STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMUNITY RIGHT TO KNOW AND RELEASE AND POLLUTION PREVENTION REPORT FOR REPORTING YEAR 2009

AND

AN ANALYSIS OF MATERIALS ACCOUNTING DATA FOR REPORTING YEARS 2000 TO 2009

March 2012

Chris Christie, Governor
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Table of Contents

I. Introduction

New Jersey was one of the first states in the nation to require public reporting of toxic and hazardous chemical storage (inventory) data and chemical use and multi-media environmental release data, and to establish a mechanism to promote public awareness of the information. New Jersey was also one of the first states to implement a mandatory pollution prevention (P2) planning program.

The hazardous substance inventory data are reported annually on the Community Right to Know (CRTK) Survey. Industrial facilities have been reporting information on the quantity of hazardous substances in inventories since 1985. CRTK Inventory data cover the hazardous substances that are stored on site at facilities during the year. CRTK data are invaluable to the public and to emergency management and response personnel for making informed decisions regarding hazardous chemicals in their communities. These data also provide information to the Department regarding the prevalence of toxic and hazardous chemicals in New Jersey.

Chemical throughput, or materials accounting, data are reported on the Release and Pollution Prevention Report (RPPR). Materials accounting provides information on facility-level chemical throughput, environmental releases, and on-site and off-site waste management activities. These data are reported on an annual basis, along with other supporting information about toxic and hazardous chemicals and facility processes. Materials accounting provides a comprehensive, or holistic, view of toxic chemical use and management at a facility for a reporting year.

New Jersey's P2 planning program requires certain facilities to conduct materials accounting on a process and facility level in order to determine areas where hazardous substance use and generation can be reduced or eliminated. The planning process consists of a P2 Plan that remains at the facility; and a P2 Plan Summary and P2 Plan Progress Report, both of which are submitted to the Department.

The information gathered from RPPR data provides insight into annual chemical throughput and use, including environmental releases, waste management practices, and pollution prevention accomplishments. Materials accounting data quantitatively track hazardous substances through a facility's production processes where pollution prevention opportunities are likely to occur. This is in contrast to the federal Toxic Chemical Release Inventory (TRI – Section 313 of EPCRA). TRI has an end-of-the-pipe focus of pollution control for toxic substances. TRI data provides an inventory of production-related wastes that were managed, including released to the environment, in a calendar year. Some of the waste quantities reported may have actually been generated in the previous year. Materials accounting data provide an added dimension to complete the picture of industrial operations, including how much of the hazardous substances end up in products that are then used by other manufacturers or consumers. This cannot be seen by analyzing other data sets such as the TRI.

Any New Jersey employer required to submit a TRI form (Form R including chemical release data or the shorter Form A Certification Statement) is also required to submit the RPPR, and conduct P2 planning for any TRI substance manufactured, processed, or otherwise used in quantities greater than 10,000 pounds unless a persistent, bioaccumulative, toxic (PBT) substance is reported. The

PBTs have much lower reporting thresholds. See Appendix A for a list of PBTs and their respective thresholds.

This report provides information regarding CRTK inventory and RPPR materials accounting data for reporting year 2009. It also includes a long-term analysis of materials accounting data for 2000 to 2009, with emphasis placed on the quantities of hazardous substances used, generated as NPO, shipped as (or in) product and consumed in production processes. In order to conduct these long-term analyses, four separate universes of facilities were examined: 1) the Core Universe – those industry sectors, defined by the Standard Industrial Classification (SIC) codes, that reported from 2000 to 2009 (approximately 400 facilities); 2) the Consistent Facilities Universe – those facilities that reported every year from 2000 to 2009 (approximately 180 facilities); and both of these universes minus facilities in the petroleum sector, that is: 3) Core Minus Petroleum Universe, and 4) Consistent Facilities Minus Petroleum Universe. Because throughput quantities in the petroleum industry sector typically dominate the quantities of hazardous substances used, separate analyses are conducted to determine if they are potentially masking reductions achieved in other sectors. The 2009 CRTK and RPPR facilities are defined by North American Industry Classification System (NAICS) codes. The long-term analysis uses the SIC codes since NAICS codes were not used prior to 2002 and the conversion from SIC to NAICS is not a one-to-one conversion.

Normalizing for variations in production is an important consideration when determining if reductions in the Use of hazardous substances were the result of process efficiency methods or the result of changes in economic activity. Therefore, these universes are analyzed with and without adjusting for fluctuations in production.

II. Overview of Findings

Table 1. Summary of CRTK Inventory Data for 2009

	2009
# of Facilities reporting Environmental Hazardous Substances (EHS)	7,910
# of Environmental Hazardous Substances (EHS) Reports	30,776
# of Facilities reporting EHSs at 10,000 pounds or more	4,464
# of EHS Reports at 10,000 pounds or more	9,332
# of Facilities reporting EPCRA[1] 302 Substances	2,161
# of EPCRA 302 Substance Reports	3,634

[1] EPCRA – the federal Emergency Planning and Community Right-to-Know Act

Table 2. RPPR Materials Accounting Data (in pounds) – 2009

	2009
Number of Facilities	424
Number of Substance Reports	1,575
Starting Inventory	852,504,272
Starting Inventory as NPO	2,216,543
Produced On Site	9,007,597,278
Brought On Site	8,063,982,755
Brought on Site as Recycled	6,205,280
Consumed	3,112,760,249
Shipped as (or in) Product	14,103,555,958
Ending Inventory	618,187,424
Ending Inventory as NPO	2,245,571
Nonproduct Output	139,144,325
On-Site Releases	10,349,849
Stack Air Emissions	3,620,735
Fugitive Air Emissions	718,851
Surface Water Discharge	5,839,609
Ground Water Discharge	13
Land Disposal On Site	170,641
On-Site Management	90,967,046
Recycled & Re-Used On Site	23,472,979
Energy Recovered On Site	2,593,759
Destroyed On Site	64,900,308
End Inv. (as NPO) minus Start Inv. (as NPO)	29,028
Off-Site Transfers	37,798,401
POTW Discharge	11,793,106
Waste Transfer - Recycling	10,985,989
Waste Transfer - Energy Recovery	10,341,167
Waste Transfer - Treatment	2,326,819
Waste Transfer - Disposal	2,351,012
Total Substance USE or Throughput	17,355,460,532

Table 3. Summary of Use, NPO, Shipped, Consumed from 2000 to 2009 – All Universes

Core Universe									
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
	USE	USE	NPO	NPO	Shipped	Shipped	Consumed	Consumed	Production Ratio
net change	9,089,625,305	12,323,213,388	195,681,071	221,765,193	10,612,092,894	11,768,722,162	-250,818,569	332,726,033	
%change	31%	42%	54%	61%	41%	45%	-7%	10%	16%
	reduction	reduction	reduction	reduction	reduction	reduction	increase	reduction	decrease
Core Universe Minus Petroleum Products									
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
	USE	USE	NPO	NPO	Shipped	Shipped	Consumed	Consumed	Production Ratio
net change	1,080,006,996	1,970,029,024	156,694,594	210,150,869	604,405,795	926,502,765	318,906,607	833,375,390	
%Change	27%	49%	47%	63%	36%	55%	16%	41%	30%
	reduction	reduction	reduction	reduction	reduction	reduction	reduction	reduction	decrease
Consistent Facilites									
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
	USE	USE	NPO	NPO	Shipped	Shipped	Consumed	Consumed	Production Ratio
net change	5,083,511,722	7,522,405,208	61,629,297	81,166,587	6,498,477,905	7,516,231,702	-507,154,389	-74,993,080	
%Change	21%	31%	29%	38%	31%	36%	-18%	-3%	13%
	reduction	reduction	reduction	reduction	reduction	reduction	increase	increase	reduction
Consistent Facilities Minus Petroleum Products									
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
	USE	USE	NPO	NPO	Shipped	Shipped	Consumed	Consumed	Production Ratio
net change	361,277,288	919,955,818	41,060,494	71,117,071	251,400,024	422,830,715	110,538,084	426,008,033	
%change	13%	33%	22%	37%	23%	38%	8%	29%	23%
	reduction	reduction	reduction	reduction	reduction	reduction	reduction	reduction	reduction

For 2009, NJ industrial facilities reported more than 17.3 billion pounds of toxic chemical Use. The top 10 industry groups accounted for about 99.9% of all chemical Use. Electrical Utilities was the only industry in the top 10 showing an increase in Use (approximately 600,000 pounds compared to 2008).

In addition, for the most part, NJ industrial facilities achieved reductions in the quantity of hazardous substances used, generated as NPO, shipped as (or in) product and released to the environment from 2000 to 2009.

The remainder of this report provides greater detail on these findings.

III. BACKGROUND

What is Materials Accounting Data?

Materials accounting is a practical application of the chemical mass balance theory. Materials accounting is based on the simple scientific principal of the conservation of matter where all chemical inputs at a facility should balance with the outputs. Materials accounting data provide a complete picture on the Use of hazardous substances at many of New Jersey's larger manufacturing and select non-manufacturing sector facilities. Figure 1 outlines the basic structure for materials accounting data showing the flow of hazardous substances as they move through a facility. Public reporting based on this simple concept opens the door for a broader understanding of the various uses of toxic chemicals at industrial facilities and how they might impact area residents.

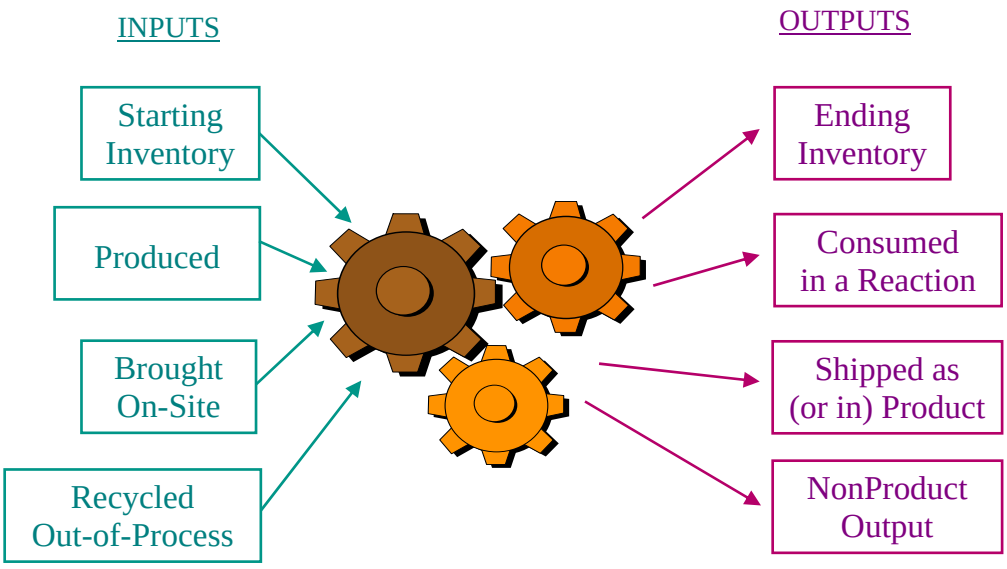


Figure 1. Overview of Materials Accounting Data

The RPPR includes a group of more than 20 specific data elements that provide a detailed picture for the flow of substances through a facility. In assessing and presenting data for hazardous substances in New Jersey, the focus throughout this report was on three measures, either directly reported on the RPPR or calculated from data on the RPPR. These measures are:

Use: Use is the quantity of hazardous substances processed at the facility. Use is not directly reported in materials accounting data. It is calculated by adding together three quantities that are reported: the amount consumed, the amount shipped as (or in) product, and the amount generated as nonproduct output.

Nonproduct Output (NPO): NPO is the quantity of the reported substance that was generated prior to storage, out-of-process recycling, treatment, control or disposal, and that was not intended for use as a product. NPO is defined as the quantity of all on-site releases (including stack and fugitive emissions) + on-site waste management + off-site waste transfers + ending inventory (as NPO) – starting inventory (as NPO).

On-Site Releases: On-site releases include those quantities of hazardous substances that were released as stack air emissions and fugitive air emissions, discharged to surface waters and ground waters, and on-site land disposal.

See Appendix B for a more detailed description of materials accounting data. This includes a listing and definition for all of the individual data elements reported on the RPPR.

IV. Community Right to Know Survey Summary

Table 4. The Top 20 Most Frequently Reported Environmental Hazardous Substances on the 2009 Community Right to Know Survey at any Inventory Quantity

CAS #	SUBSTANCE NAME	# of Facilities	# of Reports
68476-34-6	DIESEL FUEL OR #2 HEATING OIL	2,534	3,386
8006-61-9	GASOLINE	2,777	3,268
7664-93-9	SULFURIC ACID	1,758	2,350
7439-92-1	LEAD	1,819	2,050
107-21-1	ETHYLENE GLYCOL	1,279	2,047
74-98-6	PROPANE	1,214	1,580
67-56-1	METHANOL	540	889
127-18-4	TETRACHLOROETHYLENE	755	869
108-88-3	TOLUENE	341	733
74-86-2	ACETYLENE	616	665
1330-20-7	XYLENE (MIXED ISOMERS)	292	574
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	151	525
67-63-0	ISOPROPYL ALCOHOL (MFG-STRONG ACID PROCE	257	470
75-45-6	CHLORODIFLUOROMETHANE [HCFC-22]	195	427
8008-20-6	KEROSENE	312	405
7647-01-0	HYDROCHLORIC ACID	220	385
N982	ZINC COMPOUNDS	184	376
7440-50-8	COPPER	227	359
7664-41-7	AMMONIA	187	249
75-09-2	DICHLOROMETHANE	121	201
			21,808

Table 5. The Top 20[2] Most Frequently Reported Extremely Hazardous Substances (EPCRA 302) on the 2009 Community Right to Know Survey at any Inventory Quantity

CAS #	SUBSTANCE NAME	# of Facilities	# of Reports
7664-93-9	SULFURIC ACID	1,758	2,077
7664-41-7	AMMONIA	187	222
7697-37-2	NITRIC ACID	138	194
7782-50-5	CHLORINE	89	98
50-00-0	FORMALDEHYDE	76	86
7664-39-3	HYDROFLUORIC ACID / HYDROGEN FLUORIDE	63	78
7722-84-1	HYDROGEN PEROXIDE (> 52% CONC.)	58	76
143-33-9	SODIUM CYANIDE (NA(CN))	38	46
108-95-2	PHENOL	37	42
151-50-8	POTASSIUM CYANIDE	32	39
123-31-9	HYDROQUINONE	30	36
108-05-4	VINYL ACETATE	27	32
108-91-8	CYCLOHEXYLAMINE	27	29
67-66-3	CHLOROFORM	20	26
10140-87-1	ETHANOL, 1,2-DICHLORO-, ACETATE	25	25
7723-14-0	PHOSPHORUS	23	24
107-15-3	ETHYLENEDIAMINE	20	23
302-01-2	HYDRAZINE	15	23
3254-63-5	PHOSPHORIC ACID, DIMETHYL 4- (METHYLTHIO	18	21
4098-71-9	ISOPHORONE DIISOCYANATE	18	19
79-21-0	PERACETIC ACID	16	19
			3,235

Table 6. Top 10 Industries (3-digit NAICS Code) by Number of Facilities – 2009

NAICS[3] Code 1st 3 digits	NAICS Description	# of Facilities	# of Substances	# of Reports
447	Gasoline Stations	1,864	44	3,475
812	Personal & Laundry Services	658	35	777
424	Merchant Wholesalers, Nondurable Goods	547	236	2,084
517	Telecommunications	535	13	1,169
811	Repair & Maintenance	414	116	1,150
325	Chemical Manufacturing	411	319	3,846
441	Motor Vehicle & Parts Dealers	297	77	1,004
221	Utilities	244	48	975
332	Fabricated Metal Product Manufacturing	237	99	1,235
423	Merchant Wholesalers, Durable Goods	196	114	757

[2] Isophorone diisocyante and Peractic acid were tied for position #20 with 19 records reported.
[3] NAICS – North American Industry Classification System

Table 7. Top 10 Industries (3-digit NAICS Code) by Number of Substance Reports – 2009

NAICS Code 1st 3 digits	NAICS Description	# of Facilities	# of Substances	# of Reports
325	Chemical Manufacturing	411	319	3,846
447	Gasoline Stations	1,864	44	3,475
424	Merchant Wholesalers, Nondurable Goods	547	236	2,084
332	Fabricated Metal Product Manufacturing	237	99	1,235
517	Telecommunications	535	13	1,169
811	Repair & Maintenance	414	116	1,150
441	Motor Vehicle & Parts Dealers	297	77	1,004
221	Utilities	244	48	975
812	Personal & Laundry Services	658	35	777
423	Merchant Wholesalers, Durable Goods	196	114	757

Table 8. Number of CRTK Facilities and EHS Substances Reported per County

COUNTY	# of Facilities	# of Reports
BERGEN	880	3,163
MIDDLESEX	854	3,875
ESSEX	617	2,753
MORRIS	546	1,756
UNION	523	2,623
MONMOUTH	511	1,427
PASSAIC	479	1,720
BURLINGTON	420	1,455
CAMDEN	411	1,374
HUDSON	370	1,396
OCEAN	352	908
MERCER	337	1,051
SOMERSET	322	1,644
GLOUCESTER	273	1,733
ATLANTIC	207	574
HUNTERDON	177	554
SUSSEX	166	437
CUMBERLAND	155	572
WARREN	154	733
CAPE MAY	86	224
SALEM	70	804
Total:	7,910	30,776

V. Release and Pollution Prevention Report Summary

Table 9. Top 10 Industry Groups (3-digit NAICS Code) Reporting Chemical Use – 2009

NAICS CODE	Description	# of Facilities	# of Reports	USE (pounds)
324	Petroleum & Coal Products Manufacturing	18	143	11,095,677,305
424	Chemical & Petroleum Wholesalers	27	237	4,203,462,814
325	Chemical Manufacturing	136	587	1,503,595,604
331	Primary Metal Manufacturing	32	108	384,588,500
326	Plastics & Rubber Products Manufacturing	21	41	84,584,269
332	Fabricated Metal Product Manufacturing	39	109	21,744,040
221	Electrical Utilities	18	104	18,393,136
336	Transportation Equipment Manufacturing	5	11	10,929,842
335	Electrical Equipment, Appliance & Component Mfg	14	22	9,370,192
322	Paper Manufacturing	16	38	5,804,700

