused the chemical to become present at the facility.

LEPC - Local Emergency Planning Committee (LEPC). Each LEPC has specific duties to fulfill, and the State Emergency Response Commission (SERC) supervises and coordinates those activities. The LEPC's are required to have broad representation from many groups including state and local officials, media, law enforcement, fire service, EMS and health care, environmental, community groups and citizens and industrial facilities that use hazardous materials. The SERC also receives various reports from businesses that use or store hazardous chemicals, or that experience an emergency release of a hazardous substance, and must establish procedures for receiving and processing requests for information from the public. See **SERC** for more information.

Manufacture - To produce, prepare, compound or import a TRI chemical, including the coincidental production of the chemical as an intermediate, a by-product, or an impurity.

Mass Balance Calculation - A method of calculating amounts and concentrations at a point in a process based on known amounts and concentrations at other points in the process. The basic Mass Balance equation is: Input + Generation = Output + Consumption.

MSDS - Material Safety Data Sheet - A Material Safety Data Sheet (MSDS) is prepared by the manufacturer of a product. The purpose of the form is to provide information on the safe use, handling and potential hazards of a product. The form is required to be developed under 29 CFR Section 1910.1200(g). This form lists important attributes, including toxicity and safety information that a user or handler of the chemical is required to know about.

NAAQS - National Ambient Air Quality Standards - The Clean Air Act required EPA to set National Ambient Air Quality Standards (40 CFR Part 50) for pollutants considered harmful to public health and the environment. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. They are: Carbon monoxide, lead, nitrogen dioxide, particulate matter (10 and 2.5 microns), ozone, and sulfur dioxide. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

NAICS - North American Industrial Classification System – This is a systematic classification system, which assigns a six-digit number to each commercial and industrial facility. It expands the four-digit classification categories used by the **Standard industrial Classification (SIC)** codes. It is used by government, industry, and sales organizations to reach targeted industries for data collection, enforcement, and sales. The TRI program converted to NAICS starting with the 2006 reporting year. The covered SIC codes were codes 10 (except 1011, 1081, and 1094), 12 (except 1241), or 20-39; industry codes 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce); or 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C, or 5169, or 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis). The NAICS codes are not directly translatable from the SIC codes, so a reference document is usually required to translate or compare the codes. The intent in converting to the NAICS codes was to more precisely define the TRI reporting universe without adding to or subtracting from it. Also see **SIC – Standard Industrial Classification.**

NESHAP - **National Emissions Standards for Hazardous Air Pollutants -** The Clean Air Act (**CAA**) requires the U. S. Environmental Protection Agency (**EPA**) to develop and enforce regulations to protect the general public from exposure to hazardous air pollutants (**HAPs**).

NPDES - National Pollutant Discharge Elimination System - The Clean Water Act (CWA) requires that all discharges of pollutants to surface waters (streams, rivers, lakes, bays, and oceans) must be authorized by a permit issued under the National Pollutant Discharge Elimination System (NPDES) program.

Off-site Transfers - Waste that is transferred off-site to another facility for the purpose of treatment, recycling, energy recovery, or disposal.

On-site Releases - Emissions from a facility to the environment as a result of normal operations or accidents. This includes emissions to the air, discharges to surface waters, disposal onto or in the ground, and underground injection. Underground injection is not an approved method of hazardous waste disposal in Delaware.

On-site Waste Management - Wastes that are treated, recycled, or recovered for energy at the facility. The disposal of a waste into an on-site landfill is considered a release by EPA, and thus is not included in this category.

OSHA - Occupational Safety and Health Administration - The Federal agency that has the responsibility to ensure a safe and healthful work environment.

Otherwise Use - Encompasses any activity involving a TRI chemical that does not fall under the definition of manufacture or process. A chemical that is not intentionally incorporated into a product, like a solvent used for cleaning, falls under the otherwise use category.

