DELAWARE 2016 TOXICS RELEASE INVENTORY REPORT

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

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John Carney
Governor

Shawn M. Garvin
Secretary, DNREC

Ali Mirzakhalili
Director, Division of Air Quality

Virgil Holmes
Director, Division of Water

Marjorie A. Crofts
Director, Division of Waste and Hazardous Substances

Jamie Bethard
Program Manager, Emergency Prevention and Response Section

This report was prepared with the assistance of numerous individuals in the Department of Natural Resources and Environmental Control. The cover photo was provided by Robert Pritchett. Any questions or comments regarding this report should be directed to the principal author:

Debra Nielsen
TRI Coordinator
EPCRA Reporting Program, DNREC
155 Commerce Way, Suite B
Dover, DE 19904
Tel. (302) 739-9405
e-mail: debra.nielsen@state.de.us

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.

TOXICS RELEASE INVENTORY

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Executive Summary

The 2016 Toxics Release Inventory data set marks 30 years of data collected from covered facilities being made available to the public. The Toxics Release Inventory continues to strive to provide the public with information about chemical uses, releases, and waste management activities occurring at these facilities.

For 2016, 59 facilities submitted reports for 85 different chemicals. Approximately 3.4 million pounds were reported as being released on-site, a decrease of 1,223,000 pounds or 27% compared to 2015. Of this amount, approximately 22,000 pounds were released to land, while 546,000 pounds were released to air, and approximately 2.8 million pounds were released to water. Decreases were primarily due to decreased releases of nitrate compounds to water, which were down 941,000 compared to 2015. The Delaware City Refinery (DCR) and Allen Harim Harbeson reported significant decreases in the release of nitrate compounds to water. Looking at other chemicals, Chemours Edge Moor had a significant decrease in the on-site releases of carbonyl sulfide and manganese compounds because they didn't report for 2016, due to the September 2015 shutdown of the facility. Another significant change impacting on-site releases for 2016 was the reduction reported by the Delaware City Refinery in the release of sulfuric acid aerosols to air.

Overall, a summary of the data shows (amounts rounded to the nearest 1,000 pounds):

- The total amount released on-site to water decreased by 1,050,000 pounds (27%) compared to 2015. This was largely due to a decrease in releases of nitrate compounds reported by the Delaware City Refinery; due to many factors, but releases of nitrate compounds by the refinery are largely affected by changes in crude. Over the last 10 years, total releases to water for all facilities have decreased by 30%, mainly due to the decrease in releases of nitrate compounds to water. (See ***Releases to Water*** on page 9 for additional information.)
- The total amount of TRI chemicals reported as released on-site to air for 2016 decreased by 166,000 pounds (23%), compared to 2015. The largest reduction in this category was carbonyl sulfide released to air from Chemours Edge Moor. Another major reduction to air releases was the 109,000 pound (50%) decrease in sulfuric acid aerosol releases reported by the Delaware City Refinery, due to many factors; with the largest two being changes in crude oil, and tray replacements in the sulfur absorbing unit in early 2016. Over the last 10 years, total releases to air have trended downward 91%. (See ***Releases to Air*** on page 8 for additional information.)
- The total amount released on-site to land decreased by 7,000 pounds (24%) compared to 2015. This was primarily the result of the U.S. Army's National Guard River Road Training Site Range reporting a 68% reduction (11,000 pounds) in lead releases to land. This was due to the facility being unaware of a TRI reporting exemption for non-military use of the firing range when they reported for 2015, and they plan to revise their 2015 TRI report for lead downward to reflect this. Overall, releases to land have trended downward 97% since 2006. (See ***Releases to Land*** on page 10 for additional information.)
- The total amount for on-site release of carcinogens increased by 12,000 pounds (10%) for 2016, largely due to a 28,000 pound increase in releases of vinyl acetate (a possible carcinogen) by Formosa. Carcinogen releases have declined 242,000 pounds, or 63%, since 2006. (See ***Carcinogenic TRI Chemicals*** on page 27 for additional information.)

- The total amount for on-site release of persistent bioaccumulative toxins (PBTs) decreased by 12,000 pounds (64%) for 2016. This was primarily the result of a decrease in releases of lead to land reported by the U. S. Army's National Guard Training Site Range. (See ***Persistent Bioaccumulative Toxic (PBT) Chemicals*** on page 21 for additional information.)
- Total TRI waste, including releases on-site, transfers off-site for treatment and disposal, and waste management on-site, decreased by 9%, or 40.7 million pounds from 2015. On-site release amounts, reported above, were down 27%. Transfers off-site decreased 8%, primarily the result of decreases in off-site disposal and energy recovery. Waste managed on-site decreased by 9%, due to decreases in on-site treatment and energy recovery.

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 2016 included 595 individual chemicals and 31 chemical categories. October of 2016 marked the 30th anniversary of the establishment of TRI under Title III, Section 313, of the 1986 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 30 years of reported data. Most releases reported under TRI are also regulated through Federal and/or State permits.

This report contains detail from every 2016 TRI report or report revision from Delaware facilities received by DNREC as of October 1, 2017. 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. See ***Access to TRI Files,*** **under** ***For Further Information*****,** on page 49 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 21).

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
NAICS COVERED INDUSTRIES

NAICS CODES	2016 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
327	Nonmetallic Mineral Product Mfg.
331	Primary Metal Manufacturing
332	Fabricated Metal Product Mfg.
333	Equipment Mfg.
335	Electrical Equipment Mfg.
337	Furniture Manufacturing
339	Misc. Manufacturing
424	Wholesalers, Non-Durable Goods
454	Non-Store Retailers
928	National Security

Table 1 is a list of covered industries reporting to the Delaware TRI program for 2016, 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 2016 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 versus the previously used SIC codes.

The standard Form R report (see ***Appendix K*** 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 L*** 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. In Delaware, 16% of the TRI reports were filed as Form A for 2016. 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. Form R, Schedule 1 is an additional form that is required for dioxins.

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. For example, on-road motor vehicles released an estimated 5,709 tons to air in Delaware just for the chemicals ammonia (NH_3) and volatile organic compounds (VOCs), for 2016. NH_3 and many VOCs are also TRI chemicals. See page 6, which shows that total TRI on-site releases for 2016 are 3,380,338 pounds, or 1,690 tons.

- **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 2016, 9% of the reports representing 13% 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 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.

- **Recently Added Chemicals – 1-Bromopropane, Nonlyphenol, O-Nitrotoluene, Hydrogen Sulfide and PACs.** The EPA added the chemical 1-bromopropane to the list of TRI reportable chemicals for the 2016 reporting year, which was not reported by any Delaware facility for 2016. For the 2015 reporting year, a nonylphenol category was added to the list of reportable TRI chemicals. Nonlyphenol was reported by one Delaware facility, Croda, in their 2016 TRI report. For the 2014 reporting year, o-nitrotoluene was added to the list of reportable TRI chemicals. Per the National Toxicology Program (NTP), o-nitrotoluene has been classified as “reasonably anticipated to be a human carcinogen”. O-nitrotoluene was not reported by any Delaware facilities in their 2016 TRI Report. In the 2012 reporting year, hydrogen sulfide was added to the list of reportable chemicals. Hydrogen Sulfide reports accounted for the majority of TRI waste reported as managed on-site in 2016, accounting for 87%. In 2011, **16 new carcinogens**, four of which are in the polycyclic aromatic compounds (PAC) category, were added to the list of reportable chemicals. None of these 12 individually listed new chemicals was reported for 2016. PACs are reported as a category, so it is not possible to determine if any of the 4 facilities reporting PACs for 2016 reported any of these four new PAC chemicals.

- **Upcoming Changes –** The EPA has added a hexabromocyclododecane chemical category for the 2017 reporting year.

  The EPA also plans to update the NAICS codes from the 2012 to the 2017 standard, in time to use them for the 2017 TRI reporting year.

2016 Data Summary

Delaware 2016 and 2015 TRI totals for on-site releases, off-site transfers, and wastes managed on-site are displayed in Table 2 for direct comparisons. For 2016, 59 facilities submitted 209 reports for 85 different chemicals. Total on-site releases decreased by 26.6% (1,223,182 pounds). This decrease was primarily driven by decreases in nitrates released to water reported by the Delaware City Refinery. The permanent shutdown of Chemours Edge Moor also had a sizable effect, since they accounted for 5.5% of total on-site releases in 2015. Because the facility ceased operations in September of 2015, they did not report to TRI at all for 2016. Off-site transfers were down 8.4%, with large reductions in off-site disposal and energy recovery, a smaller decrease in transfers to POTW's, and increases in off-site recycling and treatment. On-site waste management activities decreased by 9.1% compared to 2015. There were large decreases in on-site treatment and on-site energy recovery, and an increase on-site recycling.

TABLE 2
2016 TRI DATA SUMMARY
(IN POUNDS)

	2015	2016
No. of Facilities	59	59
No of Form As	31	33
No of Form Rs	189	176
No. of Chemicals	90	85
On-site Releases		
Air	712,043	546,310
Water	3,862,398	2,812,016
Land	29,078	22,011
Total On-Site Releases	4,603,520	3,380,338
Off-Site Transfers		
POTW's	1,035,534	997,109
Recycle	6,814,502	7,249,685
Energy Recovery	1,968,908	1,612,951
Treatment	229,453	256,899
Disposal	1,612,833	561,263
Total Off-Site Transfers	11,661,230	10,677,907
On-Site Waste Mgmt.		
Recycle	10,756,074	11,859,042
Energy Recovery	15,963,550	12,727,241
Treatment	397,416,374	361,034,681
Total On-Site Mgmt.	424,135,997	385,620,964
Total Waste	440,400,746	399,679,208

Types of Data

Table 2 lists 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.

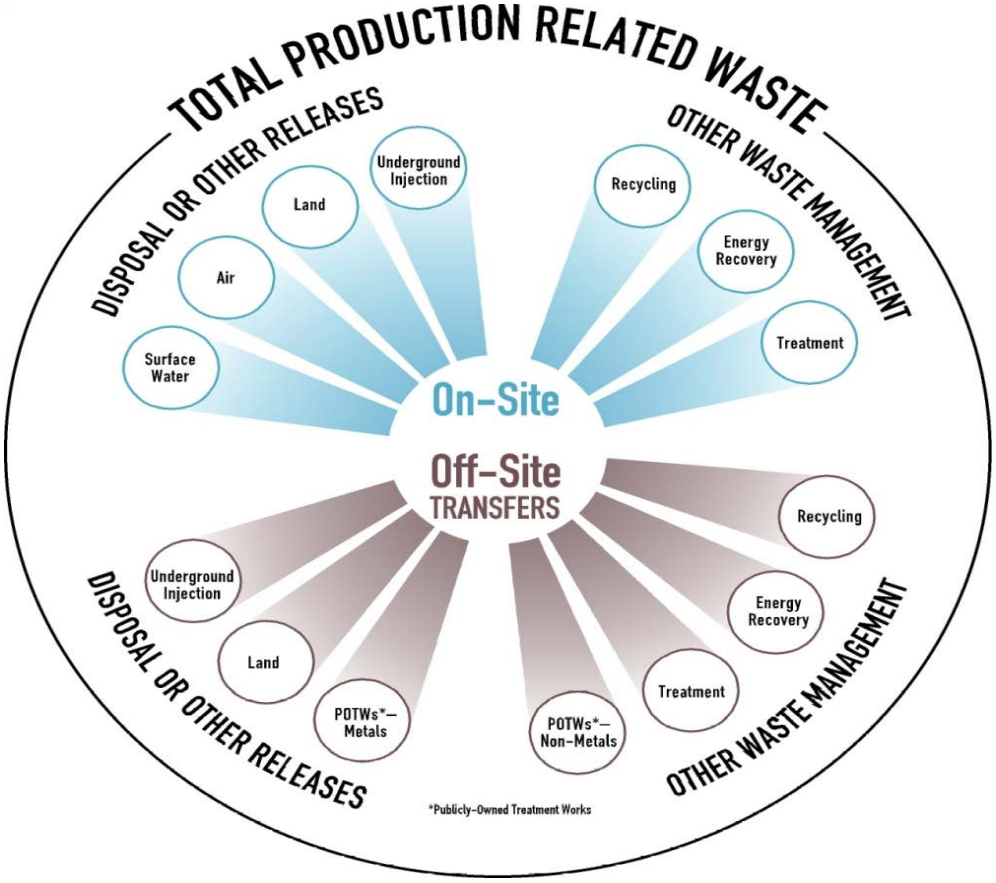
On-Site Releases: On-site releases in Delaware are to **air, water,** or **land**. There are four TRI categories, but one of these, **underground injection** of TRI chemical waste to wells, is not permitted in Delaware. The **release to air** category includes stack releases collected by mechanical means 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, typically waste water treatment plants), **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. These five main categories of off-site transfers cover the types of final off-site management undertaken for each chemical.

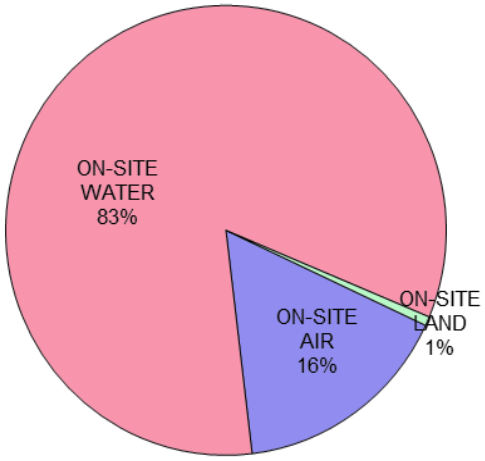
On-Site Waste Management: Waste management operations at the facility generating the waste are categorized to include **recycle**, **energy recovery**, and **treatment.**

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.



Amounts Reported: The amounts reported are in pounds per year, with a few exceptions, such as dioxins and dioxin like compounds, which are reported in grams. Certain chemical compounds have only the weight of the specific ion or elemental form reported instead of the entire compound, such as nitrate compounds or lead compounds. Also, specific chemicals are only required to be reported in certain states, such as hydrochloric and sulfuric acid, which are only required to be reported as aerosols or gases. For further information on the specific chemical reporting requirements, please refer to the TRI guidance documents at: https://ofmpub.epa.gov/apex/guideme_ext/f?p=104:1

FIGURE 1
2016 ON-SITE RELEASES



TOTAL REPORTED
3,380,338 POUNDS

On-Site Releases

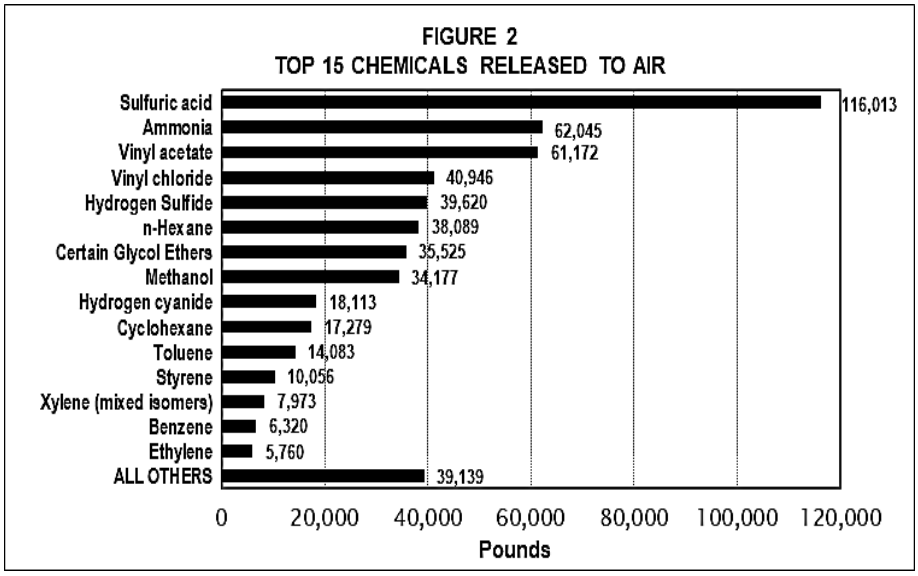
On-site TRI releases are emissions from a facility to the environment, including emissions to the air, discharges to surface water, and disposal onto or into the ground. These on-site releases to air, water, and land reported under TRI for 2016 made up less than 1% of all TRI-reported waste amounts. The remaining 99% of waste is managed on or off-site as shown in the diagram on the previous page and as seen in Figure 7 on page 13.

Figure 1 shows the totals of on-site releases reported in Delaware. A large portion, 83% of the total on-site release, is to water. 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 2006-2016 for all reported on-site releases is on page 34, and a trend graph for the top five chemicals is on page 35. Additional detail about on-site releases can be found in Appendices C, E, F, and H.

Releases to Air

Figure 2 depicts the on-site releases to air of the top 15 chemicals compared to the other 57 chemicals that were reported as released to air in 2016. Sulfuric Acid aerosol (gas) releases, which make up 21.2% of all on-site releases to air, are released largely in the crude oil refining process by the Delaware City Refinery. Sulfuric acid releases have decreased by 48.6% compared to 2015, largely due to a 108,000 pound (50%) decrease in sulfuric acid aerosol releases reported by the Delaware City Refinery. This is due to many factors, with the largest being changes in crude oil. The second largest air-release, ammonia

FIGURE 2
TOP 15 CHEMICALS RELEASED TO AIR



(11.4%), can be used as a refrigerant for petrochemical, food processing, and chemical facilities and is also a by-product of air pollution control activities. Four facilities reported releases of ammonia, with Edge Moor Hay Road Energy Centers (50% of the total) and Delaware City Refinery (38% of the total) releasing the largest amount to air. Vinyl acetate, which ranks third in releases to air, is used in the manufacture of polyvinylchloride (PVC). Formosa Plastics reported all of the releases to air of vinyl acetate and vinyl chloride, which make up 11.2% and 7.5% of air releases, respectively. Hydrogen sulfide, which accounted for 7.3% of all on-site releases to air, was predominantly released to air by the Delaware City Refinery (49%), Mountaire Farms of Delaware (30%), and Perdue Georgetown (20%). N-hexane accounted for 7% of all releases to air, with the Delaware City Refinery reporting 52% of the total, and Calpine Corporation's Garrison Energy Center reporting 48% of the total. Certain Glycol ethers accounted for 6.5% of on-site releases to air, with Hirsh Industries reporting 35,523 pounds or almost 100% of this amount. Methanol releases, 6.3% of all releases to air, were reported by eight facilities with BASF Corp reporting the highest amount, 20,770 pounds, or 61% of the total. The remaining chemicals in Figure 2 were each less than 3.5% of total on-site releases to air.

TABLE 3

TRI CHEMICALS RELEASED TO WATER BY WATER BODY IN 2016

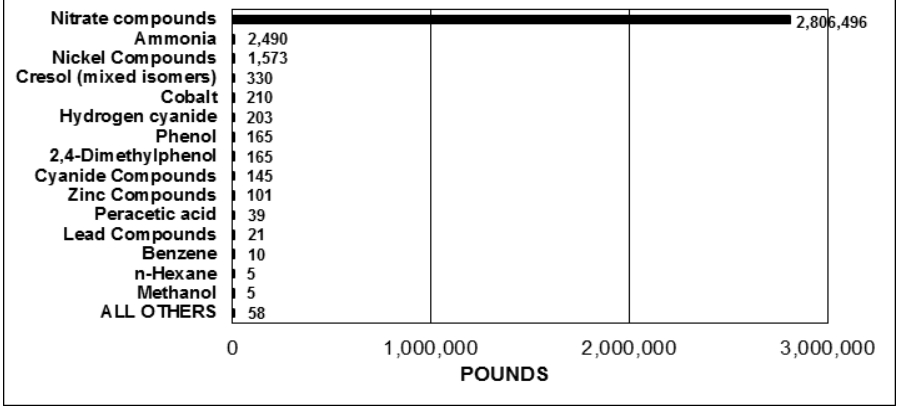
WATER BODY	NO. OF FACILITIES	NO. OF REPORTS	**RELEASE** (IN POUNDS)
ARMY CREEK	1	2	**103**
BEAVERDAM CREEK	1	1	**37,529**
CHRISTINA RIVER	1	3	**0**
DEEP CREEK	1	3	**0**
DELAWARE RIVER	4	41	**2,456,386**
DRAWYER CREEK	1	2	**18**
ISLAND CREEK	1	4	**0**
SAVANNAH DITCH	1	2	**317,980**
UNNAMED WATER BODY	1	1	**0**
STATE TOTAL		59	**2,812,016**

Releases to Water

Releases to water made up the largest portion of on-site releases at 83%. 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, 22 of the 59 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. These facilities reporting zero for the release amount for a specific chemical met the TRI reporting requirements and did not have an actual release to the body of water, but had the potential of a release.

The Delaware River received 87.4% of all releases to water, the Savannah Ditch 11.3%, and Beaverdam Creek 1.3%. Figure 3 shows the relative relationship of the top 15 TRI chemicals to all other chemicals (17) reported as released to water. This clearly shows the influence that nitrate compounds

FIGURE 3
TOP 15 CHEMICALS RELEASED TO WATER



have on the total. The nitrate compounds category was the top chemical released, (99.8% of the total release to water), followed by ammonia (0.09%), and nickel compounds (0.06%). The remaining chemicals released to water were each 0.01% or less of the total releases to water. The Delaware City Refinery reported a release of 2,451,026 pounds of nitrate compounds to water for 2016, Perdue Georgetown reported 317,941 pounds, and Allen Harim Harbeson reported 37,529. The biological treatment of nitrogen-containing substances such as ammonia and animal waste is responsible for the formation of nitrate compounds, which are released to water. Metallic compounds (cobalt, cyanide, lead, nickel, and zinc) are generally products of fuel combustion, and petroleum, ore and metal refining. The Delaware City Refinery, Johnson Controls Battery Plant, and V&S Delaware Galvanizing are the facilities reporting releases of these metal compounds to water.

TABLE 4

TRI CHEMICALS
RELEASED TO WATER BY BASIN IN 2016

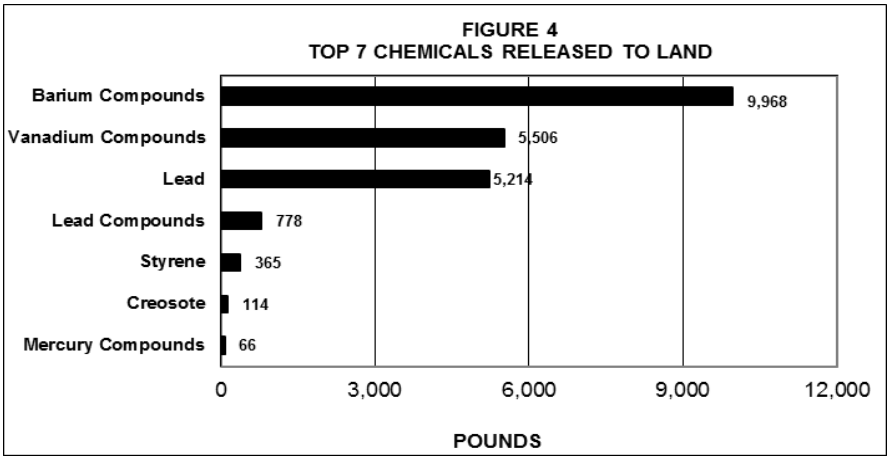
BASIN	RELEASE (IN POUNDS)	PERCENT
CHESAPEAKE	0	0.0%
DELAWARE BAY	2,812,009	100.0%
INLAND BAYS	0	0.0%
PIEDMONT	7	0.0%
STATE TOTAL	**2,812,016**	**100.0%**

Table 4 shows the total amount of TRI chemicals for 2016 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 decreased by 1,050,382 pounds in 2016, largely the result of a decrease in the reported release of nitrate compounds by the Delaware City Refinery. Additional discussion about these releases can be found in the ***Trend Analysis*** section starting on page 31.

Releases to Land

Releases to land are shown in Table 2 on page 6. These releases are relatively small, amounting to less than 1% of total on-site releases. Figure 4 shows the contribution for the 7 chemicals reported as being released to land. Nearly all the releases to land are metals and metal compounds except for creosote and styrene. Most of the metals and metal compounds reported are formed during combustion from metal impurities that exist in coal or oil, deposited by ammunition use, or are contained in the base metal scrap produced in metal working processes. Barium compounds, vanadium compounds, lead, and lead compounds are the top 4 metals and metal

FIGURE 4
TOP 7 CHEMICALS RELEASED TO LAND



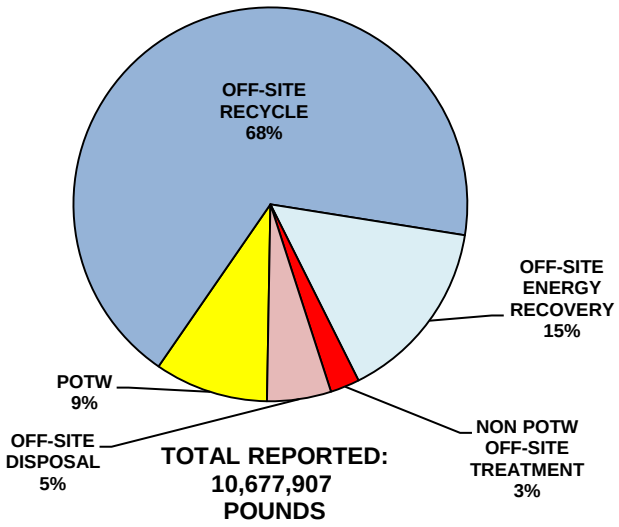
compounds reported, accounted for 97.5% of all on-site releases to land and were primarily reported by two facilities. The Indian River Generating Station reported the largest release to land, with 16,319 pounds of metals, primarily barium compounds and vanadium compounds. U. S. Army's National Guard Training Site Range was second, reporting 5,186 pounds of lead released to land. All other chemicals accounted for approximately 2.5% of the on-site releases to land. Additional discussion about releases to land and their trends can be found in the ***Trend Analysis*** section starting on page 31.

Descriptions of some of the hazards that these chemicals, which were released to air, water, or land, may cause to humans, can be found in the ***Chemical Data Fact Sheets*** section under ***For Further Information*** on page 49. Facility specific information is available via the ***2016 TRI Facility Profiles,*** see ***Access to TRI Files*** under the ***Further Information Section*** on page 49.

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 decreased by 8.4% (983,323 pounds) since 2015. Off-site transfers account for 2.7% of total TRI waste and are about 3.2 times the amount released on-site. Overall decreases occurred in disposal, energy recovery, and transfers to POTW's; and increases occurred in off-site recycling and treatment. The largest reductions include Chemours Edge Moor with a decrease of 865,335 pounds of manganese compounds being transferred off-site for disposal due to the shutdown of production in September of 2015, and the 263,255 pound decrease in toluene transferred off-site for energy recovery by Noramco. Noramco's decrease is primarily due to a change in product mix, which resulted in the use of less toluene at the facility. The largest increases reported were for lead compounds sent off-site for recycling by the Johnson Controls Battery Plant: 314,491 pounds, and the Johnson Controls Distribution Center: 285,804 pounds. 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.

FIGURE 5
2016 OFF-SITE TRANSFERS

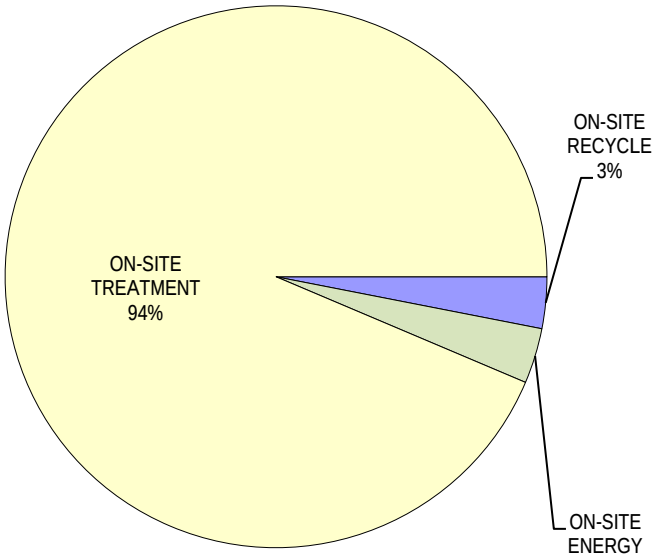


TRI chemicals in wastes are transported by various means from Delaware to their final destinations, most of which are out-of-state. For 2016, TRI chemicals were sent from Delaware TRI reporting facilities to

20 states, some as far away as Oklahoma and Texas, in addition to locations in Delaware. Ninety-seven percent of TRI chemicals in all wastes shipped off-site (not including direct transfers to POTW's) were sent to out-of-state locations for further processing and/or disposal. However, more than 99.5% of transfers to POTWs generated by Delaware facilities were treated in Delaware. Off-site transfer to recycle operations accounted for 68% of the amounts within the five categories in off-site transfers, while energy recovery accounted for 15%, transfers to POTWs accounted for 9%, disposals accounted for 5% of the transfers, and non-POTW treatment was 3%. Ninety-six percent of the transfers to POTWs were to the City of Wilmington POTW, and all but 5,163 pounds of the 997,109 pounds treated at all POTWs were treated at Delaware POTW facilities. BASF Corp makes 63% (605,643 pounds, 90% of which is methanol) of the total TRI chemical transfers to the Wilmington POTW.

On-Site Waste Management

FIGURE 6
2016 ON-SITE WASTE MANAGEMENT



TOTAL REPORTED:
385,620,964 POUNDS

On-site waste management is the amount of waste that never leaves the facility and is managed by the facility on-site. These activities generally represent a lower risk to the environment, as the materials are typically destroyed on site, although a small fraction may escape treatment and these amounts are reported as on-site releases. The categories of **Treatment, Recycle, and Energy Recovery** are used to define on-site management activities related to TRI chemical wastes. The total amount of TRI chemicals managed on-site is 96.5% of the total TRI chemical waste. Figure 6 shows the portions of these wastes processed on-site. ***Appendices D and G*** provide additional detail for on-site waste management. Facility specific information is available via the ***2016 TRI Facility Profiles,*** see ***Access to TRI Files*** under the ***Further Information Section*** on page 49.

Waste Treatment (361,034,681 pounds) includes the amount of toxic material that was destroyed in on-site waste treatment operations. The Delaware City Refinery had the highest total amount of on-site waste treatment, combining for 356,173,098 pounds (99%) of the TRI waste treated on-site. Treatment of hydrogen sulfide at the Delaware City Refinery in the amount of 336,301,707 pounds was the highest single on-site treatment amount.

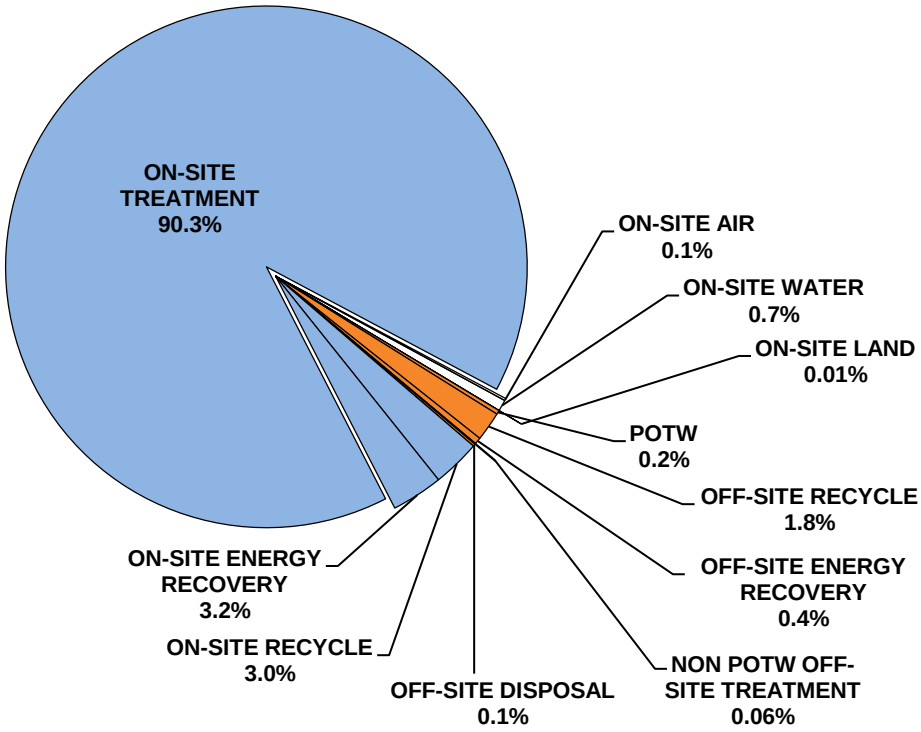
Recycled waste (11,859,042 pounds) is the quantity of toxic material recovered at the facility and made available for further use. Rohm & Haas (B2, B3, B8) recycled n,n-dimethylformamide, Air Liquide Advanced Separations recycled methanol and n-hexane, and Orient recycled aniline, with these facilities combining to report 90.3% of the total amount recycled on-site.