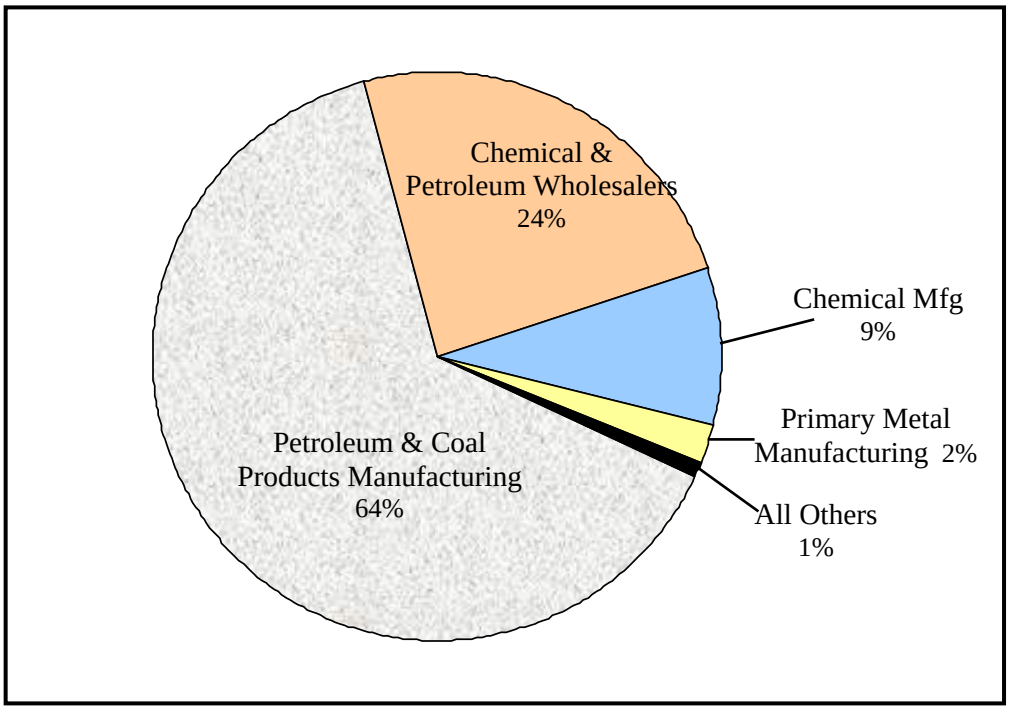


Figure 2. Use of Toxics Chemicals (percent) by Industry Group – 2009

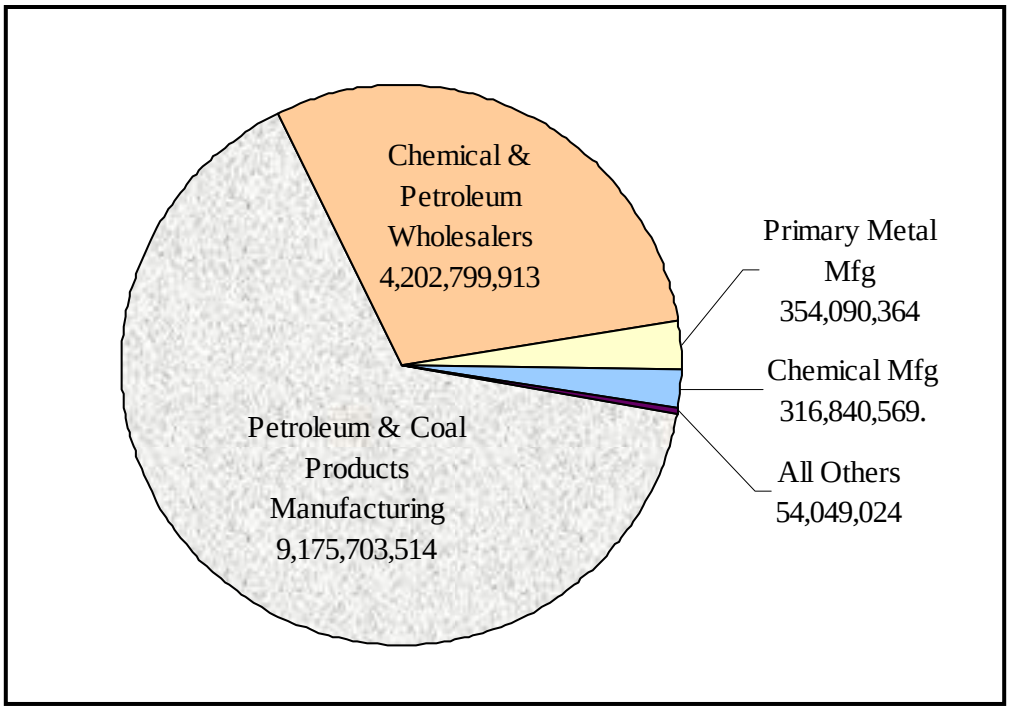


Figure 3. Quantity Shipped as (or in) Product by Industry (in pounds) – 2009

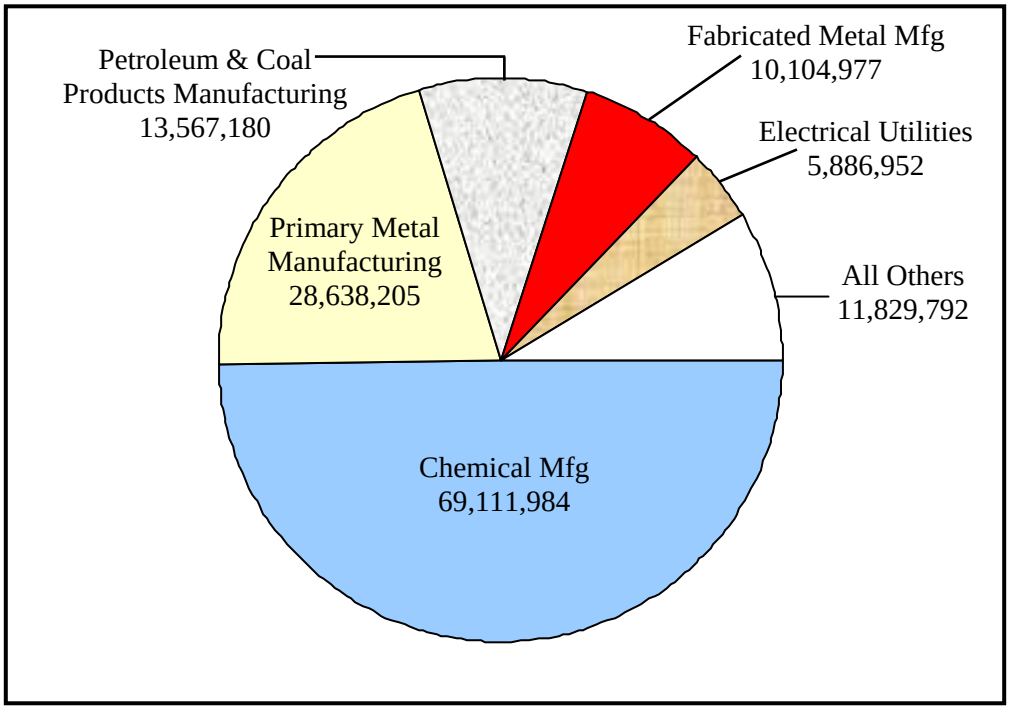


Figure 4. Quantity of NPO Generated by Industry (in pounds) – 2009

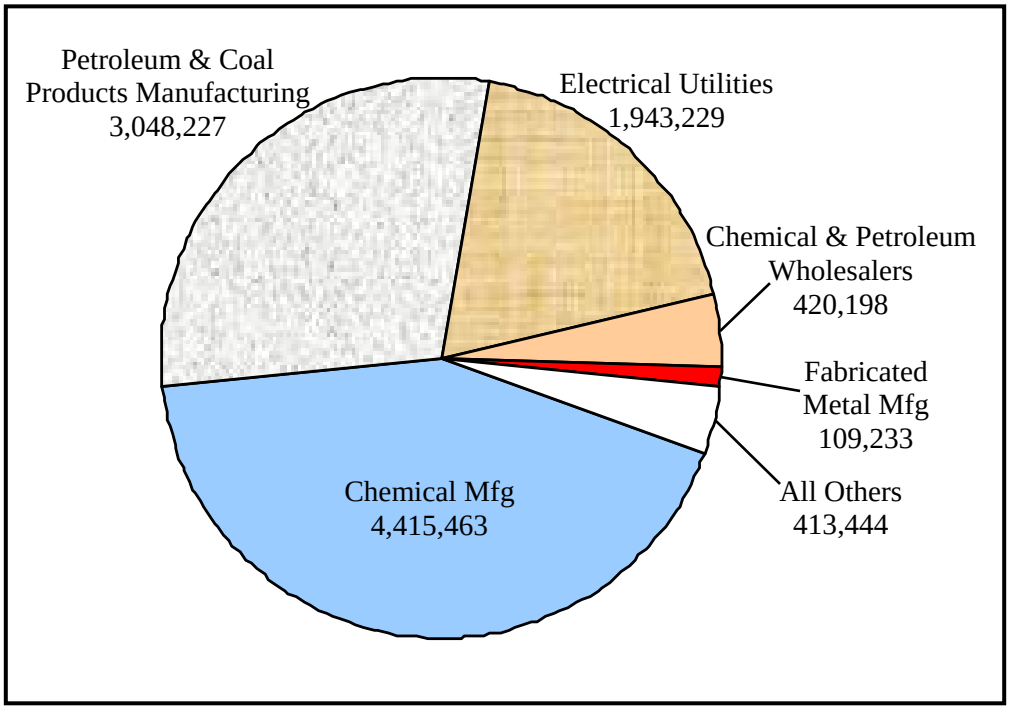


Figure 5. Quantity of Releases by Industry (in pounds) – 2009

Table 10. Hazardous Substances Used (pounds per year) – 2009 RPPR

Top 20 Facilities for Substances Used in 2009

FACILITY NAME (CITY)	COUNTY	USE (pounds)	% of Total
CONOCOPHILLIPS CO (LINDEN)	UNION	5,456,328,548	31.44 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	2,823,102,805	16.27 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	1,835,457,465	10.58 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	1,117,898,120	6.44 %
HESS CORPORATION (PORT READING)	MIDDLESEX	969,532,241	5.59 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	651,921,693	3.76 %
CONOCO PHILLIPS (LINDEN)	UNION	493,658,709	2.84 %
BP PRODUCTS NORTH AMERICA INC (CARTERET)	MIDDLESEX	373,250,080	2.15 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	364,652,366	2.10 %
GETTY PETROLEUM MARKETING INC (NEWARK)	ESSEX	321,054,130	1.85 %
GULF OIL LIMITED PARTNERSHIP (THOROFARE)	GLOUCESTER	317,610,670	1.83 %
GULF OIL LIMITED PARTNERSHIP (LINDEN)	UNION	270,062,838	1.56 %
HESS CORPORATION (PENNSAUKEN)	CAMDEN	226,902,705	1.31 %
MOTIVA ENTERPRISES LLC (NEWARK)	ESSEX	226,557,665	1.31 %
OXY VINYLS LP (PEDRICKTOWN)	SALEM	204,957,900	1.18 %
AMROD CORP (NEWARK)	ESSEX	196,384,983	1.13 %
FERRO CORP (LOGAN TWP)	GLOUCESTER	164,753,532	0.95 %
E I DUPONT DENEMOURS & COMPANY (LINDEN)	UNION	160,285,224	0.92 %
SOLVAY SOLEXIS (THOROFARE)	GLOUCESTER	106,883,194	0.62 %
HONEYWELL-PRESTONE PRODUCTS (FREEHOLD TWP)	MONMOUTH	95,058,505	0.55 %
	Sum of Top 20:	**16,376,313,375**	**94.36 %**
	Sum Other:	**979,147,157**	**5.64 %**
	Sum All:	**17,355,460,532**	**100.00 %**

Top 20 Hazardous Substances Used in 2009

CAS Number	SUBSTANCE NAME	USE (pounds)	% of Total
1330-20-7	XYLENE (MIXED ISOMERS)	4,091,309,711	23.57 %
108-88-3	TOLUENE	3,245,611,151	18.70 %
110-54-3	N-HEXANE	1,387,472,104	7.99 %
115-07-1	PROPYLENE [PROPENE]	1,260,662,339	7.26 %
95-63-6	1,2,4-TRIMETHYLBENZENE	1,109,801,766	6.39 %
100-41-4	ETHYLBENZENE	1,101,186,380	6.34 %
71-43-2	BENZENE	1,025,176,954	5.91 %
110-82-7	CYCLOHEXANE	723,522,398	4.17 %
98-82-8	CUMENE	561,387,106	3.23 %
91-20-3	NAPHTHALENE	475,741,498	2.74 %
7440-50-8 &N100	COPPER & COMPOUNDS	323,960,408	1.87 %
74-85-1	ETHYLENE	309,194,448	1.78 %
75-01-4	VINYL CHLORIDE	261,377,408	1.51 %
7664-93-9	SULFURIC ACID	157,965,215	0.91 %
75-44-5	PHOSGENE	108,236,392	0.62 %
107-21-1	ETHYLENE GLYCOL	104,420,471	0.60 %
7782-50-5	CHLORINE	103,246,539	0.59 %
7439-96-5 &N450	MANGANESE & COMPOUNDS	62,233,912	0.36 %
75-21-8	ETHYLENE OXIDE	57,512,659	0.33 %
7647-01-0	HYDROCHLORIC ACID	55,976,081	0.32 %
	Sum of Top 20:	**16,525,994,940**	**95.22 %**
	Sum Other:	**829,465,592**	**4.78 %**
	Sum All:	**17,355,460,532**	**100.00 %**

Table 11. Hazardous Substances Shipped as (or in) Product (pounds per year) – 2009 RPPR

Top 20 Facilities for Shipped as (or in) Product in 2009

FACILITY NAME (CITY)	COUNTY	Shipped as (or in) Product (pounds)	% of Total
CONOCOPHILLIPS CO (LINDEN)	UNION	4,534,237,580	32.15 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	2,025,294,463	14.36 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	1,681,501,566	11.92 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	1,117,820,374	7.93 %
HESS CORPORATION (PORT READING)	MIDDLESEX	923,422,662	6.55 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	651,794,105	4.62 %
CONOCO PHILLIPS (LINDEN)	UNION	493,630,714	3.50 %
BP PRODUCTS NORTH AMERICA INC (CARTERET)	MIDDLESEX	373,231,586	2.65 %
GETTY PETROLEUM MARKETING INC (NEWARK)	ESSEX	321,052,980	2.28 %
GULF OIL LIMITED PARTNERSHIP (THOROFARE)	GLOUCESTER	317,607,710	2.25 %
GULF OIL LIMITED PARTNERSHIP (LINDEN)	UNION	270,060,377	1.91 %
HESS CORPORATION (PENNSAUKEN)	CAMDEN	226,895,376	1.61 %
MOTIVA ENTERPRISES LLC (NEWARK)	ESSEX	226,555,906	1.61 %
AMROD CORP (NEWARK)	ESSEX	180,434,829	1.28 %
HONEYWELL-PRESTONE PRODUCTS (FREEHOLD TWP)	MONMOUTH	94,460,234	0.67 %
HESS CORPORATION (PERTH AMBOY)	MIDDLESEX	65,455,022	0.46 %
ALLIED AVIATION SERVICE CO OF NJ INC (ELIZABETH)	UNION	43,172,568	0.31 %
COLONIAL WIRE & CABLE (EDISON)	MIDDLESEX	37,934,304	0.27 %
ATLANTIC STATES CAST IRON PIPE CO. (PHILLIPSBURG)	WARREN	33,491,749	0.24 %
SOLVAY SOLEXIS (THOROFARE)	GLOUCESTER	29,820,422	0.21 %
	Sum of Top 20:	**13,647,874,527**	**96.77 %**
	Sum Other:	**455,681,431**	**3.23 %**
	Sum All:	**14,103,555,958**	**100.00 %**

Top 20 Hazardous Substances for Shipped as (or in) Product in 2009

CAS Number	SUBSTANCE NAME	Shipped as (or in) Product (pounds)	% of Total
1330-20-7	XYLENE (MIXED ISOMERS)	4,089,134,009	28.99 %
108-88-3	TOLUENE	3,209,593,660	22.76 %
110-54-3	N-HEXANE	1,167,308,491	8.28 %
95-63-6	1,2,4-TRIMETHYLBENZENE	1,109,393,960	7.87 %
100-41-4	ETHYLBENZENE	1,045,310,534	7.41 %
71-43-2	BENZENE	776,161,052	5.50 %
98-82-8	CUMENE	561,368,265	3.98 %
91-20-3	NAPHTHALENE	466,233,629	3.31 %
110-82-7	CYCLOHEXANE	459,736,500	3.26 %
115-07-1	PROPYLENE [PROPENE]	315,997,133	2.24 %
7440-50-8 & N100	COPPER & COMPOUNDS	303,780,589	2.15 %
74-85-1	ETHYLENE	126,396,780	0.90 %
107-21-1	ETHYLENE GLYCOL	95,644,406	0.68 %
7439-96-5 & N450	MANGANESE & COMPOUNDS	59,260,536	0.42 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	36,042,008	0.26 %
7647-01-0	HYDROCHLORIC ACID	34,345,216	0.24 %
67-56-1	METHANOL	26,747,101	0.19 %
7440-66-6 & N982	ZINC & COMPOUNDS	24,302,996	0.17 %
7440-02-0 & N495	NICKEL & COMPOUNDS	20,627,301	0.15 %
117-81-7	DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	20,295,994	0.14 %
	Sum of Top 20:	**13,947,680,160**	**98.89 %**
	Sum Other:	**155,875,798**	**1.11 %**
	Sum All:	**14,103,555,958**	**100.00 %**

Table 12. Nonproduct Output (pounds per year) – 2009 RPPR

Top 20 Facilities for Nonproduct Output in 2009

FACILITY NAME (CITY)	COUNTY	NPO (pounds)	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	30,159,901	21.68 %
AMROD CORP (NEWARK)	ESSEX	15,950,154	11.46 %
INFINEUM USA (LINDEN)	UNION	9,429,490	6.78 %
HERCULES INCORPORATED (PARLIN)	MIDDLESEX	6,115,476	4.40 %
FERRO CORP (SOUTH PLAINFIELD)	MIDDLESEX	5,616,193	4.04 %
CONOCOPHILLIPS CO (LINDEN)	UNION	5,515,348	3.96 %
SOLVAY SOLEXIS (THOROFARE)	GLOUCESTER	4,926,791	3.54 %
JOHNSON MATTHEY INC (WEST DEPTFORD TWP)	GLOUCESTER	3,550,034	2.55 %
SIEGFRIED (USA), INC. (PENNSVILLE)	SALEM	3,315,480	2.38 %
HESS CORPORATION (PORT READING)	MIDDLESEX	3,186,034	2.29 %
FERRO CORP (LOGAN TWP)	GLOUCESTER	2,579,898	1.85 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	2,484,392	1.79 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	2,372,404	1.70 %
ATLANTIC STATES CAST IRON PIPE CO. (PHILLIPSBURG)	WARREN	2,293,756	1.65 %
MALLINCKRODT BAKER INC (PHILLIPSBURG)	WARREN	2,190,365	1.57 %
NATUREX, INC. (SOUTH HACKENSACK)	BERGEN	1,521,781	1.09 %
CHEM-FLEUR INC (NEWARK CITY)	ESSEX	1,474,749	1.06 %
LOGAN GENERATING COMPANY, L.P. (LOGAN TWP)	GLOUCESTER	1,474,055	1.06 %
CHAMBERS COGENERATION L. P. (CARNEYS POINT)	SALEM	1,359,589	0.98 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	1,343,916	0.97 %
	Sum of Top 20:	**106,859,807**	**76.80 %**
	Sum Other:	**32,284,518**	**23.20 %**