P2 - Pollution Prevention - Pollution Prevention (P2) means "source reduction," as defined under the Pollution Prevention Act and other practices that reduce or eliminate the creation of pollutants. This EPA program was created to encourage, assist and lead others to prevent pollution at the source. Improved operation and maintenance, material substitution, process and equipment modification, conservation practices, product modification, and in-process recycling are examples of pollution prevention. EPA provides incentives to businesses, including public recognition, tools, and technical assistance. Since reduction of waste at its source is emphasized, recycling, energy recovery, treatment, and disposal are not included within the definition of pollution prevention. Also see **Waste Management** below.

PAC - Polycyclic Aromatic Compounds - PACs are multi-numbered benzene-ring compounds. PACs contain polycyclic aromatic hydrocarbons (PAHs), substituted PAHs, and PAH derivatives.

PAH - Polynuclear Aromatic Hydrocarbon - Polynuclear aromatic hydrocarbons (PAHs) are hydrocarbon compounds with multiple benzene rings. PAHs are typical components of asphalts, fuels, oils, and greases. They are also called Polycyclic Aromatic Hydrocarbons. They are of concern because some of these compounds have been identified as carcinogens.

PCB - Polychlorinated Biphenyls - A group of toxic, persistent chemicals used in electrical transformers and capacitors for insulating purposes, and in gas pipeline systems as lubricants. The sale and new use of these chemicals were banned by law in 1979.

PBT - Persistent Bioaccumulative Toxin - PBT pollutants are chemicals that are toxic, persist in the environment and bioaccumulate (are not broken down or excreted), and thus pose risks to human health and ecosystems. The biggest concerns about PBT's are that they transfer rather easily among air, water, and land, and span boundaries of geography and generations.

PEL - Permissible Exposure Limit - OSHA sets permissible exposure limits (PELs) to protect workers against the health effects of exposure to hazardous substances. PELs are regulatory limits on the amount or concentration of a substance in the air. PELs are enforceable. OSHA PELs are based on an 8-hour time weighted average (TWA) exposure.

pH - pH is a measure of the acidity in a liquid and is based on the concentration of hydrogen ions in a water solution. High acid content will be indicated by a pH of less than 7.0, and low acidity, called alkalinity, is indicated by a pH higher than 7.0. Although the pH scale is 0-14, it is a logarithmic scale and the range is based on powers of 10. In the case of pH, the range is 1×10^{-7} to 1×10^{7} (0.0000001 to 10,000,000).

PM - Particulate Matter - Tiny particles of solid or liquid suspended in a gas or liquid. Sources of particulate matter can be man-made or natural. Some particulates occur naturally, originating from volcanoes, dust storms, forest and grassland fires, living vegetation, and sea spray. Human activities, such as the burning of fossil fuels in vehicles, power plants and various industrial processes also generate significant amounts of particulates. Increased levels of fine particles in the air are linked to health hazards such as heart disease, altered lung function and lung cancer. The notation PM_{10} is used to describe particles of 10 micrometers or less and $PM_{2.5}$ represents particles less than 2.5 micrometers in diameter. One micrometer is one millionth of a meter, or about 0.00004 inches.

POTW - Publicly Owned Treatment Works - Usually a municipal wastewater treatment facility.

PPA - Pollution Prevention Act of 1990 - Pollution prevention became a national policy with the Pollution Prevention Act of 1990. The Act established the waste management hierarchy whereby wastes should be prevented or reduced at the source whenever feasible, and safe disposal is the option of last resort.

Process - To prepare a TRI chemical, after its manufacture, for distribution into commerce. Processing includes intentionally incorporating the chemical into a product or the reaction of the chemical to form another chemical or product.

RCRA - Resource Conservation and Recovery Act - The Resource Conservation and Recovery Act - commonly referred to as RCRA - is our nation's primary law governing the disposal of solid and hazardous waste. Congress passed RCRA on October 21, 1976 to address the increasing problems the nation faced from our growing volume of municipal and industrial waste. RCRA, which amended the Solid Waste Disposal Act of 1965, set national goals for:

- Protecting human health and the environment from the hazards of waste disposal.
- Conserving energy and natural resources.
- Reducing the amount of waste generated.
- Ensuring that wastes are managed in an environmentally-sound manner.