Energy Recovery includes the quantity of toxic material that had heat value and was combusted in some form of energy recovery device such as a heat boiler. The Delaware City Refinery was the only facility in the State to report on-site energy recovery. For 2016, the refinery reported 12,727,241 pounds of TRI chemicals processed on-site for energy recovery, with ammonia accounting for 95.8% or 12.2 million pounds.

Total TRI Waste

Total TRI 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 provides a perspective of the total TRI chemical waste picture in Delaware. About 0.9 % of the total reported TRI waste is released on-site, 2.7% is transferred off-site for treatment or disposal, and 96.5% is managed on-site through treatment, energy recovery, and recycle operations by the facilities generating the waste. Figure 7 shows the relative portions of the various sub-categories of TRI release and waste management.

FIGURE 7
TOTAL 2016 TRI CHEMICAL MANAGEMENT
TOTAL REPORTED: 399,679,208 POUNDS

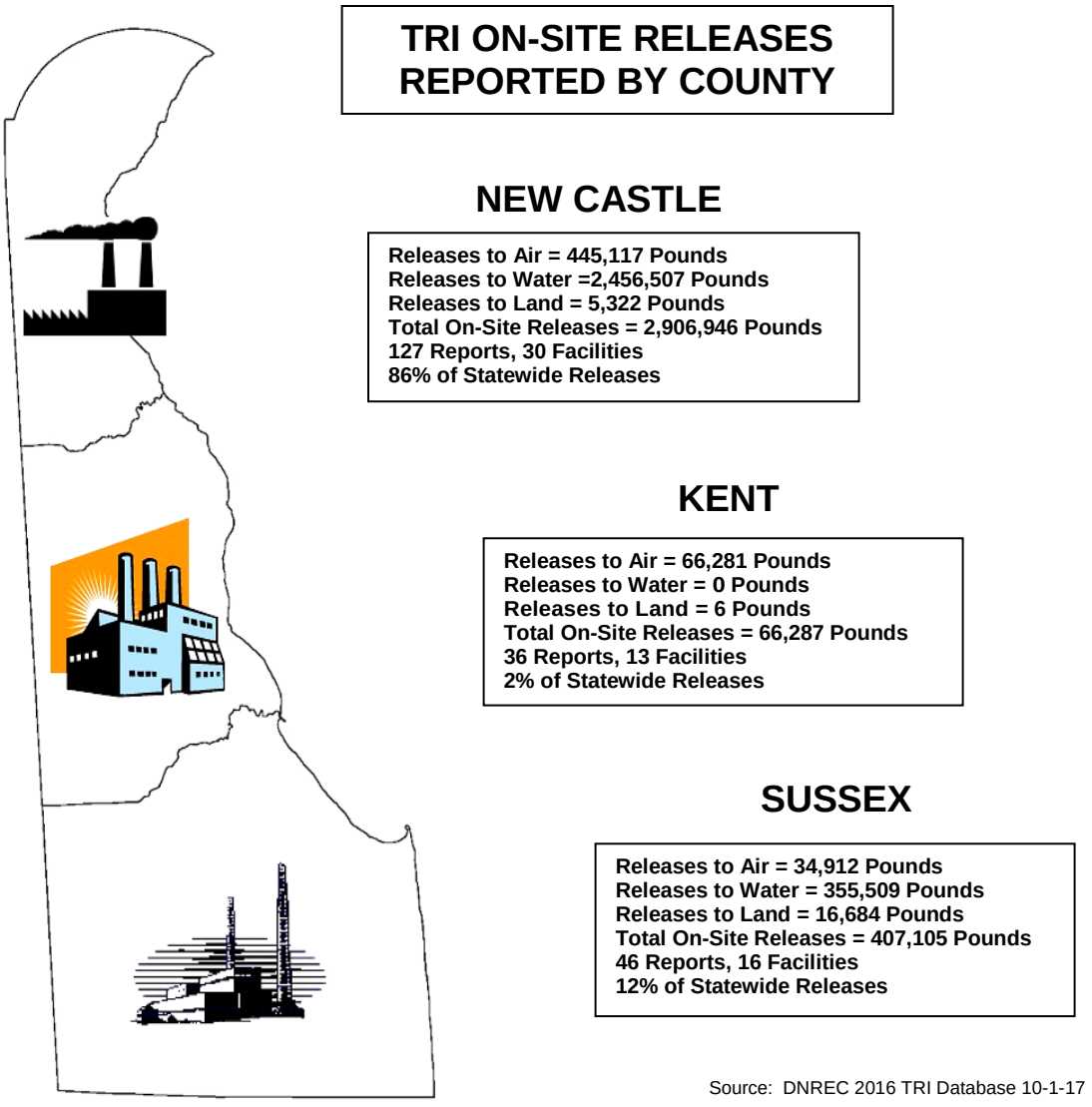


2016 Data Detail

On-Site Releases by County

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

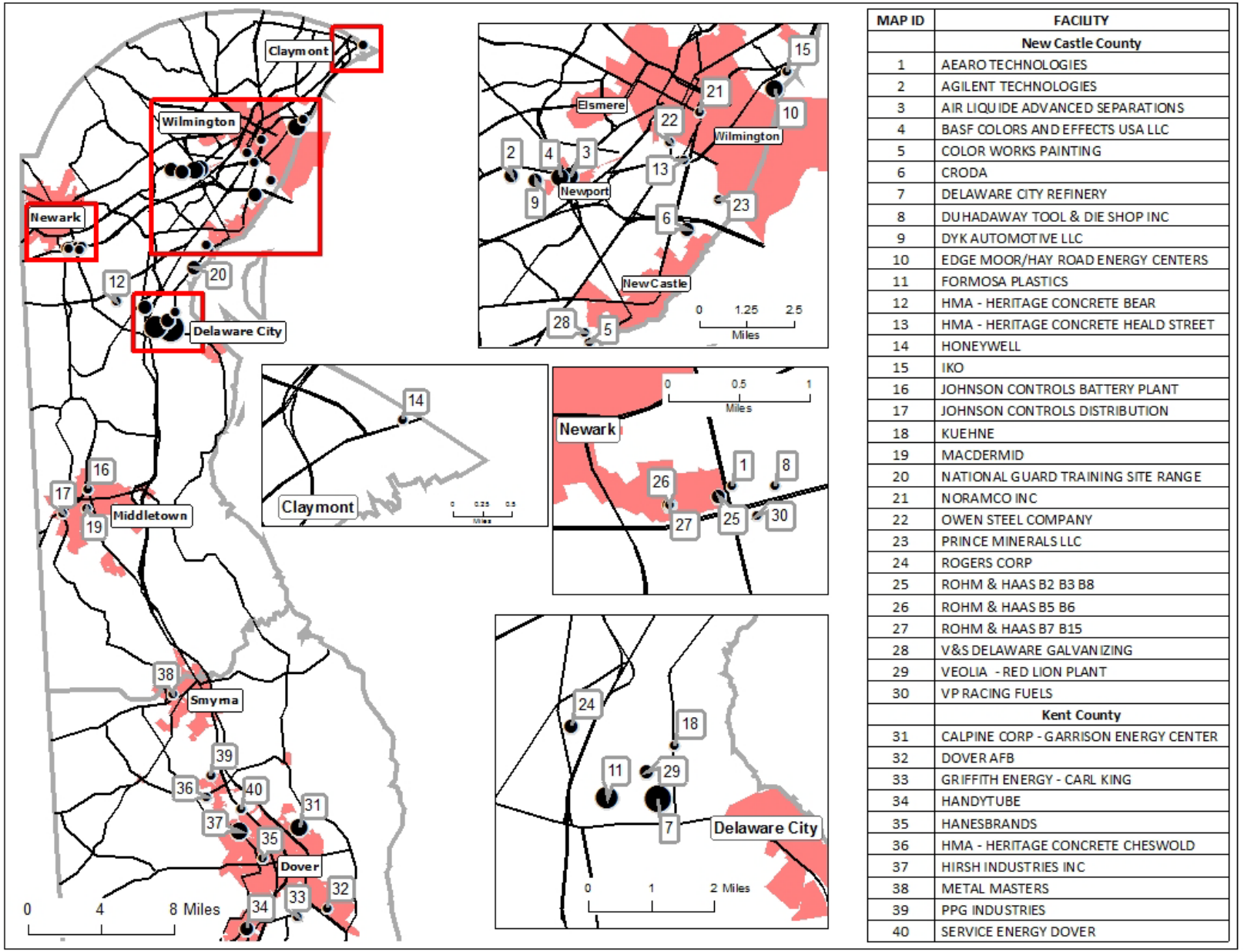
FIGURE 8



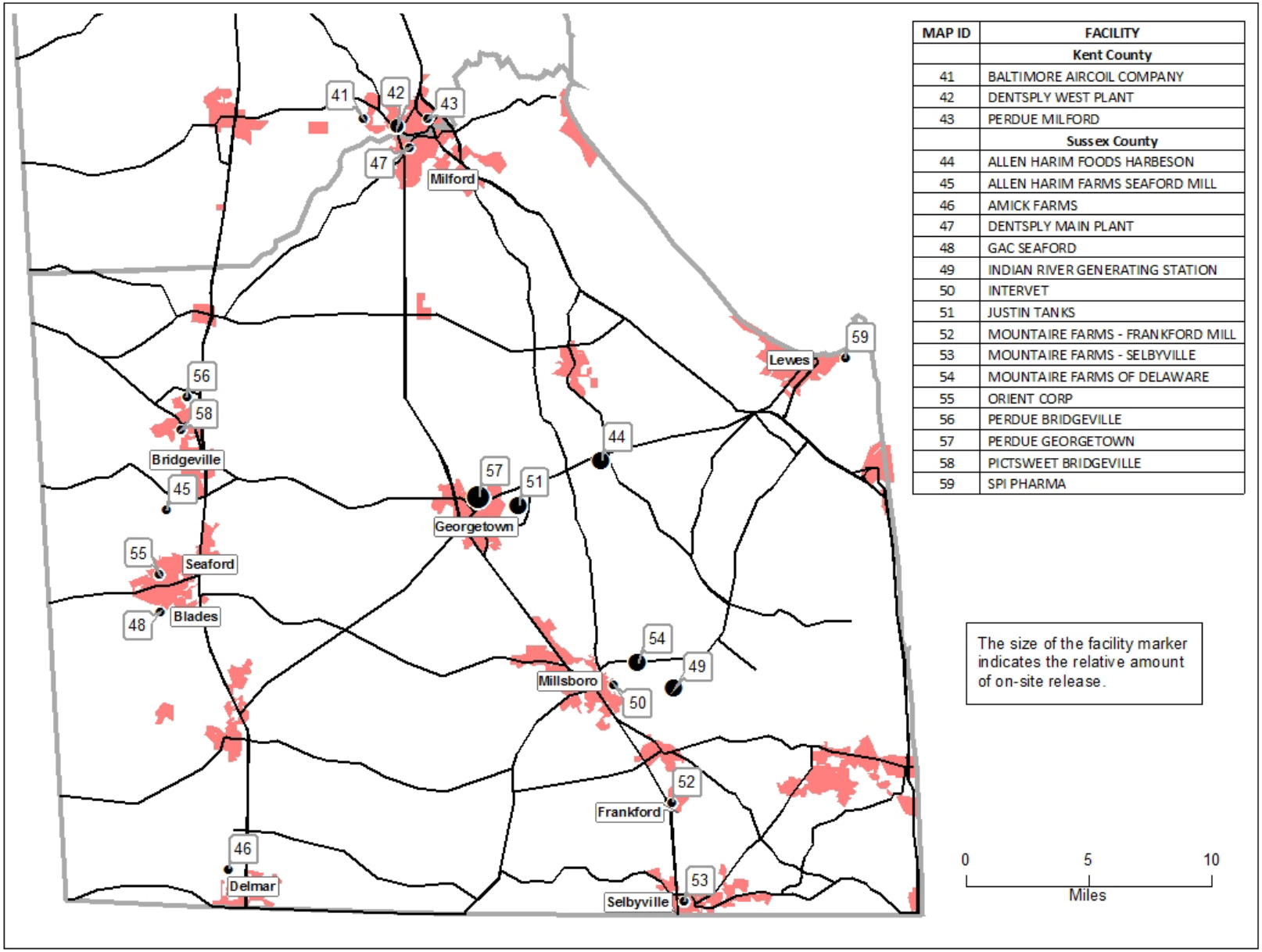
Source: DNREC 2016 TRI Database 10-1-17

Facility Locations and Information

Figure 9 on the following two pages shows the location of each reporting facility in the State, with the facility location marker size depicting the size of its on-site release relative to other facilities in Delaware. Facility contact information is in Appendix B. The ***2016 Facility Profiles*** provide a facility overview (see ***Access to TRI Files*** under the ***Further Information section*** on page 49).



MAP ID	FACILITY
	New Castle County
1	AEARO TECHNOLOGIES
2	AGILENT TECHNOLOGIES
3	AIR LIQUIDE ADVANCED SEPARATIONS
4	BASF COLORS AND EFFECTS USA LLC
5	COLOR WORKS PAINTING
6	CRODA
7	DELAWARE CITY REFINERY
8	DUHADAWAY TOOL & DIE SHOP INC
9	DYK AUTOMOTIVE LLC
10	EDGE MOOR/HAY ROAD ENERGY CENTERS
11	FORMOSA PLASTICS
12	HMA - HERITAGE CONCRETE BEAR
13	HMA - HERITAGE CONCRETE HEALD STREET
14	HONEYWELL
15	IKO
16	JOHNSON CONTROLS BATTERY PLANT
17	JOHNSON CONTROLS DISTRIBUTION
18	KUEHNE
19	MACDERMID
20	NATIONAL GUARD TRAINING SITE RANGE
21	NORAMCO INC
22	OWEN STEEL COMPANY
23	PRINCE MINERALS LLC
24	ROGERS CORP
25	ROHM & HAAS B2 B3 B8
26	ROHM & HAAS B5 B6
27	ROHM & HAAS B7 B15
28	V&S DELAWARE GALVANIZING
29	VEOLIA - RED LION PLANT
30	VP RACING FUELS
	Kent County
31	CALPINE CORP - GARRISON ENERGY CENTER
32	DOVER AFB
33	GRIFFITH ENERGY - CARL KING
34	HANDYTUBE
35	HANESBRANDS
36	HMA - HERITAGE CONCRETE CHESWOLD
37	HIRSH INDUSTRIES INC
38	METAL MASTERS
39	PPG INDUSTRIES
40	SERVICE ENERGY DOVER



MAP ID	FACILITY
	Kent County
41	BALTIMORE AIRCOIL COMPANY
42	DENTSPLY WEST PLANT
43	PERDUE MILFORD
	Sussex County
44	ALLEN HARIM FOODS HARBESON
45	ALLEN HARIM FARMS SEAFORD MILL
46	AMICK FARMS
47	DENTSPLY MAIN PLANT
48	GAC SEAFORD
49	INDIAN RIVER GENERATING STATION
50	INTERVET
51	JUSTIN TANKS
52	MOUNTAIRE FARMS - FRANKFORD MILL
53	MOUNTAIRE FARMS - SELBYVILLE
54	MOUNTAIRE FARMS OF DELAWARE
55	ORIENT CORP
56	PERDUE BRIDGEVILLE
57	PERDUE GEORGETOWN
58	PICTSWEET BRIDGEVILLE
59	SPI PHARMA

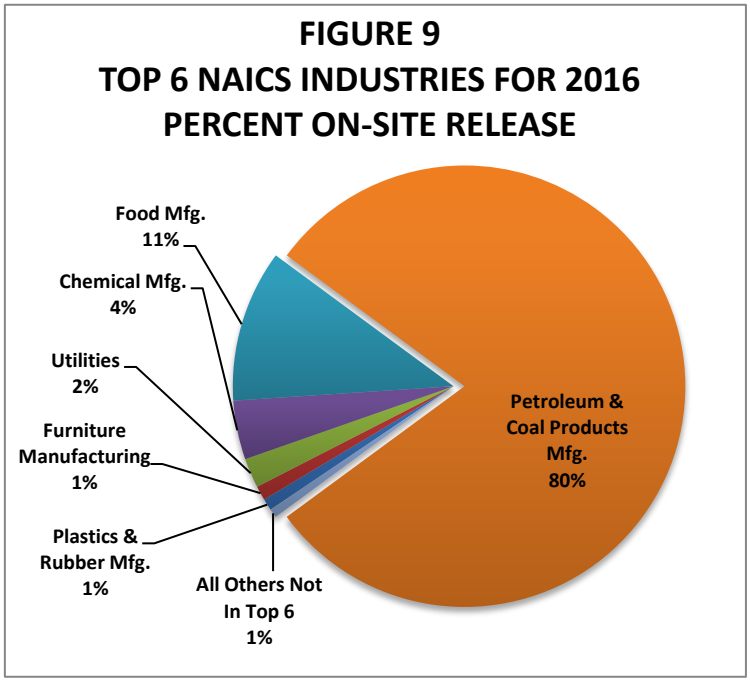
NAICS Industry Groups

Table 5 provides a description of each North American Industrial Classification System (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.

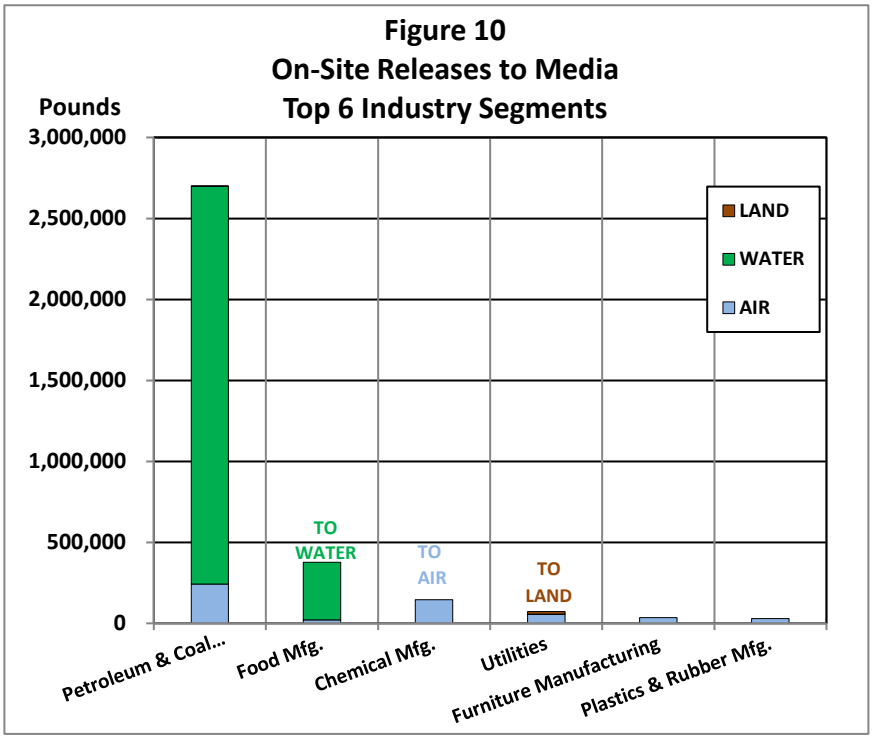
TABLE 5
2016 TRI DATA BY PRIMARY NAICS GROUP
(in pounds)

NAICS CODE	INDUSTRY GROUP	REPORTS	FACILITIES	FORM A	FORM R	ON-SITE RELEASE	OFF-SITE TRANSFERS	ON-SITE WASTE MGMT.
212	Mining	3	1	0	3	231	123,775	0
221	Utilities	17	3	2	15	73,289	102	1,268,784
311	Food Mfg.	27	10	18	9	376,579	139	1,029,871
313	Textile Products Mfg.	8	4	0	8	6,960	1,421,905	4,159,978
324	Petroleum & Coal Products Mfg.	45	4	4	41	2,698,201	129,415	368,900,804
325	Chemical Mfg.	54	14	4	50	145,963	2,401,756	4,384,375
326	Plastics & Rubber Mfg.	11	4	0	11	29,252	283,600	5,089,406
327	Non-metallic Mineral Product Mfg.	3	3	0	3	28	0	0
331	Primary Metal Mfg.	4	1	0	4	3,848	84,562	0
332	Fabricated Metal Product Mfg.	10	5	0	10	640	580,088	787,746
333	Equipment Mfg.	5	1	0	5	15	667,535	0
335	Electrical Equipment Mfg.	5	2	0	5	95	4,958,694	0
337	Furniture Manufacturing	1	1	0	1	35,523	0	0
339	Misc. Manufacturing	4	2	0	4	4,407	22,458	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	7	2	0	7	5,305	3,878	0
	TOTAL	209	59	33	176	3,380,338	10,677,906	385,620,964

Figure 9 shows the percent contribution of each of the top six NAICS groups and all others not in the top six, compared to the reported total on-site releases. The top six NAICS groups 221 (Utilities), 311 (Food Manufacturing), 324 (Petroleum and Coal Products Mfg.), 325 (Chemical Mfg.), 326 (Plastics and Rubber Mfg.), and 337 Furniture Manufacturing, account for 99% of the total on-site releases within the State. Facilities not in the top six NAICS industry groups contributed only 21,529 pounds of on-site releases, less than 1% of the 2016 on-site release total.



Depending on the NAICS group, releases to air, water, and land can be very different. Figure 10 shows the top 6 NAICS groups in Delaware and to what media the releases occurred. For example, petroleum and coal products manufacturing reported 9% of their releases were to air, and 91% of their releases were to water. Food manufacturing reported 6% of their releases were to air, and 94% of their releases were to water. Utilities reported having their releases split between air and land, with 78% of the releases to air and 22% of the releases to land. Most of the releases for chemical manufacturing, furniture manufacturing, and plastics and rubber manufacturing were to air, 99% to 100%. Keep in mind this is based on a small sample size due to the overall low number of facilities reporting in Delaware. Other states will have greatly different results among NAICS groups, particularly those states whose industries have little presence in Delaware, such as mining or forestry/paper products manufacturing.



RELEASES FROM THE TOP 15 FACILITIES

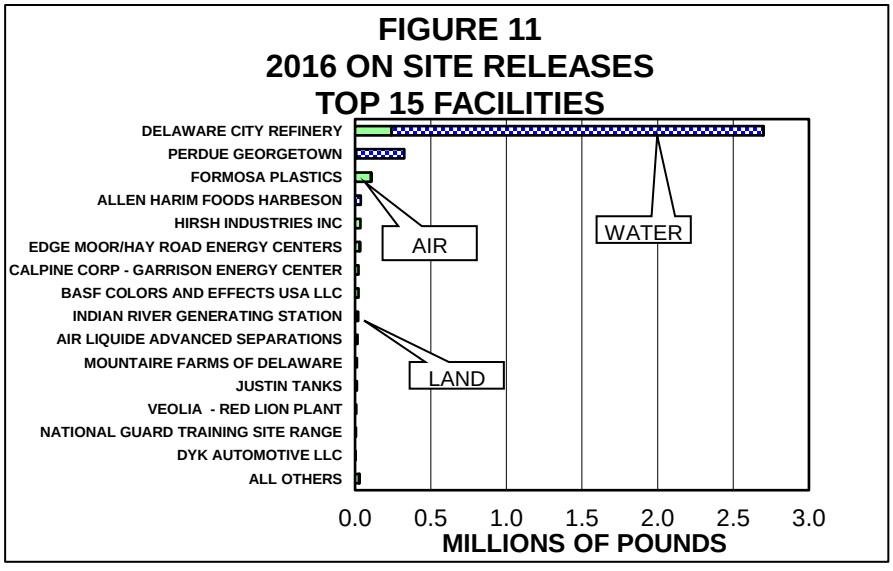


Figure 11 shows the relative contribution of each of the top 15 reporting facilities to on-site releases. The top five facilities accounted for 3,201,595 pounds, or 94.7% of all on-site releases. Of the 3,380,338 pounds that were reported as released on-site by all 59 facilities Statewide, the top 15 facilities accounted for total releases of 3,353,072 pounds, or 99.2% of the total on-site releases.

TABLE 6
TOP 15 FACILITIES 2015 AND 2016 RANKING BY ON-SITE RELEASE
(in pounds)

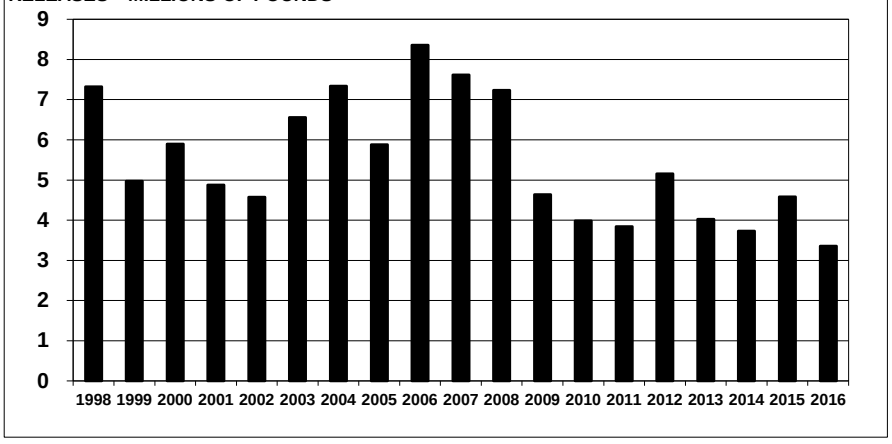
2015 RANK	2016 RANK	FACILITY	2016 TOTAL AIR	2016 TOTAL WATER	2016 TOTAL LAND	2016 ON-SITE RELEASE	2015 ON-SITE RELEASE	2015 TO 2016 CHANGE IN RELEASES	
1	1	DELAWARE CITY REFINERY	241,709	2,456,378	114	2,698,200	3,728,166	(1,029,965)	-28%
2	2	PERDUE GEORGETOWN	7,970	317,980	-	325,950	318,465	7,485	2%
4	3	FORMOSA PLASTICS	104,392	1	-	104,393	78,229	26,164	33%
5	4	ALLEN HARIM FOODS HARBESON	0	37,529	-	37,529	64,862	(27,333)	-42%
12	5	HIRSH INDUSTRIES INC	35,523	-	-	35,523	12,678	22,845	180%
7	6	EDGE MOOR/HAY ROAD ENERGY CENTERS	30,915	7	-	30,922	20,980	9,942	47%
DNR	7	CALPINE CORP - GARRISON ENERGY CENTER	22,340	-	-	22,340	-	22,340	-
6	8	BASF COLORS AND EFFECTS USA LLC	22,139	-	-	22,139	21,130	1,009	5%
10	9	INDIAN RIVER GENERATING STATION	3,709	-	16,318	20,028	15,961	4,067	25%
8	10	AIR LIQUIDE ADVANCED SEPARATIONS	16,494	-	-	16,494	16,879	(385)	-2%
13	11	MOUNTAIRE FARMS OF DELAWARE	12,314	-	-	12,314	8,460	3,854	46%
11	12	JUSTIN TANKS	10,047	-	365	10,412	13,470	(3,058)	-23%
14	13	VEOLIA - RED LION PLANT	7,166	-	-	7,166	7,680	(514)	-7%
9	14	NATIONAL GUARD TRAINING SITE RANGE	0	-	5,186	5,186	16,082	(10,896)	-68%
DNR	15	DYK AUTOMOTIVE LLC	4,476	-	-	4,476	-	4,476	-
		ALL OTHERS	**27,116**	**121**	**28**	**27,266**	**280,478**	**(253,212)**	**-90%**
		TOP 15	**519,194**	**2,811,895**	**21,983**	**3,353,072**	**4,323,042**	**(969,970)**	**-22%**
		STATE TOTALS, ALL FACILITIES	**546,310**	**2,812,016**	**22,011**	**3,380,338**	**4,603,520**	**(1,223,182)**	**-27%**

NR- Not ranked in the top 15 for 2015
DNR- Did not report in 2015
Source: 2015 and 2016 DNREC TRI Databases, October 2017

Table 6 shows the 2016 ranking of the top 15 facilities along with their 2015 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 2015 to 2016 is also shown, and some of these changes are significant. The #3 facility from 2015's report, Chemours Edge Moor, did not report to TRI for 2016, because they ceased operation in 2015.

Figure 12 shows the totals for on-site releases for the top 15 reporting facilities from 1998-2016. The total on-site release trend for these facilities is down 969,970 pounds (22%) since 2015 and down 4 million pounds (54%) since 1998 after reaching a peak of 8.4 million pounds in 2006. These facilities reported 99.2% of the total on-site releases in the State for 2016, while the remaining 44 facilities reported 0.8%.

FIGURE 12
TOP 15 FACILITIES
ON-SITE RELEASE



Nine facilities of the top 15 facilities reported an increase in on-site releases, while six reported a decrease for 2016. 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. The largest changes reported by the top 15 facilities in on-site releases were decreases in the release of nitrate compounds to water reported by the Delaware City Refinery and Allen Harim Harbeson; down by 914,052 pounds and 27,333 pounds, respectively. Other large changes in on-site releases reported by the top 15 were a decrease in sulfuric acid released to air by the Delaware City Refinery, down by 109,203 pounds compared to 2015; and an increase in vinyl acetate released to the air by Formosa, up by 27,600 pounds since 2015.

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.

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 2-4 facilities, partially offset by 1-2 new facilities that started to report each year.

Chemours Edge Moor ceased operations in September of 2015, so they did not file 2016 TRI reports. Fujifilm also did not file 2016 TRI reports, because they fell below the reporting threshold for the year.

Facilities that did not file 2014 TRI reports because they closed permanently were: Evraz Claymont Steel, BASF Seaford, Motech Americas in Newark, and HMA Heritage Concrete in Frankford.

Chrome Deposit ceased operations and closed in 2012, and NRG Dover converted to natural gas and ceased burning coal. As a result, these two facilities did not file 2013 TRI reports.

New Facilities Reporting to TRI

Calpine Corporation's Garrison Energy Center filed TRI reports for the first time for the 2016 reporting year. This 309-megawatt natural gas-fired, combined cycle electric generating facility is located in the Garrison Oak Technological Park in Dover. The plant employs highly efficient combined-cycle technology with advanced environmental controls.

DYK Automotive LLC report to TRI for the first time in 2016, but have also recently filed a TRI report for 2015. This facility, located in Wilmington, mixes and re-packages automotive aftermarket products.

More information concerning these two facilities is contained in this report, the report ***Appendices***, and the ***2016 TRI Facility Profiles***.

Persistent Bioaccumulative Toxic (PBT) Chemicals, 2006-2016

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 provides a current list of the PBT chemicals and their thresholds, and the number of reports received for each chemical for 2016.

TABLE 7
2016 DELAWARE PBT CHEMICALS AND REPORTING THRESHOLDS
(pounds/year)

Chemical or Chemical Category	Threshold (Pounds)	2016 REPORTS
Aldrin	100	0
Benzo[g,h,I]perylene	10	1
Chlordane	10	0
Dioxin and dioxin-like compounds category	0.1 grams	4
Heptachlor	10	0
Hexachlorobenzene	10	0
Isodrin	10	0
Lead	100	6
Lead and lead compounds	100	6
Mercury	10	2
Mercury compounds	10	3
Methoxychlor	100	0
Octachlorostyrene	10	0
Pendimethalin	100	0
Pentachlorobenzene	10	0
Polychlorinated biphenyls (PCBs)	10	0
Polycyclic aromatic compounds category (PACs)	100	3
Tetrabromobisphenol A	100	0
Toxaphene	10	0
Trifluralin	100	0
	TOTAL	25

PBTs are receiving increased scrutiny as we learn more about them, and reporting of PBTs is being progressively 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.

In 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 M*** for a copy of the DLC reporting form, Schedule 1. These amounts are provided along with the original amount reported in pounds. See pages 23-24 for additional detail on dioxins.

Table 8 shows the results of PBT reporting for 2014-2015 compared to total 2016 TRI data. The total count of PBT reports, 25, is lower than the counts of all recent years. PBT on-site releases for 2016 comprise 0.2% of the total TRI on-site releases. Total PBT wastes are 1.2% of total TRI wastes. No PBT reports can be filed on Form A. See page 3 for an explanation of PBT and non-PBT chemicals.

PBT on-site releases were lower for 2016 by 11,756 pounds (64%); with the greatest decrease coming from the U. S. Army's National Guard River Road Training Site Range in New Castle with lower releases of lead to land by 10,896 pounds. Lead and lead compounds made up 94% of the total on-site PBT releases for 2016. Since 2006, the trend of PBT on-site releases is down 79%.