Top 20 Hazardous Substances for Nonproduct Output in 2009

CAS Number	SUBSTANCE NAME	NPO (pounds)	% of Total
N511	NITRATE COMPOUNDS (WATER DISSOCIABLE)	20,971,539	15.07 %
7440-50-8 & N100	COPPER & COMPOUNDS	20,179,819	14.50 %
7647-01-0	HYDROCHLORIC ACID	18,017,741	12.95 %
67-56-1	METHANOL	14,055,945	10.10 %
7632-00-0	SODIUM NITRITE	6,543,180	4.70 %
7664-41-7	AMMONIA	4,979,460	3.58 %
108-88-3	TOLUENE	4,427,262	3.18 %
115-07-1	PROPYLENE [PROPENE]	3,954,737	2.84 %
7664-39-3	HYDROGEN FLUORIDE	3,632,400	2.61 %
7697-37-2	NITRIC ACID	3,436,341	2.47 %
107-21-1	ETHYLENE GLYCOL	3,342,900	2.40 %
7439-96-5 & N450	MANGANESE & COMPOUNDS	2,973,376	2.14 %
7440-66-6 & N982	ZINC & COMPOUNDS	2,442,513	1.76 %
1330-20-7	XYLENE (MIXED ISOMERS)	2,134,392	1.53 %
7440-02-0 & N495	NICKEL & COMPOUNDS	1,799,882	1.29 %
7664-93-9	SULFURIC ACID	1,716,773	1.23 %
74-85-1	ETHYLENE	1,539,358	1.11 %
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	1,470,180	1.06 %
7439-92-1 & N420	LEAD & COMPOUNDS	1,281,924	0.92 %
108-10-1	METHYL ISOBUTYL KETONE	1,257,528	0.90 %
	Sum of Top 20:	**120,157,250**	**86.35 %**
	Sum Other:	**18,987,075**	**13.65 %**
	Sum All:	**139,144,325**	**100.00 %**

Table 13. On-Site Releases (pounds per year) – 2009 RPPR

Top 20 Facilities for On-Site Releases in 2009

FACILITY NAME (CITY)	COUNTY	On-Site Releases (pounds)	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	3,647,530	35.24 %
CONOCOPHILLIPS CO (LINDEN)	UNION	2,159,104	20.86 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	1,266,137	12.23 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	481,462	4.65 %
NATIONAL REFRIGERANTS INC (ROSENHAYN)	CUMBERLAND	359,277	3.47 %
MALLINCKRODT BAKER INC (PHILLIPSBURG)	WARREN	349,615	3.38 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	271,326	2.62 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	175,861	1.70 %
COGEN TECHNOLOGIES LINDEN VENTURE, L.P (LINDEN CITY)	UNION	142,185	1.37 %
HESS CORPORATION (PORT READING)	MIDDLESEX	135,413	1.31 %
RC CAPE MAY HOLDINGS LLC (BEESLEYS POINT)	CAPE MAY	114,262	1.10 %
PSEG FOSSIL LLC (LINDEN)	UNION	112,219	1.08 %
FERRO CORP (LOGAN TWP)	GLOUCESTER	82,346	0.80 %
CONECTIV-DEEPWATER GENERATING STATION (PENNSVILLE)	SALEM	65,666	0.63 %
DSM NUTRITIONAL PRODUCTS INC (BELVIDERE)	WARREN	60,709	0.59 %
SGPPL-MICKLETON (MICKLETON)	GLOUCESTER	51,696	0.50 %
KRAFT FOODS GLOBAL INC (FAIR LAWN)	BERGEN	48,796	0.47 %
VIKING YACHT CO CORP (NEW GRETNA)	BURLINGTON	45,958	0.44 %
INFINEUM USA (LINDEN)	UNION	40,192	0.39 %
PSEG POWER FOSSIL LLC (RIDGEFIELD)	BERGEN	38,443	0.37 %
	Sum of Top 20:	**9,648,197**	**93.22 %**
	Sum Other:	**701,653**	**6.78 %**
	Sum All:	**10,349,849**	**100.00 %**

Top 20 Hazardous Substances for On-Site Releases in 2009

CAS Number	SUBSTANCE NAME	On-Site Releases (pounds)	% of Total
N511	NITRATE COMPOUNDS (WATER DISSOCIABLE)	5,609,336	54.20 %
7647-01-0	HYDROCHLORIC ACID	1,318,285	12.74 %
7664-41-7	AMMONIA	633,866	6.12 %
75-45-6	CHLORODIFLUOROMETHANE [HCFC-22]	390,970	3.78 %
7664-93-9	SULFURIC ACID	330,439	3.19 %
74-90-8	HYDROGEN CYANIDE [HYDROCYANIC ACID]	265,744	2.57 %
N106	CYANIDE COMPOUNDS	172,398	1.67 %
108-88-3	TOLUENE	150,179	1.45 %
7664-39-3	HYDROGEN FLUORIDE	118,129	1.14 %
1330-20-7	XYLENE (MIXED ISOMERS)	114,654	1.11 %
110-54-3	N-HEXANE	97,644	0.94 %
67-56-1	METHANOL	91,675	0.89 %
108-45-2	1,3-PHENYLENEDIAMINE	90,712	0.88 %
115-07-1	PROPYLENE [PROPENE]	71,541	0.69 %
7632-00-0	SODIUM NITRITE	64,310	0.62 %
100-42-5	STYRENE	57,889	0.56 %
50-00-0	FORMALDEHYDE	46,543	0.45 %
71-43-2	BENZENE	45,689	0.44 %
N230	GLYCOL ETHERS (EXCEPT SURFACTANTS)	41,140	0.40 %
108-10-1	METHYL ISOBUTYL KETONE	35,883	0.35 %
	Sum of Top 20:	**9,747,026**	**94.18 %**
	Sum Other:	**602,823**	**5.82 %**
	Sum All:	**10,349,849**	**100.00 %**

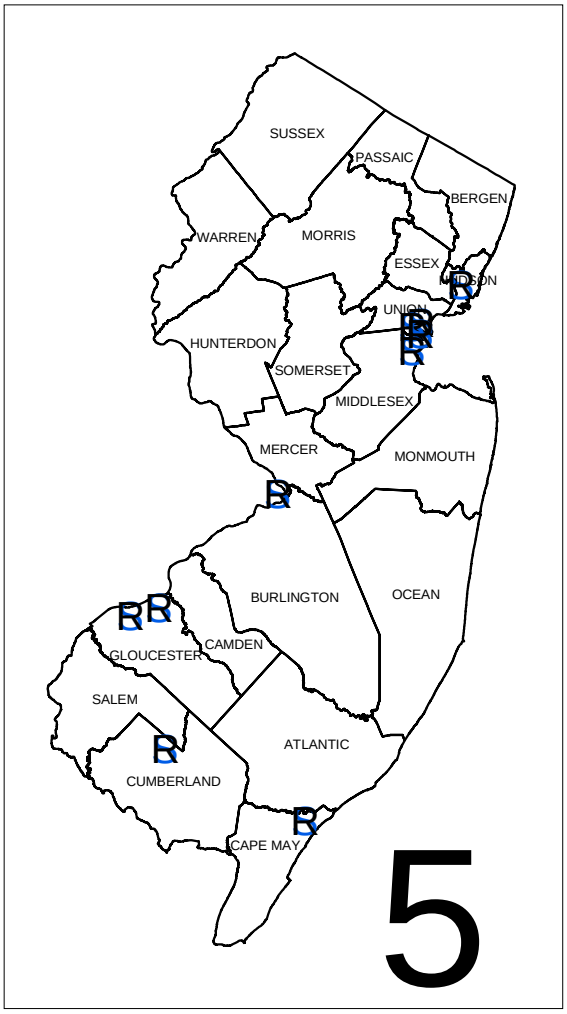


Figure 6. Top 10 Facilities for Total Air Emissions – 2009

Table 14. Top 10 Facilities for Total Air Emissions – 2009

FACILITY NAME	CITY	Stack Air Emissions (pounds)	Fugitive Air Emissions (pounds)	Total Air Emissions (pounds)
PSE&G FOSSIL MERCER GENERATING	HAMILTON TWP	1,262,397	371	1,262,768
VALERO REFINING COMPANY	GREENWICH TWP	400,619	24,287	424,906
NATIONAL REFRIGERANTS INC	ROSENHAYN	29,485	329,792	359,277
SUNOCO EAGLE POINT REFINERY	WEST DEPTFORD TWP	250,941	9,087	260,028
CONOCOPHILLIPS CO REFINERY	LINDEN	84,408	101,175	185,583
PSE&G FOSSIL HUDSON GENERATING	JERSEY CITY	167,754	431	168,185
COGEN TECHNOLOGIES LINDEN	LINDEN CITY	139,061	3,124	142,185
HESS CORP PORT READING REFINERY	PORT READING	98,511	21,925	120,436
RC CAPE MAY HOLDINGS (BL ENGLAND)	BEESLEYS POINT	114,181	1	114,182
PSE&G FOSSIL LINDEN GENERATING	LINDEN	112,219	0	112,219

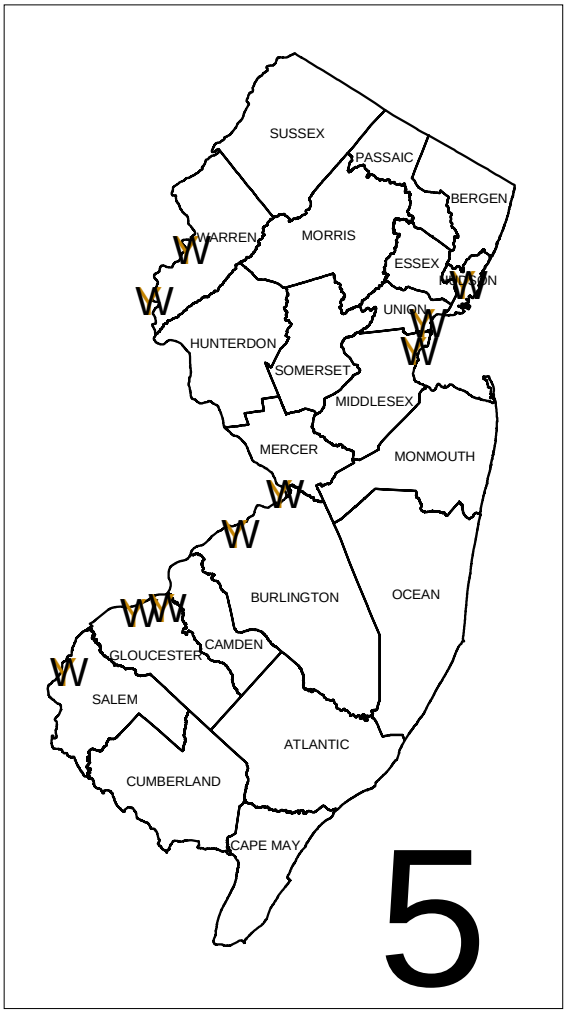


Figure 7. Top 10 Facilities for Surface Water Discharges – 2009

Table 15. Top 10 Facilities for Surface Water Discharges – 2009

FACILITY NAME	CITY	Surface Water Discharges (pounds)
E.I. DUPONT DENEMOURS CHAMBERS WORKS	PENNSVILLE	3,380,419
CONOCOPHILLIPS CO REFINERY	LINDEN	1,973,521
MALLINCKRODT BAKER INC	PHILLIPSBURG	315,781
VALERO REFINING COMPANY	GREENWICH TWP	56,556
DSM NUTRITIONAL PRODUCTS INC	BELVIDERE	55,096
COLORITE SPECIALTY RESINS	BURLINGTON	20,398
HESS CORP PORT READING REFINERY	PORT READING	12,965
SUNOCO EAGLE POINT REFINERY	WEST DEPTFORD TWP	11,298
PSE&G FOSSIL HUDSON GENERATING	JERSEY CITY	7,676
PSE&G FOSSIL MERCER GENERATING	HAMILTON TWP	3,369

Chemicals of Concern – Carcinogens and Persistent, Bioaccumulative and Toxic (PBT) Substances

There are at least 172 chemicals and compound categories on the TRI Toxic Chemical list that have potential links to causing cancer in humans. These chemicals have been identified through the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration (OSHA).

Other substances on the TRI list have also been identified as carcinogens through reviews of toxicology research conducted by various federal and state agencies but are not identified as such on the TRI list. The NJDEP assesses potential cancer risks from releases of these chemicals to the environment in its regulatory decisions, such as developing air and water permit limits for sources that release such substances.

Chemicals that are persistent, bioaccumulative and toxic (PBT) are of particular concern not only because they are toxic, but also because they remain in the environment for long periods of time, are not readily destroyed, and build up or accumulate in body tissue. Data summarized and presented on the following pages include all reports submitted by facilities for chemicals classified as PBTs except for dioxins. Dioxins are a unique category of PBT that are considered highly toxic and, therefore, reported in grams per year. Therefore, those data are addressed separately in the next section dedicated to dioxin and dioxin-like compounds only. Appendix A lists all PBTs, including dioxins, along with the reporting thresholds for each substance or chemical compound category.

Polychlorinated dibenzo-para(p)-dioxins (CDDs) and polychlorinated dibenzofurans (CDFs) constitute a group of PBTs that are termed "dioxin-like." "Dioxin-like" refers to the fact that these compounds have similar chemical structures, similar physical-chemical properties, and invoke a common array of toxic responses. An important aspect of this definition is that the CDDs and CDFs must have chlorine substitution of hydrogen atoms at the 2, 3, 7, and 8 positions on the benzene rings.[4] The dioxin compounds category is the one unique group reported in grams (or fractions of a gram) per year.

[4] USEPA, Emergency Planning and Community Right-To-Know Act – Section 313: Guidance for Reporting Toxic Chemicals within the Dioxin and Dioxin-like Compounds Category; EPA-745-B00-021, December 2000.

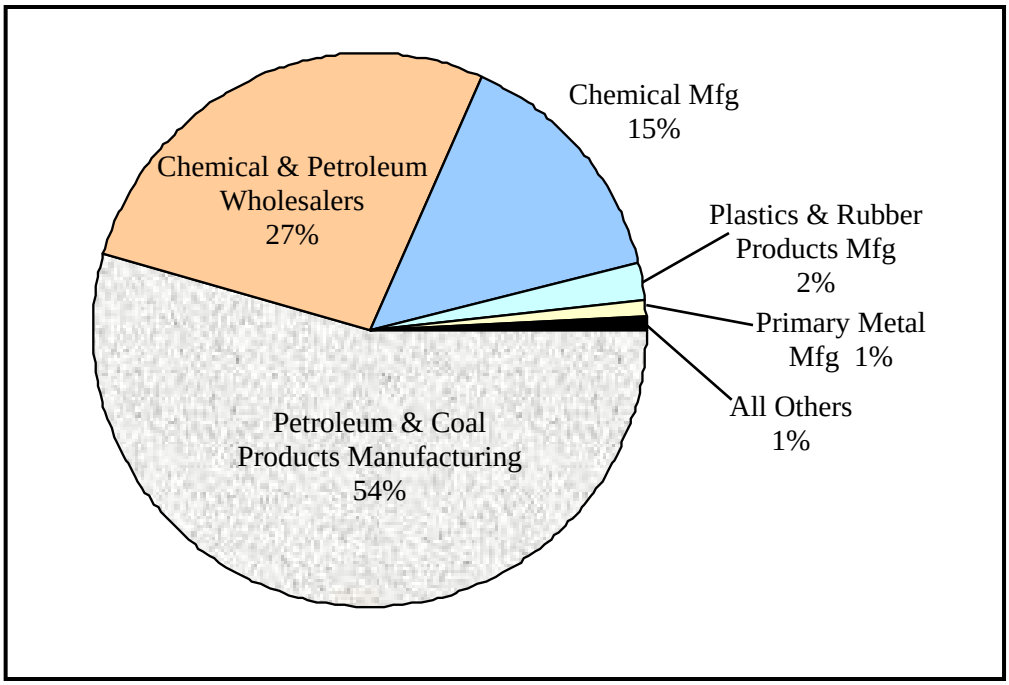


Figure 8. Use of Carcinogens (percent) by Industry Group – 2009

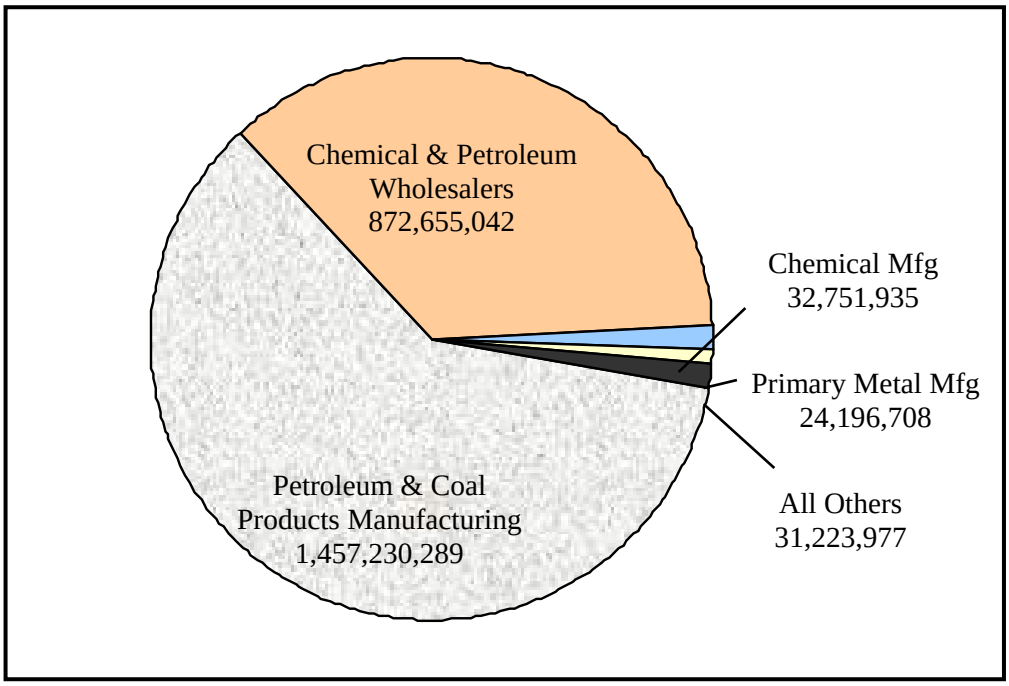


Figure 9. Quantity of Carcinogens Shipped as (or in) Product by Industry (in pounds) – 2009