Recycle - The process of capturing a useful product from a waste stream. Solvent recovery, metals recovery, and acid regeneration are examples of recycling.

Regulation 1146 - This Delaware regulation establishes Nitrogen Oxides (NO_x), Sulfur Dioxide (SO_2), and mercury emissions limits to achieve reductions of those pollutants from Delaware's large electric generation units. The reduction in NO_X, SO_2, and mercury emissions will: 1) reduce the impact of those emissions on public health; 2) aid in Delaware's attainment of the State and National Ambient Air Quality Standard (NAAQS) for ground level ozone and fine particulate matter; 3) help address local scale fine particulate and mercury problems attributable to coal and residual oil-fired electric generating units, 4) satisfy Delaware's obligations under the Clean Air Mercury Rule (CAMR), and 5) improve visibility and help satisfy Delaware's EGU-related regional haze obligations.

Release - Any spilling, leaking, pumping, pouring, emitting, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles of any EPCRA Section 313 chemicals.

SARA - Superfund Amendments and Reauthorization Act of 1986 (SARA Title III), also known as The Emergency Planning and Community Right-to-Know Act (EPCRA), was enacted in 1986. This law provides an infrastructure at the state and local levels to plan for chemical emergencies. Facilities that store, use, or release certain chemicals, may be subject to various reporting requirements. Reported information is then made publicly available through the **Toxics Release Inventory** and other programs so that interested parties may become informed about potentially dangerous chemicals in their community.

Selective Catalytic Reduction (SCR) - Nitrogen oxides (NOx) emissions in boiler exhaust gas are converted into elemental nitrogen and water by injecting a nitrogen-based chemical reagent, most commonly ammonia, into the gas and then passing the gas through a catalyst bed where the NOx and ammonia react to form nitrogen and water vapor. Also see **SNCR** below.

Selective Non-Catalytic Reduction (SNCR) - Nitrogen oxides (NOx) emissions in boiler exhaust gas are converted into elemental nitrogen and water by injecting a nitrogen-based chemical reagent, most commonly urea or ammonia into the gas in the furnace. The SNCR method does not require a catalyst, but has lower conversion efficiency than the SCR method. Also see **SCR** above.

SERC - State Emergency Response Commission – The SERC's were created in response to the federal Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, and are comprised of representatives from various state and local government organizations and industry. The primary focus of a SERC is to enhance state and local emergency response and preparedness capabilities through better coordination and planning. See **LEPC (Local Emergency Planning committee)** for more information.

Standard Industrial Classification (SIC) Code - A four-digit code established by the Federal Office of Management and Budget used to describe the type of activity(s) at a facility. Facilities that engage in a variety of activities may possess multiple codes. Also see **North American Industrial Classification System (NAICS).** The TRI program converted to NAICS starting with the 2006 reporting year.

Stack Test - A process of sampling an exhaust stack to determine the contents, usually in percent concentration and cubic feet per hour. Sampling is usually done through a port or series of ports at an elevated point on the stack.

Teratogen - Any agent that can disturb the development of an embryo or fetus. Teratogens may cause a birth defect in the child. Or a teratogen may halt the pregnancy outright. The classes of teratogens include radiation, maternal infections, chemicals, and drugs.

TSCA - Toxic Substance Control Act – TSCA was enacted to provide information about all chemicals and to control the production of new chemicals that might present an unreasonable risk of injury to health or the environment. TSCA authorizes the Environmental Protection Agency to require testing of chemical substances. TSCA also provides authority to regulate the manufacturing, processing, import and use of chemicals. The manufacture use, and/or disposal of chemicals are covered in virtually every environmental law and in OSHA and DOT regulations, and TSCA fills the gaps in other laws and supplements sections of existing laws. EPA maintains and publishes the TSCA Inventory, which includes a list of chemicals manufactured, imported, or processed for commercial purposes in the United States. The TSCA Inventory is voluminous, with more than 75,000 chemical substances.