TABLE 8
2016 TRI PBT DATA SUMMARY
(IN POUNDS)

	PBTs only 2014	PBTs only 2015	PBTs only 2016
No. of Facilities	16	18	17
No. of Form A's	NA	NA	NA
No. of Form R's	30	32	25
No. of Chemicals	11	11	7
On-Site Releases			
Air	1,046	626	517
Water	108	91	33
Land	1,793	17,647	6,058
On-Site Releases	2,947	18,364	6,608
Off-Site Transfers			
POTW's	3	27	2
Recycle	4,995,979	4,311,286	4,924,884
Energy Recovery	0	0	0
Treatment	0	0	0
Disposal	35,200	32,649	24,926
Total Transfers	5,031,182	4,343,962	4,949,812
On-Site Waste Mgmt.			
Recycle	2,570	3,224	7,123
Energy Recovery	0	0	0
Treatment	862	783	825
Total On-Site Mgmt.	3,432	4,007	7,948
Total PBT Waste	5,037,562	4,366,332	4,964,368

The total PBT waste amount increased by 598,036 pounds (13.7%) for 2016 compared to 2015. The primary reason for this increase was the increased transfers of lead compounds to off-site recycling by the Johnson Controls Battery Plant and Distribution Center.

Table 9, on page 23, shows the amounts of each PBT chemical reported as released by the TRI reporting facilities in 2016. The Delaware City Refinery reported the largest PBT release to air, 204 pounds of polycyclic aromatic compounds (PACs). The Johnson Controls Battery Plant reported the largest PBT release to water, 18 pounds of lead compounds. The U. S. Army's National Guard Training Site Range reported the largest release to land, 5,186 pounds of lead. Over 99% of the PBT amounts transferred off-site for recycle was lead compounds from Johnson Controls Battery Plant and Distribution Center. Additional detail for mercury and mercury compounds, another important PBT, is in a separate section on page 25.

Three companies (The Delaware City Refinery, IKO, and V&S Galvanizing) reported the entire amount of on-site PBT chemical waste management. The refinery treated 453 pounds of benzo(g,h,i)perylene and 372 pounds of polycyclic aromatic compounds (PACs) on-site. IKO recycled 465 pounds of PACs on-site and V&S Galvanizing recycled 6,658 pounds of lead on-site. ***Appendix I*** shows the PBT data detail, listing each PBT chemical and the facilities reporting on it.

TABLE 9

2016 PBT RELEASE SUMMARY

(REPORTS AMOUNTS IN POUNDS)

2016 PBT CHEMICAL	FORM R REPORTS	TOTAL AIR	TOTAL WATER	TOTAL LAND	ON-SITE TOTAL	TRANSFERS OFF SITE	ON-SITE WASTE MGMT.
BENZO (G,H,I)PERYLENE	1	0.52	4.60	0.00	5.12	0.00	453.00
DIOXIN AND DIOXIN-LIKE COMPOUNDS	4	0.0072	0.0000	0.0000	0.0072	0.0002	0.0013
LEAD	6	8.10	2.20	5213.98	5224.29	10581.80	6,658.00
LEAD COMPOUNDS	6	187.66	20.50	778.10	986.26	4,937,139.80	0.00
MERCURY	2	16.58	0.0090	0.00	16.59	1,979.00	0.00
MERCURY COMPOUNDS	3	99.61	1.50	66.40	167.51	3.23	0.00
POLYCYCLIC AROMATIC COMPOUNDS	3	204.39	3.92	0.00	208.31	108.30	836.70
TOTALS	**25**	**517**	**33**	**6,058**	**6,608**	**4,949,812**	**7,948**

Source: 2016 DNREC TRI Database, October 2017

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

Four decimal places are used where small amounts 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. In recent years, on-site release of DLCs has been in the range of 5.2-15.8 grams. For 2016, the amount was 3.3 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). A template for the Schedule 1 form is given in ***Appendix M*** of this report. 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 following 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. 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

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, Edge Moor/Hay Road Energy Centers reported dioxin number 7 (TEF = 0.003) as 44.9% of the total weight, but this was only 0.27% of the TEQ. The total on-site release amounts in pounds and their corresponding TEQ amounts reported by the four facilities that reported on dioxins in Delaware for 2016 were calculated and are presented in the Table 11. The 2016 total of 0.007241 pounds, or 3.3 grams, was released on-site, which is DOWN from the 2015 total of 0.01589 pounds, or 7.2 grams. Because of the differences in distribution of individual dioxins and dioxin-like compounds, the rankings may change 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
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.0001985	1	0.005728	1
DELAWARE CITY REFINERY	0.0001549	2	0.001263	2
INDIAN RIVER GENERATING STATION	0.0000080	3	0.000243	3
FORMOSA PLASTICS	0.0000003	4	0.000007	4
TOTALS	0.0003618		0.007241	

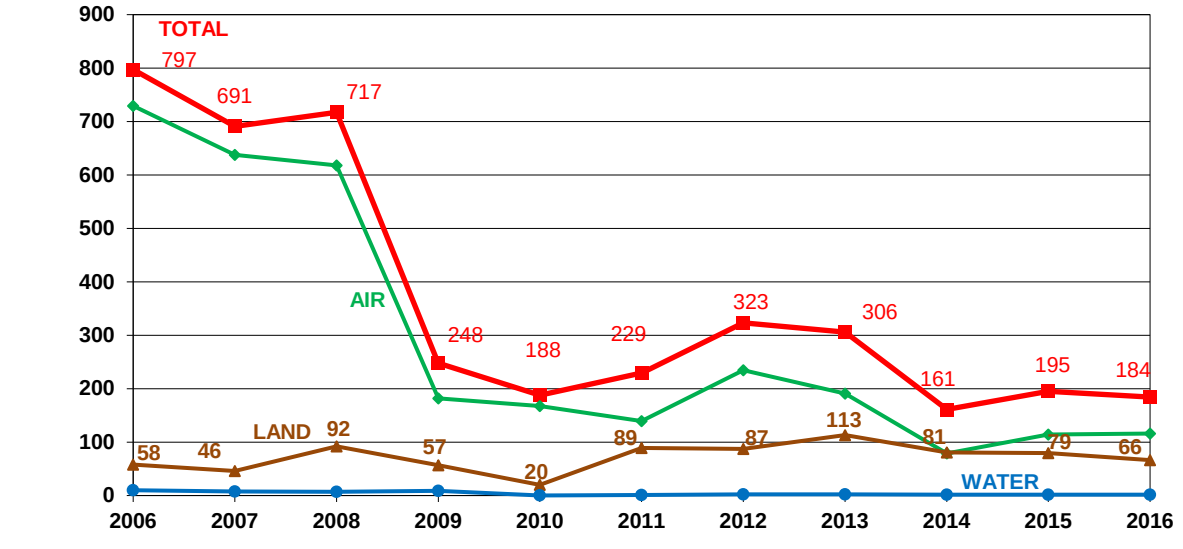
Mercury and Mercury Compounds

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, where runoff may also migrate to the water. Many lakes and streams are impaired as a result of mercury releases 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 2016, total on-site releases of mercury and mercury compounds decreased 11 pounds (6%) to a total of 184 pounds. This was largely the result of a decrease in releases to land of 13 pounds by the Indian River Generating Station. On-site releases of mercury and mercury compounds on the whole are down 77% since 2006.

Figure 13 shows the combined trend for mercury and mercury compounds, and how the trend has been greatly influenced by on-site releases to air.

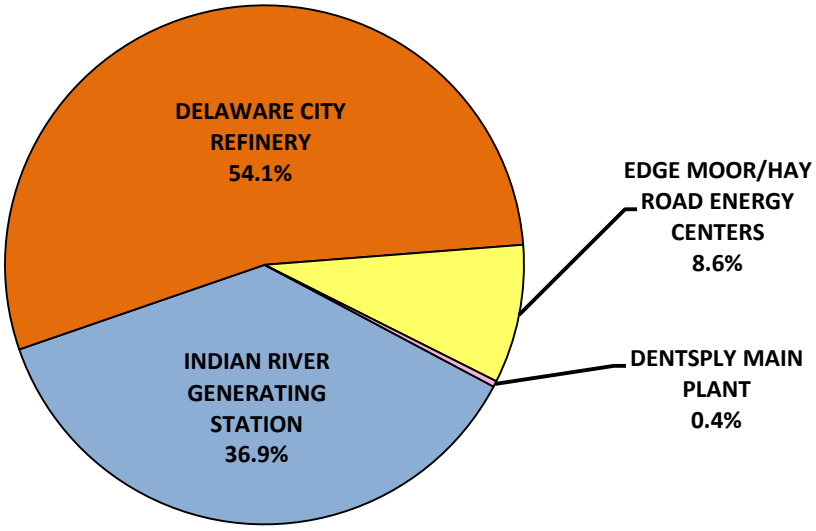
FIGURE 13
DELAWARE MERCURY TRENDS
ON-SITE RELEASE, ALL FACILITIES



The Delaware City Refinery reported the highest on-site release amount of mercury for 2016, with the majority of releases to air. Indian River Generating was the second largest contributor for on-site mercury releases in 2016, with the majority of releases to land.

Figure 14 shows the percentage contributed by each of the facilities that reported a mercury or mercury compound release in 2016. On-site release amounts for mercury and mercury compounds can also be found in ***Appendix F*** on page **F**-7 and ***Appendix I*** on page **I**-1.

FIGURE 14
2016 ON-SITE MERCURY RELEASES FROM DELAWARE FACILITIES



184 POUNDS REPORTED RELEASED ON-SITE

TABLE 12
CARCINOGENS REPORTED BY
DELAWARE FACILITIES FOR 2016

CHEMICAL NAME	IARC	NO. OF REPORTS
4,4'-METHYLENEBIS(2-CHLOROANILINE)	1	2
ARSENIC COMPOUNDS	1	1
ASBESTOS (FRIABLE)	1	1
BENZENE	1	1
CHROMIUM COMPOUNDS	1	2
ETHYLENE OXIDE	1	1
NICKEL COMPOUNDS	1	4
VINYL CHLORIDE	1	1
1,3-BUTADIENE	2A	1
CREOSOTE	2A	1
LEAD	2A	6
LEAD COMPOUNDS	2A	6
TRICHLOROETHYLENE	2A	1
COBALT COMPOUNDS	2B	1
DICHLOROMETHANE	2B	1
ETHYLBENZENE	2B	3
HYDRAZINE	2B	1
HYDRAZINE SULFATE	2B	1
NAPHTHALENE	2B	5
NICKEL	2B	3
NITROBENZENE	BB	1
P-CHLOROANILINE	2B	1
POLYCYCLIC AROMATIC COMPOUNDS	2B	3
PROPYLENE OXIDE	2B	1
STYRENE	2B	2
TETRACHLOROETHYLENE	2B	1
TOLUENE DIISOCYANATE (MIXED ISOMERS)	2B	2
VINYL ACETATE	2B	1
CHEMICALS = **28**	REPORTS = **55**	

Source: 2016 DNREC TRI Database, October 2017

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 2016. Each chemical is determined to be a carcinogen by either the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP). Next to the chemical is their rating listed as: Known (1), Probable (2A), or Possible (2B) carcinogen. Of the 3.38 million pounds of TRI chemicals reported by facilities in Delaware as released on-site to the environment in 2016, 4.15% (140,379 pounds) were known or suspected carcinogens. For additional information on cancer rates and causes, please go to the Division of Public Health cancer web site listed in the "***For Further Information"*** section on page 49.

Carcinogen Trends, 2006-2016

The number of facilities reporting on carcinogens for 2016 remained at 33. The number of carcinogen reports decreased by four to 55 in 2016; and the total number of reported carcinogenic chemicals was 28, a decrease of two since 2015. On-site releases of all carcinogens increased 9.8% (12,495 pounds) compared to 2015, but have decreased 83.6% (716,532 pounds) since the peak in 1998. The largest increase in on-site releases were Formosa Plastics reported increase in vinyl acetate releases. Other carcinogens saw smaller increases in releases, with some facilities reporting decreases. See ***Appendix J*** for detailed information on 2016 carcinogen releases.

Table 13 shows amounts released on-site for carcinogens from 2006-2016, and Figure 15 shows the trend, which has been generally downward during this time period.

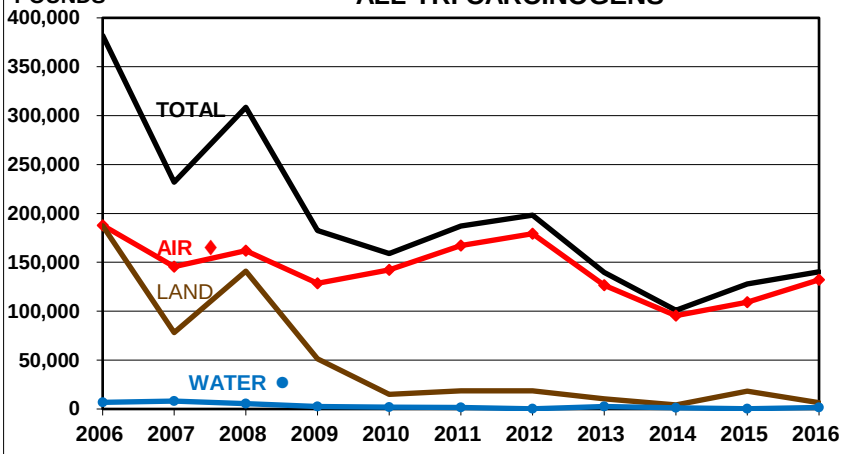
TABLE 13
2006-2016 TRI CARCINOGENS
REPORTED ON-SITE RELEASES, NOT ADJUSTED

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
KNOWN											
AIR	66,475	56,287	69,781	60,664	63,975	70,033	73,545	58,914	59,175	51,188	51,619
WATER	5,222	6,435	4,452	2,059	576	1,318	121	429	1,187	226	1,584
LAND	143,115	46,021	104,112	26,843	8,843	552	558	411	0	0	0
KNOWN TOTAL	214,812	108,743	178,345	89,567	73,394	71,903	74,224	59,753	60,362	51,413	53,203
PROBABLE											
AIR	18,946	18,628	14,604	11,112	15,175	16,040	7,008	7,480	7,568	4,629	4,337
WATER	4	4	5	5	1,146	124	58	163	97	82	23
LAND	0	8,212	8,661	7,115	5,404	17,458	17,017	8,991	3,351	17,278	6,106
PROBABLE TOTAL	18,950	26,845	23,270	18,232	21,725	33,623	24,083	16,633	11,016	21,989	10,466
POSSIBLE											
AIR	102,414	70,722	77,436	56,817	63,059	80,974	98,864	60,152	28,732	53,472	76,332
WATER	1,544	1,655	1,170	522	38	25	20	2,053	29	30	14
LAND	44,251	24,005	28,203	17,459	615	562	901	947	817	979	365
POSSIBLE TOTAL	148,210	96,382	106,809	74,798	63,713	81,561	99,785	63,152	29,577	54,481	76,711
TOTAL AIR	187,836	145,637	161,821	128,593	142,210	167,047	179,417	126,545	95,475	109,289	132,288
TOTAL WATER	6,770	8,094	5,627	2,586	1,761	1,468	199	2,645	1,313	337	1,620
TOTAL LAND	187,366	78,238	140,976	51,417	14,862	18,572	18,476	10,348	4,168	18,257	6,471
GRAND TOTAL	381,972	231,970	308,424	182,596	158,832	187,087	198,092	139,538	100,955	127,884	140,379

Source: DNREC TRI 2016 Database, October 2017

NOT ADJUSTED FOR CHANGES IN REPORTING REQUIREMENTS

FIGURE 15
RELEASES TO AIR, WATER, AND LAND
ALL TRI CARCINOGENS



However, for 2016, on-site releases of all carcinogens are up 9.8%, or 12,495 pounds. Figure 15 shows a trend for each of the category releases by media and the total reported carcinogen release. The general trend has been down. In recent years, releases to air have largely influenced the total, while releases to land and water play a much smaller part.

Known Carcinogens

Known Carcinogens, although having the least number of reports, are significant because of their high toxicity classification. Known carcinogens made up 38% of the total on-site carcinogen releases reported for 2016. Figure 16, on the next page, 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 increased since 2015, up by 3.5%. On-site releases of known carcinogens are down 529,930 pounds (90.9%) since 1998.

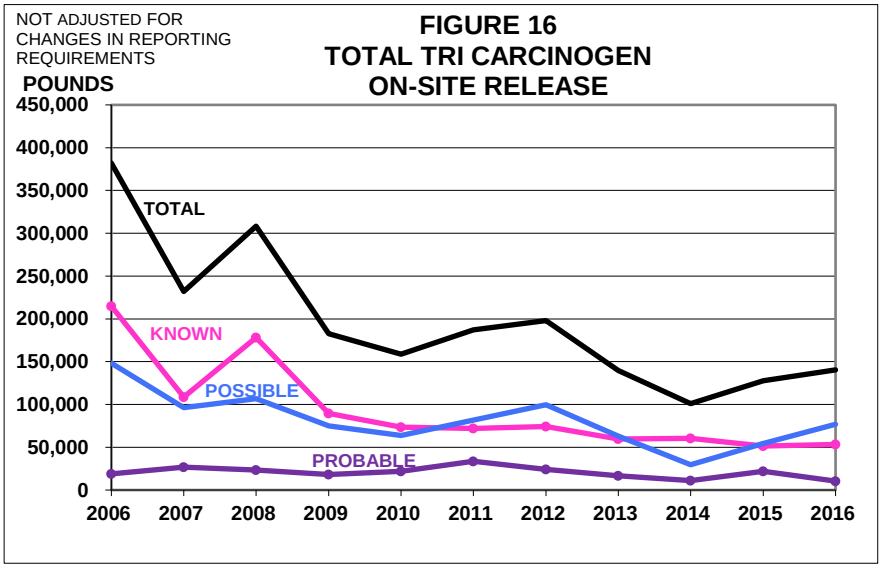
Almost all (97%) of the total known carcinogen amount was reported released on-site to air, 0% to land, and 3% to water for 2016. Releases to air of known carcinogens are 39% of all carcinogen on-site releases to air. Reported releases to air of known carcinogens increased by 0.8% (431 pounds) in 2016, and are down 75.3% from the amount reported in 1998.

Vinyl chloride, with a total release to air of 40,946 pounds and only reported by Formosa Plastics, is the highest (77%) of the total releases in the known carcinogen category and also the second highest of all 28 carcinogens reported. Vinyl chloride contributed 79.3% of the known carcinogen category releases to air in 2016, 31% of all carcinogen releases to air, and 29.2% of carcinogen total on-site releases in 2016. The second highest known carcinogen in 2016 was benzene. Benzene, largely released to air, and all from the Delaware City Refinery, has declined 90.4% from 58,371 pounds released in 1995 (from the Delaware City Refinery and the now closed Metachem facility) to 6,330 pounds in 2016. Benzene made up 12.2% of the known carcinogen releases to air for 2016, down from 23% for 1995.

Nickel compounds rank third in total on-site releases in the known carcinogen category at 3,267 pounds, up from 149 pounds in 2015. The Delaware City Refinery reported 99.7% of the nickel compounds released for 2016. Releases of nickel compounds were 52% to air, with 48% released to water. Nickel compounds contributed 99.3% (1,573 pounds) of all the known carcinogen releases to water.

NOT ADJUSTED FOR CHANGES IN REPORTING REQUIREMENTS

FIGURE 16
TOTAL TRI CARCINOGEN ON-SITE RELEASE



Ethylene oxide, all of which was released to air (2,654 pounds), ranks fourth in total on-site releases in the known carcinogen category. Croda reported all of the ethylene oxide releases on-site for 2016, down from 2,880 pounds reported for 2015.

Probable Carcinogens

This category has the least number of chemicals (5), and the least released on-site (7.5%), but has some important chemicals in it: lead and lead compounds, trichloroethylene (TCE), creosote, and 1,3-butadiene. During 2016, 58.3% of the five probable carcinogens reported was released on-site to land, while 41.4% was released to air, and 0.2% was released to water.

Lead, 99.3% of which was reported by the U. S. Army's National Guard River Road Training Site Range, was the highest reported amount of on-site release of a probable carcinogen, with 5,224 pounds for 2016, down from 16,121 pounds reported in 2015. Of the amount released in 2016, 5,214 pounds were released to land, and 8 pounds to air, and 2 pounds to water.

TCE reported by HandyTube was the second highest release of a probable carcinogen with 3,848 pounds reported as released to air. On-site releases decreased slightly, by 8 pounds (0.2%) from 2015. TCE releases have trended downward, declining by 86.9% from 1995-

2016, down from 29,332 pounds reported for 1995 to 3,848 pounds for 2016.

Lead compounds had the third highest reported amount of on-site release of a probable carcinogen, with 986 pounds for 2016, a decrease from 1,141 pounds reported in 2015. The Indian River Generating Station reported the highest release, 778 pounds to land and 15 pounds released to air, or 80% of total amount reported by the 6 facilities reporting lead compounds for 2016. The remaining 5 facilities had smaller amounts reported as released to air, water, or land.

The probable carcinogen on-site release total decreased by 11,524 pounds (52.4%) for 2015-2016 and is now at 10,466 pounds, 20% of the 1998 amount.

Possible Carcinogens

This category has the most chemicals and number of reports, reporting 54.6% of all on-site releases for carcinogens. About 99.5% of the total possible carcinogen amount is reported as released on-site to air, 0.48% to land, and 0.02% to water. The trend for 2016 is up by 40.8%, or 22,230 pounds; and down 65.2%, or 143,509 pounds, since 1998. The highest chemical release in this category is vinyl acetate at 61,172 pounds, all of which was reported released to air by Formosa Plastics. Vinyl acetate makes up 80% of all possible carcinogen on-site releases. Reported on-site releases of vinyl acetate increased by 27,600 pounds (82%) for 2016.

Styrene is the second highest release in the possible carcinogen category for 2016, with reports totaling 10,426 pounds, all but 370 pounds to air. Justin Tanks reported 10,105 pounds of styrene released to air and 365 pounds released to land, down 23% from 13,482 pounds reported for 2015 and 99.9% of the total styrene release for 2016. The other facility reporting styrene was the Delaware City Refinery with 13 pounds. Reported styrene releases for 2016 decreased by 3,056 pounds.

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**.

Trend Analysis

Effect of Chemical and Facility Group Additions, 1990-2016

Although the TRI program began with reporting for 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 varied because of the changing reporting criteria.

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

- **Chemical List Changes -1995**

  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 21, and in Appendix I.

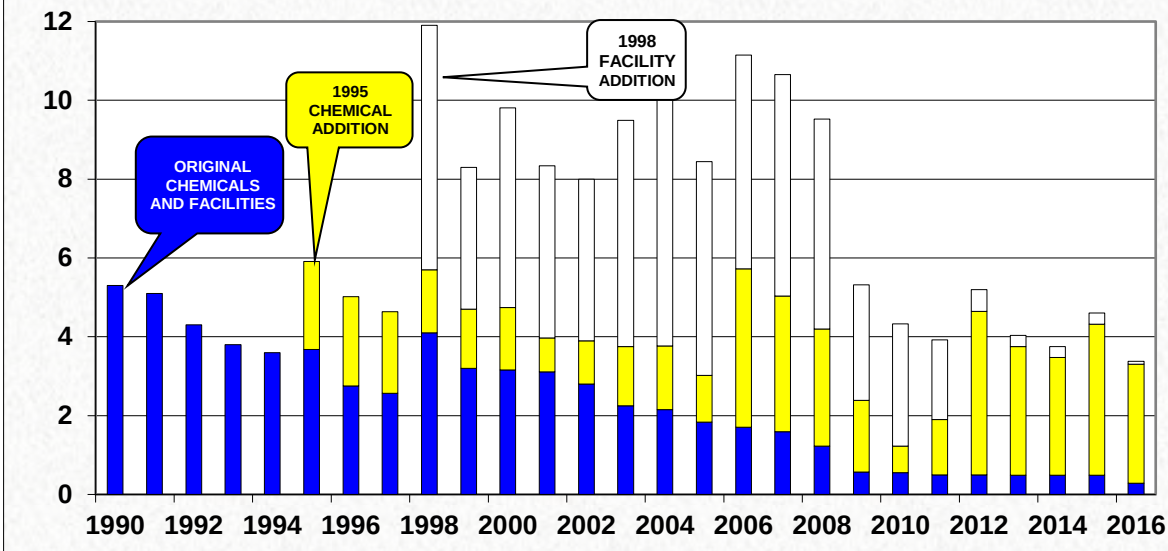
  Other additions to the chemical list have occurred over time, including recently. In the 2011 reporting year, 16 new carcinogens, four of which are in the polycyclic aromatic compounds (PAC) category, were added to the list of reportable chemicals. For 2012, Hydrogen Sulfide was added to the list of reportable chemicals. Hydrogen Sulfide reports increased on-site treatment reported amounts by 329 million pounds in 2012 and is discussed in greater detail in ***On-site Waste Management Trends*** on page 38. For the 2014 reporting year, o-nitrotoluene was added to the list of reportable TRI chemicals. For 2015, a nonylphenol category was added to the list of reportable TRI chemicals. The EPA added the chemical 1-bromopropane to the list of TRI reportable chemicals for the 2016 reporting year. These additions bring the total chemical count to 595 listed chemicals and 31 chemical categories.

- **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 (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 17 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 17
EFFECT OF CHEMICAL AND FACILITY GROUP ADDITIONS
1990-2016



Source: DNREC 2016 TRI Database, 10-1-17

The trend of each group and the reports affecting the trends will be discussed in this Trend Analysis section. All groups have changed 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 2016 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 2016 would be 13.73 million pounds instead of the 3.38 million pounds actually reported for 2016. Due to 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 10.35 million pounds, or 75%.

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

GROUP	STARTING YEAR AMOUNT Millions of Pounds	2016 AMOUNT Millions of Pounds	CHANGE SINCE STARTING Millions of Pounds	PERCENT CHANGE
Original Facilities and Chemicals	5.30	0.28	-5.02	-95%
1995 Chemical Addition	2.23	3.02	0.79	36%
1998 Facility Addition	6.20	0.07	-6.13	-99%
TOTAL	13.73	3.38	-10.35	-75%

TABLE 15
2006-2016 TRI DATA SUMMARY
(IN POUNDS)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of Facilities	70	69	69	63	61	63	60	62	57	59	59
No. of Form As	45	44	31	29	31	34	33	33	31	31	33
No. of Form Rs	287	295	288	227	197	209	202	195	177	189	176
No. of Chemicals	101	102	100	90	79	90	88	91	88	90	85
On-Site Releases											
Air	6,341,764	6,920,245	5,845,072	3,194,221	3,519,986	2,416,526	1,109,209	998,934	805,127	712,043	546,310
Water	4,022,175	3,327,675	2,796,686	1,590,679	600,479	1,230,737	3,777,904	2,881,902	2,931,067	3,862,398	2,812,016
Land	781,701	406,188	885,976	537,489	210,747	278,669	306,702	151,956	17,910	29,078	22,011
Unadjusted On-Site Release	11,145,640	10,654,109	9,527,735	5,322,389	4,331,212	3,925,932	5,193,815	4,032,792	3,754,104	4,603,520	3,380,338
Off-site Transfers											
POTWs	1,421,647	1,243,125	1,117,335	636,602	996,970	1,048,588	814,866	935,842	934,025	1,035,534	997,109
Recycle	8,534,537	8,181,423	7,535,371	5,367,592	5,662,694	8,027,133	9,383,706	9,009,366	7,384,097	6,805,511	7,249,685
Energy Recovery	4,180,596	4,910,600	3,695,215	2,330,189	1,857,131	2,110,293	2,556,954	1,874,068	2,005,555	1,968,891	1,612,951
Treatment	237,073	171,044	150,297	140,248	336,190	274,727	963,123	1,112,090	314,129	229,453	256,899
Disposal	4,739,232	7,145,314	3,129,281	2,785,524	4,563,328	2,307,186	2,419,683	1,571,572	2,356,053	1,612,829	561,263
Unadjusted Total Transfers	19,113,085	21,651,506	15,627,498	11,260,156	13,416,312	13,767,928	16,138,331	14,502,937	12,993,859	11,652,217	10,677,907
On-Site Waste Mgmt.											
Recycle	10,594,593	10,945,896	10,870,477	5,630,119	7,678,337	7,974,584	9,326,213	11,642,121	11,636,106	10,756,074	11,859,042
Energy Recovery	17,937,031	20,387,061	20,932,200	14,670,034	-	9,172,883	16,227,012	15,659,902	15,930,970	15,963,550	12,727,241
Treatment	39,516,068	39,879,302	42,281,742	38,179,139	32,895,795	38,585,960	376,100,649	375,430,183	470,213,664	397,416,374	361,034,681
Unadjusted Total On-Site Mgmt.	68,047,692	71,212,259	74,084,419	58,479,292	40,574,132	55,733,427	401,653,874	402,732,206	497,780,740	424,135,997	385,620,964
Total Waste	98,306,417	103,517,874	99,239,652	75,061,836	58,321,655	73,427,286	422,986,019	421,267,934	514,528,704	440,391,734	399,679,208

NOT ADJUSTED FOR CHANGES IN REPORTING REQUIREMENTS

SOURCE: DNREC 2016 DATABASE, OCTOBER 2017

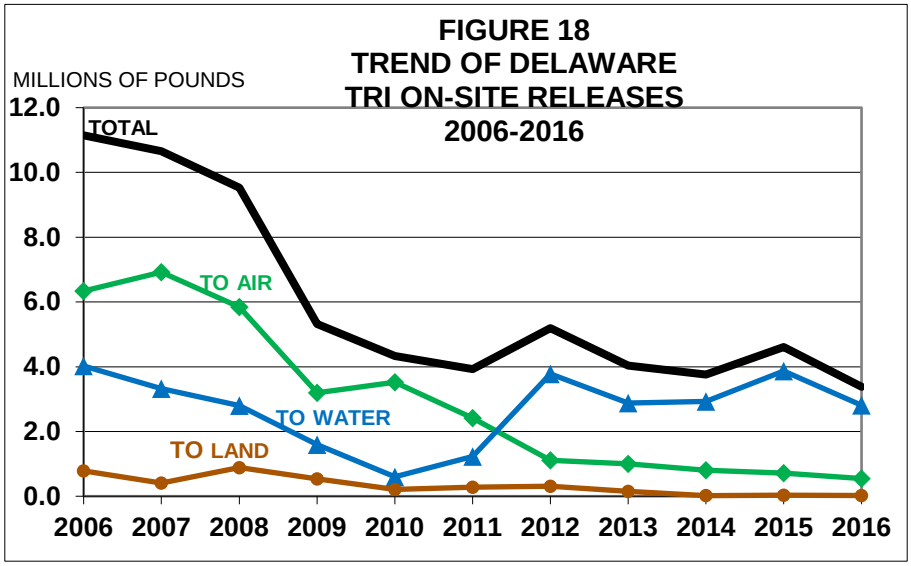
Release and Waste Management Trends, 2006-2016

Table 15 on page 33 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 total number of chemicals and in the total number industries that are 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. The 2012 reporting year marked the addition of hydrogen sulfide to the list of reportable chemicals. 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 2006 as a base year for presenting trends for all reportable chemicals and facilities. Sections covering on-site releases and off-site transfers are **not adjusted** for any changes in reporting requirements. However, in the on-site releases section, further analysis is presented on on-site releases, showing the impact of the Delaware City Refinery on the overall releases using 2012 as a base year. The on-site management section discusses the impact of the addition of hydrogen sulfide to the list of reportable chemicals.

On-Site Releases, 2006-2016

Figure 18 shows the on-site release trends during 2006-2016. On-site releases include emissions to the air, discharges to bodies of water and releases at the facility to land, including on-site landfills. On-site release amounts decreased by 26.6% for 2016 (1,223,182 pounds) following a 22.6% increase (849,415 pounds) for 2015.



Significant changes in the amounts reported for 2015-2016 include the facilities and chemicals shown in Table 16 on the next page. To put the changes in perspective for 2016, there were 67 reports with a higher amount, 63 reports with a lower amount, and 46 reports with no change from the 2016 amount. There were 3 reports with an increase greater than 10,000 pounds and 6 reports with a decrease greater than 10,000 pounds.

TABLE 16
REPORTS OF MAJOR CHANGES IN ON-SITE RELEASES FOR 2016 FROM 2015

FACILITY	CHEMICAL	MEDIA	CHANGE IN ON-SITE RELEASES (pounds)
Delaware City Refinery	Nitrate Compounds	Water	-914,052
Chemours Edge Moor	Carbonyl Sulfide	Air	-135,437
Delaware City Refinery	Sulfuric Acid	Air	-109,203
Chemours Edge Moor	Manganese Compounds	Water	-105,947
Allen Harim, Harbeson	Nitrate Compounds	Water	-27,333
Formosa	Vinyl Acetate	Air	+27,600

Some of these changes (higher or lower) may have been caused by normal year-to-year variations in production levels at the facility, or by the chemical content of raw materials. 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 2015-2016. Changes are also discussed in the ***Facilities No Longer Reporting Section*** on page 20. Facility specific information is available via the ***2016 TRI Facility Profiles,*** see ***Access to TRI Files*** under the ***Further Information Section*** on page 49. In addition, you may contact a facility for a more in-depth discussion of the reasons for specific changes, and consult the appendices in this report for the exact amounts that were reported.