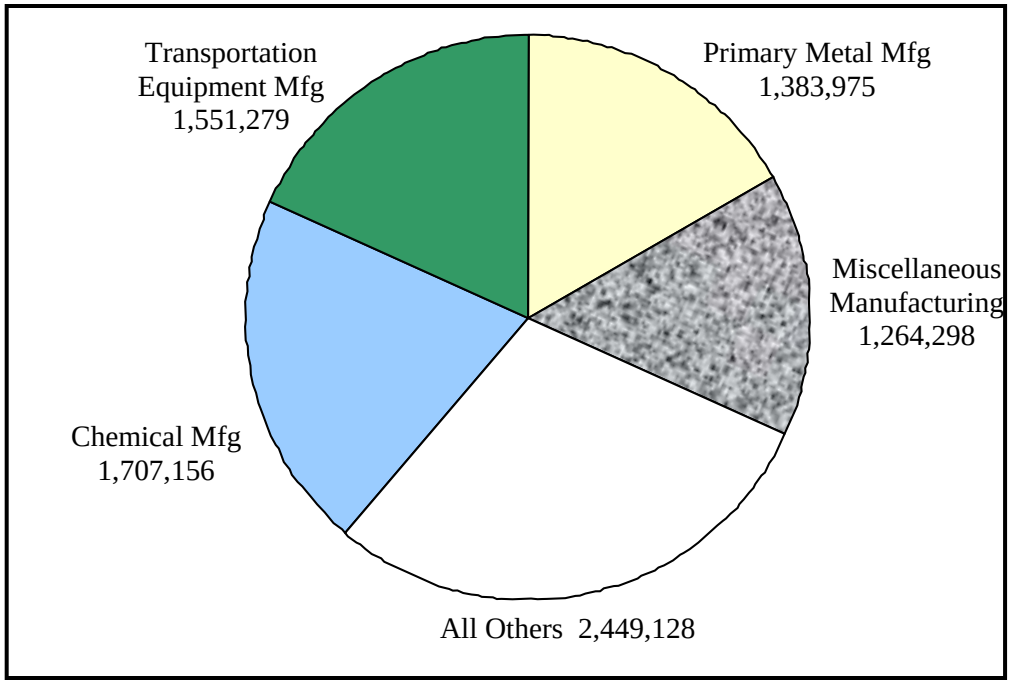


Figure 10. Quantity of Carcinogens Generated as NPO by Industry (in pounds) – 2009

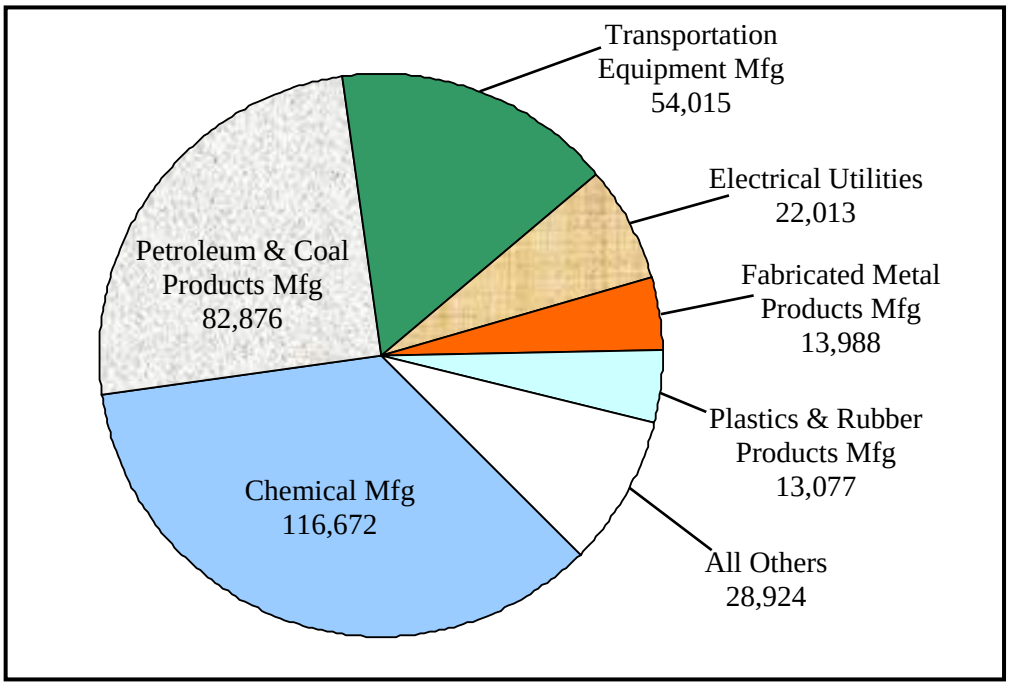


Figure 11. Quantity of Carcinogen Releases by Industry (in pounds) – 2009

Table 16. Carcinogens Used (pounds per year) – 2009 RPPR

Top 20 Facilities for Carcinogens Used in 2009

FACILITY NAME (CITY)	COUNTY	USE (pounds)	% of Total
CONOCOPHILLIPS CO (LINDEN)	UNION	1,042,557,540	32.43 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	455,406,604	14.16 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	233,233,564	7.25 %
OXY VINYLS LP (PEDRICKTOWN)	SALEM	204,957,900	6.37 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	179,359,447	5.58 %
CONOCO PHILLIPS (LINDEN)	UNION	139,644,883	4.34 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	98,784,923	3.07 %
HESS CORPORATION (PORT READING)	MIDDLESEX	69,797,818	2.17 %
GULF OIL LIMITED PARTNERSHIP (THOROFARE)	GLOUCESTER	69,071,529	2.15 %
BASF CORPORATION (WASHINGTON)	WARREN	68,003,503	2.12 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	61,256,332	1.91 %
GULF OIL LIMITED PARTNERSHIP (LINDEN)	UNION	59,483,928	1.85 %
GETTY PETROLEUM MARKETING INC (NEWARK)	ESSEX	54,141,842	1.68 %
POLYONE CORPORATION (OLDMANS TWP)	SALEM	53,020,986	1.65 %
HESS CORPORATION (PENNSAUKEN)	CAMDEN	45,781,712	1.42 %
BP PRODUCTS NORTH AMERICA INC (CARTERET)	MIDDLESEX	45,278,914	1.41 %
ALLIED AVIATION SERVICE CO OF NJ INC (ELIZABETH)	UNION	42,706,350	1.33 %
FERRO CORP (LOGAN TWP)	GLOUCESTER	41,144,536	1.28 %
MOTIVA ENTERPRISES LLC (NEWARK)	ESSEX	34,542,939	1.07 %
LUBRIZOL ADVANCED MATERIALS INC (OLDMANS TWP)	SALEM	23,370,314	0.73 %
	Sum of Top 20:	**3,021,545,565**	**93.98 %**
	Sum Other:	**193,617,371**	**6.02 %**
	Sum All:	**3,215,162,936**	**100.00 %**

Top 20 Carcinogens Used in 2009

CAS Number	SUBSTANCE NAME	USE (pounds)	% of Total
100-41-4	ETHYLBENZENE	1,101,186,380	34.25 %
71-43-2	BENZENE	1,025,176,954	31.89 %
91-20-3	NAPHTHALENE	475,741,498	14.80 %
75-01-4	VINYL CHLORIDE	261,377,408	8.13 %
75-21-8	ETHYLENE OXIDE	57,512,659	1.79 %
98-95-3	NITROBENZENE	45,379,386	1.41 %
100-44-7	BENZYL CHLORIDE	41,187,895	1.28 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	36,867,047	1.15 %
75-56-9	PROPYLENE OXIDE	23,437,344	0.73 %
7440-02-0 & N495	NICKEL & COMPOUNDS	22,427,183	0.70 %
117-81-7	DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	20,357,266	0.63 %
100-42-5	STYRENE	18,014,890	0.56 %
140-88-5	ETHYL ACRYLATE	16,922,045	0.53 %
108-05-4	VINYL ACETATE	13,473,609	0.42 %
7440-47-3 & N090	CHROMIUM & COMPOUNDS	11,580,500	0.36 %
7439-92-1 & N420	LEAD & COMPOUNDS	10,397,111	0.32 %
26471-62-5	TOLUENE DIISOCYANATE (MIXED ISOMERS)	6,028,864	0.19 %
75-09-2	DICHLOROMETHANE	5,221,978	0.16 %
7440-48-4 & N096	COBALT & COMPOUNDS	4,513,048	0.14 %
106-89-8	EPICHLOROHYDRIN	3,984,213	0.12 %
	Sum of Top 20:	**3,200,787,278**	**99.55 %**
	Sum Other:	**14,375,658**	**0.45 %**
	Sum All:	**3,215,162,936**	**100.00 %**

Table 17. Carcinogens Shipped as (or in) Product (pounds per year) – 2009 RPPR

Top 20 Facilities for Carcinogens Shipped as (or in) Product in 2009

FACILITY NAME (CITY)	COUNTY	Shipped as (or in) Product (pounds)	% of Total
CONOCOPHILLIPS CO (LINDEN)	UNION	1,039,920,207	43.01 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	233,222,941	9.65 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	179,108,368	7.41 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	164,965,579	6.82 %
CONOCO PHILLIPS (LINDEN)	UNION	139,632,753	5.77 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	98,764,442	4.08 %
HESS CORPORATION (PORT READING)	MIDDLESEX	69,746,615	2.88 %
GULF OIL LIMITED PARTNERSHIP (THOROFARE)	GLOUCESTER	69,070,986	2.86 %
GULF OIL LIMITED PARTNERSHIP (LINDEN)	UNION	59,483,418	2.46 %
GETTY PETROLEUM MARKETING INC (NEWARK)	ESSEX	54,141,651	2.24 %
HESS CORPORATION (PENNSAUKEN)	CAMDEN	45,779,951	1.89 %
BP PRODUCTS NORTH AMERICA INC (CARTERET)	MIDDLESEX	45,277,317	1.87 %
ALLIED AVIATION SERVICE CO OF NJ INC (ELIZABETH)	UNION	42,705,924	1.77 %
MOTIVA ENTERPRISES LLC (NEWARK)	ESSEX	34,542,516	1.43 %
HESS CORPORATION (BAYONNE)	HUDSON	19,258,471	0.80 %
FERRO CORP (LOGAN TWP)	GLOUCESTER	14,845,505	0.61 %
HESS CORPORATION (PERTH AMBOY)	MIDDLESEX	13,509,497	0.56 %
COLORITE PLASTICS COMPANY (RIDGEFIELD)	BERGEN	11,322,606	0.47 %
BAY SHORE VINYL COMPOUNDS, INC. (TENNENT)	MONMOUTH	8,650,238	0.36 %
BP PRODUCTS NORTH AMERICA INC (NEWARK)	ESSEX	8,574,685	0.35 %
	Sum of Top 20:	**2,352,523,671**	**97.29 %**
	Sum Other:	**65,534,281**	**2.71 %**
	Sum All:	**2,418,057,951**	**100.00 %**

Top 20 Carcinogens Shipped as (or in) Product in 2009

CAS Number	SUBSTANCE NAME	Shipped as (or in) Product (pounds)	% of Total
100-41-4	ETHYLBENZENE	1,045,310,534	43.23 %
71-43-2	BENZENE	776,161,052	32.10 %
91-20-3	NAPHTHALENE	466,233,629	19.28 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	36,042,008	1.49 %
7440-02-0 & N495	NICKEL & COMPOUNDS	20,627,301	0.85 %
117-81-7	DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	20,295,994	0.84 %
100-44-7	BENZYL CHLORIDE	14,827,651	0.61 %
7440-47-3 & N090	CHROMIUM & COMPOUNDS	10,488,945	0.43 %
7439-92-1 & N420	LEAD & COMPOUNDS	9,115,187	0.38 %
100-42-5	STYRENE	7,691,755	0.32 %
75-09-2	DICHLOROMETHANE	4,793,540	0.20 %
7440-48-4 & N096	COBALT & COMPOUNDS	3,365,740	0.14 %
191-24-2	BENZO(G,H,I)PERYLENE	785,695	0.03 %
67-66-3	CHLOROFORM	376,328	0.02 %
8001-58-9	CREOSOTE	353,999	0.01 %
1634-04-4	METHYL TERT-BUTYL ETHER	349,077	0.01 %
N583	POLYCHLORINATED ALKANES	240,153	0.01 %
50-00-0	FORMALDEHYDE	236,842	0.01 %
106-99-0	1,3-BUTADIENE	186,107	0.01 %
79-01-6	TRICHLOROETHYLENE	104,206	0.00 %
	Sum of Top 20:	**2,417,585,743**	**99.98 %**
	Sum Other:	**472,208**	**0.02 %**
	Sum All:	**2,418,057,951**	**100.00 %**

Table 18. Nonproduct Output for Carcinogens (pounds per year) – 2009 RPPR

Top 20 Facilities for Nonproduct Output of Carcinogens in 2009

FACILITY NAME (CITY)	COUNTY	NPO (pounds)	% of Total
HOWMET CASTINGS AND SERVICES, INC.. (ROCKAWAY TWP)	MORRIS	1,259,362	15.07 %
STRYKER ORTHOPAEDICS (MAHWAH TWP)	BERGEN	807,701	9.67 %
BIOMET FAIR LAWN LLC (FAIR LAWN BORO)	BERGEN	398,589	4.77 %
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	397,362	4.76 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	379,704	4.54 %
COLORITE SPECIALTY RESINS (BURLINGTON)	BURLINGTON	377,757	4.52 %
FERRO CORP (LOGAN TWP)	GLOUCESTER	315,814	3.78 %
RATH GIBSON NORTH BRANCH LLC (NORTH BRANCH)	SOMERSET	249,188	2.98 %
CVC SPECIALTY CHEMICALS INC (MAPLE SHADE)	BURLINGTON	239,547	2.87 %
HOWMET CASTINGS AND SERVICES, INC (ROCKAWAY TWP)	MORRIS	236,063	2.83 %
CUSTOM ALLOY CORP (HIGH BRIDGE)	HUNTERDON	219,651	2.63 %
THE OKONITE COMPANY, INC (PATERSON)	PASSAIC	218,804	2.62 %
JOHNSON MATTHEY INC (WEST DEPTFORD TWP)	GLOUCESTER	213,802	2.56 %
THYSSEN KRUPP VDM USA, INC. (EAST HANOVER TWP)	MORRIS	195,309	2.34 %
ELECTRUM RECOVERY WORKS INC (RAHWAY)	UNION	180,433	2.16 %
SIEGFRIED (USA), INC. (PENNSVILLE)	SALEM	178,168	2.13 %
WYMAN-GORDON FORGINGS,INC. (ROCKAWAY)	MORRIS	162,808	1.95 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	152,068	1.82 %
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	129,029	1.54 %
FERRO CORP (SOUTH PLAINFIELD)	MIDDLESEX	116,185	1.39 %
	Sum of Top 20:	**6,427,345**	**76.92 %**
	Sum Other:	**1,928,493**	**23.08 %**

Top 20 Carcinogens for Nonproduct Output in 2009

CAS Number	SUBSTANCE NAME	NPO (pounds)	% of Total
7440-02-0 & N495	NICKEL & COMPOUNDS	1,799,882	21.54 %
7439-92-1 & N420	LEAD & COMPOUNDS	1,281,924	15.34 %
7440-48-4 & N096	COBALT & COMPOUNDS	1,147,308	13.73 %
7440-47-3 & N090	CHROMIUM & COMPOUNDS	1,091,555	13.06 %
75-09-2	DICHLOROMETHANE	428,438	5.13 %
75-01-4	VINYL CHLORIDE	351,305	4.20 %
100-41-4	ETHYLBENZENE	344,994	4.13 %
100-44-7	BENZYL CHLORIDE	318,801	3.82 %
106-89-8	EPICHLOROHYDRIN	293,932	3.52 %
71-43-2	BENZENE	275,806	3.30 %
91-20-3	NAPHTHALENE	248,620	2.98 %
62-53-3	ANILINE (AND SALTS)	118,432	1.42 %
50-00-0	FORMALDEHYDE	111,009	1.33 %
108-05-4	VINYL ACETATE	84,441	1.01 %
100-42-5	STYRENE	72,472	0.87 %
117-81-7	DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	61,272	0.73 %
302-01-2	HYDRAZINE	60,440	0.72 %
74-87-3	CHLOROMETHANE	53,840	0.64 %
8001-58-9	CREOSOTE	47,305	0.57 %
67-66-3	CHLOROFORM	34,753	0.42 %
	Sum of Top 20:	**8,226,529**	**98.45 %**
	Sum Other:	**129,308**	**1.55 %**
	Sum All:	**8,355,837**	**100.00 %**

Table 19. On-Site Releases of Carcinogens (pounds per year) – 2009 RPPR

Top 20 Facilities for On-Site Releases of Carcinogens in 2009

FACILITY NAME (CITY)	COUNTY	On-Site Releases (pounds)	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	67,828	20.46 %
VIKING YACHT CO CORP (NEW GRETNA)	BURLINGTON	45,958	13.86 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	36,539	11.02 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	23,741	7.16 %
PSEG POWER FOSSIL LLC (RIDGEFIELD)	BERGEN	18,358	5.54 %
CONOCOPHILLIPS CO (LINDEN)	UNION	13,797	4.16 %
MERCK SHARP & DOHME CORP (RAHWAY)	UNION	13,434	4.05 %
WILLIAM STEINEN MFG CO (PARSIPPANY-TROY HILLS TWP)	MORRIS	11,260	3.40 %
POLYONE CORPORATION (OLDMANS TWP)	SALEM	9,324	2.81 %
HESS CORPORATION (PORT READING)	MIDDLESEX	8,718	2.63 %
SILVERTON MARINE CORPORATION (MILLVILLE)	CUMBERLAND	7,961	2.40 %
ACCURATE FORMING DIV. OF SHAN INDUST (HAMBURG)	SUSSEX	6,711	2.02 %
STEPAN COMPANY - MAYWOOD DIVISION (MAYWOOD)	BERGEN	5,570	1.68 %
THERMOFISHER SCIENTIFIC (FAIR LAWN)	BERGEN	4,471	1.35 %
MALLINCKRODT BAKER INC (PHILLIPSBURG)	WARREN	4,357	1.31 %
COLORITE SPECIALTY RESINS (BURLINGTON)	BURLINGTON	3,576	1.08 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	2,951	0.89 %
EXXON MOBIL CHEMICAL CO (EDISON)	MIDDLESEX	2,738	0.83 %
MAUSER CORP (WOODBRIDGE)	MIDDLESEX	2,686	0.81 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	2,632	0.79 %
	Sum of Top 20:	**292,611**	**88.25 %**
	Sum Other:	**38,954**	**11.75 %**
	Sum All:	**331,565**	**100.00 %**

Top 20 Carcinogens for On-Site Releases in 2009

CAS Number	SUBSTANCE NAME	On-Site Releases (pounds)	% of Total
100-42-5	STYRENE	57,889	17.46 %
50-00-0	FORMALDEHYDE	46,543	14.04 %
71-43-2	BENZENE	45,689	13.78 %
8001-58-9	CREOSOTE	35,734	10.78 %
75-09-2	DICHLOROMETHANE	33,572	10.13 %
100-41-4	ETHYL BENZENE	25,139	7.58 %
74-87-3	CHLOROMETHANE	15,066	4.54 %
7440-02-0 & N495	NICKEL & COMPOUNDS	12,537	3.78 %
75-01-4	VINYL CHLORIDE	12,233	3.69 %
91-20-3	NAPHTHALENE	9,065	2.73 %
79-01-6	TRICHLOROETHYLENE	7,124	2.15 %
7439-92-1 & N420	LEAD & COMPOUNDS	4,506	1.36 %
108-05-4	VINYL ACETATE	4,235	1.28 %
7440-47-3 & N090	CHROMIUM & COMPOUNDS	3,748	1.13 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	3,439	1.04 %
75-21-8	ETHYLENE OXIDE	2,847	0.86 %
98-95-3	NITROBENZENE	2,614	0.79 %
62-53-3	ANILINE (AND SALTS)	2,017	0.61 %
106-89-8	EPICHLOROHYDRIN	1,521	0.46 %
75-56-9	PROPYLENE OXIDE	1,306	0.39 %
	Sum of Top 20:	**326,824**	**98.57 %**
	Sum Other:	**4,741**	**1.43 %**
	Sum All:	**331,565**	**100.00 %**