Toxic Chemical - A chemical or chemical category listed in 40 CFR Section 372.65 (40 CFR Section 372.3); causing acute human health risks, cancer or chronic (non-cancer) human health effects, and/or environmental effects.

Treatment - The removal, destruction, alteration, or stabilization of the waste. Biological treatment, incineration, and neutralization are examples of waste treatment. Wastewater treatment plants and hazardous waste incinerators are examples of treatment facilities.

TRI - The Toxics Release Inventory (TRI) is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990.

TSDF - Treatment, Storage, and Disposal Facility - A site where a hazardous substance is treated, stored or disposed of. TSDF facilities are regulated by EPA and states under the **Resource Conservation and Recovery Act (RCRA)**.

VOC - Volatile Organic Compounds - Chemical compounds containing carbon and hydrogen that readily evaporate at room temperature.

Waste Management - EPA interprets waste management to include the following activities: recycling, combustion for energy recovery, treatment for destruction, waste stabilization, and release, including disposal. Waste management does not include the storage, container transfer, or tank transfer if no recycling, combustion for energy, treatment for destruction, waste stabilization, or release of the chemical occurs at the facility.

More terms and acronyms can be found at: http://www.epa.gov/OCEPAterms/intro.htm .

Sample Form R
For Reporting year 2011

(I g form; type or use fill-and-print form) Approval

Form Approved OMB Number: 2025-0009
Expires: 10/31/2014 **Page 1 of 6**

EPA
United States
Environmental Protection Agency

FORM R

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also Known as Title III of the Superfund Amendments and Reauthorization Act

TRI Facility ID Number

Toxic Chemical, Category, or Generic Name

WHERE TO SEND COMPLETED FORMS: 1. TRI Data Processing Center, P. O. Box 10163, Fairfax, VA 22038 2. APPROPRIATE STATE OFFICE (See instructions in Appendix E)

This section only applies if you are revising or withdrawing a previously submitted form, otherwise leave blank. **Revision (Enter up to two code(s))** **Withdrawal (Enter up to two code(s))**

IMPORTANT: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR _____

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 as a trade secret? ☐ Yes Yes (Answer question 2.2; attach substantiation forms) ☐ No (Do not answer 2.2; go to Section 3)

2.2 Is this copy ☐ Sanitized ☐ Unsanitized (Answer only if "Yes" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date signed:

SECTION 4. FACILITY IDENTIFICATION

4.1	Facility or Establishment Name	TRI Facility ID Number	
	Physical Street Address	Mailing Address (if different from physical street address)	
	City/County/State/ZIP Code	City/State/ZIP Code	Country (Non-US)
4.2	This report contains information for: (Important: Check a or b; check c or d if applicable)	a. ☐ An entire facility b. ☐ Part of a facility c. ☐ A federal facility d. ☐ GOCO	
4.3	Technical Contact Name		Telephone Number (include area code)
	Email Address		
4.4	Public Contact Name		Telephone Number (include area code)
	Email Address		
4.5	NAICS Code(s) (6 digits)	Primary a. / b. / c. / d. / e. / f.	
4.6	Dun & Bradstreet Number(s) (9 digits)	a. / b.	

SECTION 5. Parent Company Information

5.1	Name of U.S. Parent Company (for TRI Reporting purposes)	No U.S. Parent Company (for TRI Reporting purposes) ☐	
5.2	Parent Company's Dun & Bradstreet Number	NA ☐	

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Sample Form R
For Reporting year 2011

ng form; type or use fill-and-print form) Approval Form Approved OMB Number: 2025-0009 Expires: 10/31/2014 Page 2 of 6

FORM R

Part II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
Toxic Chemical, Category, or Generic Name

SECTION 1. TOXIC CHEMICAL IDENTITY
(Important: DO NOT complete this section if you are reporting a mixture component in Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)

SECTION 2. MIXTURE COMPONENT IDENTITY **(Important: DO NOT complete this section if you completed Section 1.)**