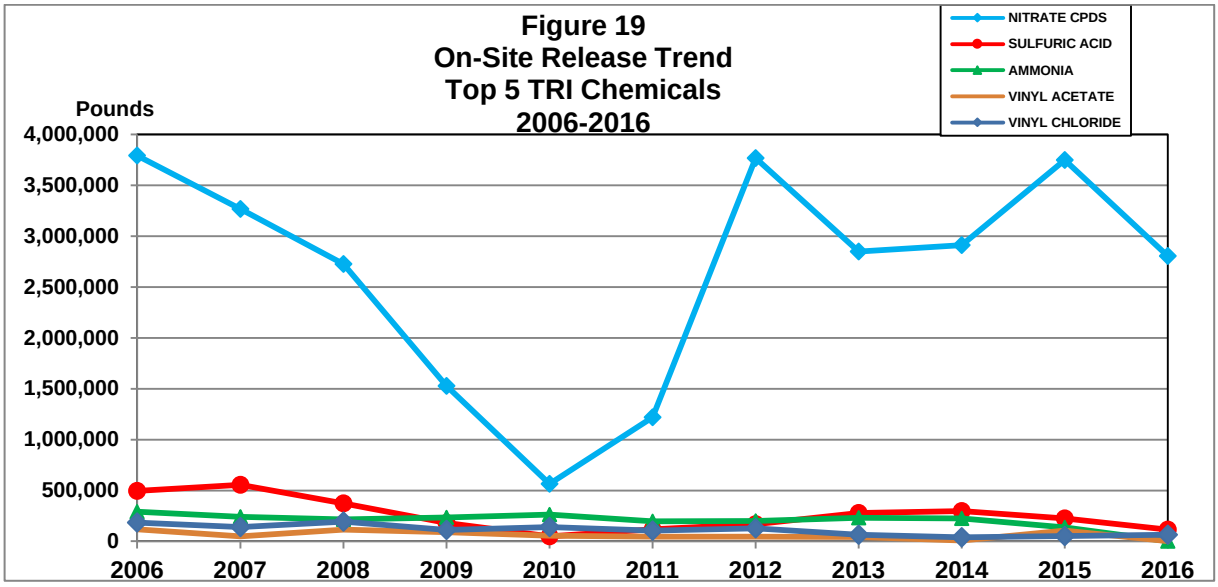


Figure 19 shows the trend since 2006 for the top five chemicals based on on-site release amounts reported for 2016 in Delaware. These five chemicals represent 91.4% of all on-site releases from the 85 chemicals reported in 2016. Nitrate compound releases trended downward from 2006 through 2010, when the Delaware City Refinery was in the process of

shutting down and preparing to be sold. From 2010 through 2012, nitrate compound releases trended upward with the refinery coming back online and being in full operation. Nitrate compound releases accounted for 83% (2.8 millions pounds) of all on-site releases in 2016. Sulfuric acid ranked second in on-site releases, accounting for 3.4% (116,013 pounds). Sulfuric acid releases trended downward from 2008 through 2010, then trended upward from 2010 to 2014 with the Delaware City Refinery coming back online, and have trended downward again since 2014. Ammonia ranked third in on-site releases, accounting for 1.9% (64,535 pounds). Vinyl acetate ranked fourth in on-site releases, accounting for 1.8% of the total. Formosa released 100% of the vinyl acetate reported to air in 2016, up 82% over 2015, with past release amounts varying year to year. Vinyl chloride accounted for 1.2% of the total in on-site releases. Formosa accounted for 100% of the total on-site releases for vinyl chloride, down 4% since 2015, with past releases varying from year to year.

Figure 20 shows the on-site releases to air, water and land over the last 5 reporting years from 2012 through 2016. As the figure depicts, total releases mirror the trend of releases to water. This is due to nitrate compounds reported as released to water by the Delaware City Refinery, which accounted for 72.5% of all onsite releases in 2016. Figures 20 and 21 provide a side by side comparison showing the impact the refinery has on the overall on-site releases. Figure 21 shows all other on-site releases, with the releases of the Delaware City Refinery removed. Onsite releases reported from all other facilities have dropped by 58% (871,678 pounds) since 2012, while total on-site releases, including the refinery releases, are down by 34.9% (1,813,477 pounds) compared to 2012. With the refinery removed, releases follow the

FIGURE 20
TREND OF DELAWARE
TRI ON-SITE RELEASES
2012-2016

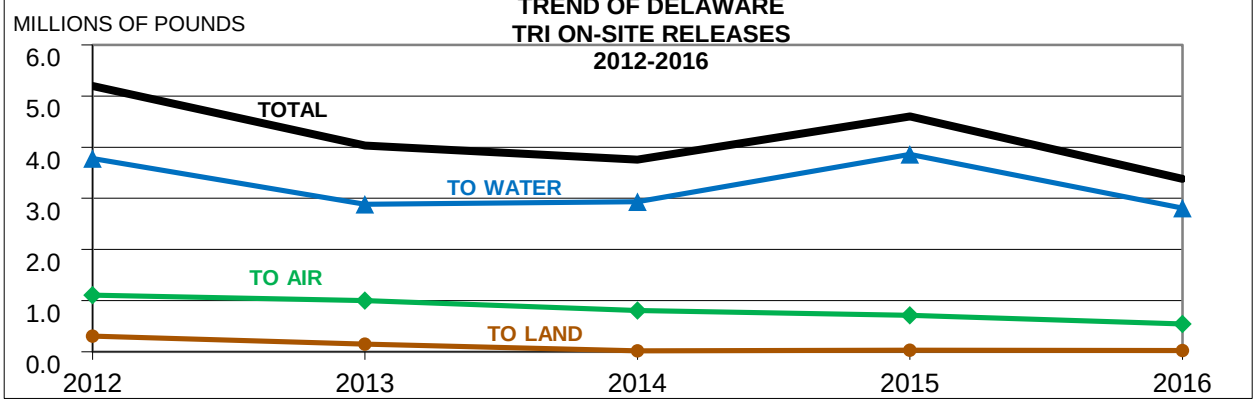
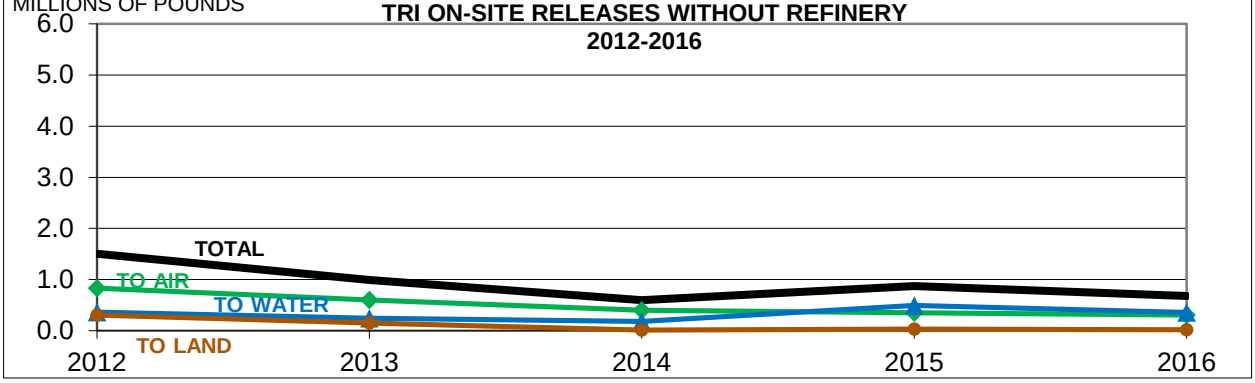


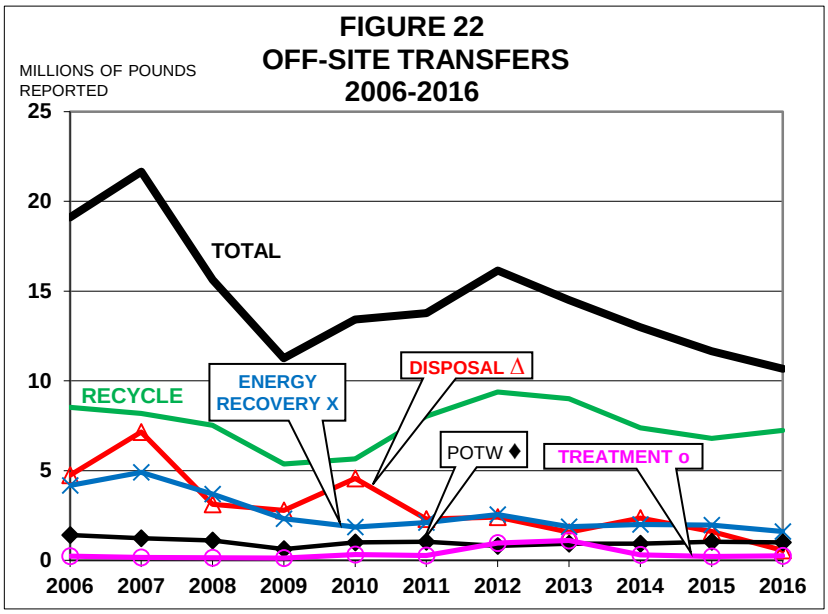
FIGURE 21
TREND OF DELAWARE OF
TRI ON-SITE RELEASES WITHOUT REFINERY
2012-2016



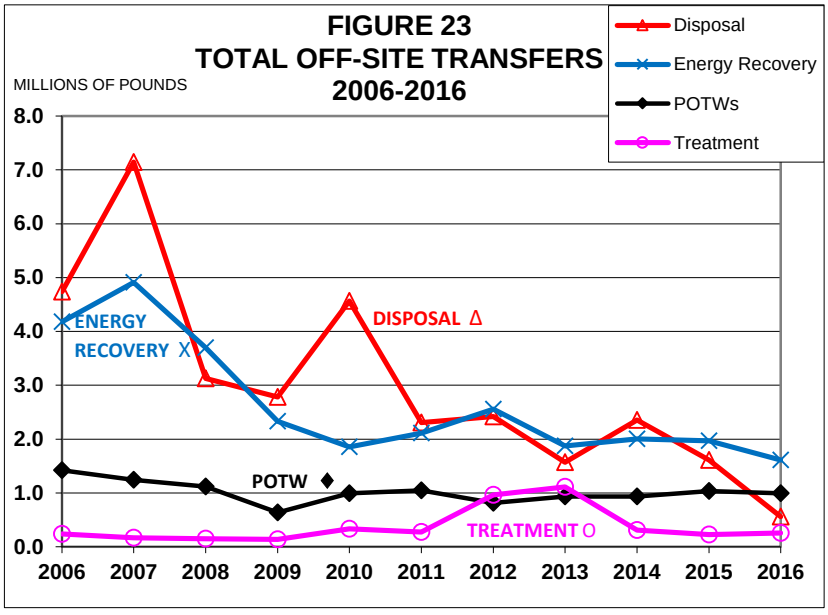
trend of releases to air, which have trended downward since 2012. One reason for the decrease in on-site releases is the economy, which effects production at the facilities and ultimately many of their on-site releases have declined in recent years and indirectly caused part of the reduction.

Off-Site Transfers, 2006-2016

An off-site transfer is a transfer of toxic chemicals as wastes to another facility that is physically separate from the reporting facility and may even be out-of-state (see page 11 for more information on off-site transfers). 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, typically a waste water treatment plant), 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 facilities still represent toxic chemicals as wastes that must be ultimately accounted for.



As noted on page 11 and seen in Table 15 on page 33, the amounts reported as transferred off-site are about 3.2 times greater than the amounts of on-site releases. Figures 22 and 23 show the trends in amounts of TRI chemicals in wastes transferred off-site for all facilities and chemicals reporting since 2006. To increase clarity, the lower portion (0 - 8 million pounds) of Figure 22 is expanded in Figure 23. For comparison, please look at the corresponding values in Table 15 on page 33. Off-site transfers decreased 8.4% (983,323 pounds) in 2016, driven by decreases in amounts sent off-site for disposal, energy recovery, and a slight decrease in transfers to POTW's; and offset partially by an increase in off-site transfers for



treatment and recycling.

Table 17, below, shows that the largest off-site transfer decrease was for manganese compounds sent off-site for disposal by Chemours Edge Moor due to the September 2015 closing of this facility, followed by the decrease in off-site energy recovery of toluene by Noramco, and a decrease in off-site disposal of asbestos reported by the Delaware City Refinery. The largest increases in off-site transfers were reported by Johnson Controls Battery Plant and Distribution Center both of which reported sending more lead compounds off-site for recycling in 2016, and Prince Minerals which reported sending more lead compounds off-site for disposal. Forty-two reports showed decreases, while 59 reported increases in off-site transfers for 2016.

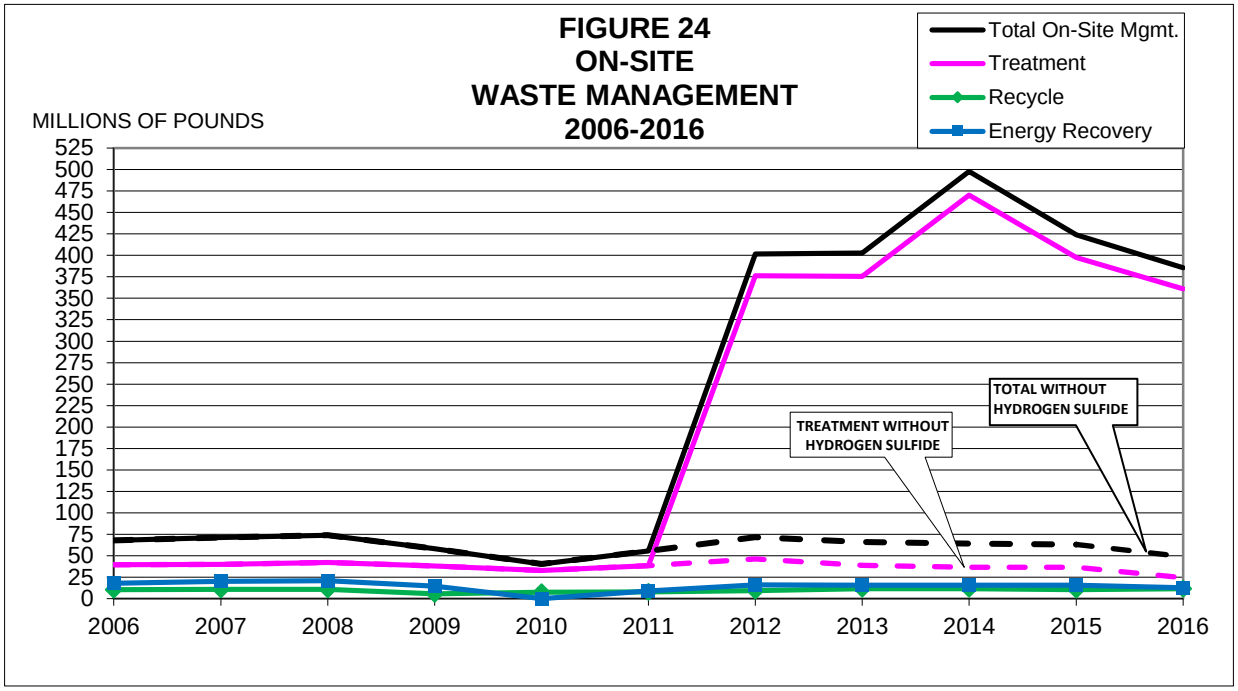
TABLE 17
MAJOR CHANGES IN OFF-SITE TRANSFERS FOR 2016 FROM 2015

FACILITY	CHEMICAL	OFF-SITE METHOD	CHANGE (pounds)
Chemours Edge Moor	Manganese Compounds	Disposal	-865,335
Noramco	Toluene	Energy Recovery	-263,255
Delaware City Refinery	Asbestos (friable)	Disposal	-135,179
Prince Minerals	Lead Compounds	Disposal	+122,506
Johnson Controls Distrib.	Lead Compounds	Recycle	+285,804
Johnson Controls Plant	Lead Compounds	Recycle	+314,491

On-Site Waste Management, 2006-2016

At some facilities, wastes are managed on-site instead of being sent off-site for processing or disposal. On-site waste management (recycling, recovery for energy, or treatment at the facility) is the processing of chemicals in wastes that do not leave the site of the reporting facility. 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 24 below shows the trends for the three on-site waste management activities since 2006. Overall, on-site waste management amounts decreased 9.1% (38,515,033 pounds) in 2016 compared to 2015. The on-site management of hydrogen sulfide accounted for 87.3% (336,476,452 pounds) of all on-site waste management activities, with the Delaware City Refinery treating the largest amount at 336,301,707 pounds. As noted on page 31, the addition of Hydrogen Sulfide to the list of reportable chemicals resulted in a 329 million pound increase in on-site treatment amounts reported for 2012.



The Delaware City Refinery is the only facility in the state that reports on-site energy recovery as part of its air pollution control activities. On-site energy recovery was down 20.3% (3,236,309 pounds) compared to 2015, with the refinery reporting ammonia as having the largest decrease in energy recovery compared to 2015.

The largest changes reported in on-site waste management for 2016 are:

TABLE 18

MAJOR CHANGES IN ON-SITE WASTE MANAGEMENT FOR 2016 FROM 2015

FACILITY	CHEMICAL	ON-SITE WASTE MANAGEMENT METHOD	AMOUNT OF CHANGE (pounds)
Delaware City Refinery	Hydrogen Sulfide	Treatment	-24,401,654
Chemours Edge Moor	Hydrochloric Acid	Treatment	-7,918,972
Delaware City Refinery	Ammonia	Energy Recovery	-3,227,557
Chemours Edge Moor	Chlorine	Treatment	-1,583,989
Delaware City Refinery	Carbonyl Sulfide	Treatment	-1,066,190
Chemours Edge Moor	Titanium Tetrachloride	Treatment	-823,251

These changes were balanced by smaller increases and decreases from other reports. Thirty-seven reports showed an increase in a waste management amount, while 26 reports showed a decrease for 2016. Total pounds for on-site waste management, excluding the addition of hydrogen sulfide, have decreased by 17.9 million pounds, or 26.3%, over the last 10 years or since 2006. The on-site waste management amount totals are in Table 15 on page 33, and Figure 6 on page 12 shows the relative amounts.

No trend is shown for total waste, as it would be dominated by on-site waste management, as shown in Figure 7 on page 13.

TOXICS RELEASE INVENTORY

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 19 Delaware facilities from both in-state and out-of-state TRI facilities for 2016. 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 2016

(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
BEAR DE POTW	5		5
CLEAN DELAWARE, LLC	6		6
CLEAN EARTH OF NEW CASTLE	46	1,735	1,781
DELAWARE RECYCLABLE PRODUCTS INC.	0		0
DIAMOND STATE RECYCLING CORP	41,856		41,856
DOVER SCRAP METAL	3,878		3,878
DSWA CENTRAL SOLID WASTE MANAGEMENT CENTER	6,839		6,839
DSWA CHERRY ISLAND LANDFILL	164,736		164,736
DSWA JONES CROSSROADS LANDFILL	87		87
INDUSTRIAL RESOURCE NETWORK		250	250
KENT COUNTY REGIONAL WWTF	35,491		35,491
KENT SCRAP METALS	73,823		73,823
MB RECYCLING		1,115	1,115
MIDDLETOWN-TOWNSEND-ODESSA TREATMENT PLANT	2		2
R & M RECYCLING LLC	37		37
RAVAGO RECYCLING	0		0
SEAFORD WASTEWATER TREATMENT FACILITY	1,600		1,600
WASTE MANAGEMENT OF DELAWARE	5		5
WILMINGTON WASTEWATER TREATMENT PLANT	958,601		958,601
TOTAL TRI TRANSFERS REPORTED	**1,287,012**	**3,100**	**1,290,112**

Source: U.S. EPA 2016 Data October, 2017

The top receiving facility is the Wilmington Wastewater Treatment Plant, receiving TRI chemicals in wastewater from regional customers. DSWA'S Cherry Island Landfill received the second largest amount, for disposal, from four Delaware customers. Kent Scrap Metal received the third highest amount, for recycling, from one facility. Diamond State Recycling received the fourth highest amount, for recycling, from two facilities in Delaware. The fifth largest amount transferred to a Delaware facility was to the Kent County Wastewater Treatment Plant, receiving TRI chemicals for treatment from four facilities in the county. These five receiving facilities accounted for 99% of all TRI chemicals received in Delaware from all in-state and out-of-state TRI facilities. The size of these transfers to Delaware is only 12% of the total transfers shown in Table 15 on page 33, so more TRI waste goes out of the State than comes in.

TOXICS RELEASE INVENTORY

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 Amendments 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.

DNREC's Division of Air Quality has monitored ambient air quality at locations around the State. For more information, please refer to the Delaware Air Quality Report paragraph in the ***For Further Information*** section on page 49 of this report.

In 2006, Delaware promulgated 7 DE Admin Code 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. Within 7 DE Admin Code two phases of emissions limitations were established, with the first phase that became effective in 2009, and a more restrictive second phase of emissions limitations that became effective in January of 2013. Significant reductions in NOx, SO_2 and Hg emissions have been achieved by the Delaware EGUs subject to Delaware 7 DE Admin Code 1146, and full compliance with the regulation's more restrictive second phase emissions limitations for 2013 and related consent decrees have been achieved.

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. The latest updates of the air toxics standards for utilities can be found at: https://www3.epa.gov/airtoxics/utility/utilitypg.html.

National Perspective

The national 2016 TRI data was recently released by the EPA. Placing the 2016 Delaware reports alongside the 2016 EPA data yields some rankings that provide a perspective for Delaware in the national TRI picture. Changes in the 2016 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	833,146,000	1	12
Nevada	2	309,028,000	2	3
Utah	3	268,098,000	3	2
Texas	4	181,140,000	23	23
Delaware	44	3,380,338	36	9

The reported totals for five states were each over 100 million pounds for 2016.

This data shows that Delaware ranks 44th 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 194 reports from 26 facilities, less than Delaware's 209 reports from 59 facilities. Alaska reports are largely from mining operations, with over 781 million pounds (94% of the state total) reported released on-site for just two chemicals; lead compounds and zinc compounds.

Figure 25 shows the amounts of TRI on-site releases reported by four nearby states for 2012 through 2016. Virginia reported the highest amount in on-site releases for 2016 at 36.2 million pounds and Pennsylvania reported the second highest at 33.6 million pounds. On-site releases for the region have trended downward over the 5 year span; however Virginia had a significant increase for 2013 compared to 2012. Overall on-site releases for the 5 states are down 19% (20 million pounds) compared to 2012.

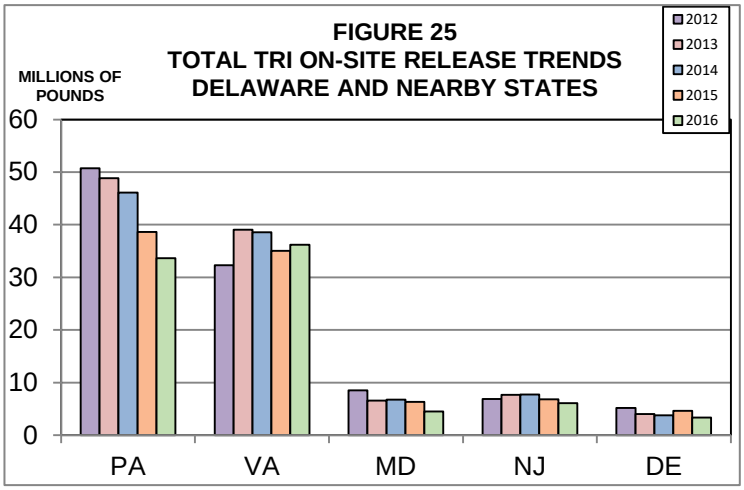


Table 21 compares releases from individual facilities nationally with releases from Delaware facilities. Nationally, 97 facilities had more **total on-site releases** than all the facilities in Delaware combined.

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

Facility, State	Rank	Total On-Site Release (Pounds)
Red Dog Operations, Alaska	1	756,434,000
Kennecott Utah Copper Mine, Utah	2	201,225,000
Newmont Mining Twin Creeks, Nevada	3	100,179,000
All Facilities Combined, Delaware	Lower than #97	3,380,338

Eighty-five facilities each reported over 4 million pounds released on-site for 2016.

Nationwide, 91 facilities each released more **dioxins on-site**, based on Toxicity Equivalent Weight (TEQ), than all the facilities in Delaware combined. The TEQ differentiates between the highly toxic and the less toxic dioxins and dioxin-like compounds in this group. See pages 23-24 of this report for a further explanation of TEQ. 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	Toxicity Equivalent Weight (TEQ) On-Site Dioxin Release (Grams)
US Magnesium LLC, Utah	1	163.9
Real Alloy Specification, Inc., Indiana	2	14.4
Dow Chemical Co., Michigan	3	10.4
All Facilities Combined, Delaware	Lower than #91	0.164

For 2016, 24 facilities reported more than one gram of TEQ on-site dioxin release.

Nationwide, 280 facilities each released more **mercury and mercury compounds on-site** than all the facilities in Delaware combined. Table 23 shows the top three facilities in the nation compared to the Delaware total on-site release of mercury.

TABLE 23

COMPARISON OF MERCURY TOTALS FOR TOP 3 FACILITIES TO DELAWARE TOTAL

Facility, State	Rank	Total On-Site Mercury Release (Pounds)
Newmont Mining Corp. Twin Creeks, Nevada	1	614,979
Newmont Mining Corp. Carlin North, Nevada	2	506,050
Red Dog Operations, Alaska	3	415,802
All Facilities Combined, Delaware	Lower than #280	184

Delaware ranks 19th among the states based on **total waste** reported to TRI. Table 24 compares **total waste** from individual facilities nationally with releases from Delaware facilities. Nationwide, 6 facilities each reported more **total waste** in their TRI reports than all of the facilities in Delaware combined.

TABLE 24

COMPARISON OF TOTAL WASTE FOR TOP 3 FACILITIES TO DELAWARE TOTAL

Facility, State	Rank	Total Waste (Pounds)
Advantix Resins & Chemicals, Pennsylvania	1	3,443,573,360
Incobrasa Industries Ltd., Illinois	2	827,461,895
Red Dog Operations, Alaska	3	756,491,609
All Facilities Combined, Delaware	Lower than #6	399,679,208

Some facilities in Delaware do rank near the top of the national rankings for specific categories. Relevant national rankings for facilities in Delaware for on-site releases and total waste reported are presented in the ***TRI Facility Profiles*** (see ***Access to TRI Files*** under the ***Further Information Section*** on page 49).

Nearby Facilities in Adjacent States

Some facilities, although not located 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 EPA's preliminary 2016 TRI data set, which was gathered in October 2017.

TOXICS RELEASE INVENTORY

TABLE 25

2016 On-Site Releases From Nearby Facilities in Adjacent States

Facility	State	Chemical	Media	Amount (Pounds)
Chemours Chambers Works, Deepwater 1 ★	New Jersey	Nitrate compounds	Water	466,735*
National Refrigerants, Rosenhayn 2 ★	New Jersey	Chloro-difluoromethane	Air	39,834**
Paulsboro Refining, Paulsboro 3 ★	New Jersey	Hydrogen cyanide	Air	200,700**
Paulsboro Refining, Paulsboro	New Jersey	Nitrate compounds	Water	909,001*
QG, LLC, Altglen 4 ★	Pennsylvania	Toluene	Air	39,520**
PES Refinery, Philadelphia 5 ★	Pennsylvania	Benzene	Air	39,758**
PES Refinery, Philadelphia	Pennsylvania	Hydrogen cyanide	Air	103,961**
PES Refinery, Philadelphia	Pennsylvania	N-hexane	Air	30,478**
PES Refinery, Philadelphia	Pennsylvania	Sulfuric acid	Air	157,764**
Arkema, Bristol 6 ★	Pennsylvania	Methyl methacrylate	Air	33,750**
LSC Communications, Lancaster 7 ★	Pennsylvania	Toluene	Air	140,995**
Brunner Island Electric, York Haven 8 ★	Pennsylvania	Sulfuric acid	Air	172,826**
Plymouth Tube, Salisbury 9 ★	Maryland	Trichlorethylene	Air	73,686**
Grace Davison Curtis Bay Works, Baltimore 10 ★	Maryland	Ammonia Ammonia	Air Water	306,717** 29,595*
Grace Davison Curtis Bay Works, Baltimore	Maryland	Nitrate compounds	Water	50,345*
Valley Proteins, Linkwood 11 ★	Maryland	Hydrogen sulfide	Air	192,717**
Salisbury Feed & Grain 12 ★	Maryland	N-Hexane	Air	226,048**
Brandon Shores Power Plant, Baltimore 13 ★	Maryland	Hydrochloric acid	Air	363,200**
Brandon Shores Power Plant, Baltimore	Maryland	Hydrogen fluoride	Air	77,460**
Brandon Shores Power Plant, Baltimore	Maryland	Sulfuric acid	Air	136,161**
Southern Galvanizing, Baltimore 14 ★	Maryland	Lead Zinc compounds	Air Air	42,616** 180,000**
Perdue Farms, Accomac 15 ★	Virginia	Hydrogen sulfide	Air	83,880**
Perdue Farms, Accomac	Virginia	Nitrate compounds	Water	699,640*

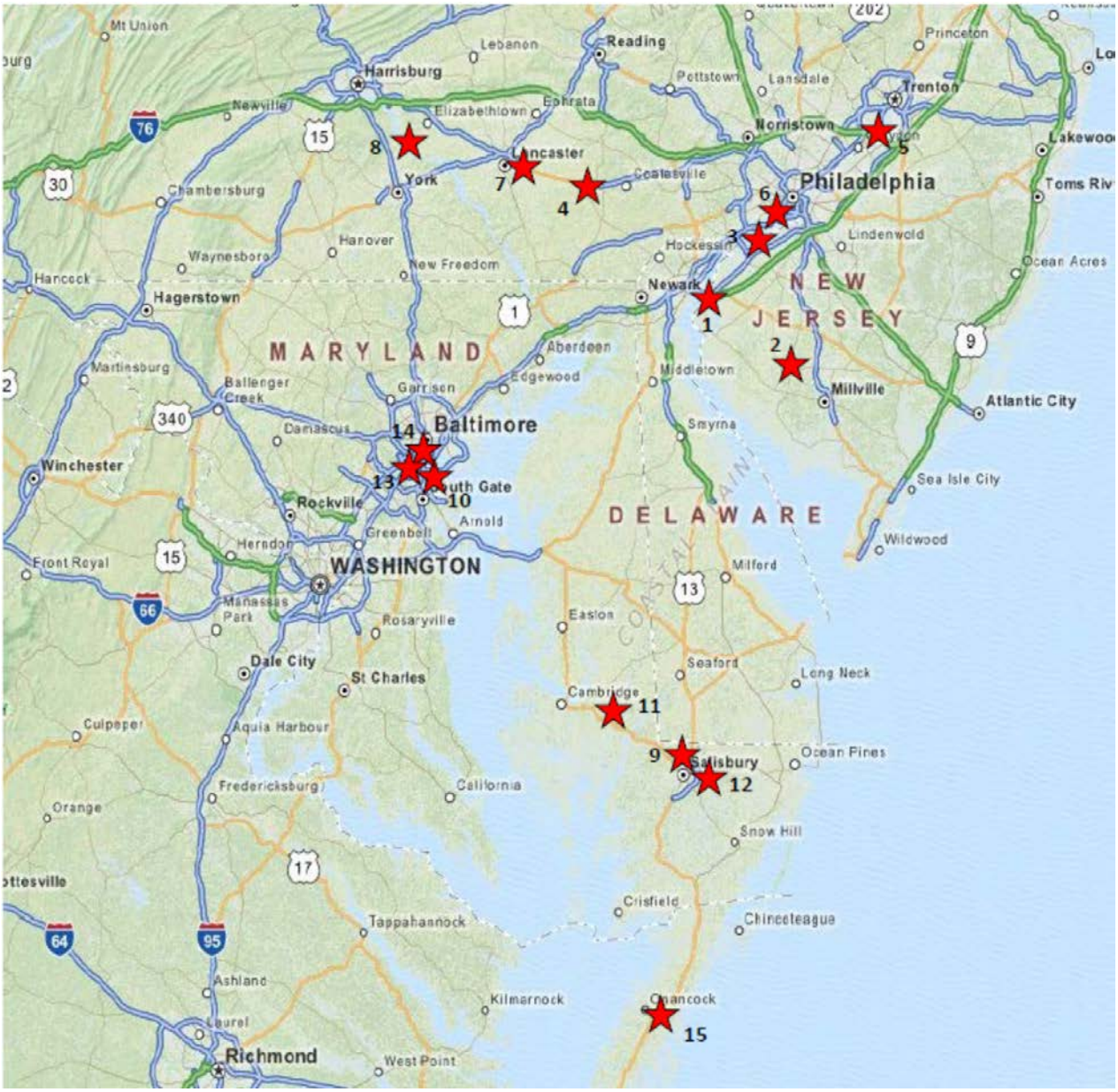
* Delaware State total releases for this chemical are higher

** Exceeds the Delaware State total for this chemical

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 nearby facilities in neighboring states.

Figure 26 shows the above nearby facilities and their proximity to Delaware. Each star represents a facility location in the table above that reported an on-site release for a TRI chemical.