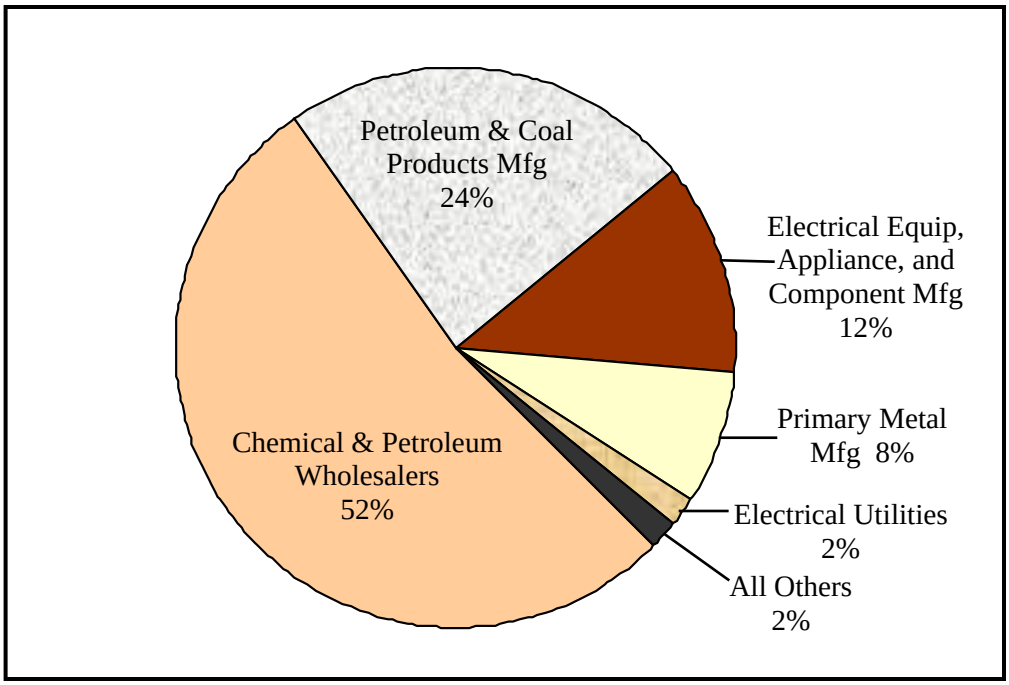


Figure 12. Use of PBTs (percent) by Industry Group – 2009

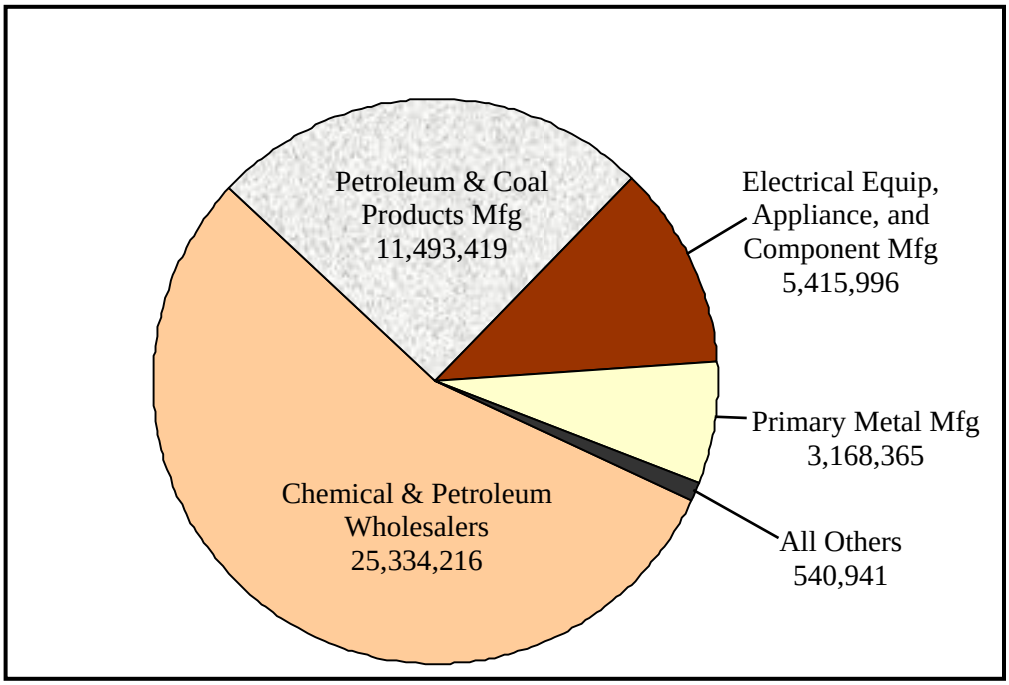


Figure 13. Quantity of PBTs Shipped as (or in) Product by Industry (in pounds) – 2009

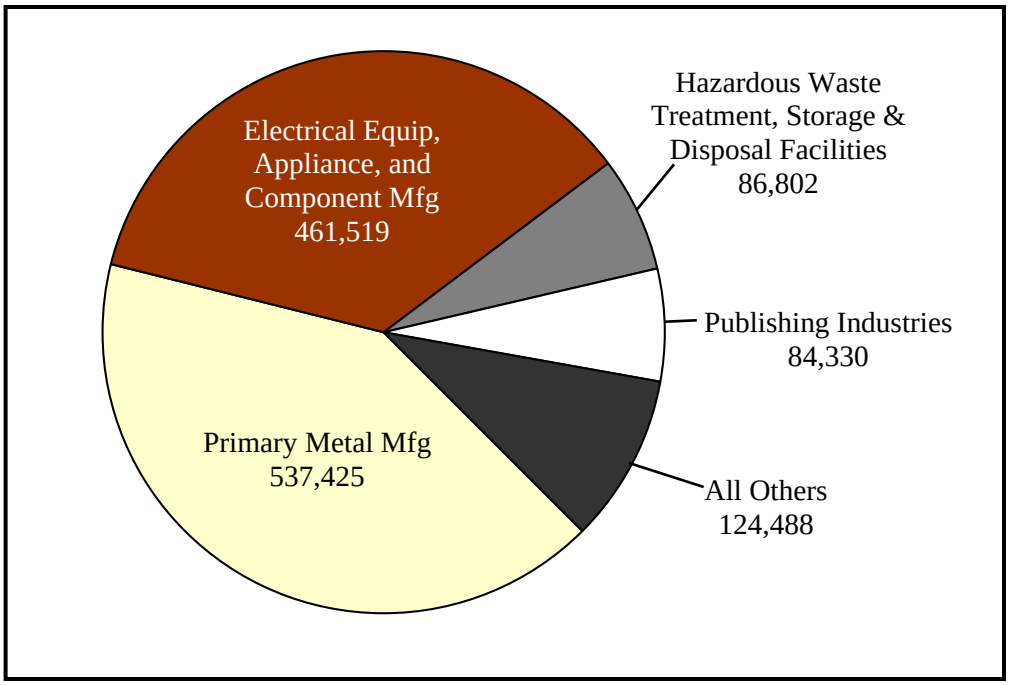


Figure 14. Quantity of PBTs as NPO Generated by Industry (in pounds) – 2009

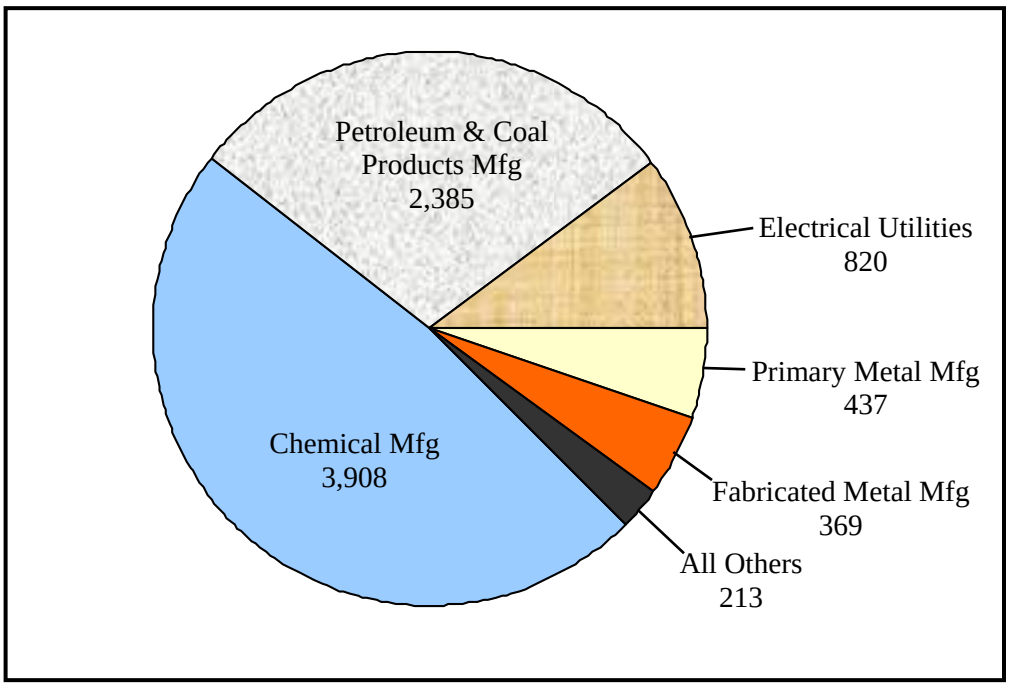


Figure 15. Quantity of PBT On-Site Releases by Industry (in pounds) – 2009

Table 20. PBTs Used (pounds per year) – 2009 RPPR

Top 20 Facilities for PBTs Used in 2009

FACILITY NAME (CITY)	COUNTY	USE (pounds)	% of Total
HESS CORPORATION (BAYONNE)	HUDSON	12,257,229	25.50 %
HESS CORPORATION (PORT READING)	MIDDLESEX	7,449,170	15.50 %
HESS CORPORATION (PENNSAUKEN)	CAMDEN	5,589,845	11.63 %
BP PRODUCTS NORTH AMERICA INC (NEWARK)	ESSEX	4,998,143	10.40 %
PAULSBORO REFINING COMPANY (GREENWICH TWP)	GLOUCESTER	3,131,778	6.52 %
POWER BATTERY CO INC (PATERSON)	PASSAIC	3,061,256	6.37 %
THE OKONITE COMPANY, INC (PATERSON)	PASSAIC	3,007,372	6.26 %
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	2,787,864	5.80 %
HESS CORPORATION (EDGEWATER)	BERGEN	1,147,069	2.39 %
HESS CORPORATION (PERTH AMBOY)	MIDDLESEX	850,699	1.77 %
NUSTAR ASPHALT REFINING, LLC (WEST DEPTFORD TWP)	GLOUCESTER	835,887	1.74 %
PSEG FOSSIL LLC (SEWAREN)	MIDDLESEX	783,736	1.63 %
ELECTRUM RECOVERY WORKS INC (RAHWAY)	UNION	341,835	0.71 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	165,921	0.35 %
CANFIELD TECHNOLOGIES INC (SAYREVILLE)	MIDDLESEX	91,709	0.19 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	88,571	0.18 %
PRUDENT PUBLISHING CO INC (LANDING)	MORRIS	84,330	0.18 %
MADISON INDUSTRIES INC (OLD BRIDGE TWP)	MIDDLESEX	76,800	0.16 %
MOTIVA ENTERPRISES LLC (NEWARK)	ESSEX	74,999	0.16 %
CLEAN EARTH OF NORTH JERSEY (KEARNY)	HUDSON	73,513	0.15 %
	Sum of Top 20:	**46,897,726**	**97.57 %**
	Sum Other:	**1,167,495**	**2.43 %**
	Sum All:	**48,065,220**	**100.00 %**

All PBTs Used in 2009

CAS Number	SUBSTANCE NAME	USE (pounds)	% of Total
N590	POLYCYCLIC AROMATIC COMPOUNDS	36,866,969	76.70 %
7439-92-1 & N420	LEAD & COMPOUNDS	10,401,529	21.64 %
191-24-2	BENZO(G,H,I)PERYLENE	786,737	1.64 %
7439-97-6 & N458	MERCURY & COMPOUNDS	6,837	0.01 %
79-94-7	TETRABROMOBISPHENOL A	2,995	0.01 %
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)	119	0.00 %
608-93-5	PENTACHLOROBENZENE	34	0.00 %
	Sum of All:	**48,065,220**	**100.00 %**

Table 21. PBTs Shipped as (or in) Product (pounds per year) – 2009 RPPR

Top 20 Facilities for PBTs Shipped as (or in) Product in 2009

FACILITY NAME (CITY)	COUNTY	Shipped as (or in) Product (pounds)	% of Total
HESS CORPORATION (BAYONNE)	HUDSON	12,257,213	26.67 %
HESS CORPORATION (PORT READING)	MIDDLESEX	7,444,115	16.20 %
HESS CORPORATION (PENNSAUKEN)	CAMDEN	5,589,201	12.16 %
BP PRODUCTS NORTH AMERICA INC (NEWARK)	ESSEX	4,998,141	10.88 %
PAULSBORO REFINING COMPANY (GREENWICH TWP)	GLOUCESTER	3,131,538	6.81 %
POWER BATTERY CO INC (PATERSON)	PASSAIC	2,998,318	6.52 %
THE OKONITE COMPANY, INC (PATERSON)	PASSAIC	2,788,568	6.07 %
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	2,390,502	5.20 %
HESS CORPORATION (EDGEWATER)	BERGEN	1,147,064	2.50 %
HESS CORPORATION (PERTH AMBOY)	MIDDLESEX	850,660	1.85 %
NUSTAR ASPHALT REFINING, LLC (WEST DEPTFORD TWP)	GLOUCESTER	835,872	1.82 %
MOTIVA ENTERPRISES LLC (SEWAREN)	MIDDLESEX	165,920	0.36 %
ELECTRUM RECOVERY WORKS INC (RAHWAY)	UNION	161,402	0.35 %
CANFIELD TECHNOLOGIES INC (SAYREVILLE)	MIDDLESEX	89,935	0.20 %
CITGO PETROLEUM CORPORATION (LINDEN)	UNION	88,569	0.19 %
MOTIVA ENTERPRISES LLC (NEWARK)	ESSEX	74,999	0.16 %
MADISON INDUSTRIES INC (OLD BRIDGE TWP)	MIDDLESEX	69,600	0.15 %
OLD BRIDGE CHEMICALS INC (OLD BRIDGE TWP)	MIDDLESEX	65,600	0.14 %
CUSTOM CHEMICALS CORPORATION (ELMWOOD PARK)	BERGEN	59,027	0.13 %
GGB, LLC (THOROFARE)	GLOUCESTER	56,712	0.12 %
	Sum of Top 20:	**45,262,956**	**98.50 %**
	Sum Other:	**689,981**	**1.50 %**
	Sum All:	**45,952,937**	**100.00 %**

All PBTs for Shipped as (or in) Product in 2009

CAS Number	SUBSTANCE NAME	Shipped as (or in) Product (pounds)	% of Total
N590	POLYCYCLIC AROMATIC COMPOUNDS	36,042,008	78.43 %
7439-92-1 & N420	LEAD & COMPOUNDS	9,119,431	19.85 %
191-24-2	BENZO(G,H,I)PERYLENE	785,695	1.71 %
79-94-7	TETRABROMOBISPHENOL A	2,995	0.01 %
7439-97-6 & N458	MERCURY & COMPOUNDS	2,800	0.01 %
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)	7	0.00 %
608-93-5	PENTACHLOROBENZENE	0	0.00 %
	Sum of All:	**45,952,937**	**100.00 %**

Table 22. Nonproduct Output for PBTs (pounds per year) – 2009 RPPR

Top 20 Facilities for Nonproduct Output of PBTs in 2009

FACILITY NAME (CITY)	COUNTY	NPO (pounds)	% of Total
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	397,362	30.69 %
THE OKONITE COMPANY, INC (PATERSON)	PASSAIC	218,804	16.90 %
ELECTRUM RECOVERY WORKS INC (RAHWAY)	UNION	180,433	13.94 %
PRUDENT PUBLISHING CO INC (LANDING)	MORRIS	84,330	6.51 %
CLEAN EARTH OF NORTH JERSEY (KEARNY)	HUDSON	73,513	5.68 %
POWER BATTERY CO INC (PATERSON)	PASSAIC	62,938	4.86 %
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	62,859	4.86 %
MYRON MANUFACTURING CORP (MAYWOOD)	BERGEN	28,087	2.17 %
ATLANTIC STATES CAST IRON PIPE CO. (PHILLIPSBURG)	WARREN	23,716	1.83 %
OXFORD SUPERCONDUCTING TECHNOLOGY (CARTERET)	MIDDLESEX	19,931	1.54 %
KEARNY SMELTING & REFINING CORP. (KEARNY)	HUDSON	14,671	1.13 %
CYCLE CHEM., INC. (ELIZABETH)	UNION	13,289	1.03 %
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	11,132	0.86 %
CONOCOPHILLIPS CO (LINDEN)	UNION	9,452	0.73 %
V & S AMBOY GALVANIZING LLC (PERTH AMBOY)	MIDDLESEX	9,360	0.72 %
GGB, LLC (THOROFARE)	GLOUCESTER	8,542	0.66 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	7,867	0.61 %
MADISON INDUSTRIES INC (OLD BRIDGE TWP)	MIDDLESEX	7,200	0.56 %
NEW JERSEY GALVANIZING & TINNING WORKS (NEWARK)	ESSEX	5,928	0.46 %
JOHNSON MATTHEY INC (WEST DEPTFORD TWP)	GLOUCESTER	5,615	0.43 %
	Sum of Top 20:	**1,245,030**	**96.17 %**
	Sum Other:	**49,534**	**3.83 %**
	Sum All:	**1,294,564**	**100.00 %**

All PBTs for Nonproduct Output in 2009

CAS Number	SUBSTANCE NAME	Nonproduct Output (pounds)	% of Total
7439-92-1 & N420	LEAD & COMPOUNDS	1,282,098	99.04 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	7,900	0.61 %
7439-97-6 & N458	MERCURY & COMPOUNDS	4,037	0.31 %
191-24-2	BENZO(G,H,I)PERYLENE	384	0.03 %
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)	112	0.01 %
608-93-5	PENTACHLOROBENZENE	34	0.00 %
79-94-7	TETRABROMOBISPHENOL A	0	0.00 %
	Sum of All:	**1,294,564**	**100.00 %**