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. ☐ Produce b. ☐ Import	a. ☐ As a reactant	a. ☐ As a chemical processing aid
If Produce or Import	b. ☐ As a formulation component	b. ☐ As a manufacturing aid
c. ☐ For on-site use/processing	c. ☐ As an article component	c. ☐ Ancillary or other use
d. ☐ For sale/distribution	d. ☐ Repackaging	
e. ☐ As a byproduct	e. ☐ As an impurity	
f. ☐ As an impurity		

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	☐ (Enter two digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ON-SITE

			A. Total Release (pounds/year*) (Enter a range code** or estimate)	B. Basis of Estimate (Enter code)	C. Percent from Stormwater
5.1	Fugitive or non-point air emissions	NA ☐			
5.2	Stack or point air emissions	NA ☐			
5.3	Discharges to receiving streams or water bodies (Enter one name per box)	NA ☐			
	Stream or Water Body Name				
5.3.1					
5.3.2					
5.3.3					

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box ☐
and indicate the Part II, Section 5.3 page number in this box. ☐ (Example: 1, 2, 3, etc.)

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*For Dioxin or Dioxin-like compounds, report in grams/year.
**Range Codes: A= 1-10 pounds; B= 11-499 pounds; C= 500-999 pounds.

Sample Form R
For Reporting year 2011

...ting form; type or use fill-and-print form) Approval Form Approved OMB Number: 2025-0009 Expires: 10/31/2014

FORM R

Part II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
Toxic Chemical, Category, or Generic Name

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ON-SITE (continued)

		NA	A. Total Release (pounds/year*) (Enter a range code** or estimate)	B. Basis of Estimate (Enter code)
5.4.1	Underground injection on-site to Class I Wells	☐		
5.4.2	Underground injection on-site to Class II-V Wells	☐		
5.5	Disposal to land on-site			
5.5.1A	RCRA Subtitle C landfills	☐		
5.5.1B	Other landfills	☐		
5.5.2	Land treatment/application farming	☐		
5.5.3A	RCRA Subtitle C surface impoundments	☐		
5.5.3B	Other surface impoundments	☐		
5.5.4	Other disposal	☐		

SECTION 6. TRANSFER(S) OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs) NA ☐

6.1.___	POTW Name						
POTW Address							
City		County		State		ZIP	

A. Quantity Transferred to this POTW (pounds/year*) (Enter range code**or estimate)	B. Basis of Estimate (Enter code)

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box ☐
and indicate the Part II, Section 6.1 page number in this box. ☐ (Example: 1, 2, 3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS NA ☐

6.2.___ Off-Site EPA Identification Number (RCRA ID No.)							
Off-Site Location Name:							
Off-Site Address:							
City		County		State		ZIP	Country (non-US)

Is this location under control of reporting facility or parent company? ☐ Yes ☐ No

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*For Dioxin or Dioxin-like compounds, report in grams/year.
**Range Codes: A= 1-10 pounds; B= 11-499 pounds; C= 500-999 pounds.

TOXICS RELEASE INVENTORY

Sample Form R
For Reporting year 2011

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Form Approved OMB Number: 2025-0009
Expires: 10/31/2014 **Page 4 of 6**

FORM R

Part II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
Toxic Chemical, Category, or Generic Name

SECTION 6.2. TRANSFERS TO OTHER OFF-SITE LOCATION (CONTINUED)

A. Total Transfer (pounds/year*) (Enter a range code** or estimate)	B. Basis of Estimate (Enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (Enter code)
1.	1.	1. M
2.	2.	2. M
3.	3.	3. M
4.	4.	4. M

6.2.____ Off-Site EPA Identification Number (RCRA ID No.)