Figure 26
Facilities in Nearby States

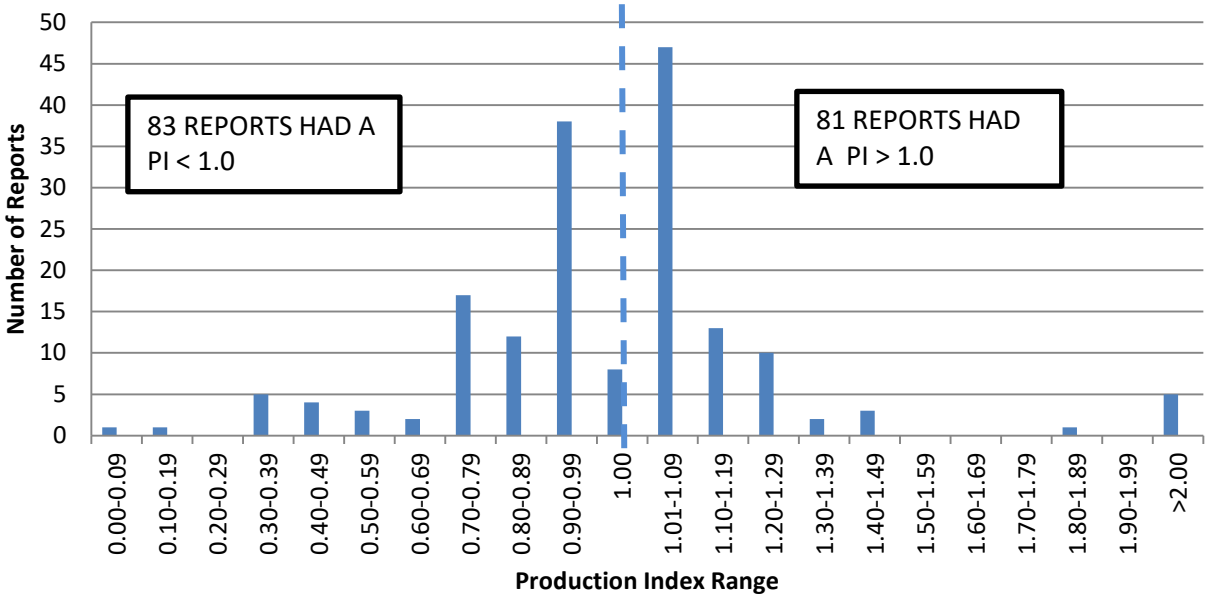


TRI and the Economy

Facilities report a Production Index (PI) for each chemical. Along with TRI release and waste management data, this provides 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.

PI is reported as a number, representing the ratio of how production increased or decreased compared to the previous year. For example, a facility reporting an increase of 10% would report the PI as 1.10, while a facility reporting a decrease of 10%, would report the production as 90% of the previous year or a PI of 0.90. A facility having the same production level as the previous year would report the PI as 1.0. Figure 27 below, shows the distribution range of PIs reported. For 2016, of the 172 reports with PIs, 83 reported increases in production and 81 reported decreases. The remaining 8 reports had a 2016 production level equal to the previous year. The average PI reported was 1.005 or a 0.5% increase compared to 2015's production level.

Figure 27:
2016 Production Index Distribution



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 2016 TRI report may be viewed at: http://www.dnrec.delaware.gov/SERC/Pages/Reports.aspx. TRI Facility Profiles for each reporting facility in Delaware, and a searchable database for TRI are also available at the same location. Information on TRI and other EPCRA programs is located at: http://www.dnrec.delaware.gov/SERC/Information/Pages/DataSearch.aspx.

TRI data is also available on the State of Delaware's open data portal at this link:
Toxics Release Inventory

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 155 Commerce Way-Suite B, 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.delaware.gov/Info/Pages/FOIA.aspx

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 2016 national TRI data and early in 2017 year to the complete 2016 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:
https://ofmpub.epa.gov/apex/guideme_ext/f?p=104:41:::NO:::

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: https://www.epa.gov/trinationalanalysis. The 2016 edition of this report will be available in January of 2017. 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://www2.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools 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/oppt/cdr/index.html

Delaware Division of Public Health Cancer Rates and Causes - This site provides data and answers to many cancer-related questions: http://www.dhss.delaware.gov/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 - (OPPT) 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.

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). The EPA has a web site for PRTR, and it is http://www2.epa.gov/toxics-release-inventory-tri-program/tri-around-world. 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.

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.dnrec.delaware.gov/Air/Pages/DAQ-Annual-Reports.aspx and air toxics information is at: http://www.dnrec.delaware.gov/dwhs/AQM/Pages/DATAS1.aspx.

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. Environmental Databases are available at: http://www.dnrec.delaware.gov/Info/Pages/GISData.aspx. Notifications of releases in Delaware can be found at: Delaware Environmental Release Notification System (DERNS).

Other Delaware EPCRA Information - 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:

Debra Nielsen
TRI Coordinator
EPCRA Reporting Program
Emergency Prevention and Response Section
DNREC Division of Waste and Hazardous Substances
155 Commerce Way, Suite B
Dover, DE 19904
Tel. (302) 739-9405
E-mail: debra.nielsen@state.de.us

APPENDICES

2016

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 contain 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 **What is the Toxics Release Inventory?** 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

FACILITY CONTACT INFORMATION

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

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

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

ALLEN HARIM FARMS – SEAFORD MILL
20799 ALLEN ROAD
SEAFORD, DE 19973
MICHAEL SAUSE
(302) 684-1640

ALLEN HARIM FOODS - HARBESON
18752 HARBESON ROAD
HARBESON, DE 19951
MICHAEL SAUSE
(302) 684-1640

AMICK FARMS
10281 AMICK DRIVE
DELMAR, DE 19940
RICK MARTINSON
(302) 846-9511

BALTIMORE AIRCOIL
1162 HOLLY HILL RD
MILFORD, DE 19963
ANGELA SHEPPARD
(302) 424-2566

BASF COLORS AND EFFECTS USA LLC
205 S JAMES ST
NEWPORT, DE 19804
ROBERTO NELSON
(970) 245-5230

CALPINE CORP. GARRISON ENERGY CENTER
450 GARRISON OAK DRIVE
DOVER, DE 19901
GERALD KISSEL
(302) 257-3570

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

CRODA
315 CHERRY LN
NEW CASTLE, DE 19720
CHRIS BARNETT
(302) 429-5320

DELAWARE CITY REFINERY
4550 WRANGLE HILL RD
DELAWARE CITY, DE 19706
LISA LINDSEY
(302) 834-6033

DENTSPLY SIRONA MAIN PLANT
38 W CLARKE AVE
MILFORD, DE 19963-0359
JESSE BAUTISTA
(302) 422-4511

DENTSPLY SIRONA WEST PLANT
779 E MASTEN CIR
MILFORD, DE 19963-0359
JESSE BAUTISTA
(302) 422-4511

APPENDIX B

FACILITY CONTACT INFORMATION

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

DUHADAWAY TOOL AND DIE SHOP
801 DAWSON DRIVE
NEWARK, DE 19713
JOHN O'DONNELL
(302) 366-0113

DYK AUTOMOTIVE LLC
1 CROWELL ROAD
WILMINGTON, DE 19804
JERRY IVEY
(302) 351-1147

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

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

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

GRIFFITH ENERGY-CARL KING
1400 E LEBANON RD
DOVER, DE 19901
CHARLIE RAINES
(301) 322-6691

HANDY TUBE
124 VEPCO BOULEVARD
CAMDEN, DE 19934
HUBERT MCGOVERN
(302) 697-9521

HANESBRANDS
631 RIDGELY ST - SUITE #1
DOVER, DE 19904-2772
DAVID SWICEGOOD
(336) 519-2582

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

HMA-HERITAGE CONCRETE - BEAR
1250 PORTER ROAD
BEAR, DE 19701
JOHN RICE
(717) 236-7023

HMA-HERITAGE CONCRETE - CHESWOLD
376 HOLLY OAK LANE
CHESWOLD, DE 19936
JOHN RICE
(717) 236-7023

HMA-HERITAGE CONCRETE – HEALD STREET
1100 HEALD STREET
WILMINGTON, DE 19801
JOHN RICE
(717) 236-7023

HONEYWELL
6100 PHILADELPHIA PIKE
CLAYMONT, DE 19703
RUSSELL W. DAVIS
(302) 791-6748

APPENDIX B

FACILITY CONTACT INFORMATION

IKO
120 HAY RD
WILMINGTON, DE 19809
STEVEN GRIER
(302) 764-3100

INDIAN RIVER GENERATING STATION
29416 POWER PLANT RD
DAGSBORO, DE 19939
DAVID GAIER
(609) 524-4529

INTERVET
29160 INTERVET LN
MILLSBORO, DE 19966
TOM BASTIAN
(302) 934-4265

JOHNSON CONTROLS BATTERY PLANT
700 N BROAD ST
MIDDLETOWN, DE 19709
TODD TREYBAL
(302) 376-4001

JOHNSON CONTROLS DISTRIBUTION CENTER
50 PATRIOT DR
MIDDLETOWN, DE 19709
TAMI KEMSKI
(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) 834-4557

MACDERMID
701 INDUSTRIAL DR
MIDDLETOWN, DE 19709-1085
KEN MCCULLOUGH
(302) 378-3100

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

MOUNTAIRE FARMS - FRANKFORD
11 DAISEY ST
FRANKFORD, DE 19945
SEAN MCKEON
(302) 934-3123

MOUNTAIRE FARMS - SELBYVILLE
HOOSIER ST & RAILROAD AVE
SELBYVILLE, DE 19975
SEAN MCKEON
(302) 934-3123

MOUNTAIRE FARMS OF DELAWARE
29106 JOHN J WILLIAMS HWY
MILLSBORO, DE 19966
SEAN MCKEON
(302) 934-3123

NATIONAL GUARD TRAINING SITE RANGE
1197 RIVER ROAD
NEW CASTLE, DE 19720
SGT SEAN MAYNARD
(302) 326-7490

NORAMCO
500 SWEDES LANDING RD
WILMINGTON, DE 19801
ERIC HACHERL
(302) 888-4477

APPENDIX B

FACILITY CONTACT INFORMATION

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

OWEN STEEL COMPANY
813 S MARKET STREET
WILMINGTON, DE 19801
DAVID ZALESNE
(803) 251-7565

PERDUE BRIDGEVILLE
16447 ADAMS RD
BRIDGEVILLE, DE 19933
ANDREA STAUB
(410) 341-2755

PERDUE GEORGETOWN
20621 SAVANNAH RD
GEORGETOWN, DE 19947
ANDREA STAUB
(410) 341-2755

PERDUE MILFORD
255 N REHOBOTH BLVD
MILFORD, DE 19963
ANDREA STAUB
(410) 341-2755

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

PPG INDUSTRIES
1886 LYNNBURY WOODS RD
DOVER, DE 19904
NEAL NICASTRO
(302) 672-2161

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

ROGERS CORP
1100 GOVERNOR LEA RD
BEAR, DE 19701
TIMOTHY GAUTHIER
(860) 779-5598

ROHM & HAAS B2, B3, B8
451 BELLEVUE RD
NEWARK, DE 19713
CHRISTOPHER GLACKIN
(302) 366-0500

ROHM & HAAS B5, B6
351 BELLEVUE RD
NEWARK, DE 19713
CHRISTOPHER GLACKIN
(302) 366-0500

ROHM & HAAS B7, B15
50 BELLEVUE RD
NEWARK, DE 19713
CHRISTOPHER GLACKIN
(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
JOHN CREIGHTON
(616) 283-8506

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

VEOLIA RED LION PLANT
766 GOVERVENOR LEA RD
DELAWARE CITY, DE 19706
W. JAMES HARMAN
(302) 834-5901

VP RACING FUELS
16 BROOKHILL DR
NEWARK, DE 19702-1301
JENNIFER HEATH
(210) 635-7744

APPENDIX C

2016 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	0	2	0	0	2	11,016	0
Toluene diisocyanate (mixed isomers)	0	4	0	0	4	5,049	0
AEARO TECHNOLOGIES Total	**0**	**6**	**0**	**0**	**6**	**16,065**	**0**
AGILENT TECHNOLOGIES							
Acetonitrile	0	77	0	0	77	19,366	0
Methanol	0	1,734	0	0	1,734	47,418	0
Toluene	0	40	0	0	40	149,720	0
AGILENT TECHNOLOGIES Total	**0**	**1,851**	**0**	**0**	**1,851**	**216,504**	**0**
AIR LIQUIDE ADVANCED SEPARATIONS							
Cyclohexane	0	15,345	0	0	15,345	6,041	0
Methanol	0	7	0	0	7	78,429	2,711,353
N,N-Dimethylformamide	0	31	0	0	31	27,060	0
n-Hexane	0	10	0	0	10	0	2,238,093
N-Methyl-2-pyrrolidone	0	1,101	0	0	1,101	144,787	0
AIR LIQUIDE ADVANCED SEPARATIONS Total	**0**	**16,494**	**0**	**0**	**16,494**	**256,317**	**4,949,446**
ALLEN HARIM FARMS SEAFORD MILL							
Copper	1	0	0	0	0	0	0
Copper Compounds	1	0	0	0	0	0	0
Manganese	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	**5**	**0**	**0**	**0**	**0**	**0**	**0**
ALLEN HARIM FOODS HARBESON							
Nitrate compounds	0	0	37,529	0	37,529	0	0
Peracetic acid	1	0	0	0	0	0	0
ALLEN HARIM FOODS HARBESON Total	**1**	**0**	**37,529**	**0**	**37,529**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX C

2016 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**
BALTIMORE AIRCOIL COMPANY							
Chromium Compounds	0	5	0	0	5	231,411	0
Cobalt Compounds	0	0	0	0	0	28,575	0
Copper Compounds	0	0	0	0	0	35,603	0
Manganese Compounds	0	5	0	0	5	106,245	0
Nickel Compounds	0	5	0	0	5	265,701	0
BALTIMORE AIRCOIL COMPANY Total	**0**	**15**	**0**	**0**	**15**	**667,535**	**0**
BASF COLORS AND EFFECTS USA LLC							
Aniline	0	27	0	0	27	20,070	1,352
Biphenyl	0	100	0	0	100	91,054	2,321
Cyclohexane	0	49	0	0	49	22,610	3,447
Methanol	0	20,770	0	0	20,770	734,551	1,162,192
Nitrate compounds	0	0	0	0	0	23,756	0
Nitric acid	0	0	0	0	0	0	24,139
N-Methyl-2-pyrrolidone	0	0	0	0	0	47,126	9
p-Chloroaniline	0	5	0	0	5	87,042	2,398
Xylene (mixed isomers)	0	1,188	0	0	1,188	683	5,531
BASF COLORS AND EFFECTS USA LLC Total	**0**	**22,139**	**0**	**0**	**22,139**	**1,026,892**	**1,201,389**

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APPENDIX C

2016 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
CALPINE CORP - GARRISON ENERGY CENTER							
1,2,4-Trimethylbenzene	1	0	0	0	0	0	0
Ammonia	0	3,991	0	0	3,991	0	0
Naphthalene	1	0	0	0	0	0	0
n-Hexane	0	18,349	0	0	18,349	0	0
CALPINE CORP - GARRISON ENERGY CENTER Total	**2**	**22,340**	**0**	**0**	**22,340**	**0**	**0**
COLOR WORKS PAINTING							
Manganese	0	0	0	0	0	1,086	0
COLOR WORKS PAINTING Total	**0**	**0**	**0**	**0**	**0**	**1,086**	**0**
CRODA							
Certain Glycol Ethers	0	1	0	0	1	3,915	0
Diethanolamine	0	7	0	0	7	1,678	0
Ethylene glycol	0	8	0	0	8	19,460	0
Ethylene oxide	0	2,654	0	0	2,654	0	445
Methanol	0	651	0	0	651	16,573	0
Naphthalene	0	2	0	0	2	4,687	0
n-Butyl alcohol	0	33	0	0	33	554	0
Nonylphenol	0	376	0	0	376	2,079	0
Propylene oxide	0	372	0	0	372	0	539
CRODA Total	**0**	**4,105**	**0**	**0**	**4,105**	**48,946**	**984**

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APPENDIX C

2016 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
DELAWARE CITY REFINERY							
1,2,4-Trimethylbenzene	0	798	5	0	803	0	65,634
1,3-Butadiene	0	273	0	0	273	0	0
2,4-Dimethylphenol	0	0	165	0	165	0	231,669
Ammonia	0	23,677	2,483	0	26,160	4	12,241,628
Anthracene	0	0	5	0	5	0	0
Asbestos (friable)	0	0	0	0	0	85,321	0
Benzene	0	6,320	10	0	6,330	68	347,295
Benzo(g,h,i)perylene	0	1	5	0	5	0	453
Carbon disulfide	0	1,055	0	0	1,055	0	4,167,176
Carbonyl sulfide	0	632	0	0	632	0	13,573,372
Cobalt	0	39	210	0	249	3	0
Creosote	0	20	0	114	134	40,449	0
Cresol (mixed isomers)	0	0	330	0	330	0	359,307
Cumene	0	3,167	5	0	3,172	0	3,928
Cyanide Compounds	0	0	145	0	145	0	14,394
Cyclohexane	0	1,885	5	0	1,890	1	7,272
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0	0
Ethylbenzene	0	1,790	5	0	1,795	10	52,239
Ethylene	0	5,760	0	0	5,760	0	0
Hydrochloric acid	0	164	0	0	164	0	105,456
Hydrogen cyanide	0	18,113	203	0	18,316	0	488,107
Hydrogen Sulfide	0	19,582	1	0	19,583	0	336,301,707
Lead Compounds	0	95	2	0	97	112	0
Mercury Compounds	0	98	2	0	100	0	0
Methanol	0	4,840	5	0	4,845	0	1,985
Molybdenum trioxide	0	13	0	0	13	1	0
Naphthalene	0	1,962	0	0	1,962	0	12,551
n-Hexane	0	19,730	5	0	19,735	0	163,268
Nickel Compounds	0	1,684	1,573	0	3,257	2,655	0
Nitrate compounds	0	0	2,451,026	0	2,451,026	0	0
Phenanthrene	0	1	5	0	6	0	40
Phenol	0	135	165	0	300	0	327,924
Polycyclic aromatic compounds	0	204	4	0	208	0	372
Propylene	0	4,907	0	0	4,907	0	0
Styrene	0	9	5	0	14	0	1,127
Sulfuric acid	0	107,808	0	0	107,808	0	0
Tetrachloroethylene	0	4	0	0	4	0	0
Toluene	0	12,011	5	0	12,016	88	221,265
Xylene (mixed isomers)	0	4,931	5	0	4,936	592	212,170
DELAWARE CITY REFINERY Total	**0**	**241,709**	**2,456,378**	**114**	**2,698,200**	**129,306**	**368,900,339**

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APPENDIX C

2016 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
DENTSPLY MAIN PLANT							
Mercury	0	1	0	0	1	1,979	0
DENTSPLY MAIN PLANT Total	**0**	**1**	**0**	**0**	**1**	**1,979**	**0**
DENTSPLY WEST PLANT							
Methanol	0	1,604	0	0	1,604	9,959	0
Methyl methacrylate	0	1,003	0	0	1,003	87	0
Toluene	0	1,799	0	0	1,799	10,433	0
DENTSPLY WEST PLANT Total	**0**	**4,406**	**0**	**0**	**4,406**	**20,479**	**0**
DOVER AFB							
1,2,4-Trimethylbenzene	0	23	0	0	23	0	0
Cumene	0	24	0	0	24	0	0
Ethylbenzene	0	24	0	0	24	0	0
Lead	0	0	0	0	0	3,878	0
Naphthalene	0	24	0	0	24	0	0
Xylene (mixed isomers)	0	24	0	0	24	0	0
DOVER AFB Total	**0**	**119**	**0**	**0**	**119**	**3,878**	**0**
DUHADAWAY TOOL & DIE SHOP INC							
Chromium	0	0	0	0	0	16,619	0
Nickel	0	0	0	0	0	9,148	0
DUHADAWAY TOOL & DIE SHOP INC Total	**0**	**0**	**0**	**0**	**0**	**25,767**	**0**
DYK AUTOMOTIVE LLC							
Methanol	0	4,476	0	0	4,476	0	0
DYK AUTOMOTIVE LLC Total	**0**	**4,476**	**0**	**0**	**4,476**	**0**	**0**
EDGE MOOR/HAY ROAD ENERGY CENTERS							
Ammonia	0	30,899	7	0	30,906	102	0
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0	0
Mercury	0	16	0	0	16	0	0
Polycyclic aromatic compounds	0	0	0	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS Total	**0**	**30,915**	**7**	**0**	**30,922**	**102**	**0**

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2016 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
FORMOSA PLASTICS							
Ammonia	0	2,274	0	0	2,274	0	0
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0	0
Vinyl acetate	0	61,172	0	0	61,172	0	0
Vinyl chloride	0	40,946	1	0	40,947	216	202,499
FORMOSA PLASTICS Total	**0**	**104,392**	**1**	**0**	**104,393**	**216**	**202,499**
GAC SEAFORD							
1,2,4-Trimethylbenzene	1	0	0	0	0	0	0
GAC SEAFORD Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**
GRIFFITH ENERGY - 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
GRIFFITH ENERGY - CARL KING Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
HANDYTUBE							
Chromium	0	0	0	0	0	35,270	0
Manganese	0	0	0	0	0	3,534	0
Nickel	0	0	0	0	0	35,186	0
Trichloroethylene	0	3,848	0	0	3,848	10,572	0
HANDYTUBE Total	**0**	**3,848**	**0**	**0**	**3,848**	**84,562**	**0**
HANESBRANDS							
Nitrate compounds	0	0	0	0	0	29,744	0
HANESBRANDS Total	**0**	**0**	**0**	**0**	**0**	**29,744**	**0**
HIRSH INDUSTRIES INC							
Certain Glycol Ethers	0	35,523	0	0	35,523	0	0
HIRSH INDUSTRIES INC Total	**0**	**35,523**	**0**	**0**	**35,523**	**0**	**0**
HMA - HERITAGE CONCRETE BEAR							
Lead	0	0	0	6	6	0	0
HMA - HERITAGE CONCRETE BEAR Total	**0**	**0**	**0**	**6**	**6**	**0**	**0**
HMA - HERITAGE CONCRETE CHESWOLD							
Lead	0	0	0	6	6	0	0
HMA - HERITAGE CONCRETE CHESWOLD Total	**0**	**0**	**0**	**6**	**6**	**0**	**0**

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2016 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
HMA - HERITAGE CONCRETE HEALD STREET							
Lead	0	0	0	16	16	0	0
HMA - HERITAGE CONCRETE HEALD STREET Total	**0**	**0**	**0**	**16**	**16**	**0**	**0**
HONEYWELL							
Boron trifluoride	0	359	0	0	359	0	75,026
Hydrogen fluoride	0	544	0	0	544	0	91
Methanol	0	6	0	0	6	720	0
HONEYWELL Total	**0**	**909**	**0**	**0**	**909**	**720**	**75,117**
IKO							
Polycyclic aromatic compounds	0	0	0	0	0	108	465
IKO Total	**0**	**0**	**0**	**0**	**0**	**108**	**465**
INDIAN RIVER GENERATING STATION							
Ammonia	0	1,104	0	0	1,104	0	59,101
Barium Compounds	0	42	0	9,968	10,010	0	0
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0	0
Hydrochloric acid	0	625	0	0	625	0	480,496
Hydrogen fluoride	0	697	0	0	697	0	51,674
Lead Compounds	0	15	0	778	793	0	0
Mercury Compounds	0	2	0	66	68	0	0
Sulfuric acid	0	1,202	0	0	1,202	0	677,513
Vanadium Compounds	0	23	0	5,506	5,529	0	0
INDIAN RIVER GENERATING STATION Total	**0**	**3,709**	**0**	**16,319**	**20,028**	**0**	**1,268,784**
INTERVET							
Mercury Compounds	0	0	0	0	0	3	0
INTERVET Total	**0**	**0**	**0**	**0**	**0**	**3**	**0**
JOHNSON CONTROLS BATTERY PLANT							
Antimony Compounds	0	0	0	0	0	12,696	0
Lead Compounds	0	77	18	0	95	2,890,014	0
JOHNSON CONTROLS BATTERY PLANT Total	**0**	**77**	**18**	**0**	**95**	**2,902,710**	**0**
JOHNSON CONTROLS DISTRIBUTION							
Antimony Compounds	0	0	0	0	0	8,639	0
Arsenic Compounds	0	0	0	0	0	532	0
Lead Compounds	0	0	0	0	0	2,046,814	0
JOHNSON CONTROLS DISTRIBUTION Total	**0**	**0**	**0**	**0**	**0**	**2,055,985**	**0**

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2016 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
JUSTIN TANKS							
Styrene	0	10,047	0	365	10,412	5,658	21,960
JUSTIN TANKS Total	**0**	**10,047**	**0**	**365**	**10,412**	**5,658**	**21,960**
KUEHNE							
Chlorine	0	48	0	0	48	0	0
KUEHNE Total	**0**	**48**	**0**	**0**	**48**	**0**	**0**
MACDERMID							
Diisocyanates	1	0	0	0	0	0	0
Toluene diisocyanate (mixed isomers)	1	0	0	0	0	0	0
MACDERMID Total	**2**	**0**	**0**	**0**	**0**	**0**	**0**
METAL MASTERS							
Chromium	0	1	0	0	1	211,137	0
Nickel	0	1	0	0	1	69,595	0
METAL MASTERS Total	**0**	**1**	**0**	**0**	**1**	**280,732**	**0**
MOUNTAIRE FARMS - FRANKFORD 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
MOUNTAIRE FARMS - FRANKFORD MILL Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
MOUNTAIRE FARMS - SELBYVILLE							
Peracetic acid	0	686	0	0	686	0	335,865
MOUNTAIRE FARMS - SELBYVILLE Total	**0**	**686**	**0**	**0**	**686**	**0**	**335,865**
MOUNTAIRE FARMS OF DELAWARE							
Copper Compounds	1	0	0	0	0	0	0
Hydrogen Sulfide	0	11,905	0	0	11,905	0	95,110
Manganese Compounds	1	0	0	0	0	0	0
Peracetic acid	0	409	0	0	409	0	335,619
Zinc Compounds	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE Total	**3**	**12,314**	**0**	**0**	**12,314**	**0**	**430,729**
NATIONAL GUARD TRAINING SITE RANGE							
Lead	0	0	0	5,186	5,186	0	0
NATIONAL GUARD TRAINING SITE RANGE Total	**0**	**0**	**0**	**5,186**	**5,186**	**0**	**0**

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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
NORAMCO							
Dichloromethane	0	208	0	0	208	5	0
Ethylene glycol	0	10	0	0	10	5,215	0
Formic acid	0	21	0	0	21	0	0
Methanol	0	89	0	0	89	102,183	102,183
n-Butyl alcohol	0	201	0	0	201	566,261	566,261
Peracetic acid	0	0	0	0	0	0	86,818
Toluene	0	233	0	0	233	419,124	419,124
NORAMCO Total	**0**	**762**	**0**	**0**	**762**	**1,092,788**	**1,174,386**
ORIENT CORP							
Aniline	0	82	0	0	82	1,687	1,730,000
Chromium Compounds	0	0	0	0	0	0	0
Diphenylamine	0	0	0	0	0	0	0
Nitrobenzene	0	3	0	0	3	0	0
Zinc Compounds	0	0	0	0	0	0	0
ORIENT CORP Total	**0**	**85**	**0**	**0**	**85**	**1,687**	**1,730,000**
OWEN STEEL COMPANY							
Lead Compounds	0	0	0	0	0	200	0
Manganese Compounds	0	33	0	0	33	2,300	0
Nickel Compounds	0	1	0	0	1	5,100	0
OWEN STEEL COMPANY Total	**0**	**34**	**0**	**0**	**34**	**7,600**	**0**
PERDUE BRIDGEVILLE							
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
PERDUE BRIDGEVILLE Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**
PERDUE GEORGETOWN							
Hydrogen Sulfide	0	7,970	0	0	7,970	0	79,635
Nitrate compounds	0	0	317,941	0	317,941	87	0
Peracetic acid	0	0	39	0	39	0	78,872
PERDUE GEORGETOWN Total	**0**	**7,970**	**317,980**	**0**	**325,950**	**87**	**158,507**
PERDUE MILFORD							
Peracetic acid	0	0	0	0	0	52	104,770
PERDUE MILFORD Total	**0**	**0**	**0**	**0**	**0**	**52**	**104,770**

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PICTSWEET BRIDGEVILLE							
Ammonia	0	100	0	0	100	0	0
PICTSWEET BRIDGEVILLE Total	**0**	**100**	**0**	**0**	**100**	**0**	**0**
PPG INDUSTRIES							
Certain Glycol Ethers	0	0	0	0	0	7,203	0
Ethylene glycol	0	0	0	0	0	4,865	0
Zinc Compounds	0	29	0	0	29	1,933	0
PPG INDUSTRIES Total	**0**	**29**	**0**	**0**	**29**	**14,001**	**0**
PRINCE MINERALS LLC							
Barium Compounds	0	2	0	0	2	530	0
Manganese Compounds	0	225	0	0	225	122,750	0
Nickel Compounds	0	4	0	0	4	495	0
PRINCE MINERALS LLC Total	**0**	**231**	**0**	**0**	**231**	**123,775**	**0**
ROGERS CORP							
Copper	0	10	0	0	10	1,410	0
Ethylbenzene	0	500	0	0	500	650	19,000
Xylene (mixed isomers)	0	1,830	0	0	1,830	3,500	99,000
ROGERS CORP Total	**0**	**2,340**	**0**	**0**	**2,340**	**5,560**	**118,000**
ROHM & HAAS B2 B3 B8							
Diisocyanates	0	0	0	0	0	7,561	0
N,N-Dimethylformamide	0	4,150	0	0	4,150	1,304,199	4,159,978
ROHM & HAAS B2 B3 B8 Total	**0**	**4,150**	**0**	**0**	**4,150**	**1,311,760**	**4,159,978**
ROHM & HAAS B5 B6							
4,4'-Methylenebis(2-chloroaniline)	0	0	0	0	0	1,870	0
Diisocyanates	0	2	0	0	2	3,235	0
N-Methyl-2-pyrrolidone	0	2,102	0	0	2,102	62,068	0
ROHM & HAAS B5 B6 Total	**0**	**2,104**	**0**	**0**	**2,104**	**67,173**	**0**
ROHM & HAAS B7 B15							
4,4'-Methylenebis(2-chloroaniline)	0	0	0	0	0	714	0
N-Methyl-2-pyrrolidone	0	706	0	0	706	12,514	0
ROHM & HAAS B7 B15 Total	**0**	**706**	**0**	**0**	**706**	**13,228**	**0**

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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**
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**
V&S DELAWARE GALVANIZING							
Lead	0	8	2	0	10	6,704	6,658
Zinc Compounds	0	493	101	0	594	258,199	781,088
V&S DELAWARE GALVANIZING Total	**0**	**501**	**103**	**0**	**604**	**264,903**	**787,746**
VEOLIA - RED LION PLANT							
Hydrazine	0	0	0	0	0	0	0
Hydrazine sulfate	0	0	0	0	0	0	0
Hydrogen Sulfide	0	163	0	0	163	0	0
Sulfuric acid	0	7,003	0	0	7,003	0	0
VEOLIA - RED LION PLANT Total	**0**	**7,166**	**0**	**0**	**7,166**	**0**	**0**
VP RACING FUELS							
Lead Compounds	0	1	0	0	1	0	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
STATE TOTALS	**33**	**546,310**	**2,812,016**	**22,011**	**3,380,338**	**10,677,907**	**385,620,964**

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A "1" in the Form A column indicates a Form A report