Table 23. On-Site Releases of PBTs (pounds per year) – 2009 RPPR

Top 20 Facilities for On-Site Releases of PBTs in 2009

FACILITY NAME (CITY)	COUNTY	On-Site Releases (pounds)	% of Total
E I DUPONT DE NEMOURS & CO INC (PENNSVILLE)	SALEM	3,879	47.71 %
HESS CORPORATION (PORT READING)	MIDDLESEX	2,079	25.57 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	561	6.89 %
ANCHOR GLASS CONTAINER CORPORATION (SALEM)	SALEM	365	4.49 %
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	321	3.95 %
CONOCOPHILLIPS CO (LINDEN)	UNION	185	2.27 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	144	1.77 %
PAULSBORO REFINING COMPANY (GREENWICH TWP)	GLOUCESTER	80	0.98 %
CANFIELD TECHNOLOGIES INC (SAYREVILLE)	MIDDLESEX	72	0.89 %
RC CAPE MAY HOLDINGS LLC (BEESLEYS POINT)	CAPE MAY	53	0.65 %
CLEAN EARTH OF NORTH JERSEY (KEARNY)	HUDSON	51	0.62 %
ATLANTIC BATTERY CORP. (PATERSON)	PASSAIC	49	0.60 %
U S CASTINGS CORPORATION (UNION CITY)	HUDSON	36	0.44 %
SUNOCO, INC. (R&M) EAGLE POINT FACILITY (WEST DEPTFORD TWP)	GLOUCESTER	34	0.42 %
CUSTOM CHEMICALS CORPORATION (ELMWOOD PARK)	BERGEN	21	0.26 %
CRYSTEX COMPOSITES (CLIFTON)	PASSAIC	20	0.25 %
LOGAN GENERATING COMPANY, L.P. (LOGAN TWP)	GLOUCESTER	17	0.21 %
PSEG POWER FOSSIL LLC (RIDGEFIELD)	BERGEN	17	0.20 %
GRIFFIN PIPE PRODUCTS CO. (FLORENCE)	BURLINGTON	15	0.18 %
PSEG FOSSIL LLC (LINDEN)	UNION	13	0.16 %
	Sum of Top 20:	**8,011**	**98.51 %**
	Sum Other:	**121**	**1.49 %**
	Sum All:	**8,132**	**100.00 %**

All PBTs for On-Site Releases in 2009

CAS Number	SUBSTANCE NAME	On-Site Releases (pounds)	% of Total
7439-92-1 & N420	LEAD & COMPOUNDS	4,507	55.42 %
N590	POLYCYCLIC AROMATIC COMPOUNDS	3,439	42.30 %
7439-97-6 & N458	MERCURY & COMPOUNDS	123	1.52 %
608-93-5	PENTACHLOROBENZENE	34	0.42 %
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)	17	0.21 %
191-24-2	BENZO(G,H,I)PERYLENE	11	0.14 %
79-94-7	TETRABROMOBISPHENOL A	0	0.00 %
	Sum of All:	**8,132**	**100.00 %**

Table 24. Materials Accounting Data for Dioxins and Dioxin-like Compounds (in grams)

	2009
Number of Facilities	7
Number of Substance Reports	7
Starting Inventory	2.4030
Starting Inventory as NPO	0.4960
Produced On Site	27.5257
Brought On Site	106.6950
Brought on Site as Recycled	106.6950
Consumed	00000
Shipped as (or in) Product	11.0250
Ending Inventory	2.2130
Ending Inventory as NPO	0.4000
Nonproduct Output	123.2587
On-Site Releases	5.1545
Stack Air Emissions	4.7458
Fugitive Air Emissions	0.4087
Surface Water Discharge	00000
Ground Water Discharge	00000
Land Disposal On Site	00000
On-Site Management	00000
Recycled & Re-Used On Site	00000
Energy Recovered On Site	00000
Destroyed On Site	00000
End Inv. (as NPO) minus Start Inv. (as NPO)	00000
Off-Site Transfers	118.2002
POTW Discharge	2.2250
Waste Transfer - Recycling	60.7750
Waste Transfer - Energy Recovery	32.8600
Waste Transfer - Treatment	0.0080
Waste Transfer - Disposal	22.3322
Total Substance USE or Throughput	134.2837

Table 25. Dioxins Used (pounds per year) – 2009 RPPR

FACILITY NAME (CITY)	COUNTY	USE (pounds)	% of Total
MARCAL MANUFACTURING, LLC (ELMWOOD PARK)	BERGEN	106.7890	79.52 %
STATE METAL INDUSTRIES INC (CAMDEN)	CAMDEN	18.4327	13.73 %
CONOCOPHILLIPS CO (LINDEN)	UNION	5.4990	4.10 %
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	3.0000	2.23 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	0.3000	0.22 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	0.1380	0.10 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	0.1250	0.09 %
	Sum All:	**134.2837**	**100.00 %**

Table 26. Dioxins Shipped as (or in) Product (pounds per year) – 2009 RPPR

FACILITY NAME (CITY)	COUNTY	Shipped as (or in) Product (pounds)	% of Total
MARCAL MANUFACTURING, LLC (ELMWOOD PARK)	BERGEN	11.0250	100.00 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	0.0000	0.00 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	0.0000	0.00 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	0.0000	0.00 %
STATE METAL INDUSTRIES INC (CAMDEN)	CAMDEN	0.0000	0.00 %
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	0.0000	0.00 %
CONOCOPHILLIPS CO (LINDEN)	UNION	0.0000	0.00 %
	Sum All:	**11.0250**	**100.00 %**

Table 27. Nonproduct Output for Dioxins (pounds per year) – 2009 RPPR

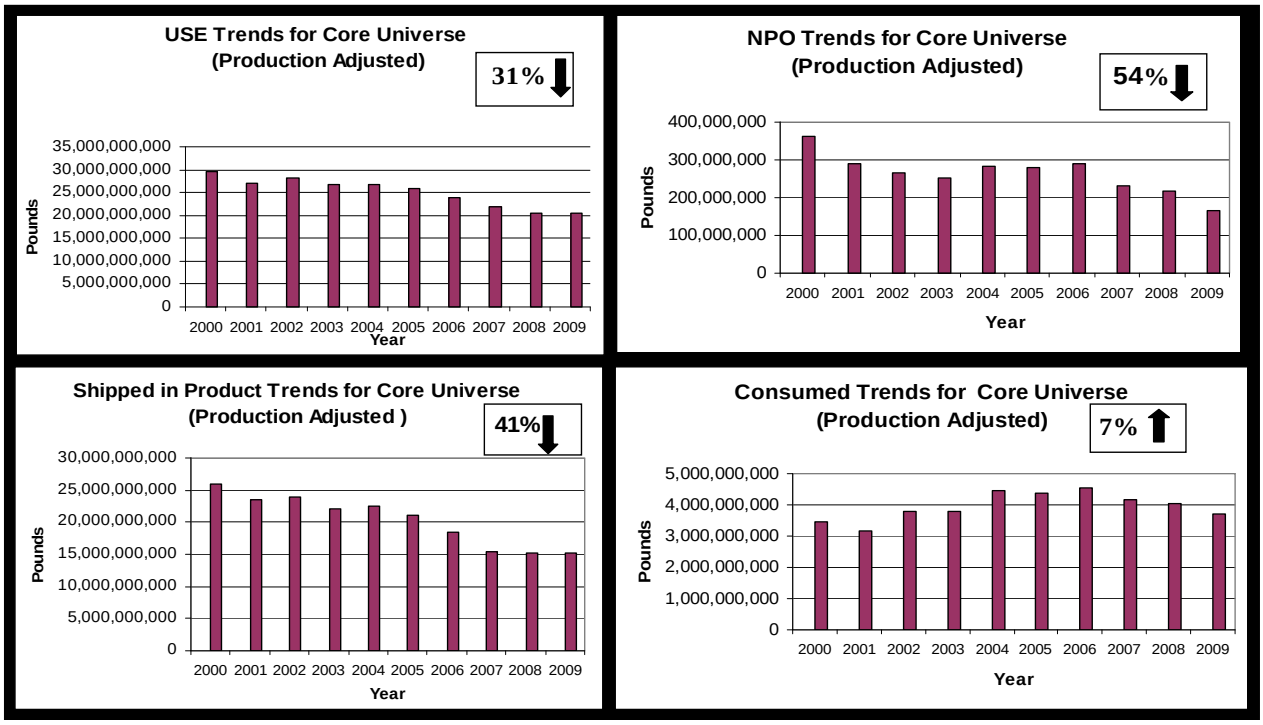
FACILITY NAME (CITY)	COUNTY	Nonproduct Output (pounds)	% of Total
MARCAL MANUFACTURING, LLC (ELMWOOD PARK)	BERGEN	95.7640	77.69 %
STATE METAL INDUSTRIES INC (CAMDEN)	CAMDEN	18.4327	14.95 %
CONOCOPHILLIPS CO (LINDEN)	UNION	5.4990	4.46 %
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	3.0000	2.43 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	0.3000	0.24 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	0.1380	0.11 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	0.1250	0.10 %
	Sum All:	**123.2587**	**100.00 %**

Table 28. On-Site Releases of Dioxins (pounds per year) – 2009 RPPR

FACILITY NAME (CITY)	COUNTY	On-Site Releases (pounds)	% of Total
GERDAU AMERISTEEL SAYREVILLE INC (SAYREVILLE)	MIDDLESEX	3.0000	58.20 %
STATE METAL INDUSTRIES INC (CAMDEN)	CAMDEN	1.5505	30.08 %
VALERO REFINING COMPANY NEW JERSEY (GREENWICH TWP)	GLOUCESTER	0.3000	5.82 %
PSEG FOSSIL LLC (JERSEY CITY)	HUDSON	0.1380	2.68 %
PSEG FOSSIL LLC (HAMILTON TWP)	MERCER	0.1250	2.43 %
CONOCOPHILLIPS CO (LINDEN)	UNION	0.0410	0.80 %
MARCAL MANUFACTURING, LLC (ELMWOOD PARK)	BERGEN	00000	0.00 %
	Sum All:	**5.1545**	**100.00 %**

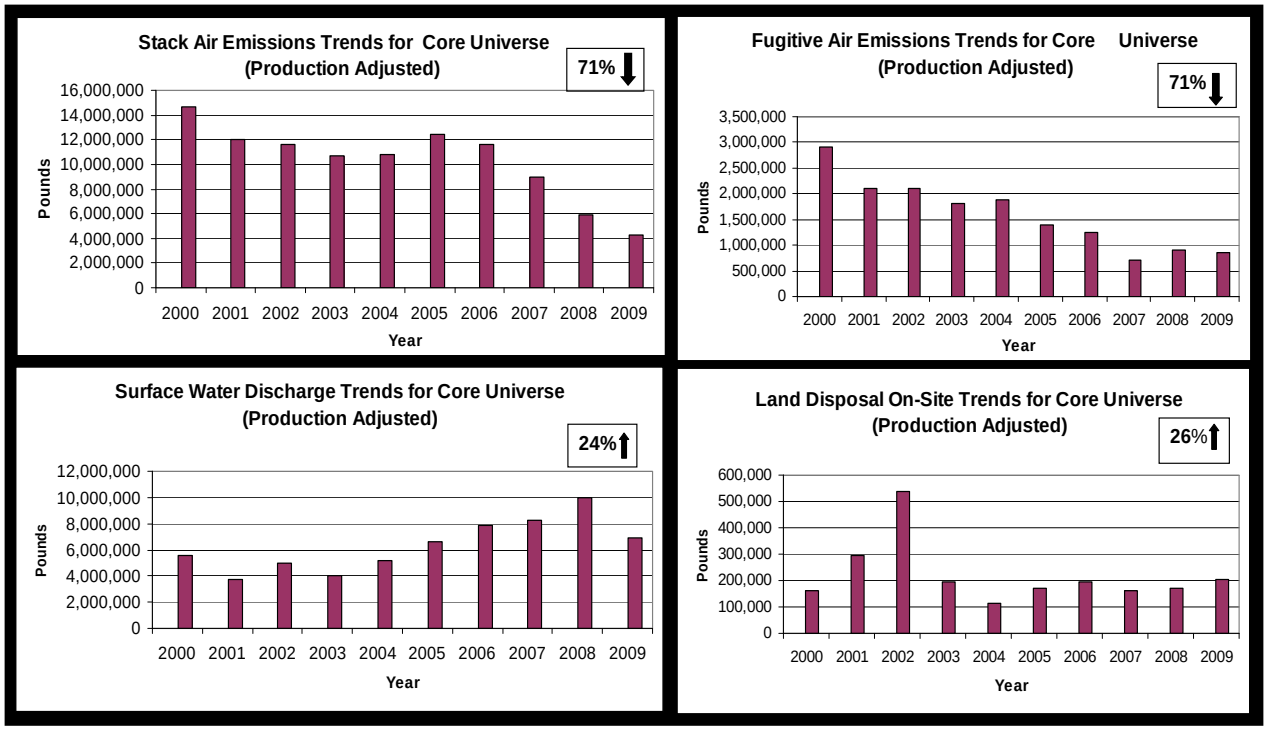
VI. Long-Term Analyses of Materials Accounting Data

Figure 16/Table 30. Core Universe – Use, NPO, Shipped and Consumed (2000 – 2009)



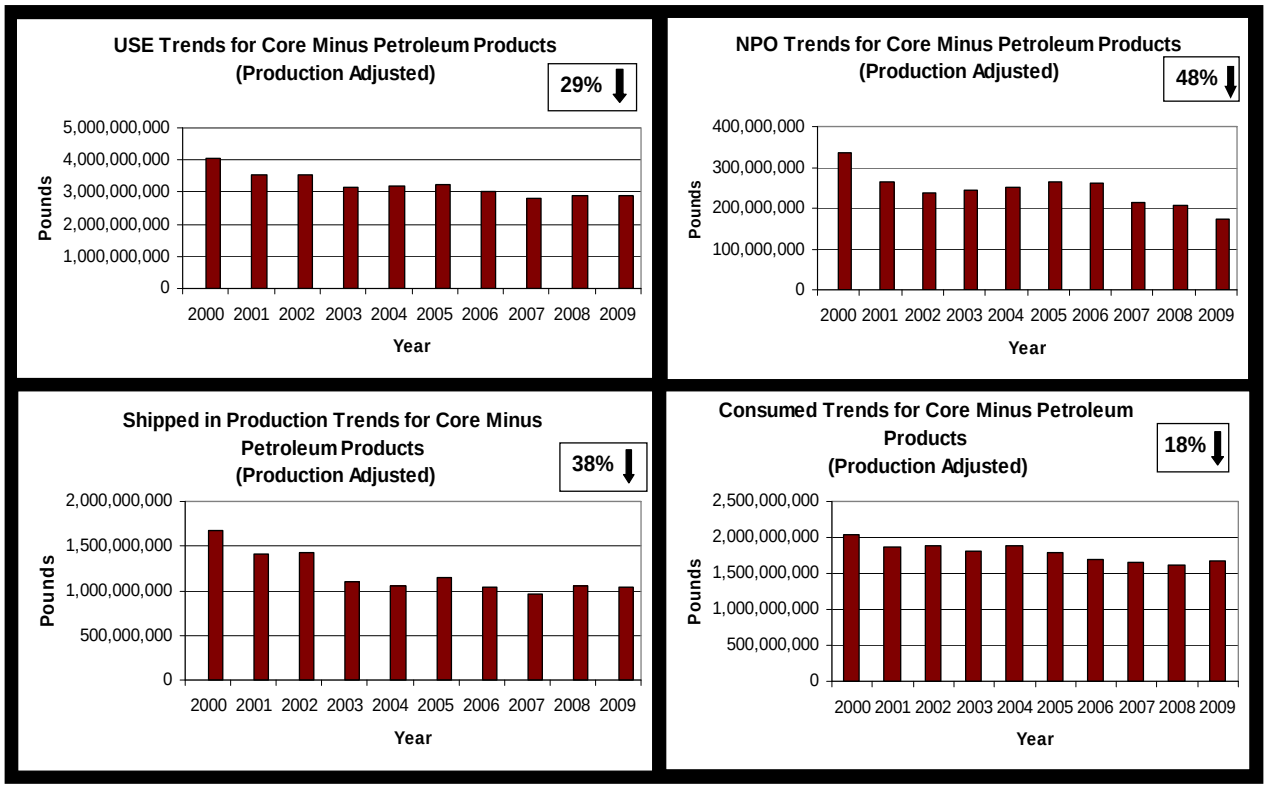
Core Universe 2000-2009 (all quantities reported in pounds)									
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
Year	Use	Use	NPO	NPO	Shipped	Shipped	Consumed	Consumed	Production Ratio
2000	29,678,595,688	29,678,595,688	360,903,861	360,903,861	25,872,205,545	25,872,205,545	3,445,486,282	3,445,486,282	1.00
2001	27,035,290,373	26,811,130,019	288,165,373	285,776,079	23,578,981,818	23,383,479,094	3,168,143,182	3,141,874,846	0.99
2002	28,140,222,135	27,406,242,415	263,848,837	256,966,884	23,884,607,987	23,456,111,149	3,792,072,787	3,693,164,381	0.98
2003	26,625,347,115	27,032,452,434	252,706,560	256,570,479	21,994,785,191	22,929,148,155	3,788,802,475	3,846,733,800	1.04
2004	26,822,185,712	26,678,106,749	282,955,521	281,435,588	22,418,821,178	21,962,584,457	4,458,033,629	4,434,086,704	0.98
2005	25,915,599,431	25,295,439,110	280,879,358	274,157,915	21,126,972,341	20,732,772,737	4,393,648,469	4,288,508,457	0.98
2006	23,800,103,242	21,079,085,417	290,382,846	257,183,961	18,494,681,299	16,781,810,410	4,561,610,815	4,040,091,046	0.91
2007	21,785,835,231	20,157,387,731	231,449,402	214,149,023	15,404,005,452	16,092,398,400	4,161,936,734	3,850,840,308	1.04
2008	20,615,861,467	18,784,979,488	217,727,194	198,390,976	15,140,508,711	14,910,412,911	4,034,474,828	3,676,175,600	0.98
2009	20,608,970,383	17,355,382,300	165,222,790	139,138,668	15,260,112,651	14,103,483,383	3,696,304,851	3,112,760,249	0.92
net change	9,069,625,305	12,323,213,388	195,681,071	221,765,193	10,612,092,894	11,768,722,162	-250,818,569	332,726,033	
% change	31%	42%	54%	61%	41%	45%	-7%	10%	16%
	reduction	reduction	reduction	reduction	reduction	reduction	increase	reduction	decrease