Off-Site Location Name:

Off-Site Address:

City | County | State | ZIP | Country (non-US)

Is this location under control of reporting facility or parent company? Yes ☐ No ☐

A. Total Transfer (pounds/year*) (Enter a range code** or estimate)	B. Basis of Estimate (Enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (Enter code)
1.	1.	1. M
2.	2.	2. M
3.	3.	3. M
4.	4.	4. M

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☐ Not Applicable (NA) - Check here if no on-site waste treatment method is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (Enter code)	b. Waste Treatment Method(s) Sequence (Enter 3- or 4-character code(s))						c. Waste Treatment Efficiency (Enter 2 character code)
7A.1a	7A.1b	1	2	3	4	5	6	7	8	7A.1c
7A.2a	7A.2b	1	2	3	4	5	6	7	8	7A.2c
7A.3a	7A.3b	1	2	3	4	5	6	7	8	7A.3c
7A.4a	7A.4b	1	2	3	4	5	6	7	8	7A.4c
7A.5a	7A.5b	1	2	3	4	5	6	7	8	7A.5c

If additional pages of Part II, Section 6.2/7.A are attached, indicate the total number of pages in this ☐ box and indicate the Part II, Section 6.2/7.A page number in this box. ☐ (Example: 1, 2, 3, etc.)

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*For Dioxin or Dioxin-like compounds, report in grams/year.
**Range Codes: A= 1-10 pounds; B= 11-499 pounds; C= 500-999 pounds.

Sample Form R
For Reporting year 2011

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Form Approved OMB Number: 2025-0009
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FORM R

Part II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
Toxic Chemical, Category, or Generic Name

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

☐ NA Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods (Enter 3-character code(s))

1 ☐ 2 ☐ 3 ☐

SECTION 7C. ON-SITE RECYLING PROCESSES

☐ NA Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods (Enter 3-character code(s))

1. ☐ 2. ☐ 3. ☐

SECTION 8. DISPOSAL OR OTHER RELEASES, SOURCE REDUCTION, AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year*)	Column B Current Reporting Year (pounds/year*)	Column C Following Year (pounds/year*)	Column D Second Following Year (pounds/year*)
8.1					
8.1a	Total on-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills				
8.1b	Total other on-site disposal or other releases				
8.1c	Total off-site disposal to Class I Underground Injection Wells, RCRA Subtitle C landfills, and other landfills				
8.1d	Total other off-site disposal or other releases				
8.2	Quantity used for energy recovery on-site				
8.3	Quantity used for energy recovery off-site				
8.4	Quantity recycled on-site				
8.5	Quantity recycled off-site				
8.6	Quantity treated on-site				
8.7	Quantity treated off-site				
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year*)				
8.9	Production ratio or activity index				
8.10	Did your facility engage in any newly implemented source reduction activities for this chemical during the reporting year? If so, complete the following section; if not, check NA. NA ☐				

	Source Reduction Activities (Enter code(s))	Methods to Identify Activity (Enter code(s))		
8.10.1		a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

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*For Dioxin or Dioxin-like compounds, report in grams/year.

(IMPORTANT: Read instructions before completing form; type or use fill-and-print form)

Form Approved OMB Number: 2025-0009
Approval Expires: 10/31/2014

FORM R

Part II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
Toxic Chemical, Category, or Generic Name

SECTION 8.11. DISPOSAL OR OTHER RELEASES, SOURCE REDUCTION, AND RECYCLING ACTIVITIES

8.11	If you wish to submit additional optional information on source reduction, recycling, or pollution control activities, provide it here.

Sample Form R
For Reporting year 2011

SECTION 9. MISCELLANEOUS INFORMATION

9.1	If you wish to submit any miscellaneous, additional, or optional information regarding your Form R submission, provide it here.