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APPENDIX D

2016 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	11,016	0	11,016	0	0	0	0
Toluene diisocyanate (mixed isomers)	0	0	0	5,049	0	5,049	0	0	0	0
AEARO TECHNOLOGIES Total	**0**	**0**	**0**	**16,065**	**0**	**16,065**	**0**	**0**	**0**	**0**
AGILENT TECHNOLOGIES										
Acetonitrile	0	0	19,366	0	0	19,366	0	0	0	0
Methanol	0	0	47,266	152	0	47,418	0	0	0	0
Toluene	0	0	149,554	166	0	149,720	0	0	0	0
AGILENT TECHNOLOGIES Total	**0**	**0**	**216,186**	**318**	**0**	**216,504**	**0**	**0**	**0**	**0**
AIR LIQUIDE ADVANCED SEPARATIONS										
Cyclohexane	0	0	6,041	0	0	6,041	0	0	0	0
Methanol	0	0	0	78,429	0	78,429	2,711,353	0	0	2,711,353
N,N-Dimethylformamide	21,300	0	5,760	0	0	27,060	0	0	0	0
n-Hexane	0	0	0	0	0	0	2,238,093	0	0	2,238,093
N-Methyl-2-pyrrolidone	142,147	0	2,640	0	0	144,787	0	0	0	0
AIR LIQUIDE ADVANCED SEPARATIONS Total	**163,447**	**0**	**14,441**	**78,429**	**0**	**256,317**	**4,949,446**	**0**	**0**	**4,949,446**
ALLEN HARIM FARMS SEAFORD MILL										
Copper	0	0	0	0	0	0	0	0	0	0
Copper Compounds	0	0	0	0	0	0	0	0	0	0
Manganese	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
Peracetic acid	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 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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**
BALTIMORE AIRCOIL COMPANY										
Cobalt Compounds	0	28,575	0	0	0	28,575	0	0	0	0
Copper Compounds	0	35,603	0	0	0	35,603	0	0	0	0
Manganese Compounds	0	106,245	0	0	0	106,245	0	0	0	0
Nickel Compounds	0	265,701	0	0	0	265,701	0	0	0	0
CHROMIUM COMPOUNDS2	0	231,411	0	0	0	231,411	0	0	0	0
BALTIMORE AIRCOIL COMPANY Total	**0**	**667,535**	**0**	**0**	**0**	**667,535**	**0**	**0**	**0**	**0**
BASF COLORS AND EFFECTS USA LLC										
Aniline	12,545	0	7,307	218	0	20,070	0	0	1,352	1,352
Biphenyl	14,689	0	69,087	7,278	0	91,054	0	0	2,321	2,321
Cyclohexane	0	22,610	0	0	0	22,610	0	0	3,447	3,447
Methanol	542,080	149,044	12,254	31,173	0	734,551	339,750	0	822,442	1,162,192
Nitrate compounds	23,756	0	0	0	0	23,756	0	0	0	0
Nitric acid	0	0	0	0	0	0	0	0	24,139	24,139
N-Methyl-2-pyrrolidone	9,764	37,362	0	0	0	47,126	0	0	9	9
p-Chloroaniline	2,536	0	1,705	82,801	0	87,042	0	0	2,398	2,398
Xylene (mixed isomers)	273	0	410	0	0	683	0	0	5,531	5,531
BASF COLORS AND EFFECTS USA LLC Total	**605,643**	**209,016**	**90,763**	**121,470**	**0**	**1,026,892**	**339,750**	**0**	**861,639**	**1,201,389**

APPENDIX D

2016 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
CALPINE CORP - GARRISON ENERGY CENTER										
1,2,4-Trimethylbenzene	0	0	0	0	0	0	0	0	0	0
Ammonia	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
CALPINE CORP - GARRISON ENERGY CENTER Tota	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
COLOR WORKS PAINTING										
Manganese	0	1,086	0	0	0	1,086	0	0	0	0
COLOR WORKS PAINTING Total	**0**	**1,086**	**0**	**0**	**0**	**1,086**	**0**	**0**	**0**	**0**
CRODA										
Certain Glycol Ethers	3,915	0	0	0	0	3,915	0	0	0	0
Diethanolamine	848	0	0	830	0	1,678	0	0	0	0
Ethylene glycol	19,460	0	0	0	0	19,460	0	0	0	0
Ethylene oxide	0	0	0	0	0	0	0	0	445	445
Methanol	6,322	0	10,251	0	0	16,573	0	0	0	0
Naphthalene	0	0	0	4,687	0	4,687	0	0	0	0
n-Butyl alcohol	554	0	0	0	0	554	0	0	0	0
Propylene oxide	0	0	0	0	0	0	0	0	539	539
Nonylphenol	1,879	0	0	200	0	2,079	0	0	0	0
CRODA Total	**32,978**	**0**	**10,251**	**5,717**	**0**	**48,946**	**0**	**0**	**984**	**984**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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
DELAWARE CITY REFINERY										
1,2,4-Trimethylbenzene	0	0	0	0	0	0	0	0	65,634	65,634
1,3-Butadiene	0	0	0	0	0	0	0	0	0	0
2,4-Dimethylphenol	0	0	0	0	0	0	0	0	231,669	231,669
Ammonia	0	0	0	0	4	4	0	12,187,858	53,770	12,241,628
Anthracene	0	0	0	0	0	0	0	0	0	0
Asbestos (friable)	0	0	0	0	85,321	85,321	0	0	0	0
Benzene	0	0	0	53	15	68	0	277,501	69,794	347,295
Benzo(g,h,i)perylene	0	0	0	0	0	0	0	0	453	453
Carbon disulfide	0	0	0	0	0	0	0	104,120	4,063,056	4,167,176
Carbonyl sulfide	0	0	0	0	0	0	0	67,913	13,505,459	13,573,372
Creosote	0	0	0	0	40,449	40,449	0	0	0	0
Cresol (mixed isomers)	0	0	0	0	0	0	0	34,300	325,007	359,307
Cumene	0	0	0	0	0	0	0	0	3,928	3,928
Cyanide Compounds	0	0	0	0	0	0	0	0	14,394	14,394
Cyclohexane	0	0	0	1	1	1	0	0	7,272	7,272
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0	0	0	0	0
Ethylbenzene	0	0	0	0	10	10	0	0	52,239	52,239
Ethylene	0	0	0	0	0	0	0	0	0	0
Hydrochloric acid	0	0	0	0	0	0	0	0	105,456	105,456
Hydrogen cyanide	0	0	0	0	0	0	0	0	488,107	488,107
Hydrogen Sulfide	0	0	0	0	0	0	0	0	336,301,707	336,301,707
Lead Compounds	0	51	0	0	61	112	0	0	0	0
Mercury Compounds	0	0	0	0	0	0	0	0	0	0
Methanol	0	0	0	0	0	0	0	0	1,985	1,985
Molybdenum trioxide	0	1	0	0	0	1	0	0	0	0
Naphthalene	0	0	0	0	0	0	0	0	12,551	12,551
n-Hexane	0	0	0	0	0	0	0	0	163,268	163,268
Nickel Compounds	0	2,652	0	0	3	2,655	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	40	40
Phenol	0	0	0	0	0	0	0	55,549	272,375	327,924
Polycyclic aromatic compounds	0	0	0	0	0	0	0	0	372	372
Propylene	0	0	0	0	0	0	0	0	0	0
Styrene	0	0	0	0	0	0	0	0	1,127	1,127
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	0	0	0	88	88	0	0	221,265	221,265
Xylene (mixed isomers)	0	0	0	0	591	592	0	0	212,170	212,170
Cobalt	0	0	0	0	3	3	0	0	0	0
DELAWARE CITY REFINERY Total	**0**	**2,704**	**0**	**56**	**126,546**	**129,306**	**0**	**12,727,241**	**356,173,098**	**368,900,339**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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
DENTSPLY MAIN PLANT										
Mercury	0	1,979	0	0	0	1,979	0	0	0	0
DENTSPLY MAIN PLANT Total	**0**	**1,979**	**0**	**0**	**0**	**1,979**	**0**	**0**	**0**	**0**
DENTSPLY WEST PLANT										
Methanol	77	0	9,882	0	0	9,959	0	0	0	0
Methyl methacrylate	87	0	0	0	0	87	0	0	0	0
Toluene	0	0	10,433	0	0	10,433	0	0	0	0
DENTSPLY WEST PLANT Total	**164**	**0**	**20,315**	**0**	**0**	**20,479**	**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	0	3,878	0	0	0	3,878	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**	**3,878**	**0**	**0**	**0**	**3,878**	**0**	**0**	**0**	**0**
DUHADAWAY TOOL & DIE SHOP INC										
Chromium	0	16,360	0	0	259	16,619	0	0	0	0
Nickel	0	8,898	0	0	250	9,148	0	0	0	0
DUHADAWAY TOOL & DIE SHOP INC Total	**0**	**25,258**	**0**	**0**	**509**	**25,767**	**0**	**0**	**0**	**0**
DYK AUTOMOTIVE LLC										
Methanol	0	0	0	0	0	0	0	0	0	0
DYK AUTOMOTIVE LLC Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
EDGE MOOR/HAY ROAD ENERGY CENTERS										
Ammonia	102	0	0	0	0	102	0	0	0	0
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0	0	0	0	0
Mercury	0	0	0	0	0	0	0	0	0	0
Polycyclic aromatic compounds	0	0	0	0	0	0	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS Total	**102**	**0**	**0**	**0**	**0**	**102**	**0**	**0**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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
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	0	0	0	216	216	0	0	202,499	202,499
FORMOSA PLASTICS Total	**0**	**0**	**0**	**0**	**216**	**216**	**0**	**0**	**202,499**	**202,499**
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**
GRIFFITH ENERGY - 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
GRIFFITH ENERGY - CARL KING Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HANDYTUBE										
Chromium	0	35,205	0	0	65	35,270	0	0	0	0
Manganese	0	3,528	0	0	6	3,534	0	0	0	0
Nickel	0	35,090	0	0	96	35,186	0	0	0	0
Trichloroethylene	0	0	0	10,572	0	10,572	0	0	0	0
HANDYTUBE Total	**0**	**73,823**	**0**	**10,572**	**167**	**84,562**	**0**	**0**	**0**	**0**
HANESBRANDS										
Nitrate compounds	29,744	0	0	0	0	29,744	0	0	0	0
HANESBRANDS Total	**29,744**	**0**	**0**	**0**	**0**	**29,744**	**0**	**0**	**0**	**0**
HIRSH INDUSTRIES INC										
Certain Glycol Ethers	0	0	0	0	0	0	0	0	0	0
HIRSH INDUSTRIES INC Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HMA - HERITAGE CONCRETE BEAR										
Lead	0	0	0	0	0	0	0	0	0	0
HMA - HERITAGE CONCRETE BEAR Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HMA - HERITAGE CONCRETE CHESWOLD										
Lead	0	0	0	0	0	0	0	0	0	0
HMA - HERITAGE CONCRETE CHESWOLD Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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APPENDIX D

2016 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
HMA - HERITAGE CONCRETE HEALD STREET										
Lead	0	0	0	0	0	0	0	0	0	0
HMA - HERITAGE CONCRETE HEALD STREET Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
HONEYWELL										
Boron trifluoride	0	0	0	0	0	0	0	0	75,026	75,026
Hydrogen fluoride	0	0	0	0	0	0	0	0	91	91
Methanol	80	0	0	640	0	720	0	0	0	0
HONEYWELL Total	**80**	**0**	**0**	**640**	**0**	**720**	**0**	**0**	**75,117**	**75,117**
IKO										
Polycyclic aromatic compounds	0	106	0	0	3	108	465	0	0	465
IKO Total	**0**	**106**	**0**	**0**	**3**	**108**	**465**	**0**	**0**	**465**
INDIAN RIVER GENERATING STATION										
Ammonia	0	0	0	0	0	0	0	0	59,101	59,101
Barium Compounds	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
Hydrochloric acid	0	0	0	0	0	0	0	0	480,496	480,496
Hydrogen fluoride	0	0	0	0	0	0	0	0	51,674	51,674
Lead Compounds	0	0	0	0	0	0	0	0	0	0
Mercury Compounds	0	0	0	0	0	0	0	0	0	0
Sulfuric acid	0	0	0	0	0	0	0	0	677,513	677,513
Vanadium Compounds	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,268,784**	**1,268,784**
INTERVET										
Mercury Compounds	0	2	0	0	1	3	0	0	0	0
INTERVET Total	**0**	**2**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**
JOHNSON CONTROLS BATTERY PLANT										
Antimony Compounds	0	12,115	0	0	581	12,696	0	0	0	0
Lead Compounds	1	2,867,472	0	0	22,541	2,890,014	0	0	0	0
JOHNSON CONTROLS BATTERY PLANT Total	**1**	**2,879,587**	**0**	**0**	**23,122**	**2,902,710**	**0**	**0**	**0**	**0**
JOHNSON CONTROLS DISTRIBUTION										
Antimony Compounds	0	8,639	0	0	0	8,639	0	0	0	0
Arsenic Compounds	0	532	0	0	0	532	0	0	0	0
Lead Compounds	1	2,044,813	0	0	2,000	2,046,814	0	0	0	0
JOHNSON CONTROLS DISTRIBUTION Total	**1**	**2,053,984**	**0**	**0**	**2,000**	**2,055,985**	**0**	**0**	**0**	**0**

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APPENDIX D

2016 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
JUSTIN TANKS										
Styrene	0	0	0	5,658	0	5,658	21,960	0	0	21,960
JUSTIN TANKS Total	**0**	**0**	**0**	**5,658**	**0**	**5,658**	**21,960**	**0**	**0**	**21,960**
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										
Diisocyanates	0	0	0	0	0	0	0	0	0	0
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	208,842	0	0	2,295	211,137	0	0	0	0
Nickel	0	69,208	0	0	387	69,595	0	0	0	0
METAL MASTERS Total	**0**	**278,050**	**0**	**0**	**2,682**	**280,732**	**0**	**0**	**0**	**0**
MOUNTAIRE FARMS - FRANKFORD 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
MOUNTAIRE FARMS - FRANKFORD MILL Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
MOUNTAIRE FARMS - SELBYVILLE										
Peracetic acid	0	0	0	0	0	0	0	0	335,865	335,865
MOUNTAIRE FARMS - SELBYVILLE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**335,865**	**335,865**
MOUNTAIRE FARMS OF DELAWARE										
Copper Compounds	0	0	0	0	0	0	0	0	0	0
Hydrogen Sulfide	0	0	0	0	0	0	0	0	95,110	95,110
Manganese Compounds	0	0	0	0	0	0	0	0	0	0
Peracetic acid	0	0	0	0	0	0	0	0	335,619	335,619
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**	**430,729**	**430,729**
NATIONAL GUARD TRAINING SITE RANGE										
Lead	0	0	0	0	0	0	0	0	0	0
NATIONAL GUARD TRAINING SITE RANGE Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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
NORAMCO										
Dichloromethane	5	0	0	0	0	5	0	0	0	0
Ethylene glycol	0	5,215	0	0	0	5,215	0	0	0	0
Formic acid	0	0	0	0	0	0	0	0	0	0
Methanol	5,109	0	97,074	0	0	102,183	0	0	102,183	102,183
n-Butyl alcohol	28,313	0	537,948	0	0	566,261	0	0	566,261	566,261
Peracetic acid	0	0	0	0	0	0	0	0	86,818	86,818
Toluene	0	0	419,124	0	0	419,124	0	0	419,124	419,124
NORAMCO Total	**33,427**	**5,215**	**1,054,146**	**0**	**0**	**1,092,788**	**0**	**0**	**1,174,386**	**1,174,386**
ORIENT CORP										
Aniline	1,600	0	0	0	87	1,687	1,600,000	0	130,000	1,730,000
Nitrobenzene	0	0	0	0	0	0	0	0	0	0
Zinc Compounds	0	0	0	0	0	0	0	0	0	0
CHROMIUM COMPOUNDS2	0	0	0	0	0	0	0	0	0	0
Diphenylamine	0	0	0	0	0	0	0	0	0	0
ORIENT CORP Total	**1,600**	**0**	**0**	**0**	**87**	**1,687**	**1,600,000**	**0**	**130,000**	**1,730,000**
OWEN STEEL COMPANY										
Lead Compounds	0	200	0	0	0	200	0	0	0	0
Manganese Compounds	0	2,300	0	0	0	2,300	0	0	0	0
Nickel Compounds	0	5,100	0	0	0	5,100	0	0	0	0
OWEN STEEL COMPANY Total	**0**	**7,600**	**0**	**0**	**0**	**7,600**	**0**	**0**	**0**	**0**
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
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										
Hydrogen Sulfide	0	0	0	0	0	0	0	0	79,635	79,635
Nitrate compounds	0	0	0	0	87	87	0	0	0	0
Peracetic acid	0	0	0	0	0	0	0	0	78,872	78,872
PERDUE GEORGETOWN Total	**0**	**0**	**0**	**0**	**87**	**87**	**0**	**0**	**158,507**	**158,507**
PERDUE MILFORD										
Peracetic acid	52	0	0	0	0	52	0	0	104,770	104,770
PERDUE MILFORD Total	**52**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**104,770**	**104,770**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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
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**
PPG INDUSTRIES										
Certain Glycol Ethers	3,603	0	0	59	3,541	7,203	0	0	0	0
Ethylene glycol	2,424	0	0	62	2,379	4,865	0	0	0	0
Zinc Compounds	914	0	0	0	1,019	1,933	0	0	0	0
PPG INDUSTRIES Total	**6,941**	**0**	**0**	**121**	**6,939**	**14,001**	**0**	**0**	**0**	**0**
PRINCE MINERALS LLC										
Barium Compounds	0	0	0	0	530	530	0	0	0	0
Manganese Compounds	0	0	0	0	122,750	122,750	0	0	0	0
Nickel Compounds	0	0	0	0	495	495	0	0	0	0
PRINCE MINERALS LLC Total	**0**	**0**	**0**	**0**	**123,775**	**123,775**	**0**	**0**	**0**	**0**
ROGERS CORP										
Copper	5	1,400	0	0	5	1,410	0	0	0	0
Ethylbenzene	0	0	0	650	0	650	0	0	19,000	19,000
Xylene (mixed isomers)	0	0	0	3,500	0	3,500	0	0	99,000	99,000
ROGERS CORP Total	**5**	**1,400**	**0**	**4,150**	**5**	**5,560**	**0**	**0**	**118,000**	**118,000**
ROHM & HAAS B2 B3 B8										
Diisocyanates	0	0	3	7,558	0	7,561	0	0	0	0
N,N-Dimethylformamide	122,924	765,300	206,846	0	209,129	1,304,199	4,159,675	0	303	4,159,978
ROHM & HAAS B2 B3 B8 Total	**122,924**	**765,300**	**206,849**	**7,558**	**209,129**	**1,311,760**	**4,159,675**	**0**	**303**	**4,159,978**
ROHM & HAAS B5 B6										
4,4'-Methylenebis(2-chloroaniline)	0	0	0	1,225	645	1,870	0	0	0	0
Diisocyanates	0	0	0	1,220	2,015	3,235	0	0	0	0
N-Methyl-2-pyrrolidone	0	41,767	0	2,803	17,498	62,068	0	0	0	0
ROHM & HAAS B5 B6 Total	**0**	**41,767**	**0**	**5,248**	**20,158**	**67,173**	**0**	**0**	**0**	**0**
ROHM & HAAS B7 B15										
4,4'-Methylenebis(2-chloroaniline)	0	0	0	146	568	714	0	0	0	0
N-Methyl-2-pyrrolidone	0	11,452	0	751	311	12,514	0	0	0	0
ROHM & HAAS B7 B15 Total	**0**	**11,452**	**0**	**897**	**879**	**13,228**	**0**	**0**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX D

2016 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
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**
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**
V&S DELAWARE GALVANIZING										
Lead	0	6,384	0	0	320	6,704	6,658	0	0	6,658
Zinc Compounds	0	213,560	0	0	44,639	258,199	781,088	0	0	781,088
V&S DELAWARE GALVANIZING Total	**0**	**219,944**	**0**	**0**	**44,959**	**264,903**	**787,746**	**0**	**0**	**787,746**
VEOLIA - RED LION PLANT										
Hydrazine	0	0	0	0	0	0	0	0	0	0
Hydrazine sulfate	0	0	0	0	0	0	0	0	0	0
Hydrogen Sulfide	0	0	0	0	0	0	0	0	0	0
Sulfuric acid	0	0	0	0	0	0	0	0	0	0
VEOLIA - RED LION PLANT Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
VP RACING FUELS										
Lead Compounds	0	0	0	0	0	0	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**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
STATE TOTALS	**997,109**	**7,249,685**	**1,612,951**	**256,899**	**561,263**	**10,677,907**	**11,859,042**	**12,727,241**	**361,034,681**	**385,620,964**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX E

2016 ON-SITE RELEASE SUMMARY BY FACILITY

FACILITY - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS	ON-SITE WASTE MGMT.
	TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE	
DELAWARE CITY REFINERY	241,709	2,456,378	114	2,698,200	129,306	368,900,339
PERDUE GEORGETOWN	7,970	317,980	0	325,950	87	158,507
FORMOSA PLASTICS	104,392	1	0	104,393	216	202,499
ALLEN HARIM FOODS HARBESON	0	37,529	0	37,529	0	0
HIRSH INDUSTRIES INC	35,523	0	0	35,523	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	30,915	7	0	30,922	102	0
CALPINE CORP - GARRISON ENERGY CENTE	22,340	0	0	22,340	0	0
BASF COLORS AND EFFECTS USA LLC	22,139	0	0	22,139	1,026,892	1,201,389
INDIAN RIVER GENERATING STATION	3,709	0	16,319	20,028	0	1,268,784
AIR LIQUIDE ADVANCED SEPARATIONS	16,494	0	0	16,494	256,317	4,949,446
MOUNTAIRE FARMS OF DELAWARE	12,314	0	0	12,314	0	430,729
JUSTIN TANKS	10,047	0	365	10,412	5,658	21,960
VEOLIA - RED LION PLANT	7,166	0	0	7,166	0	0
NATIONAL GUARD TRAINING SITE RANGE	0	0	5,186	5,186	0	0
DYK AUTOMOTIVE LLC	4,476	0	0	4,476	0	0
DENTSPLY WEST PLANT	4,406	0	0	4,406	20,479	0
ROHM & HAAS B2 B3 B8	4,150	0	0	4,150	1,311,760	4,159,978
CRODA	4,105	0	0	4,105	48,946	984
HANDYTUBE	3,848	0	0	3,848	84,562	0
ROGERS CORP	2,340	0	0	2,340	5,560	118,000
ROHM & HAAS B5 B6	2,104	0	0	2,104	67,173	0
AGILENT TECHNOLOGIES	1,851	0	0	1,851	216,504	0
HONEYWELL	909	0	0	909	720	75,117
NORAMCO	762	0	0	762	1,092,788	1,174,386
ROHM & HAAS B7 B15	706	0	0	706	13,228	0
MOUNTAIRE FARMS - SELBYVILLE	686	0	0	686	0	335,865
V&S DELAWARE GALVANIZING	501	103	0	604	264,903	787,746
PRINCE MINERALS LLC	231	0	0	231	123,775	0
DOVER AFB	119	0	0	119	3,878	0
PICTSWEET BRIDGEVILLE	100	0	0	100	0	0
JOHNSON CONTROLS BATTERY PLANT	77	18	0	95	2,902,710	0
ORIENT CORP	85	0	0	85	1,687	1,730,000
KUEHNE	48	0	0	48	0	0
OWEN STEEL COMPANY	34	0	0	34	7,600	0
PPG INDUSTRIES	29	0	0	29	14,001	0
HMA - HERITAGE CONCRETE HEALD STREET	0	0	16	16	0	0
BALTIMORE AIRCOIL COMPANY	15	0	0	15	667,535	0
AEARO TECHNOLOGIES	6	0	0	6	16,065	0
HMA - HERITAGE CONCRETE CHESWOLD	0	0	6	6	0	0
HMA - HERITAGE CONCRETE BEAR	0	0	6	6	0	0

Source: DNREC 2016 TRI Database, October, 2017
All amounts are in pounds

APPENDIX E

2016 ON-SITE RELEASE SUMMARY BY FACILITY

FACILITY - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS	ON-SITE WASTE MGMT.
	TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE	
METAL MASTERS	1	0	0	1	280,732	0
VP RACING FUELS	1	0	0	1	0	0
DENTSPLY MAIN PLANT	1	0	0	1	1,979	0
IKO	0	0	0	0	108	465
COLOR WORKS PAINTING	0	0	0	0	1,086	0
HANESBRANDS	0	0	0	0	29,744	0
GRIFFITH ENERGY - CARL KING	0	0	0	0	0	0
MOUNTAIRE FARMS - FRANKFORD MILL	0	0	0	0	0	0
AMICK FARMS	0	0	0	0	0	0
SPI PHARMA	0	0	0	0	0	0
INTERVET	0	0	0	0	3	0
GAC SEAFORD	0	0	0	0	0	0
SERVICE ENERGY DOVER	0	0	0	0	0	0
DUHADAWAY TOOL & DIE SHOP INC	0	0	0	0	25,767	0
MACDERMID	0	0	0	0	0	0
JOHNSON CONTROLS DISTRIBUTION	0	0	0	0	2,055,985	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0
Grand Total	**546,310**	**2,812,016**	**22,011**	**3,380,338**	**10,677,907**	**385,620,964**

Source: DNREC 2016 TRI Database, October, 2017
All amounts are in pounds

APPENDIX F

2016 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
1,2,4-Trimethylbenzene							
CALPINE CORP - GARRISON ENERGY CENTER	1	0	0	0	0	0	0
DELAWARE CITY REFINERY	0	798	5	0	803	0	65634
DOVER AFB	0	23	0	0	23	0	0
GAC SEAFORD	1	0	0	0	0	0	0
GRIFFITH ENERGY - CARL KING	1	0	0	0	0	0	0
SERVICE ENERGY DOVER	1	0	0	0	0	0	0
1,2,4-Trimethylbenzene Total	**4**	**821**	**5**	**0**	**826**	**0**	**65,634**
1,3-Butadiene							
DELAWARE CITY REFINERY	0	273	0	0	273	0	0
1,3-Butadiene Total	**0**	**273**	**0**	**0**	**273**	**0**	**0**
2,4-Dimethylphenol							
DELAWARE CITY REFINERY	0	0	165	0	165	0	231669
2,4-Dimethylphenol Total	**0**	**0**	**165**	**0**	**165**	**0**	**231,669**
4,4'-Methylenebis(2-chloroaniline)							
ROHM & HAAS B5 B6	0	0	0	0	0	1870	0
ROHM & HAAS B7 B15	0	0	0	0	0	714	0
4,4'-Methylenebis(2-chloroaniline) Total	**0**	**0**	**0**	**0**	**0**	**2,584**	**0**
Acetonitrile							
AGILENT TECHNOLOGIES	0	77	0	0	77	19366	0
Acetonitrile Total	**0**	**77**	**0**	**0**	**77**	**19,366**	**0**
Ammonia							
CALPINE CORP - GARRISON ENERGY CENTER	0	3991	0	0	3991	0	0
DELAWARE CITY REFINERY	0	23677	2483	0	26160	4	12241628
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	30899	7	0	30906	102	0
FORMOSA PLASTICS	0	2274	0	0	2274	0	0
INDIAN RIVER GENERATING STATION	0	1104	0	0	1104	0	59101
PICTSWEET BRIDGEVILLE	0	100	0	0	100	0	0
Ammonia Total	**0**	**62,045**	**2,490**	**0**	**64,535**	**106**	**12,300,729**
Aniline							
BASF COLORS AND EFFECTS USA LLC	0	27	0	0	27	20070	1352
ORIENT CORP	0	82	0	0	82	1687	1730000
Aniline Total	**0**	**109**	**0**	**0**	**109**	**21,757**	**1,731,352**
Anthracene							
DELAWARE CITY REFINERY	0	0	5	0	5	0	0
Anthracene Total	**0**	**0**	**5**	**0**	**5**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX F

2016 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
Antimony Compounds							
JOHNSON CONTROLS BATTERY PLANT	0	0	0	0	0	12696	0
JOHNSON CONTROLS DISTRIBUTION	0	0	0	0	0	8639	0
Antimony Compounds Total	**0**	**0**	**0**	**0**	**0**	**21,335**	**0**
Arsenic Compounds							
JOHNSON CONTROLS DISTRIBUTION	0	0	0	0	0	532	0
Arsenic Compounds Total	**0**	**0**	**0**	**0**	**0**	**532**	**0**
Asbestos (friable)							
DELAWARE CITY REFINERY	0	0	0	0	0	85321	0
Asbestos (friable) Total	**0**	**0**	**0**	**0**	**0**	**85,321**	**0**
Barium Compounds							
INDIAN RIVER GENERATING STATION	0	42	0	9968	10010	0	0
PRINCE MINERALS LLC	0	2	0	0	2	530	0
Barium Compounds Total	**0**	**44**	**0**	**9,968**	**10,012**	**530**	**0**
Benzene							
DELAWARE CITY REFINERY	0	6320	10	0	6330	68	347295
Benzene Total	**0**	**6,320**	**10**	**0**	**6,330**	**68**	**347,295**
Benzo(g,h,i)perylene							
DELAWARE CITY REFINERY	0	1	5	0	5	0	453
Benzo(g,h,i)perylene Total	**0**	**1**	**5**	**0**	**5**	**0**	**453**
Biphenyl							
BASF COLORS AND EFFECTS USA LLC	0	100	0	0	100	91054	2321
Biphenyl Total	**0**	**100**	**0**	**0**	**100**	**91,054**	**2,321**
Boron trifluoride							
HONEYWELL	0	359	0	0	359	0	75026
Boron trifluoride Total	**0**	**359**	**0**	**0**	**359**	**0**	**75,026**
Carbon disulfide							
DELAWARE CITY REFINERY	0	1055	0	0	1055	0	4167176
Carbon disulfide Total	**0**	**1,055**	**0**	**0**	**1,055**	**0**	**4,167,176**
Carbonyl sulfide							
DELAWARE CITY REFINERY	0	632	0	0	632	0	13573372
Carbonyl sulfide Total	**0**	**632**	**0**	**0**	**632**	**0**	**13,573,372**

Source: DNREC 2016 TRI Database, October, 2017
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX F

2016 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
Certain Glycol Ethers							
CRODA	0	1	0	0	1	3915	0
HIRSH INDUSTRIES INC	0	35523	0	0	35523	0	0
PPG INDUSTRIES	0	0	0	0	0	7203	0
Certain Glycol Ethers Total	**0**	**35,525**	**0**	**0**	**35,525**	**11,118**	**0**
Chlorine							
KUEHNE	0	48	0	0	48	0	0
SPI PHARMA	1	0	0	0	0	0	0
Chlorine Total	**1**	**48**	**0**	**0**	**48**	**0**	**0**
Chromium							
DUHADAWAY TOOL & DIE SHOP INC	0	0	0	0	0	16619	0
HANDYTUBE	0	0	0	0	0	35270	0
METAL MASTERS	0	1	0	0	1	211137	0
Chromium Total	**0**	**1**	**0**	**0**	**1**	**263,026**	**0**
Chromium Compounds							
BALTIMORE AIRCOIL COMPANY	0	5	0	0	5	231411	0
ORIENT CORP	0	0	0	0	0	0	0
Chromium Compounds Total	**0**	**5**	**0**	**0**	**5**	**231,411**	**0**
Cobalt							
DELAWARE CITY REFINERY	0	39	210	0	249	3	0
Cobalt Total	**0**	**39**	**210**	**0**	**249**	**3**	**0**
Cobalt Compounds							
BALTIMORE AIRCOIL COMPANY	0	0	0	0	0	28575	0
Cobalt Compounds Total	**0**	**0**	**0**	**0**	**0**	**28,575**	**0**

Source: DNREC 2016 TRI Database, October, 2017
A "1" in the Form A column indicates a Form A report

All Amounts Are in Pounds

APPENDIX F

2016 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							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
ROGERS CORP	0	10	0	0	10	1410	0
Copper Total	**1**	**10**	**0**	**0**	**10**	**1,410**	**0**
Copper Compounds							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
AMICK FARMS	1	0	0	0	0	0	0
BALTIMORE AIRCOIL COMPANY	0	0	0	0	0	35603	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	**5**	**0**	**0**	**0**	**0**	**35,603**	**0**
Creosote							
DELAWARE CITY REFINERY	0	20	0	114	134	40449	0
Creosote Total	**0**	**20**	**0**	**114**	**134**	**40,449**	**0**
Cresol (mixed isomers)							
DELAWARE CITY REFINERY	0	0	330	0	330	0	359307
Cresol (mixed isomers) Total	**0**	**0**	**330**	**0**	**330**	**0**	**359,307**
Cumene							
DELAWARE CITY REFINERY	0	3167	5	0	3172	0	3928
DOVER AFB	0	24	0	0	24	0	0
Cumene Total	**0**	**3,191**	**5**	**0**	**3,196**	**0**	**3,928**
Cyanide Compounds							
DELAWARE CITY REFINERY	0	0	145	0	145	0	14394
Cyanide Compounds Total	**0**	**0**	**145**	**0**	**145**	**0**	**14,394**
Cyclohexane							
AIR LIQUIDE ADVANCED SEPARATIONS	0	15345	0	0	15345	6041	0
BASF COLORS AND EFFECTS USA LLC	0	49	0	0	49	22610	3447
DELAWARE CITY REFINERY	0	1885	5	0	1890	1	7272
Cyclohexane Total	**0**	**17,279**	**5**	**0**	**17,284**	**28,652**	**10,719**

Source: DNREC 2016 TRI Database, October, 2017
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APPENDIX F