Figure 17/Table 31. Releases for Core Universe 2000-2009



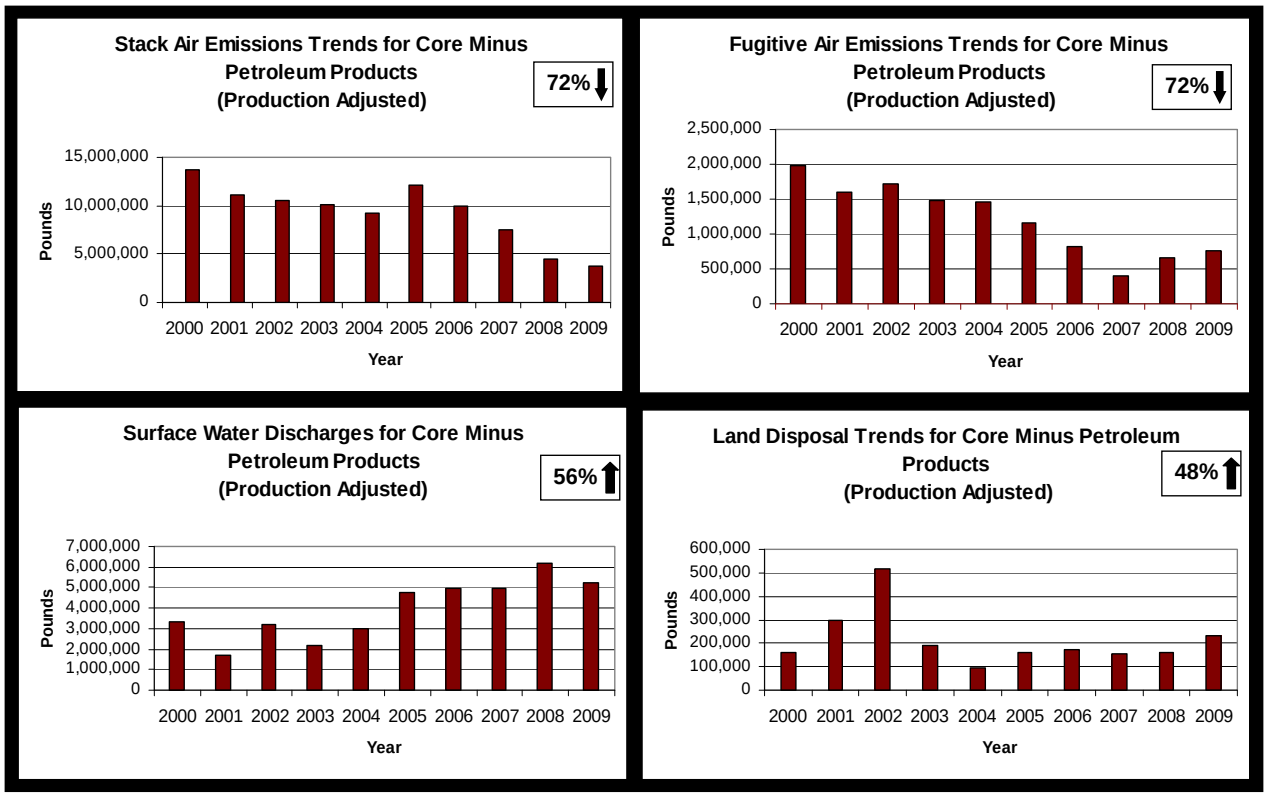
Core Universe 2000-2009 (all quantities reported in pounds)								
		Adjusted		Adjusted		Adjusted		Adjusted
Year	Stack Air Emissions	Stack Air Emissions	Fugitive Air Emissions	Fugitive Air Emissions	Water Discharges	Water Discharges	Disposal On-Site	Disposal On-Site
2000	14,671,180	14,671,180	2,913,563	2,913,563	5,612,232	5,612,232	160,935	160,935
2001	11,876,632	11,975,929	2,093,966	2,111,473	3,729,682	3,760,865	293,672	296,127
2002	11,362,166	11,666,462	2,050,857	2,105,782	4,862,744	4,992,975	521,834	535,809
2003	10,846,229	10,682,886	1,845,932	1,818,132	4,084,071	4,022,565	199,821	196,812
2004	10,758,926	10,817,031	1,869,573	1,879,670	5,122,831	5,150,498	111,357	111,958
2005	12,103,411	12,400,147	1,364,470	1,397,922	6,463,523	6,621,987	169,371	173,523
2006	10,258,052	11,582,224	1,095,881	1,237,344	6,934,874	7,830,070	170,907	192,969
2007	8,293,433	8,963,432	654,904	707,811	7,673,505	8,293,422	151,569	163,814
2008	5,384,677	5,909,496	830,341	911,270	9,082,847	9,968,109	157,783	173,161
2009	3,620,680	4,299,444	718,851	853,613	5,839,609	6,934,352	170,641	202,631
net change	11,050,500	10,371,736	2,194,712	2,059,950	-227,377	-1,322,120	-9,706	-41,696
% change	75% reduction	71% reduction	75% reduction	71% reduction	-4% increase	-24% increase	-6% increase	-26% increase

Figure 18/Table 32. Core Minus Petroleum Products Universe – Use, NPO, Shipped and Consumed (2000 – 2009)



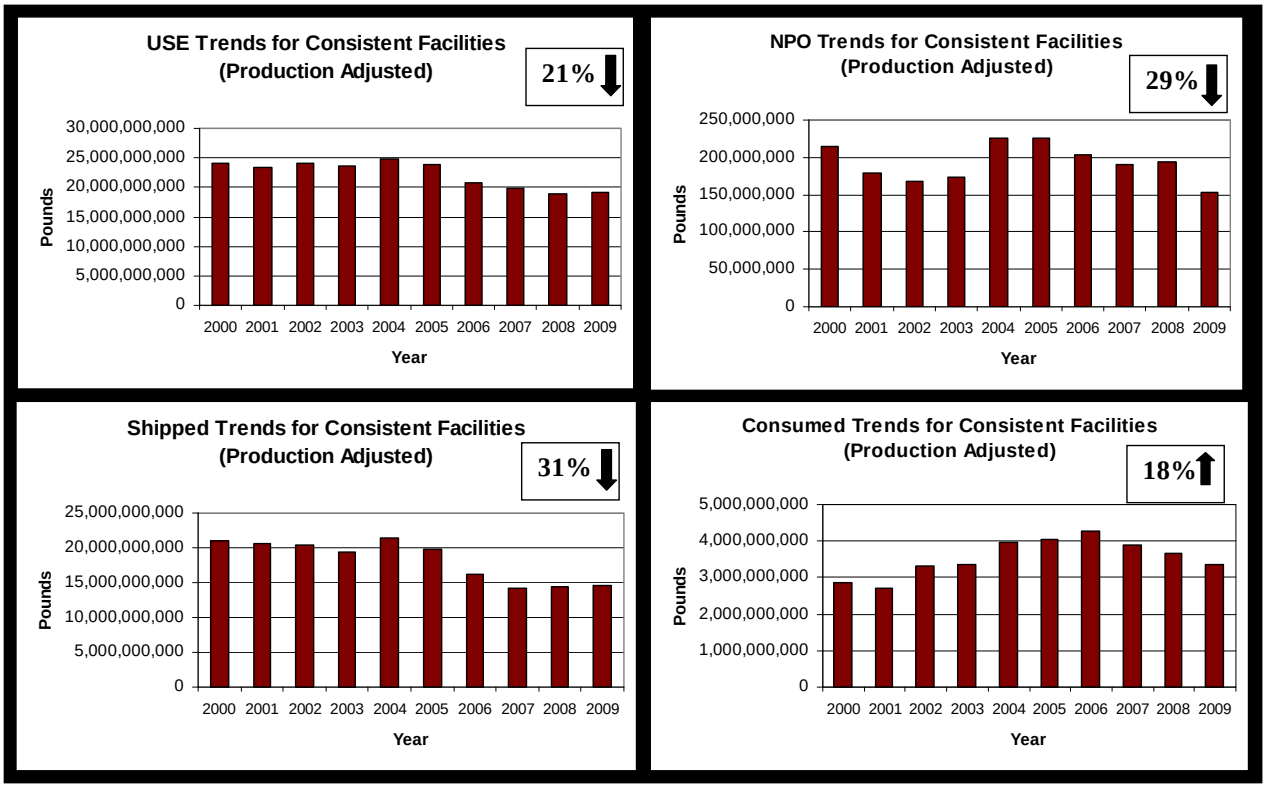
		Core minus Petroleum Products 2000-2009 (all quantities reported in pounds)							
		ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED	
Year	USE	USE	NPO	NPO	Shipped in Product	Shipped in Product	Consumed	Consumed	Production Ratio
2000	4,056,995,128	4,056,995,128	335,497,693	335,497,693	1,681,771,103	1,681,771,103	2,039,726,332	2,039,726,332	1.00
2001	3,508,369,845	3,543,807,924	261,812,021	264,456,587	1,404,222,372	1,418,406,436	1,842,335,452	1,860,944,901	0.99
2002	3,516,942,459	3,542,091,482	236,229,689	237,918,925	1,411,430,176	1,421,523,059	1,869,282,594	1,882,649,497	1.00
2003	3,116,198,753	3,152,909,307	239,781,057	242,605,811	1,085,584,459	1,098,373,248	1,790,833,236	1,811,930,247	1.00
2004	3,362,483,095	3,176,444,781	264,878,027	250,222,946	1,110,285,292	1,048,855,807	1,987,319,776	1,877,366,028	1.07
2005	3,129,502,452	3,211,997,032	258,848,465	265,671,785	1,122,524,162	1,152,114,220	1,748,129,825	1,794,211,028	0.92
2006	2,760,618,077	3,003,280,161	240,424,683	261,558,340	956,183,883	1,040,233,747	1,564,009,512	1,701,488,076	0.94
2007	2,567,128,202	2,821,584,755	195,807,919	215,216,614	871,846,280	958,264,636	1,499,474,003	1,648,103,505	0.99
2008	2,542,256,786	2,885,072,787	181,184,635	205,616,861	932,910,271	1,058,710,533	1,428,161,880	1,620,745,394	0.97
2009	2,086,966,104	2,884,223,070	125,346,824	173,231,468	755,268,338	1,043,793,840	1,206,350,942	1,667,197,762	0.82
Net Change	1,970,029,024	1,172,772,058	210,150,869	162,266,225	926,502,765	637,977,263	833,375,390	372,528,570	
% Change	49%	29%	63%	48%	55%	38%	41%	18%	28%
	Reduction	Reduction	Reduction	Reduction	Reduction	Reduction	Reduction	Reduction	Decrease

Figure 19/Table 33. Core Minus Petroleum Products Universe – Releases (2000 – 2009)



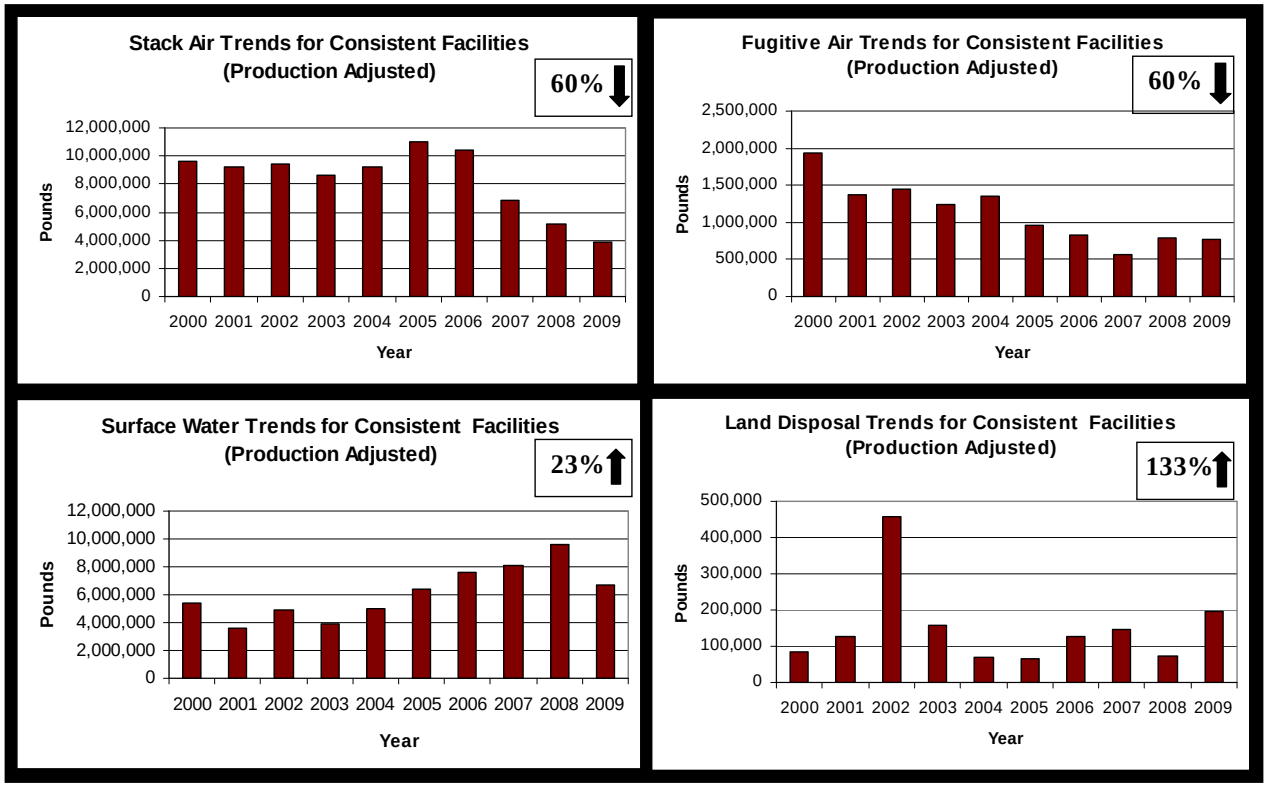
Core Minus Petroleum Products 2000-2009 (all quantities reported in pounds)								
		ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED
Report Year	Stack Air Emissions	Stack Air Emissions	Fugitive Air Emissions	Fugitive Air Emissions	Surface Water Discharges	Surface Water Discharges	Land Disposal On-Site	Land Disposal On-Site
2000	13,704,170	13,704,170	1,980,605	1,980,605	3,343,385	3,343,385	157,984	157,984
2001	11,017,093	11,128,377	1,591,811	1,607,890	1,665,659	1,682,484	293,668	296,634
2002	10,502,215	10,471,541	1,730,443	1,725,389	3,190,174	3,180,856	516,427	514,919
2003	10,064,729	10,110,995	1,480,407	1,487,212	2,188,092	2,198,150	192,008	192,891
2004	9,876,538	9,221,458	1,560,386	1,456,891	3,184,127	2,972,934	103,098	96,260
2005	11,092,076	12,051,233	1,074,135	1,167,018	4,350,520	4,726,719	149,985	162,955
2006	9,393,588	9,956,832	774,083	820,497	4,684,421	4,965,301	160,886	170,533
2007	7,391,501	7,467,731	393,348	397,405	4,894,101	4,944,575	151,569	153,132
2008	4,392,579	4,535,356	644,158	665,096	5,991,234	6,185,974	157,069	162,174
2009	2,745,540	3,794,384	545,128	753,376	3,785,192	5,231,200	168,629	233,048
Net Change	9,311,591	9,909,786	1,435,477	1,227,229	-441,807	-1,887,815	-10,645	-75,064
% Change	68%	72%	72%	62%	-13%	-56%	-7%	-48%
	Reduction	Reduction	Reduction	Reduction	Increase	Increase	Increase	Increase

Figure 20/Table 34. Consistent Universe - Use, NPO, Shipped and Consumed (2000 – 2009)



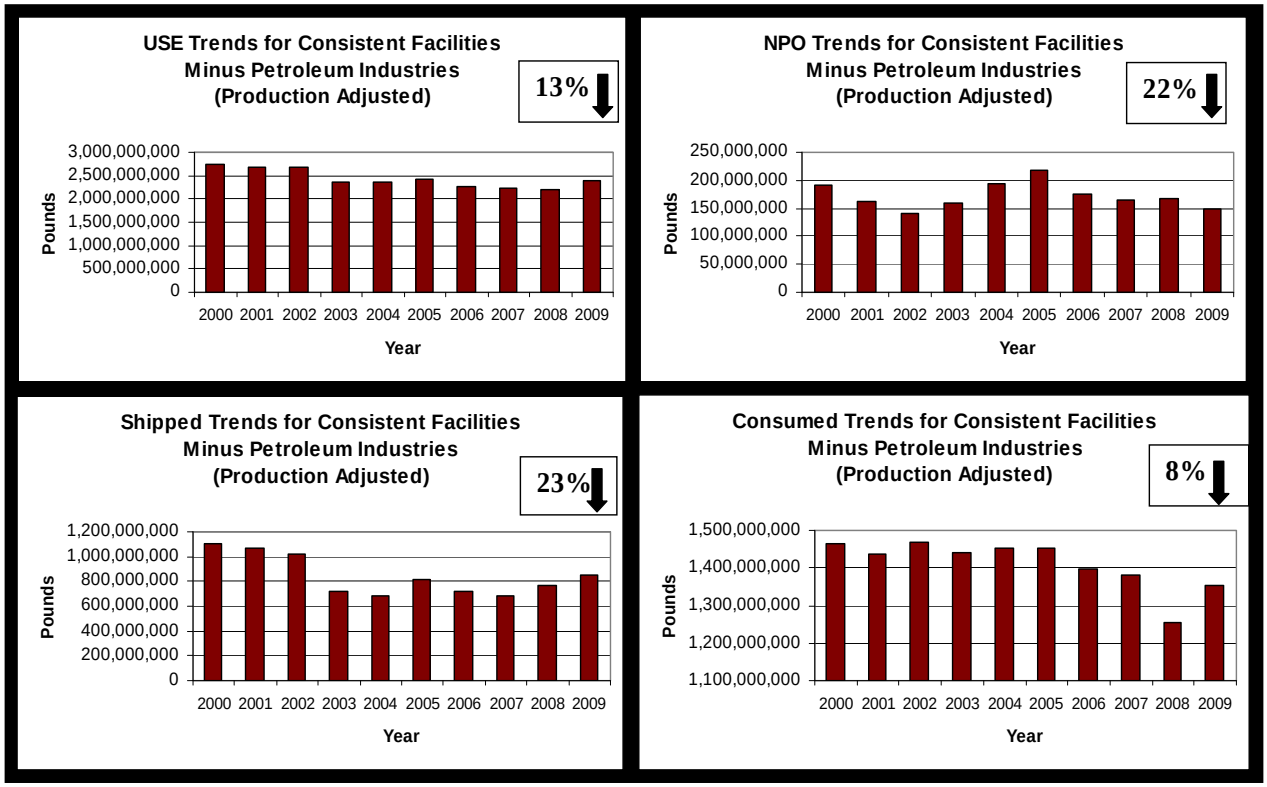
Consistent Facilities 2000-2009									(all quantities reported in pounds)
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
Year	**USE**	**USE**	**NPO**	**NPO**	**Shipped**	**Shipped**	**Consumed**	**Consumed**	**Production Ratio**
2000	24,133,589,413	24,133,589,413	214,234,112	214,234,112	21,050,918,851	21,050,918,851	2,868,436,450	2,868,436,450	1.00
2001	23,442,576,454	23,264,378,172	179,919,720	178,552,063	20,569,020,518	20,412,665,514	2,693,636,216	2,673,160,594	0.99
2002	24,029,126,272	23,388,744,825	167,374,382	162,913,818	20,368,876,454	19,977,903,099	3,336,855,843	3,247,927,909	0.98
2003	23,514,693,778	24,283,151,161	172,792,742	178,439,588	19,450,106,294	20,635,678,777	3,359,252,816	3,469,032,797	1.06
2004	24,913,410,329	25,122,461,304	226,233,134	228,131,479	21,393,091,878	20,889,923,302	3,971,084,744	4,004,406,523	0.98
2005	23,948,124,030	23,828,355,562	225,898,825	224,769,068	19,826,531,132	19,563,218,454	4,060,676,142	4,040,368,040	0.99
2006	20,765,733,312	18,767,100,669	203,735,858	184,126,961	16,213,798,273	14,726,925,966	4,266,703,763	3,856,047,742	0.91
2007	19,858,965,941	18,888,535,854	189,841,781	180,564,955	14,259,879,129	15,007,473,903	3,890,616,212	3,700,496,997	1.05
2008	18,918,673,878	17,737,081,350	193,580,727	181,490,369	14,310,756,907	14,106,276,999	3,679,097,200	3,449,313,982	0.99
2009	19,050,077,691	16,611,184,205	152,604,816	133,067,526	14,552,440,946	13,534,687,149	3,375,590,839	2,943,429,530	0.93
net change	5,083,511,722	7,522,405,208	61,629,297	81,166,587	6,498,477,905	7,516,231,702	-507,154,389	-74,993,080	
% Change	21%	31%	29%	38%	31%	36%	-18%	-3%	13%
	reduction	reduction	reduction	reduction	reduction	reduction	increase	increase	reduction