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APPENDIX N

TRI REPORTING FORMS – FORM A

TOXICS RELEASE INVENTORY

Sample Form A Page 1
For Reporting year 2011

ng form; type or use fill-and-print form) Approval

Form Approved OMB Number: 2025-0009
Expires: 10/31/2014

Page 1 of ___

United States Environmental Protection Agency

TOXICS RELEASE INVENTORY
FORM A

WHERE TO SEND COMPLETED FORMS: 1. TRI Data Processing Center P. O. Box 10163 Fairfax, VA 22038	2. APPROPRIATE STATE OFFICE OR (See instructions in Appendix E)	TRI Facility ID Number

This section only applies if you are revising or withdrawing a previously submitted form, otherwise leave blank.	Revision (Enter up to two code(s))	Withdrawal (Enter up to two code(s))

IMPORTANT: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR _____

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 2 as a trade secret? ☐ Yes (Answer question 2.2; attach substantiation forms) ☐ No (Do not answer 2.2; go to Section 3)	2.2	Is this copy ☐ Sanitized ☐ Unsanitized (Answer only if "Yes" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that to the best of my knowledge and belief, for each toxic chemical listed in this statement, the annual reportable amount as defined in 40 CFR 372.27(a), did not exceed 500 pounds for this reporting year and that the chemical was manufactured, processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year.

Name and official title of owner/operator or senior management official:	Signature:	Date signed:

SECTION 4. FACILITY IDENTIFICATION

4.1	Facility or Establishment Name		TRI Facility ID Number
	Physical Street Address		Mailing Address (if different from physical street address)
	City/County/State/ZIP Code	City/State/ZIP Code	Country (Non-US)
4.2	This report contains information for: (Important: Check c or d if applicable)	c. ☐ A Federal facility	d. ☐ GOCO
4.3	Technical Contact Name		Telephone Number (Include area code)
	Email Address		
4.4	Public Contact Name		Telephone Number (Include area code)
	Email Address		

4.5	NAICS Code(s) (6 digits)	Primary a.	b.	c.	d.	e.	f.

4.6	Dun & Bradstreet Number(s) (9 digits)	a.
		b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of U.S. Parent Company (for TRI Reporting purposes)	No U.S. Parent Company (for TRI Reporting purposes) ☐	
5.2	Parent Company's Dun & Bradstreet Number	NA ☐	

EPA Form 9350-2 (Rev. 10/2011) - Previous editions are obsolete.

Sample Form A Page 2
For Reporting year 2011

(IMPORTANT: Read instructions before completing form; type or use fill-and-print form) Approval ___ of ___

EPA FORM A
PART II. CHEMICAL IDENTIFICATION

Do not use this form for reporting PBT chemicals, including Dioxin and Dioxin-like Compounds*

SECTION 1. TOXIC CHEMICAL IDENTITY	**Report ___ of ___**
1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)
SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above)	
2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
SECTION 1. TOXIC CHEMICAL IDENTITY	**Report ___ of ___**
1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)
SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above)	
2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
SECTION 1. TOXIC CHEMICAL IDENTITY	**Report ___ of ___**
1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)
SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above)	
2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
SECTION 1. TOXIC CHEMICAL IDENTITY	**Report ___ of ___**
1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "Yes". Generic Name must be structurally descriptive.)
SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above)	
2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)

*See the TRI Reporting Forms and Instructions manual for the list of PBT Chemicals (including Dioxin and Dioxin-like Compounds)

EPA Form 9350-2 (Rev. 10/2011) - Previous editions are obsolete.

(Make additional copies of this page, if needed)

(IMPORTANT: Type or print; read instructions before completing form)

Form Approved OMB Number: 2025-0007
Approval Expires 07/31/2011

United States Environmental Protection Agency

FORM R Schedule 1

TRI Facility ID Number

PART II. CHEMICAL-SPECIFIC IN FORMATION (continued)

SECTION 5. QUANTITY OF DIOXIN AND DIOXIN-LIKE COMPOUNDS ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

		5.1	NA		5.2	NA		5.3	Discharges to receiving streams or water bodies (enter data for one stream or water body per box)		
		Fugitive or non-point air emissions			Stack or point air emissions			5.3.1	5.3.2	5.3.3
D. Mass (grams) of Each Compound in the category (1-17)	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
	11									
	12									
	13									
	14									
	15									
	16									
	17									

If additional pages of Section 5.3 are attached, indicate the total number of pages in this box ☐

and indicate the Section 5.3 page number in this box ☐ **(example: 1,2,3, etc.)**