2016 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
Dichloromethane							
NORAMCO	0	208	0	0	208	5	0
Dichloromethane Total	**0**	**208**	**0**	**0**	**208**	**5**	**0**
Diethanolamine							
CRODA	0	7	0	0	7	1678	0
Diethanolamine Total	**0**	**7**	**0**	**0**	**7**	**1,678**	**0**
Diisocyanates							
AEARO TECHNOLOGIES	0	2	0	0	2	11016	0
MACDERMID	1	0	0	0	0	0	0
ROHM & HAAS B2 B3 B8	0	0	0	0	0	7561	0
ROHM & HAAS B5 B6	0	2	0	0	2	3235	0
Diisocyanates Total	**1**	**4**	**0**	**0**	**4**	**21,812**	**0**
Dioxin and Dioxin-like Compounds							
DELAWARE CITY REFINERY	0	0	0	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	0	0	0	0	0	0
FORMOSA PLASTICS	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0
Dioxin and Dioxin-like Compounds Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Diphenylamine							
ORIENT CORP	0	0	0	0	0	0	0
Diphenylamine Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Ethylbenzene							
DELAWARE CITY REFINERY	0	1790	5	0	1795	10	52239
DOVER AFB	0	24	0	0	24	0	0
ROGERS CORP	0	500	0	0	500	650	19000
Ethylbenzene Total	**0**	**2,314**	**5**	**0**	**2,319**	**660**	**71,239**
Ethylene							
DELAWARE CITY REFINERY	0	5760	0	0	5760	0	0
Ethylene Total	**0**	**5,760**	**0**	**0**	**5,760**	**0**	**0**
Ethylene glycol							
CRODA	0	8	0	0	8	19460	0
NORAMCO	0	10	0	0	10	5215	0
PPG INDUSTRIES	0	0	0	0	0	4865	0
Ethylene glycol Total	**0**	**18**	**0**	**0**	**18**	**29,540**	**0**

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APPENDIX F

2016 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
Ethylene oxide							
CRODA	0	2654	0	0	2654	0	445
Ethylene oxide Total	**0**	**2,654**	**0**	**0**	**2,654**	**0**	**445**
Formic acid							
NORAMCO	0	21	0	0	21	0	0
Formic acid Total	**0**	**21**	**0**	**0**	**21**	**0**	**0**
Hydrazine							
VEOLIA - RED LION PLANT	0	0	0	0	0	0	0
Hydrazine Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Hydrazine sulfate							
VEOLIA - RED LION PLANT	0	0	0	0	0	0	0
Hydrazine sulfate Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Hydrochloric acid							
DELAWARE CITY REFINERY	0	164	0	0	164	0	105456
INDIAN RIVER GENERATING STATION	0	625	0	0	625	0	480496
Hydrochloric acid Total	**0**	**789**	**0**	**0**	**789**	**0**	**585,952**
Hydrogen cyanide							
DELAWARE CITY REFINERY	0	18113	203	0	18316	0	488107
Hydrogen cyanide Total	**0**	**18,113**	**203**	**0**	**18,316**	**0**	**488,107**
Hydrogen fluoride							
HONEYWELL	0	544	0	0	544	0	91
INDIAN RIVER GENERATING STATION	0	697	0	0	697	0	51674
Hydrogen fluoride Total	**0**	**1,241**	**0**	**0**	**1,241**	**0**	**51,765**
Hydrogen Sulfide							
DELAWARE CITY REFINERY	0	19582	1	0	19583	0	336301707
MOUNTAIRE FARMS OF DELAWARE	0	11905	0	0	11905	0	95110
PERDUE GEORGETOWN	0	7970	0	0	7970	0	79635
VEOLIA - RED LION PLANT	0	163	0	0	163	0	0
Hydrogen Sulfide Total	**0**	**39,620**	**1**	**0**	**39,621**	**0**	**336,476,452**

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APPENDIX F

2016 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
Lead							
DOVER AFB	0	0	0	0	0	3878	0
HMA - HERITAGE CONCRETE BEAR	0	0	0	6	6	0	0
HMA - HERITAGE CONCRETE CHESWOLD	0	0	0	6	6	0	0
HMA - HERITAGE CONCRETE HEALD STREET	0	0	0	16	16	0	0
NATIONAL GUARD TRAINING SITE RANGE	0	0	0	5186	5186	0	0
V&S DELAWARE GALVANIZING	0	8	2	0	10	6704	6658
Lead Total	**0**	**8**	**2**	**5,214**	**5,224**	**10,582**	**6,658**
Lead Compounds							
DELAWARE CITY REFINERY	0	95	2	0	97	112	0
INDIAN RIVER GENERATING STATION	0	15	0	778	793	0	0
JOHNSON CONTROLS BATTERY PLANT	0	77	18	0	95	2890014	0
JOHNSON CONTROLS DISTRIBUTION	0	0	0	0	0	2046814	0
OWEN STEEL COMPANY	0	0	0	0	0	200	0
VP RACING FUELS	0	1	0	0	1	0	0
Lead Compounds Total	**0**	**188**	**21**	**778**	**986**	**4,937,140**	**0**
Manganese							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
COLOR WORKS PAINTING	0	0	0	0	0	1086	0
HANDYTUBE	0	0	0	0	0	3534	0
Manganese Total	**1**	**0**	**0**	**0**	**0**	**4,620**	**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 COMPANY	0	5	0	0	5	106245	0
MOUNTAIRE FARMS - FRANKFORD MILL	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	1	0	0	0	0	0	0
OWEN STEEL COMPANY	0	33	0	0	33	2300	0
PERDUE BRIDGEVILLE	1	0	0	0	0	0	0
PRINCE MINERALS LLC	0	225	0	0	225	122750	0
Manganese Compounds Total	**5**	**263**	**0**	**0**	**263**	**231,295**	**0**
Mercury							
DENTSPLY MAIN PLANT	0	1	0	0	1	1979	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	16	0	0	16	0	0
Mercury Total	**0**	**17**	**0**	**0**	**17**	**1,979**	**0**
Mercury Compounds							
DELAWARE CITY REFINERY	0	98	2	0	100	0	0
INDIAN RIVER GENERATING STATION	0	2	0	66	68	0	0
INTERVET	0	0	0	0	0	3	0
Mercury Compounds Total	**0**	**100**	**2**	**66**	**168**	**3**	**0**

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APPENDIX F

2016 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	0	1734	0	0	1734	47418	0
AIR LIQUIDE ADVANCED SEPARATIONS	0	7	0	0	7	78429	2711353
BASF COLORS AND EFFECTS USA LLC	0	20770	0	0	20770	734551	1162192
CRODA	0	651	0	0	651	16573	0
DELAWARE CITY REFINERY	0	4840	5	0	4845	0	1985
DENTSPLY WEST PLANT	0	1604	0	0	1604	9959	0
DYK AUTOMOTIVE LLC	0	4476	0	0	4476	0	0
HONEYWELL	0	6	0	0	6	720	0
NORAMCO	0	89	0	0	89	102183	102183
VP RACING FUELS	1	0	0	0	0	0	0
Methanol Total	**1**	**34,177**	**5**	**0**	**34,182**	**989,833**	**3,977,713**
Methyl methacrylate							
DENTSPLY WEST PLANT	0	1003	0	0	1003	87	0
Methyl methacrylate Total	**0**	**1,003**	**0**	**0**	**1,003**	**87**	**0**
Molybdenum trioxide							
DELAWARE CITY REFINERY	0	13	0	0	13	1	0
Molybdenum trioxide Total	**0**	**13**	**0**	**0**	**13**	**1**	**0**
N,N-Dimethylformamide							
AIR LIQUIDE ADVANCED SEPARATIONS	0	31	0	0	31	27060	0
ROHM & HAAS B2 B3 B8	0	4150	0	0	4150	1304199	4159978
N,N-Dimethylformamide Total	**0**	**4,181**	**0**	**0**	**4,181**	**1,331,259**	**4,159,978**
Naphthalene							
CALPINE CORP - GARRISON ENERGY CENTER	1	0	0	0	0	0	0
CRODA	0	2	0	0	2	4687	0
DELAWARE CITY REFINERY	0	1962	0	0	1962	0	12551
DOVER AFB	0	24	0	0	24	0	0
GRIFFITH ENERGY - CARL KING	1	0	0	0	0	0	0
Naphthalene Total	**2**	**1,988**	**0**	**0**	**1,988**	**4,687**	**12,551**
n-Butyl alcohol							
CRODA	0	33	0	0	33	554	0
NORAMCO	0	201	0	0	201	566261	566261
n-Butyl alcohol Total	**0**	**234**	**0**	**0**	**234**	**566,815**	**566,261**
n-Hexane							
AIR LIQUIDE ADVANCED SEPARATIONS	0	10	0	0	10	0	2238093
CALPINE CORP - GARRISON ENERGY CENTER	0	18349	0	0	18349	0	0
DELAWARE CITY REFINERY	0	19730	5	0	19735	0	163268
n-Hexane Total	**0**	**38,089**	**5**	**0**	**38,094**	**0**	**2,401,361**

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APPENDIX F

2016 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
Nickel							
DUHADAWAY TOOL & DIE SHOP INC	0	0	0	0	0	9148	0
HANDYTUBE	0	0	0	0	0	35186	0
METAL MASTERS	0	1	0	0	1	69595	0
Nickel Total	**0**	**1**	**0**	**0**	**1**	**113,929**	**0**
Nickel Compounds							
BALTIMORE AIRCOIL COMPANY	0	5	0	0	5	265701	0
DELAWARE CITY REFINERY	0	1684	1573	0	3257	2655	0
OWEN STEEL COMPANY	0	1	0	0	1	5100	0
PRINCE MINERALS LLC	0	4	0	0	4	495	0
Nickel Compounds Total	**0**	**1,694**	**1,573**	**0**	**3,267**	**273,951**	**0**
Nitrate compounds							
ALLEN HARIM FOODS HARBESON	0	0	37529	0	37529	0	0
BASF COLORS AND EFFECTS USA LLC	0	0	0	0	0	23756	0
DELAWARE CITY REFINERY	0	0	2451026	0	2451026	0	0
HANESBRANDS	0	0	0	0	0	29744	0
PERDUE GEORGETOWN	0	0	317941	0	317941	87	0
Nitrate compounds Total	**0**	**0**	**2,806,496**	**0**	**2,806,496**	**53,587**	**0**
Nitric acid							
BASF COLORS AND EFFECTS USA LLC	0	0	0	0	0	0	24139
SPI PHARMA	1	0	0	0	0	0	0
Nitric acid Total	**1**	**0**	**0**	**0**	**0**	**0**	**24,139**
Nitrobenzene							
ORIENT CORP	0	3	0	0	3	0	0
Nitrobenzene Total	**0**	**3**	**0**	**0**	**3**	**0**	**0**
N-Methyl-2-pyrrolidone							
AIR LIQUIDE ADVANCED SEPARATIONS	0	1101	0	0	1101	144787	0
BASF COLORS AND EFFECTS USA LLC	0	0	0	0	0	47126	9
ROHM & HAAS B5 B6	0	2102	0	0	2102	62068	0
ROHM & HAAS B7 B15	0	706	0	0	706	12514	0
N-Methyl-2-pyrrolidone Total	**0**	**3,909**	**0**	**0**	**3,909**	**266,495**	**9**
Nonylphenol							
CRODA	0	376	0	0	376	2079	0
Nonylphenol Total	**0**	**376**	**0**	**0**	**376**	**2,079**	**0**
p-Chloroaniline							
BASF COLORS AND EFFECTS USA LLC	0	5	0	0	5	87042	2398
p-Chloroaniline Total	**0**	**5**	**0**	**0**	**5**	**87,042**	**2,398**

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APPENDIX F

2016 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
Peracetic acid							
ALLEN HARIM FOODS HARBESON	1	0	0	0	0	0	0
MOUNTAIRE FARMS - SELBYVILLE	0	686	0	0	686	0	335865
MOUNTAIRE FARMS OF DELAWARE	0	409	0	0	409	0	335619
NORAMCO	0	0	0	0	0	0	86818
PERDUE GEORGETOWN	0	0	39	0	39	0	78872
PERDUE MILFORD	0	0	0	0	0	52	104770
Peracetic acid Total	**1**	**1,095**	**39**	**0**	**1,134**	**52**	**941,944**
Phenanthrene							
DELAWARE CITY REFINERY	0	1	5	0	6	0	40
Phenanthrene Total	**0**	**1**	**5**	**0**	**6**	**0**	**40**
Phenol							
DELAWARE CITY REFINERY	0	135	165	0	300	0	327924
Phenol Total	**0**	**135**	**165**	**0**	**300**	**0**	**327,924**
Polycyclic aromatic compounds							
DELAWARE CITY REFINERY	0	204	4	0	208	0	372
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	0	0	0	0	0	0
IKO	0	0	0	0	0	108	465
Polycyclic aromatic compounds Total	**0**	**204**	**4**	**0**	**208**	**108**	**837**
Propylene							
DELAWARE CITY REFINERY	0	4907	0	0	4907	0	0
Propylene Total	**0**	**4,907**	**0**	**0**	**4,907**	**0**	**0**
Propylene oxide							
CRODA	0	372	0	0	372	0	539
Propylene oxide Total	**0**	**372**	**0**	**0**	**372**	**0**	**539**
Styrene							
DELAWARE CITY REFINERY	0	9	5	0	14	0	1127
JUSTIN TANKS	0	10047	0	365	10412	5658	21960
Styrene Total	**0**	**10,056**	**5**	**365**	**10,426**	**5,658**	**23,087**
Sulfuric acid							
DELAWARE CITY REFINERY	0	107808	0	0	107808	0	0
INDIAN RIVER GENERATING STATION	0	1202	0	0	1202	0	677513
VEOLIA - RED LION PLANT	0	7003	0	0	7003	0	0
Sulfuric acid Total	**0**	**116,013**	**0**	**0**	**116,013**	**0**	**677,513**

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APPENDIX F

2016 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
Tetrachloroethylene							
DELAWARE CITY REFINERY	0	4	0	0	4	0	0
Tetrachloroethylene Total	**0**	**4**	**0**	**0**	**4**	**0**	**0**
Toluene							
AGILENT TECHNOLOGIES	0	40	0	0	40	149720	0
DELAWARE CITY REFINERY	0	12011	5	0	12016	88	221265
DENTSPLY WEST PLANT	0	1799	0	0	1799	10433	0
NORAMCO	0	233	0	0	233	419124	419124
SERVICE ENERGY DOVER	1	0	0	0	0	0	0
VP RACING FUELS	1	0	0	0	0	0	0
Toluene Total	**2**	**14,083**	**5**	**0**	**14,088**	**579,365**	**640,389**
Toluene diisocyanate (mixed isomers)							
AEARO TECHNOLOGIES	0	4	0	0	4	5049	0
MACDERMID	1	0	0	0	0	0	0
Toluene diisocyanate (mixed isomers) Total	**1**	**4**	**0**	**0**	**4**	**5,049**	**0**
Trichloroethylene							
HANDYTUBE	0	3848	0	0	3848	10572	0
Trichloroethylene Total	**0**	**3,848**	**0**	**0**	**3,848**	**10,572**	**0**
Vanadium Compounds							
INDIAN RIVER GENERATING STATION	0	23	0	5506	5529	0	0
Vanadium Compounds Total	**0**	**23**	**0**	**5,506**	**5,529**	**0**	**0**
Vinyl acetate							
FORMOSA PLASTICS	0	61172	0	0	61172	0	0
Vinyl acetate Total	**0**	**61,172**	**0**	**0**	**61,172**	**0**	**0**
Vinyl chloride							
FORMOSA PLASTICS	0	40946	1	0	40947	216	202499
Vinyl chloride Total	**0**	**40,946**	**1**	**0**	**40,947**	**216**	**202,499**
Xylene (mixed isomers)							
BASF COLORS AND EFFECTS USA LLC	0	1188	0	0	1188	683	5531
DELAWARE CITY REFINERY	0	4931	5	0	4936	592	212170
DOVER AFB	0	24	0	0	24	0	0
GRIFFITH ENERGY - CARL KING	1	0	0	0	0	0	0
ROGERS CORP	0	1830	0	0	1830	3500	99000
VP RACING FUELS	1	0	0	0	0	0	0
Xylene (mixed isomers) Total	**2**	**7,973**	**5**	**0**	**7,978**	**4,775**	**316,701**

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APPENDIX F

2016 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
Zinc Compounds							
ALLEN HARIM FARMS SEAFORD MILL	1	0	0	0	0	0	0
AMICK FARMS	1	0	0	0	0	0	0
MOUNTAIRE FARMS - FRANKFORD MILL	1	0	0	0	0	0	0
MOUNTAIRE FARMS OF DELAWARE	1	0	0	0	0	0	0
ORIENT CORP	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE	1	0	0	0	0	0	0
PPG INDUSTRIES	0	29	0	0	29	1933	0
V&S DELAWARE GALVANIZING	0	493	101	0	594	258199	781088
Grand Total	**33**	**546,310**	**2,812,016**	**22,011**	**3,380,338**	**10,677,907**	**385,620,964**

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APPENDIX G

2016 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										
CALPINE CORP - GARRISON ENERGY CENTE	0	0	0	0	0	0	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	65,634	65,634
DOVER AFB	0	0	0	0	0	0	0	0	0	0
GAC SEAFORD	0	0	0	0	0	0	0	0	0	0
GRIFFITH ENERGY - CARL KING	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**	**65,634**	**65,634**
1,3-Butadiene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
1,3-Butadiene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2,4-Dimethylphenol										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	231,669	231,669
2,4-Dimethylphenol Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**231,669**	**231,669**
4,4'-Methylenebis(2-chloroaniline)										
ROHM & HAAS B5 B6	0	0	0	1,225	645	1,870	0	0	0	0
ROHM & HAAS B7 B15	0	0	0	146	568	714	0	0	0	0
4,4'-Methylenebis(2-chloroaniline) Total	**0**	**0**	**0**	**1,371**	**1,213**	**2,584**	**0**	**0**	**0**	**0**
Acetonitrile										
AGILENT TECHNOLOGIES	0	0	19,366	0	0	19,366	0	0	0	0
Acetonitrile Total	**0**	**0**	**19,366**	**0**	**0**	**19,366**	**0**	**0**	**0**	**0**
Ammonia										
CALPINE CORP - GARRISON ENERGY CENTE	0	0	0	0	0	0	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	4	4	0	12,187,858	53,770	12,241,628
EDGE MOOR/HAY ROAD ENERGY CENTERS	102	0	0	0	0	102	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	59,101	59,101
PICTSWEET BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
Ammonia Total	**102**	**0**	**0**	**0**	**4**	**106**	**0**	**12,187,858**	**112,871**	**12,300,729**
Aniline										
BASF COLORS AND EFFECTS USA LLC	12,545	0	7,307	218	0	20,070	0	0	1,352	1,352
ORIENT CORP	1,600	0	0	0	87	1,687	1,600,000	0	130,000	1,730,000
Aniline Total	**14,145**	**0**	**7,307**	**218**	**87**	**21,757**	**1,600,000**	**0**	**131,352**	**1,731,352**
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**

APPENDIX G

2016 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

CHEMICAL/FACILITY	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
Antimony Compounds										
JOHNSON CONTROLS BATTERY PLANT	0	12,115	0	0	581	12,696	0	0	0	0
JOHNSON CONTROLS DISTRIBUTION	0	8,639	0	0	0	8,639	0	0	0	0
Antimony Compounds Total	**0**	**20,754**	**0**	**0**	**581**	**21,335**	**0**	**0**	**0**	**0**
Arsenic Compounds										
JOHNSON CONTROLS DISTRIBUTION	0	532	0	0	0	532	0	0	0	0
Arsenic Compounds Total	**0**	**532**	**0**	**0**	**0**	**532**	**0**	**0**	**0**	**0**
Asbestos (friable)										
DELAWARE CITY REFINERY	0	0	0	0	85,321	85,321	0	0	0	0
Asbestos (friable) Total	**0**	**0**	**0**	**0**	**85,321**	**85,321**	**0**	**0**	**0**	**0**
Barium Compounds										
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
PRINCE MINERALS LLC	0	0	0	0	530	530	0	0	0	0
Barium Compounds Total	**0**	**0**	**0**	**0**	**530**	**530**	**0**	**0**	**0**	**0**
Benzene										
DELAWARE CITY REFINERY	0	0	0	53	15	68	0	277,501	69,794	347,295
Benzene Total	**0**	**0**	**0**	**53**	**15**	**68**	**0**	**277,501**	**69,794**	**347,295**
Benzo(g,h,i)perylene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	453	453
Benzo(g,h,i)perylene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**453**	**453**
Biphenyl										
BASF COLORS AND EFFECTS USA LLC	14,689	0	69,087	7,278	0	91,054	0	0	2,321	2,321
Biphenyl Total	**14,689**	**0**	**69,087**	**7,278**	**0**	**91,054**	**0**	**0**	**2,321**	**2,321**
Boron trifluoride										
HONEYWELL	0	0	0	0	0	0	0	0	75,026	75,026
Boron trifluoride Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**75,026**	**75,026**
Carbon disulfide										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	104,120	4,063,056	4,167,176
Carbon disulfide Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**104,120**	**4,063,056**	**4,167,176**
Carbonyl sulfide										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	67,913	13,505,459	13,573,372
Carbonyl sulfide Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**67,913**	**13,505,459**	**13,573,372**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 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										
CRODA	3,915	0	0	0	0	3,915	0	0	0	0
HIRSH INDUSTRIES INC	0	0	0	0	0	0	0	0	0	0
PPG INDUSTRIES	3,603	0	0	59	3,541	7,203	0	0	0	0
Certain Glycol Ethers Total	**7,518**	**0**	**0**	**59**	**3,541**	**11,118**	**0**	**0**	**0**	**0**
Chlorine										
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**	**0**	**0**
Chromium										
DUHADAWAY TOOL & DIE SHOP INC	0	16,360	0	0	259	16,619	0	0	0	0
HANDYTUBE	0	35,205	0	0	65	35,270	0	0	0	0
METAL MASTERS	0	208,842	0	0	2,295	211,137	0	0	0	0
Chromium Total	**0**	**260,407**	**0**	**0**	**2,619**	**263,026**	**0**	**0**	**0**	**0**
Chromium Compounds										
BALTIMORE AIRCOIL COMPANY	0	231,411	0	0	0	231,411	0	0	0	0
ORIENT CORP	0	0	0	0	0	0	0	0	0	0
Chromium Compounds Total	**0**	**231,411**	**0**	**0**	**0**	**231,411**	**0**	**0**	**0**	**0**
Cobalt										
DELAWARE CITY REFINERY	0	0	0	0	3	3	0	0	0	0
Cobalt Total	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**0**
Cobalt Compounds										
BALTIMORE AIRCOIL COMPANY	0	28,575	0	0	0	28,575	0	0	0	0
Cobalt Compounds Total	**0**	**28,575**	**0**	**0**	**0**	**28,575**	**0**	**0**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 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										
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
ROGERS CORP	5	1,400	0	0	5	1,410	0	0	0	0
Copper Total	**5**	**1,400**	**0**	**0**	**5**	**1,410**	**0**	**0**	**0**	**0**
Copper Compounds										
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
AMICK FARMS	0	0	0	0	0	0	0	0	0	0
BALTIMORE AIRCOIL COMPANY	0	35,603	0	0	0	35,603	0	0	0	0
MOUNTAIRE FARMS - FRANKFORD 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
Copper Compounds Total	**0**	**35,603**	**0**	**0**	**0**	**35,603**	**0**	**0**	**0**	**0**
Creosote										
DELAWARE CITY REFINERY	0	0	0	0	40,449	40,449	0	0	0	0
Creosote Total	**0**	**0**	**0**	**0**	**40,449**	**40,449**	**0**	**0**	**0**	**0**
Cresol (mixed isomers)										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	34,300	325,007	359,307
Cresol (mixed isomers) Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34,300**	**325,007**	**359,307**
Cumene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	3,928	3,928
DOVER AFB	0	0	0	0	0	0	0	0	0	0
Cumene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,928**	**3,928**
Cyanide Compounds										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	14,394	14,394
Cyanide Compounds Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14,394**	**14,394**
Cyclohexane										
AIR LIQUIDE ADVANCED SEPARATIONS	0	0	6,041	0	0	6,041	0	0	0	0
BASF COLORS AND EFFECTS USA LLC	0	22,610	0	0	0	22,610	0	0	3,447	3,447
DELAWARE CITY REFINERY	0	0	0	1	1	1	0	0	7,272	7,272
Cyclohexane Total	**0**	**22,610**	**6,041**	**1**	**1**	**28,652**	**0**	**0**	**10,719**	**10,719**

APPENDIX G

2016 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**
Dichloromethane										
NORAMCO	5	0	0	0	0	5	0	0	0	0
Dichloromethane Total	**5**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**
Diethanolamine										
CRODA	848	0	0	830	0	1,678	0	0	0	0
Diethanolamine Total	**848**	**0**	**0**	**830**	**0**	**1,678**	**0**	**0**	**0**	**0**
Diisocyanates										
AEARO TECHNOLOGIES	0	0	0	11,016	0	11,016	0	0	0	0
MACDERMID	0	0	0	0	0	0	0	0	0	0
ROHM & HAAS B2 B3 B8	0	0	3	7,558	0	7,561	0	0	0	0
ROHM & HAAS B5 B6	0	0	0	1,220	2,015	3,235	0	0	0	0
Diisocyanates Total	**0**	**0**	**3**	**19,794**	**2,015**	**21,812**	**0**	**0**	**0**	**0**
Dioxin and Dioxin-like Compounds										
DELAWARE CITY REFINERY	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
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**	**0**	**0**	**0**	**0**	**0**	**0**
Diphenylamine										
ORIENT CORP	0	0	0	0	0	0	0	0	0	0
Diphenylamine Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Ethylbenzene										
DELAWARE CITY REFINERY	0	0	0	0	10	10	0	0	52,239	52,239
DOVER AFB	0	0	0	0	0	0	0	0	0	0
ROGERS CORP	0	0	0	650	0	650	0	0	19,000	19,000
Ethylbenzene Total	**0**	**0**	**0**	**650**	**10**	**660**	**0**	**0**	**71,239**	**71,239**
Ethylene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
Ethylene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Ethylene glycol										
CRODA	19,460	0	0	0	0	19,460	0	0	0	0
NORAMCO	0	5,215	0	0	0	5,215	0	0	0	0
PPG INDUSTRIES	2,424	0	0	62	2,379	4,865	0	0	0	0
Ethylene glycol Total	**21,884**	**5,215**	**0**	**62**	**2,379**	**29,540**	**0**	**0**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 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
Ethylene oxide										
CRODA	0	0	0	0	0	0	0	0	445	445
Ethylene oxide Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**445**	**445**
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**
Hydrazine										
VEOLIA - RED LION PLANT	0	0	0	0	0	0	0	0	0	0
Hydrazine Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Hydrazine sulfate										
VEOLIA - RED LION PLANT	0	0	0	0	0	0	0	0	0	0
Hydrazine sulfate Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Hydrochloric acid										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	105,456	105,456
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	480,496	480,496
Hydrochloric acid Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**585,952**	**585,952**
Hydrogen cyanide										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	488,107	488,107
Hydrogen cyanide Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**488,107**	**488,107**
Hydrogen fluoride										
HONEYWELL	0	0	0	0	0	0	0	0	91	91
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	51,674	51,674
Hydrogen fluoride Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**51,765**	**51,765**
Hydrogen Sulfide										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	336,301,707	336,301,707
MOUNTAIRE FARMS OF DELAWARE	0	0	0	0	0	0	0	0	95,110	95,110
PERDUE GEORGETOWN	0	0	0	0	0	0	0	0	79,635	79,635
VEOLIA - RED LION PLANT	0	0	0	0	0	0	0	0	0	0
Hydrogen Sulfide Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**336,476,452**	**336,476,452**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 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
Lead										
DOVER AFB	0	3,878	0	0	0	3,878	0	0	0	0
HMA - HERITAGE CONCRETE BEAR	0	0	0	0	0	0	0	0	0	0
HMA - HERITAGE CONCRETE CHESWOLD	0	0	0	0	0	0	0	0	0	0
HMA - HERITAGE CONCRETE HEALD STREET	0	0	0	0	0	0	0	0	0	0
NATIONAL GUARD TRAINING SITE RANGE	0	0	0	0	0	0	0	0	0	0
V&S DELAWARE GALVANIZING	0	6,384	0	0	320	6,704	6,658	0	0	6,658
Lead Total	**0**	**10,262**	**0**	**0**	**320**	**10,582**	**6,658**	**0**	**0**	**6,658**
Lead Compounds										
DELAWARE CITY REFINERY	0	51	0	0	61	112	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
JOHNSON CONTROLS BATTERY PLANT	1	2,867,472	0	0	22,541	2,890,014	0	0	0	0
JOHNSON CONTROLS DISTRIBUTION	1	2,044,813	0	0	2,000	2,046,814	0	0	0	0
OWEN STEEL COMPANY	0	200	0	0	0	200	0	0	0	0
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
Lead Compounds Total	**2**	**4,912,536**	**0**	**0**	**24,602**	**4,937,140**	**0**	**0**	**0**	**0**
Manganese										
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
COLOR WORKS PAINTING	0	1,086	0	0	0	1,086	0	0	0	0
HANDYTUBE	0	3,528	0	0	6	3,534	0	0	0	0
Manganese Total	**0**	**4,614**	**0**	**0**	**6**	**4,620**	**0**	**0**	**0**	**0**
Manganese Compounds										
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
AMICK FARMS	0	0	0	0	0	0	0	0	0	0
BALTIMORE AIRCOIL COMPANY	0	106,245	0	0	0	106,245	0	0	0	0
MOUNTAIRE FARMS - FRANKFORD 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
OWEN STEEL COMPANY	0	2,300	0	0	0	2,300	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
PRINCE MINERALS LLC	0	0	0	0	122,750	122,750	0	0	0	0
Manganese Compounds Total	**0**	**108,545**	**0**	**0**	**122,750**	**231,295**	**0**	**0**	**0**	**0**
Mercury										
DENTSPLY MAIN PLANT	0	1,979	0	0	0	1,979	0	0	0	0
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	0	0	0	0	0	0	0	0	0
Mercury Total	**0**	**1,979**	**0**	**0**	**0**	**1,979**	**0**	**0**	**0**	**0**
Mercury Compounds										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
INTERVET	0	2	0	0	1	3	0	0	0	0
Mercury Compounds Total	**0**	**2**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

CHEMICAL/FACILITY	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
Methanol										
AGILENT TECHNOLOGIES	0	0	47,266	152	0	47,418	0	0	0	0
AIR LIQUIDE ADVANCED SEPARATIONS	0	0	0	78,429	0	78,429	2,711,353	0	0	2,711,353
BASF COLORS AND EFFECTS USA LLC	542,080	149,044	12,254	31,173	0	734,551	339,750	0	822,442	1,162,192
CRODA	6,322	0	10,251	0	0	16,573	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	1,985	1,985
DENTSPLY WEST PLANT	77	0	9,882	0	0	9,959	0	0	0	0
DYK AUTOMOTIVE LLC	0	0	0	0	0	0	0	0	0	0
HONEYWELL	80	0	0	640	0	720	0	0	0	0
NORAMCO	5,109	0	97,074	0	0	102,183	0	0	102,183	102,183
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
Methanol Total	**553,668**	**149,044**	**176,727**	**110,394**	**0**	**989,833**	**3,051,103**	**0**	**926,610**	**3,977,713**
Methyl methacrylate										
DENTSPLY WEST PLANT	87	0	0	0	0	87	0	0	0	0
Methyl methacrylate Total	**87**	**0**	**0**	**0**	**0**	**87**	**0**	**0**	**0**	**0**
Molybdenum trioxide										
DELAWARE CITY REFINERY	0	1	0	0	0	1	0	0	0	0
Molybdenum trioxide Total	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
N,N-Dimethylformamide										
AIR LIQUIDE ADVANCED SEPARATIONS	21,300	0	5,760	0	0	27,060	0	0	0	0
ROHM & HAAS B2 B3 B8	122,924	765,300	206,846	0	209,129	1,304,199	4,159,675	0	303	4,159,978
N,N-Dimethylformamide Total	**144,224**	**765,300**	**212,606**	**0**	**209,129**	**1,331,259**	**4,159,675**	**0**	**303**	**4,159,978**
Naphthalene										
CALPINE CORP - GARRISON ENERGY CENTE	0	0	0	0	0	0	0	0	0	0
CRODA	0	0	0	4,687	0	4,687	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	12,551	12,551
DOVER AFB	0	0	0	0	0	0	0	0	0	0
GRIFFITH ENERGY - CARL KING	0	0	0	0	0	0	0	0	0	0
Naphthalene Total	**0**	**0**	**0**	**4,687**	**0**	**4,687**	**0**	**0**	**12,551**	**12,551**
n-Butyl alcohol										
CRODA	554	0	0	0	0	554	0	0	0	0
NORAMCO	28,313	0	537,948	0	0	566,261	0	0	566,261	566,261
n-Butyl alcohol Total	**28,867**	**0**	**537,948**	**0**	**0**	**566,815**	**0**	**0**	**566,261**	**566,261**
n-Hexane										
AIR LIQUIDE ADVANCED SEPARATIONS	0	0	0	0	0	0	2,238,093	0	0	2,238,093
CALPINE CORP - GARRISON ENERGY CENTE	0	0	0	0	0	0	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	163,268	163,268
n-Hexane Total	**0**	**0**	**0**	**0**	**0**	**0**	**2,238,093**	**0**	**163,268**	**2,401,361**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

CHEMICAL/FACILITY	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
Nickel										
DUHADAWAY TOOL & DIE SHOP INC	0	8,898	0	0	250	9,148	0	0	0	0
HANDYTUBE	0	35,090	0	0	96	35,186	0	0	0	0
METAL MASTERS	0	69,208	0	0	387	69,595	0	0	0	0
Nickel Total	**0**	**113,196**	**0**	**0**	**733**	**113,929**	**0**	**0**	**0**	**0**
Nickel Compounds										
BALTIMORE AIRCOIL COMPANY	0	265,701	0	0	0	265,701	0	0	0	0
DELAWARE CITY REFINERY	0	2,652	0	0	3	2,655	0	0	0	0
OWEN STEEL COMPANY	0	5,100	0	0	0	5,100	0	0	0	0
PRINCE MINERALS LLC	0	0	0	0	495	495	0	0	0	0
Nickel Compounds Total	**0**	**273,453**	**0**	**0**	**498**	**273,951**	**0**	**0**	**0**	**0**
Nitrate compounds										
ALLEN HARIM FOODS HARBESON	0	0	0	0	0	0	0	0	0	0
BASF COLORS AND EFFECTS USA LLC	23,756	0	0	0	0	23,756	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
HANESBRANDS	29,744	0	0	0	0	29,744	0	0	0	0
PERDUE GEORGETOWN	0	0	0	0	87	87	0	0	0	0
Nitrate compounds Total	**53,500**	**0**	**0**	**0**	**87**	**53,587**	**0**	**0**	**0**	**0**
Nitric acid										
BASF COLORS AND EFFECTS USA LLC	0	0	0	0	0	0	0	0	24,139	24,139
SPI PHARMA	0	0	0	0	0	0	0	0	0	0
Nitric acid Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24,139**	**24,139**
Nitrobenzene										
ORIENT CORP	0	0	0	0	0	0	0	0	0	0
Nitrobenzene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
N-Methyl-2-pyrrolidone										
AIR LIQUIDE ADVANCED SEPARATIONS	142,147	0	2,640	0	0	144,787	0	0	0	0
BASF COLORS AND EFFECTS USA LLC	9,764	37,362	0	0	0	47,126	0	0	9	9
ROHM & HAAS B5 B6	0	41,767	0	2,803	17,498	62,068	0	0	0	0
ROHM & HAAS B7 B15	0	11,452	0	751	311	12,514	0	0	0	0
N-Methyl-2-pyrrolidone Total	**151,911**	**90,581**	**2,640**	**3,554**	**17,809**	**266,495**	**0**	**0**	**9**	**9**
Nonylphenol										
CRODA	1,879	0	0	200	0	2,079	0	0	0	0
Nonylphenol Total	**1,879**	**0**	**0**	**200**	**0**	**2,079**	**0**	**0**	**0**	**0**
p-Chloroaniline										
BASF COLORS AND EFFECTS USA LLC	2,536	0	1,705	82,801	0	87,042	0	0	2,398	2,398
p-Chloroaniline Total	**2,536**	**0**	**1,705**	**82,801**	**0**	**87,042**	**0**	**0**	**2,398**	**2,398**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 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
Peracetic acid										
ALLEN HARIM FOODS HARBESON	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS - SELBYVILLE	0	0	0	0	0	0	0	0	335,865	335,865
MOUNTAIRE FARMS OF DELAWARE	0	0	0	0	0	0	0	0	335,619	335,619
NORAMCO	0	0	0	0	0	0	0	0	86,818	86,818
PERDUE GEORGETOWN	0	0	0	0	0	0	0	0	78,872	78,872
PERDUE MILFORD	52	0	0	0	0	52	0	0	104,770	104,770
Peracetic acid Total	**52**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**941,944**	**941,944**
Phenanthrene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	40	40
Phenanthrene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**40**
Phenol										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	55,549	272,375	327,924
Phenol Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**55,549**	**272,375**	**327,924**
Polycyclic aromatic compounds										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	372	372
EDGE MOOR/HAY ROAD ENERGY CENTERS	0	0	0	0	0	0	0	0	0	0
IKO	0	106	0	0	3	108	465	0	0	465
Polycyclic aromatic compounds Total	**0**	**106**	**0**	**0**	**3**	**108**	**465**	**0**	**372**	**837**
Propylene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
Propylene Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Propylene oxide										
CRODA	0	0	0	0	0	0	0	0	539	539
Propylene oxide Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**539**	**539**
Styrene										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	1,127	1,127
JUSTIN TANKS	0	0	0	5,658	0	5,658	21,960	0	0	21,960
Styrene Total	**0**	**0**	**0**	**5,658**	**0**	**5,658**	**21,960**	**0**	**1,127**	**23,087**
Sulfuric acid										
DELAWARE CITY REFINERY	0	0	0	0	0	0	0	0	0	0
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	677,513	677,513
VEOLIA - RED LION PLANT	0	0	0	0	0	0	0	0	0	0
Sulfuric acid Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**677,513**	**677,513**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 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**
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**
Toluene										
AGILENT TECHNOLOGIES	0	0	149,554	166	0	149,720	0	0	0	0
DELAWARE CITY REFINERY	0	0	0	0	88	88	0	0	221,265	221,265
DENTSPLY WEST PLANT	0	0	10,433	0	0	10,433	0	0	0	0
NORAMCO	0	0	419,124	0	0	419,124	0	0	419,124	419,124
SERVICE ENERGY DOVER	0	0	0	0	0	0	0	0	0	0
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
Toluene Total	**0**	**0**	**579,111**	**166**	**88**	**579,365**	**0**	**0**	**640,389**	**640,389**
Toluene diisocyanate (mixed isomers)										
AEARO TECHNOLOGIES	0	0	0	5,049	0	5,049	0	0	0	0
MACDERMID	0	0	0	0	0	0	0	0	0	0
Toluene diisocyanate (mixed isomers) Total	**0**	**0**	**0**	**5,049**	**0**	**5,049**	**0**	**0**	**0**	**0**
Trichloroethylene										
HANDYTUBE	0	0	0	10,572	0	10,572	0	0	0	0
Trichloroethylene Total	**0**	**0**	**0**	**10,572**	**0**	**10,572**	**0**	**0**	**0**	**0**
Vanadium Compounds										
INDIAN RIVER GENERATING STATION	0	0	0	0	0	0	0	0	0	0
Vanadium Compounds Total	**0**	**0**	**0**	**0**	**0**	**0**	**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	0	0	0	216	216	0	0	202,499	202,499
Vinyl chloride Total	**0**	**0**	**0**	**0**	**216**	**216**	**0**	**0**	**202,499**	**202,499**
Xylene (mixed isomers)										
BASF COLORS AND EFFECTS USA LLC	273	0	410	0	0	683	0	0	5,531	5,531
DELAWARE CITY REFINERY	0	0	0	0	591	592	0	0	212,170	212,170
DOVER AFB	0	0	0	0	0	0	0	0	0	0
GRIFFITH ENERGY - CARL KING	0	0	0	0	0	0	0	0	0	0
ROGERS CORP	0	0	0	3,500	0	3,500	0	0	99,000	99,000
VP RACING FUELS	0	0	0	0	0	0	0	0	0	0
Xylene (mixed isomers) Total	**273**	**0**	**410**	**3,500**	**591**	**4,775**	**0**	**0**	**316,701**	**316,701**

Source: DNREC 2016 TRI Database, October, 2017

All Amounts Are in Pounds

APPENDIX G

2016 OFF-SITE TRANSFERS AND WASTE MANAGED ON-SITE BY CHEMICAL

CHEMICAL/FACILITY	OFF SITE TRANSFERS						ON SITE WASTE MANAGEMENT			
	POTW	RECYCLE	ENERGY RECOVERY	TREATMENT	DISPOSAL	TOTAL	RECYCLE	ENERGY RECOVERY	TREATMENT	TOTAL
Zinc Compounds										
ALLEN HARIM FARMS SEAFORD MILL	0	0	0	0	0	0	0	0	0	0
AMICK FARMS	0	0	0	0	0	0	0	0	0	0
MOUNTAIRE FARMS - FRANKFORD 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 CORP	0	0	0	0	0	0	0	0	0	0
PERDUE BRIDGEVILLE	0	0	0	0	0	0	0	0	0	0
PPG INDUSTRIES	914	0	0	0	1,019	1,933	0	0	0	0
V&S DELAWARE GALVANIZING	0	213,560	0	0	44,639	258,199	781,088	0	0	781,088
STATE TOTALS	**997,109**	**7,249,685**	**1,612,951**	**256,899**	**561,263**	**10,677,907**	**11,859,042**	**12,727,241**	**361,034,681**	**385,620,964**

APPENDIX H

2016 ON-SITE RELEASE SUMMARY BY CHEMICAL

CHEMICAL - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES				TRANSFERS	ON-SITE
	TO AIR	TO WATER	TO LAND	TOTAL	OFF-SITE	WASTE MGMT.
Nitrate compounds	0	2,806,496	0	2,806,496	53,587	0
Sulfuric acid	116,013	0	0	116,013	0	677,513
Ammonia	62,045	2,490	0	64,535	106	12,300,729
Vinyl acetate	61,172	0	0	61,172	0	0
Vinyl chloride	40,946	1	0	40,947	216	202,499
Hydrogen Sulfide	39,620	1	0	39,621	0	336,476,452
n-Hexane	38,089	5	0	38,094	0	2,401,361
Certain Glycol Ethers	35,525	0	0	35,525	11,118	0
Methanol	34,177	5	0	34,182	989,833	3,977,713
Hydrogen cyanide	18,113	203	0	18,316	0	488,107
Cyclohexane	17,279	5	0	17,284	28,652	10,719
Toluene	14,083	5	0	14,088	579,365	640,389
Styrene	10,056	5	365	10,426	5,658	23,087
Barium Compounds	44	0	9,968	10,012	530	0
Xylene (mixed isomers)	7,973	5	0	7,978	4,775	316,701
Benzene	6,320	10	0	6,330	68	347,295
Ethylene	5,760	0	0	5,760	0	0
Vanadium Compounds	23	0	5,506	5,529	0	0
Lead	8	2	5,214	5,224	10,582	6,658
Propylene	4,907	0	0	4,907	0	0
N,N-Dimethylformamide	4,181	0	0	4,181	1,331,259	4,159,978
N-Methyl-2-pyrrolidone	3,909	0	0	3,909	266,495	9
Trichloroethylene	3,848	0	0	3,848	10,572	0
Nickel Compounds	1,694	1,573	0	3,267	273,951	0
Cumene	3,191	5	0	3,196	0	3,928
Ethylene oxide	2,654	0	0	2,654	0	445
Ethylbenzene	2,314	5	0	2,319	660	71,239
Naphthalene	1,988	0	0	1,988	4,687	12,551
Hydrogen fluoride	1,241	0	0	1,241	0	51,765
Peracetic acid	1,095	39	0	1,134	52	941,944
Carbon disulfide	1,055	0	0	1,055	0	4,167,176
Methyl methacrylate	1,003	0	0	1,003	87	0
Lead Compounds	188	21	778	986	4,937,140	0
1,2,4-Trimethylbenzene	821	5	0	826	0	65,634
Hydrochloric acid	789	0	0	789	0	585,952
Carbonyl sulfide	632	0	0	632	0	13,573,372
Zinc Compounds	522	101	0	623	260,132	781,088
Nonylphenol	376	0	0	376	2,079	0
Propylene oxide	372	0	0	372	0	539
Boron trifluoride	359	0	0	359	0	75,026
Cresol (mixed isomers)	0	330	0	330	0	359,307
Phenol	135	165	0	300	0	327,924
1,3-Butadiene	273	0	0	273	0	0
Manganese Compounds	263	0	0	263	231,295	0
Cobalt	39	210	0	249	3	0

APPENDIX H

2016 ON-SITE RELEASE SUMMARY BY CHEMICAL

CHEMICAL - RANKED BY TOTAL ON-SITE RELEASE	ON-SITE RELEASES TO AIR	TO WATER	TO LAND	TOTAL	TRANSFERS OFF-SITE	ON-SITE WASTE MGMT.
n-Butyl alcohol	234	0	0	234	566,815	566,261
Polycyclic aromatic compounds	204	4	0	208	108	837
Dichloromethane	208	0	0	208	5	0
Mercury Compounds	100	2	66	168	3	0
2,4-Dimethylphenol	0	165	0	165	0	231,669
Cyanide Compounds	0	145	0	145	0	14,394
Creosote	20	0	114	134	40,449	0
Aniline	109	0	0	109	21,757	1,731,352
Biphenyl	100	0	0	100	91,054	2,321
Acetonitrile	77	0	0	77	19,366	0
Chlorine	48	0	0	48	0	0
Formic acid	21	0	0	21	0	0
Ethylene glycol	18	0	0	18	29,540	0
Mercury	17	0	0	17	1,979	0
Molybdenum trioxide	13	0	0	13	1	0
Copper	10	0	0	10	1,410	0
Diethanolamine	7	0	0	7	1,678	0
Phenanthrene	1	5	0	6	0	40
Anthracene	0	5	0	5	0	0
Benzo(g,h,i)perylene	1	5	0	5	0	453
p-Chloroaniline	5	0	0	5	87,042	2,398
Chromium Compounds	5	0	0	5	231,411	0
Toluene diisocyanate (mixed isomers)	4	0	0	4	5,049	0
Diisocyanates	4	0	0	4	21,812	0
Tetrachloroethylene	4	0	0	4	0	0
Nitrobenzene	3	0	0	3	0	0
Chromium	1	0	0	1	263,026	0
Nickel	1	0	0	1	113,929	0
Antimony Compounds	0	0	0	0	21,335	0
4,4'-Methylenebis(2-chloroaniline)	0	0	0	0	2,584	0
Dioxin and Dioxin-like Compounds	0	0	0	0	0	0
Diphenylamine	0	0	0	0	0	0
Nitric acid	0	0	0	0	0	24,139
Arsenic Compounds	0	0	0	0	532	0
Hydrazine	0	0	0	0	0	0
Hydrazine sulfate	0	0	0	0	0	0
Cobalt Compounds	0	0	0	0	28,575	0
Copper Compounds	0	0	0	0	35,603	0
Asbestos (friable)	0	0	0	0	85,321	0
Manganese	0	0	0	0	4,620	0
STATE TOTALS	**546,310**	**2,812,016**	**22,011**	**3,380,338**	**10,677,907**	**385,620,964**

All amounts are in pounds

Source: DNREC 2016 TRI Database, October, 2017

APPENDIX I

2016 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	0.52	4.60	0.00	5.12	0.00	453.00
Benzo(g,h,i)perylene Total	**0.52**	**4.60**	**0.00**	**5.12**	**0.00**	**453.00**
Dioxin and Dioxin-like Compounds						
DELAWARE CITY REFINERY	0.001263	0.000000	0.000000	0.001263	0.000000	0.001263
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.005732	0.000000	0.000000	0.005732	0.000000	0.000000
FORMOSA PLASTICS	0.000007	0.000000	0.000000	0.000007	0.000224	0.000000
INDIAN RIVER GENERATING STATION	0.000243	0.000000	0.000000	0.000243	0.000000	0.000000
Dioxin and Dioxin-like Compounds Total	**0.007246**	**0.000000**	**0.000000**	**0.007246**	**0.0002**	**0.001263**
Lead						
DOVER AFB	0.00	0.00	0.00	0.00	3,878.00	0.00
HMA - HERITAGE CONCRETE BEAR	0.00	0.00	5.77	5.77	0.00	0.00
HMA - HERITAGE CONCRETE CHESWOLD	0.00	0.00	6.28	6.28	0.00	0.00
HMA - HERITAGE CONCRETE HEALD STREET	0.00	0.00	16.34	16.34	0.00	0.00
NATIONAL GUARD TRAINING SITE RANGE	0.00	0.00	5,185.60	5,185.60	0.00	0.00
V&S DELAWARE GALVANIZING	8.10	2.20	0.00	10.30	6,703.80	6,658.00
Lead Total	**8.10**	**2.20**	**5,213.98**	**5,224.29**	**10,581.80**	**6,658.00**
Lead Compounds						
DELAWARE CITY REFINERY	95.06	2.40	0.00	97.46	112.08	0.00
INDIAN RIVER GENERATING STATION	14.50	0.00	778.10	792.60	0.00	0.00
JOHNSON CONTROLS BATTERY PLANT	77.10	18.10	0.00	95.20	2,890,014.10	0.00
JOHNSON CONTROLS DISTRIBUTION	0.00	0.00	0.00	0.00	2,046,813.60	0.00
OWEN STEEL COMPANY	0.00	0.00	0.00	0.00	200.00	0.00
VP RACING FUELS	1.00	0.00	0.00	1.00	0.00	0.00
Lead Compounds Total	**187.66**	**20.50**	**778.10**	**986.26**	**4,937,139.78**	**0.00**
Mercury						
DENTSPLY MAIN PLANT	0.68	0.00	0.00	0.68	1,979.00	0.00
EDGE MOOR/HAY ROAD ENERGY CENTERS	15.90	0.01	0.00	15.91	0.06	0.00
Mercury Total	**16.58**	**0.01**	**0.00**	**16.59**	**1,979.06**	**0.00**
Mercury Compounds						
DELAWARE CITY REFINERY	98.01	1.50	0.00	99.51	0.21	0.00
INDIAN RIVER GENERATING STATION	1.60	0.00	66.40	68.00	0.00	0.00
INTERVET	0.00	0.00	0.00	0.00	3.02	0.00
Mercury Compounds Total	**99.61**	**1.50**	**66.40**	**167.51**	**3.23**	**0.00**
Polycyclic aromatic compounds						
DELAWARE CITY REFINERY	204.01	3.76	0.00	207.77	0.00	372.00
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.30	0.16	0.00	0.46	0.00	0.00
IKO	0.08	0.00	0.00	0.08	108.30	464.70
Polycyclic aromatic compounds Total	**204.39**	**3.92**	**0.00**	**208.31**	**108.30**	**836.70**
STATE PBT TOTALS	**516.87**	**32.73**	**6,058.48**	**6,608.08**	**4,949,812.16**	**7,947.70**

Source: DNREC TRI 2016 Database, October 2017.
All Amounts are in Pounds.

APPENDIX J

2016 CARCINOGEN RELEASE AND TRANSFER DETAIL

CARCINOGEN / FACILITY	TOTAL ON-SITE RELEASES AIR	WATER	LAND	TOTAL	TRANSFERS OFF SITE	ON-SITE WASTE MGMT.
1,3-Butadiene						
DELAWARE CITY REFINERY	273.00	0.00	0.00	273.00	0.00	0.00
1,3-Butadiene Total	**273.00**	**0.00**	**0.00**	**273.00**	**0.00**	**0.00**
4,4'-Methylenebis(2-chloroaniline)						
ROHM & HAAS B5 B6	0.04	0.00	0.00	0.04	1,870.00	0.00
ROHM & HAAS B7 B15	0.04	0.00	0.00	0.04	714.00	0.00
4,4'-Methylenebis(2-chloroaniline) Total	**0.07**	**0.00**	**0.00**	**0.07**	**2,584.00**	**0.00**
Arsenic Compounds						
JOHNSON CONTROLS DISTRIBUTION	0.00	0.00	0.00	0.00	531.70	0.00
Arsenic Compounds Total	**0.00**	**0.00**	**0.00**	**0.00**	**531.70**	**0.00**
Asbestos (friable)						
DELAWARE CITY REFINERY	0.00	0.00	0.00	0.00	85,321.00	0.00
Asbestos (friable) Total	**0.00**	**0.00**	**0.00**	**0.00**	**85,321.00**	**0.00**
Benzene						
DELAWARE CITY REFINERY	6,320.00	10.00	0.00	6,330.00	68.15	347,295.00
Benzene Total	**6,320.00**	**10.00**	**0.00**	**6,330.00**	**68.15**	**347,295.00**
Chromium Compounds						
BALTIMORE AIRCOIL COMPANY	5.00	0.00	0.00	5.00	231,411.00	0.00
ORIENT CORP	0.00	0.00	0.00	0.00	0.00	0.00
Chromium Compounds Total	**5.00**	**0.00**	**0.00**	**5.00**	**231,411.00**	**0.00**
Cobalt Compounds						
BALTIMORE AIRCOIL COMPANY	0.00	0.00	0.00	0.00	28,575.00	0.00
Cobalt Compounds Total	**0.00**	**0.00**	**0.00**	**0.00**	**28,575.00**	**0.00**
Creosote						
DELAWARE CITY REFINERY	20.00	0.00	114.00	134.00	40,449.00	0.00
Creosote Total	**20.00**	**0.00**	**114.00**	**134.00**	**40,449.00**	**0.00**
Dichloromethane						
NORAMCO	208.00	0.00	0.00	208.00	5.00	0.00
Dichloromethane Total	**208.00**	**0.00**	**0.00**	**208.00**	**5.00**	**0.00**
Ethylbenzene						
DELAWARE CITY REFINERY	1,790.00	5.00	0.00	1,795.00	10.11	52,239.00
DOVER AFB	24.00	0.00	0.00	24.00	0.00	0.00
ROGERS CORP	500.00	0.00	0.00	500.00	650.00	19,000.00
Ethylbenzene Total	**2,314.00**	**5.00**	**0.00**	**2,319.00**	**660.11**	**71,239.00**
Ethylene oxide						
CRODA	2,654.20	0.00	0.00	2,654.20	0.00	445.00
Ethylene oxide Total	**2,654.20**	**0.00**	**0.00**	**2,654.20**	**0.00**	**445.00**
Hydrazine						
VEOLIA - RED LION PLANT	0.00	0.00	0.00	0.00	0.00	0.00
Hydrazine Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Hydrazine sulfate						
VEOLIA - RED LION PLANT	0.00	0.00	0.00	0.00	0.00	0.00
Hydrazine sulfate Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Lead						
DOVER AFB	0.00	0.00	0.00	0.00	3,878.00	0.00
HMA - HERITAGE CONCRETE BEAR	0.00	0.00	5.77	5.77	0.00	0.00
HMA - HERITAGE CONCRETE CHESWOLD	0.00	0.00	6.28	6.28	0.00	0.00
HMA - HERITAGE CONCRETE HEALD STREET	0.00	0.00	16.34	16.34	0.00	0.00
NATIONAL GUARD TRAINING SITE RANGE	0.00	0.00	5,185.60	5,185.60	0.00	0.00
V&S DELAWARE GALVANIZING	8.10	2.20	0.00	10.30	6,703.80	6,658.00
Lead Total	**8.10**	**2.20**	**5,213.98**	**5,224.29**	**10,581.80**	**6,658.00**
Lead Compounds						
DELAWARE CITY REFINERY	95.06	2.40	0.00	97.46	112.08	0.00
INDIAN RIVER GENERATING STATION	14.50	0.00	778.10	792.60	0.00	0.00
JOHNSON CONTROLS BATTERY PLANT	77.10	18.10	0.00	95.20	2,890,014.10	0.00
JOHNSON CONTROLS DISTRIBUTION	0.00	0.00	0.00	0.00	2,046,813.60	0.00
OWEN STEEL COMPANY	0.00	0.00	0.00	0.00	200.00	0.00
VP RACING FUELS	1.00	0.00	0.00	1.00	0.00	0.00
Lead Compounds Total	**187.66**	**20.50**	**778.10**	**986.26**	**4,937,139.78**	**0.00**
Naphthalene						
CALPINE CORP - GARRISON ENERGY CENTER	0.00	0.00	0.00	0.00	0.00	0.00
CRODA	2.00	0.00	0.00	2.00	4,687.00	0.00
DELAWARE CITY REFINERY	1,962.00	0.11	0.00	1,962.11	0.32	12,551.00
DOVER AFB	24.00	0.00	0.00	24.00	0.00	0.00
GRIFFITH ENERGY - CARL KING	0.00	0.00	0.00	0.00	0.00	0.00
Naphthalene Total	**1,988.00**	**0.11**	**0.00**	**1,988.11**	**4,687.32**	**12,551.00**

Source: DNREC 2016 TRI Database, October 2017
All amounts are in pounds

APPENDIX J

2016 CARCINOGEN RELEASE AND TRANSFER DETAIL

CARCINOGEN / FACILITY	TOTAL ON-SITE RELEASES AIR	WATER	LAND	TOTAL	TRANSFERS OFF SITE	ON-SITE WASTE MGMT.
Nickel						
DUHADAWAY TOOL & DIE SHOP INC	0.00	0.00	0.00	0.00	9,148.00	0.00
HANDYTUBE	0.00	0.00	0.00	0.00	35,186.00	0.00
METAL MASTERS	0.50	0.00	0.00	0.50	69,595.00	0.00
Nickel Total	**0.50**	**0.00**	**0.00**	**0.50**	**113,929.00**	**0.00**
Nickel Compounds						
BALTIMORE AIRCOIL COMPANY	5.00	0.00	0.00	5.00	265,701.00	0.00
DELAWARE CITY REFINERY	1,684.11	1,573.00	0.00	3,257.11	2,654.65	0.00
OWEN STEEL COMPANY	1.10	0.00	0.00	1.10	5,100.00	0.00
PRINCE MINERALS LLC	3.80	0.00	0.00	3.80	495.00	0.00
Nickel Compounds Total	**1,694.01**	**1,573.00**	**0.00**	**3,267.01**	**273,950.65**	**0.00**
Nitrobenzene						
ORIENT CORP	3.00	0.00	0.00	3.00	0.00	0.00
Nitrobenzene Total	**3.00**	**0.00**	**0.00**	**3.00**	**0.00**	**0.00**
p-Chloroaniline						
BASF COLORS AND EFFECTS USA LLC	5.00	0.00	0.00	5.00	87,042.00	2,398.00
p-Chloroaniline Total	**5.00**	**0.00**	**0.00**	**5.00**	**87,042.00**	**2,398.00**
Polycyclic aromatic compounds						
DELAWARE CITY REFINERY	204.01	3.76	0.00	207.77	0.00	372.00
EDGE MOOR/HAY ROAD ENERGY CENTERS	0.30	0.16	0.00	0.46	0.00	0.00
IKO	0.08	0.00	0.00	0.08	108.30	464.70
Polycyclic aromatic compounds Total	**204.39**	**3.92**	**0.00**	**208.31**	**108.30**	**836.70**
Propylene oxide						
CRODA	372.20	0.00	0.00	372.20	0.00	539.00
Propylene oxide Total	**372.20**	**0.00**	**0.00**	**372.20**	**0.00**	**539.00**
Styrene						
DELAWARE CITY REFINERY	9.13	5.00	0.00	14.13	0.00	1,127.00
JUSTIN TANKS	10,047.00	0.00	365.00	10,412.00	5,658.00	21,960.00
Styrene Total	**10,056.13**	**5.00**	**365.00**	**10,426.13**	**5,658.00**	**23,087.00**
Tetrachloroethylene						
DELAWARE CITY REFINERY	4.00	0.00	0.00	4.00	0.00	0.00
Tetrachloroethylene Total	**4.00**	**0.00**	**0.00**	**4.00**	**0.00**	**0.00**
Toluene diisocyanate (mixed isomers)						
AEARO TECHNOLOGIES	4.39	0.00	0.00	4.39	5,049.00	0.00
MACDERMID	0.00	0.00	0.00	0.00	0.00	0.00
Toluene diisocyanate (mixed isomers) Total	**4.39**	**0.00**	**0.00**	**4.39**	**5,049.00**	**0.00**
Trichloroethylene						
HANDYTUBE	3,848.00	0.00	0.00	3,848.00	10,572.00	0.00
Trichloroethylene Total	**3,848.00**	**0.00**	**0.00**	**3,848.00**	**10,572.00**	**0.00**
Vinyl acetate						
FORMOSA PLASTICS	61,172.00	0.00	0.00	61,172.00	0.00	0.00
Vinyl acetate Total	**61,172.00**	**0.00**	**0.00**	**61,172.00**	**0.00**	**0.00**
Vinyl chloride						
FORMOSA PLASTICS	40,946.00	0.60	0.00	40,946.60	215.83	202,499.00
Vinyl chloride Total	**40,946.00**	**0.60**	**0.00**	**40,946.60**	**215.83**	**202,499.00**
STATE TOTAL	**132,288**	**1,620**	**6,471**	**140,379**	**5,838,539**	**667,548**

Source: DNREC 2016 TRI Database, October 2017
All amounts are in pounds

Sample Form R
For Reporting year 2016

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017 **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

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 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/Tribe/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 and ext.)
	Email Address		
4.4	Public Contact Name		Telephone Number (include area code and ext.)
	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 -1 (Rev 06/2014) – Previous editions are obsolete.

Sample Form R
For Reporting year 2016

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017 **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 If Produce or Import c. ☐ For on-site use/processing d. ☐ For sale/distribution e. ☐ As a byproduct f. ☐ As an impurity	a. ☐ As a reactant b. ☐ As a formulation component c. ☐ As an article component d. ☐ Repackaging e. ☐ As an impurity	a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☐ Ancillary or other use

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	Reach Code (optional)			
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.)

EPA form 9350 -1 (Rev. 06/2014) – Previous editions are obsolete.

*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 2016

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017 **Page 3 of 6**

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)
5.4-5.5	Disposal to land on-site			
5.4.1	Class I Underground Injection Wells	☐		
5.4.2	Class II-V Underground Injection Wells	☐		
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

EPA form 9350 -1 (Rev. 06/2014) – Previous editions are obsolete.

*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 2016

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017 **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			7A.1c
	3	4		5			
	6	7		8			
7A.2a	7A.2b	1		2			7A.2c
	3	4		5			
	6	7		8			
7A.3a	7A.3b	1		2			7A.3c
	3	4		5			
	6	7		8			
7A.4a	7A.4b	1		2			7A.4c
	3	4		5			
	6	7		8			
7A.5a	7A.5b	1		2			7A.5c
	3	4		5			
	6	7		8			

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.)

EPA form 9350 -1 (Rev. 06/2014) – Previous editions are obsolete.

*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 2016

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017 **Page 5 of 6**

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. SOURCE REDUCTION AND WASTE MANAGEMENT

		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 – 8.7	**Production-Related Waste Managed**				
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	Non-production-related waste managed**				
8.9	☐ Production ratio or ☐ Activity ratio (select one and enter value to right)				
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))			Estimated annual reduction (Enter code(s)) (optional)
8.10.1		**a.**	**b.**	**c.**	**d.**
8.10.2		**a.**	**b.**	**c.**	**d.**
8.10.3		**a.**	**b.**	**c.**	**d.**
8.10.4		**a.**	**b.**	**c.**	**d.**

EPA form 9350 -1 (Rev. 06/2014) – Previous editions are obsolete.

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

**Includes quantities released to the environment or transferred off-site as a result of remedial actions, catastrophic events, or other one-time events not associated with production processes

Sample Form R
For Reporting year 2016

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 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.

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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Sample Form A Page 1
For Reporting year 2016

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Page 1 of ___

EPA United States Environmental Protection Agency

TOXICS RELEASE INVENTORY FORM A

	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/Tribe/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 and ext.)	
	Email Address			
4.4	Public Contact Name		Telephone Number (include area code and ext.)	
	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 A Page 2
For Reporting year 2016

Form Approved OMB Number: 2025-0009
Approval Expires: 10/31/ Page ___ of ___

EPA FORM A
PART II. CHEMICAL IDENTIFICATION

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

TRI Facility ID Number

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.)
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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. 06/2014) - Previous editions are obsolete. **(Make additional copies of this page, if needed)**

Form Approved. OMB Number: 2025-0009
Approval Expires: 11/30/2017

EPA
United States Environmental Protection Agency

FORM R Schedule 1

TRI Facility ID Number

PART II. CHEMICAL-SPECIFIC INFORMATION (continued)

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

		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) NA		
		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.)**

EPA Form 9350-3

APPENDIX M
TRI REPORTING FORMS
DIOXIN SCHEDULE 1

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017

FORM R Schedule 1

TRI Facility ID Number

PART II. CHEMICAL-SPECIFIC INFORMATION (continued)

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

5.4 – 5.5 Disposal to land on-site

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

EPA Form 9350-3

Form Approved OMB Number: 2025-0009
Approval Expires: 11/30/2017

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) NA ☐

6.1.	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				

6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS NA ☐

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 6.1 or 6.2 are attached, indicate the total number of pages in this box ☐

and indicate the Section 6.1 or 6.2 page number in this box ☐ **(Example: 1, 2, 3, etc.)**

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

SECTIONS 8.1-8.8. WASTE MANAGEMENT QUANTITIES FOR DIOXIN AND DIOXIN-LIKE COMPOUNDS (current year only)

		8.1-8.7 Production-related waste managed										8.8
		8.1a Total on-site disposal to Class 1 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 1 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	Non-production related waste managed*
Column 1. 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											

EPA Form 9350-3

*Includes quantities released to the environment or transferred off-site as a result of remedial actions, catastrophic events, or other one-time events not associated with production processes

EPCRA Reporting Program

Emergency Prevention and Response Section, DNREC
155 Commerce Way, Suite B
Dover, DE 19904
(302) 739-9405

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