(IMPORTANT: Type or print; read instructions before completing form)

Form Approved OMB Number: 2025-0007
Approval Expires 07/31/2011

TRI Facility ID Number

FORM R Schedule 1

PART II. CHEMICAL-SPECIFIC IN FORMATION (continued)

SECTION 5. QUANTITY OF DIOXIN AND DIOXIN-LIKE COMPOUNDS ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

		Underground Injection		**5.5** Disposal to land onsite					
		5.4.1 NA	**5.4.2** NA	**5.5.1.A** NA	**5.5.1.B** NA	**5.5.2** NA	**5.5.3.A** NA	**5.5.3.B** NA	**5.5.4** NA
		Underground Injection onsite to Class I Wells	Underground Injection onsite to Class II-V Wells	RCRA Subtitle C landfills	Other landfills	Land treatment/ application farming	RCRA Subtitle C surface impoundments	Other surface impoundments	Other disposal
C. Mass (grams) of Each Compound in the category (1-17)	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								

(IMPORTANT: Type or print; read instructions before completing form)

Form Approved OMB Number: 2025-0007
Approval Expires:07/31/2011

TRI Facility ID Number

FORM R Schedule 1
PART II. CHEMICAL-SPECIFIC INFORMATION (continued)

SECTION 6. TRANSFERS OF DIOXIN AND DIOXIN-LIKE COMPOUNDS IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A.3 Mass (grams) of Each Compound in the Category (1-17)

1		2		3		4		5		6		7		8		9	
10		11		12		13		14		15		16		17			

6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.___ D. Mass (grams) of Each Compound in the Category (1-17)

1.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	
2.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	
3.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	
4.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	

6.2.___ D. Mass (grams) of Each Compound in the Category (1-17)

1.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	
2.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	
3.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	
4.	1		2		3		4		5		6		7		8		
9		10		11		12		13		14		15		16		17	

If additional pages of Section 5.3 are attached, indicate the total number of pages in this box ☐

and indicate the Section 5.3 page number in this box ☐ **(example: 1,2,3, etc.)**

(IMPORTANT: Type or print; read instructions before completing form)

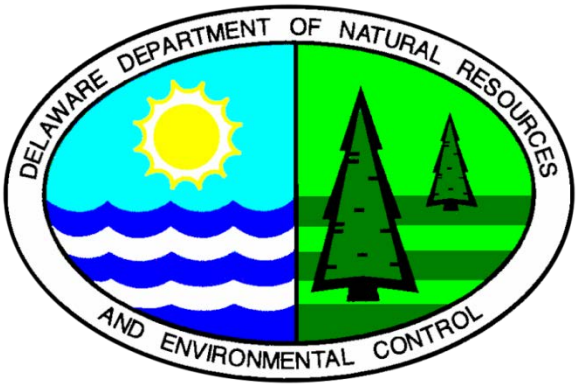
Form Approved OMB Number: 2025-0007
Approval Expires:07/31/2011

TRI Facility ID Number

FORM R Schedule 1
PART II. CHEMICAL-SPECIFIC INFORMATION (continued)

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES FOR DIOXIN AND DIOXIN-LIKE COMPOUNDS (current year only)

		8.1a Total onsite disposal to Class 1 Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	8.1b Total other onsite disposal or other releases	8.1c Total offsite disposal to Class 1 Underground Injection Wells, RCRA Subtitle C landfills, and other landfills	8.1d Total other offsite disposal or other releases	8.2 Quantity used for energy recovery onsite	8.3 Quantity used for energy recovery offsite	8.4 Quantity recycled onsite	8.5 Quantity recycled offsite	8.6 Quantity treated onsite	8.7 Quantity treated offsite	8.8 Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes
Column f. Mass (grams) of Each Compound in the category (1-17)	1											
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
	12											
	13											
	14											
	15											
	16											
	17											



EPCRA Reporting Program
Emergency Prevention and Response Section, DNREC
655 South Bay Rd., Suite 5N
Dover, DE 19901
(302) 739-9405

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