Figure 21/Table 35. Consistent Facilities Universe – Releases (2000 – 2009)



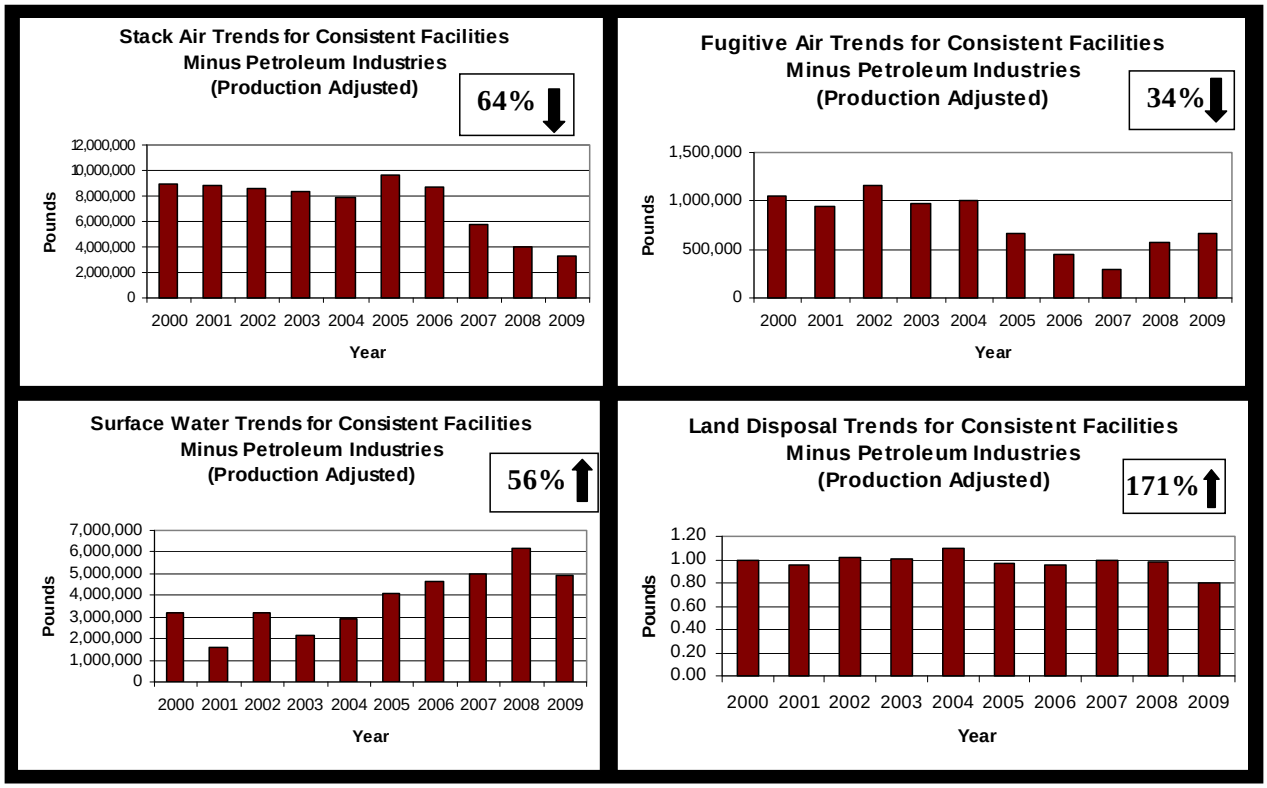
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED	
Year	Stack Air	Stack Air	Fugitive Air	Fugitive Air	Surface Water	Surface Water	Land Disposal	Land Disposal
2000	9,573,578	9,573,578	1,931,031	1,931,031	5,441,810	5,441,810	83,991	83,991
2001	9,252,708	9,182,374	1,365,864	1,355,481	3,617,991	3,590,489	125,102	124,151
2002	9,377,965	9,128,040	1,446,958	1,408,396	4,886,949	4,756,710	458,439	446,221
2003	8,601,885	8,882,994	1,246,359	1,287,089	3,870,915	3,997,416	158,408	163,585
2004	9,179,201	9,256,225	1,352,759	1,364,110	5,029,395	5,071,597	67,400	67,965
2005	10,976,472	10,921,577	965,363	960,535	6,366,159	6,334,321	66,601	66,268
2006	10,443,987	9,438,788	828,614	748,862	7,578,419	6,849,021	128,194	115,856
2007	6,858,372	6,523,230	572,165	544,205	8,062,343	7,668,368	146,692	139,523
2008	5,143,623	4,822,370	782,539	733,664	9,622,954	9,021,939	73,492	68,902
2009	3,860,663	3,366,400	776,777	677,330	6,696,920	5,839,544	195,695	170,641
net change	5,712,915	6,207,178	1,154,253	1,253,701	-1,255,110	-397,734	-111,704	-86,650
% change	60%	65%	60%	65%	-23%	-7%	-133%	-103%
	reduction	reduction	reduction	reduction	increase	increase	increase	increase

Figure 22/Table 36. Consistent Facilities Minus Petroleum Products Universe – Use, NPO, Shipped and Consumed (2000 – 2009)



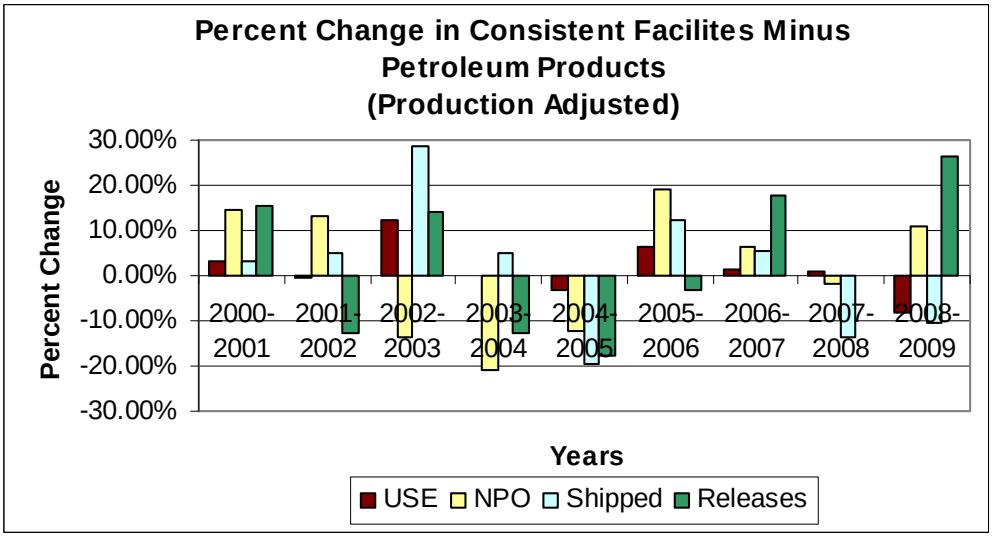
			Consistent	Core minus Petroleum		(all quantities reported in pounds)			
	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED		
Year	USE	USE	NPO	NPO	Shipped	Shipped	Consumed	CONSUMED	Production Ratio
2000	2,756,457,003	2,756,457,003	190,378,505	190,378,505	1,103,050,242	1,103,050,242	1,463,028,256	1,463,028,256	1.00
2001	2,666,096,045	2,553,600,502	162,467,567	155,612,271	1,068,847,200	1,023,747,345	1,434,781,278	1,374,240,887	0.96
2002	2,676,661,830	2,597,739,396	141,135,502	143,008,279	1,016,943,045	1,030,437,228	1,467,565,643	1,424,293,889	1.01
2003	2,350,862,720	2,307,069,115	160,304,160	162,097,402	723,601,954	731,696,524	1,440,102,480	1,413,275,189	1.01
2004	2,350,820,157	2,520,101,965	193,908,330	211,817,500	687,125,455	750,587,640	1,453,062,276	1,557,696,826	1.09
2005	2,421,026,029	2,501,855,643	217,665,295	209,823,086	821,644,329	792,041,511	1,451,529,538	1,499,991,046	0.96
2006	2,262,885,358	2,235,276,122	175,707,307	167,956,053	718,962,529	687,245,800	1,397,120,394	1,380,074,269	0.96
2007	2,235,461,499	2,182,932,179	164,228,926	162,350,666	679,177,237	671,409,596	1,381,637,920	1,349,171,917	0.99
2008	2,214,929,997	2,126,303,624	167,356,027	164,525,638	771,851,274	758,797,430	1,253,121,938	1,202,980,556	0.98
2009	2,395,179,716	1,836,501,185	149,318,011	119,261,435	851,650,218	680,219,527	1,352,490,172	1,037,020,223	0.80
net change	361,277,288	919,955,818	41,060,494	71,117,071	251,400,024	422,830,715	110,538,084	426,008,033	
% change	**13%**	**33%**	**22%**	**37%**	**23%**	**38%**	**8%**	**29%**	**23%**
	reduction	reduction	reduction	reduction	reduction	reduction	reduction	reduction	reduction

Figure 23/Table 37. Consistent Facilities Minus Petroleum Products Universe – Releases (2000 – 2009)



	ADJUSTED		ADJUSTED		ADJUSTED		ADJUSTED	
Year	Stack Air	Stack Air	Fugitive Air	Fugitive Air	Surface Water	Surface Water	Land Disposal	Land Disposal
2000	8,946,401	8,946,401	1,052,646	1,052,646	3,173,248	3,173,248	81,040	81,040
2001	8,817,970	8,445,897	936,293	896,786	1,593,768	1,526,519	129,616	124,147
2002	8,602,643	8,348,990	1,155,686	1,121,610	3,182,718	3,088,874	454,207	440,814
2003	8,325,091	8,170,005	967,498	949,475	2,141,336	2,101,445	158,729	155,772
2004	7,825,890	8,389,430	1,001,219	1,073,316	2,923,906	3,134,455	62,600	67,108
2005	9,665,598	9,988,298	661,833	683,930	4,086,456	4,222,888	55,001	56,837
2006	8,720,566	8,614,167	455,360	449,804	4,666,500	4,609,564	112,163	110,794
2007	5,771,190	5,635,577	298,023	291,020	5,008,268	4,890,582	142,881	139,523
2008	4,033,497	3,872,104	574,702	551,706	6,178,607	5,931,381	71,030	68,188
2009	3,254,941	2,495,722	658,827	505,155	4,936,611	3,785,140	219,927	168,629
net change	5,691,460	6,450,679	393,819	547,491	-1,763,362	-611,892	-138,887	-87,589
% change	64%	72%	37%	52%	-56%	-19%	-171%	-108%
	reduction	reduction	reduction	reduction	increase	increase	increase	increase

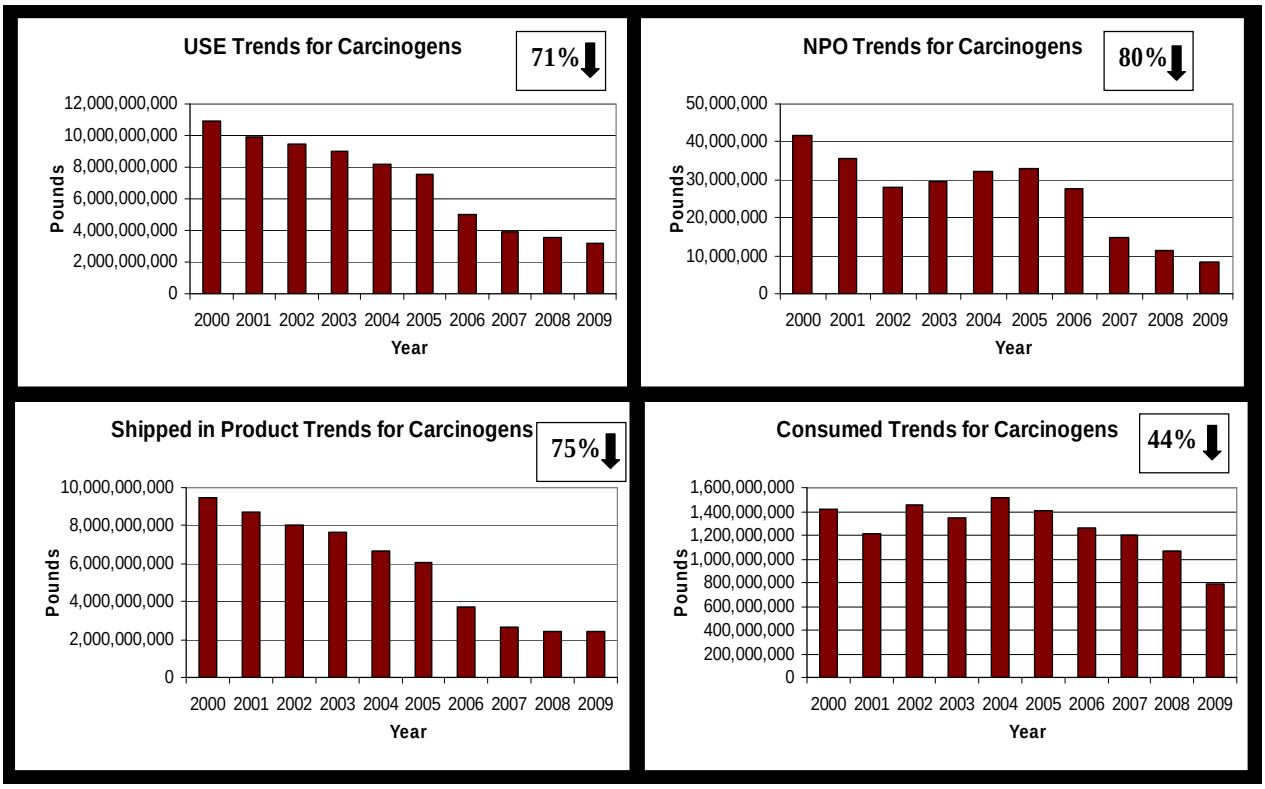
Figure 24/Table 38. Percent Change for USE, NPO, Shipped and Releases



		Consistent Facilities			Minus Petroleum Industries			
Year	Adjusted USE	Rate of Change	Adjusted NPO	Rate of Change	Adjusted Shipped	Rate of Change	Adjusted Releases	Rate of Change
2000	2,756,457,003		190,378,505		1,103,050,242		17,030,413	
2000-2001	2,666,096,045	3.28%	162,467,567	14.66%	1,068,847,200	3.10%	14,361,666	15.67%
2001-2002	2,676,661,830	-0.40%	141,135,502	13.13%	1,016,943,045	4.86%	16,170,311	-12.59%
2002-2003	2,350,862,720	12.17%	160,304,160	-13.58%	723,601,954	28.85%	13,878,128	14.18%
2003-2004	2,350,820,157	0.00%	193,908,330	-20.96%	687,125,455	5.04%	15,628,757	-12.61%
2004-2005	2,421,026,029	-2.99%	217,665,295	-12.25%	821,644,329	-19.58%	18,374,599	-17.57%
2005-2006	2,262,885,358	6.53%	175,707,307	19.28%	718,962,529	12.50%	18,979,217	-3.29%
2006-2007	2,235,461,499	1.21%	164,228,926	6.53%	679,177,237	5.53%	15,639,575	17.60%
2007-2008	2,214,929,997	0.92%	167,356,027	-1.90%	771,851,274	-13.65%	15,622,611	0.11%
2008-2009	2,395,179,716	-8.14%	149,318,011	10.78%	851,650,218	-10.34%	11,530,069	26.20%
Net Change	361,277,288		41,060,494		251,400,024		5,500,344	
% change	13%		22%		23%		32%	
	reduction		reduction		reduction		reduction	

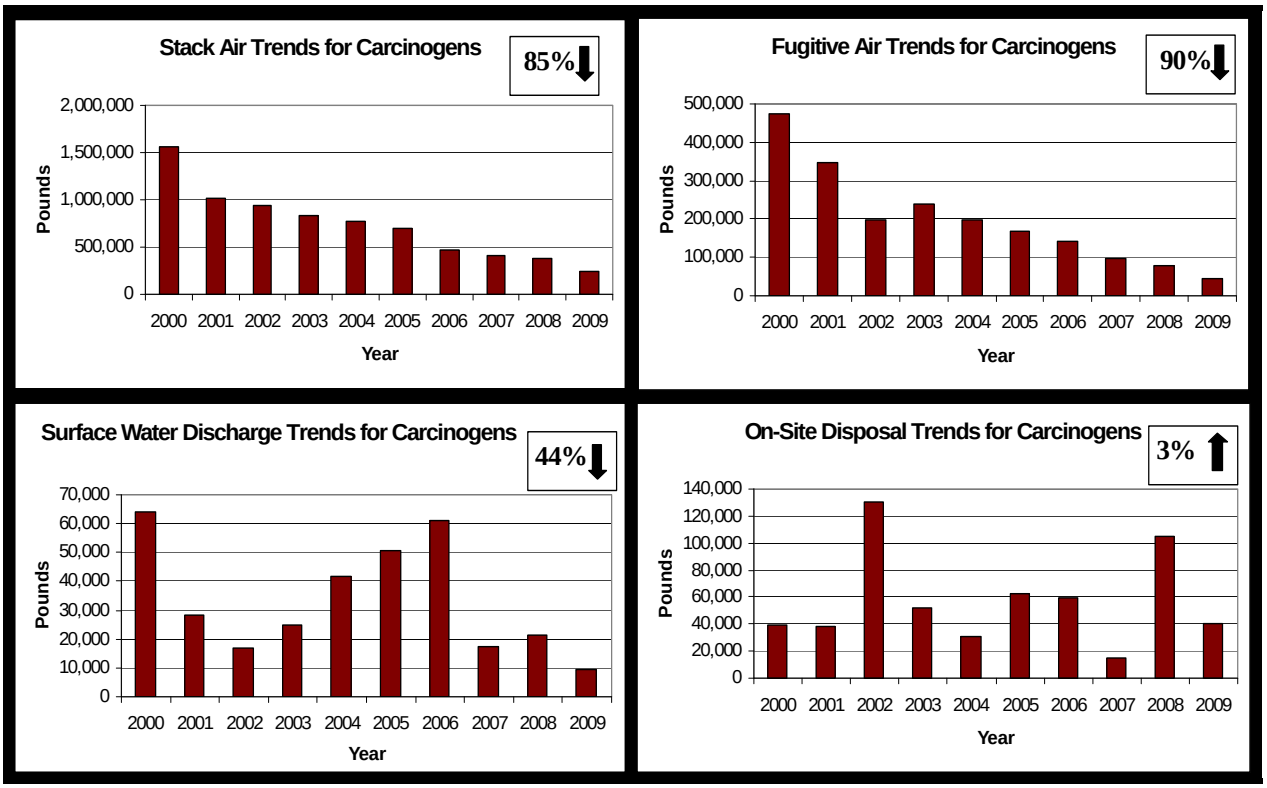
VIII. Analysis of Chemicals of Concern

Figure 25/Table 39. Carcinogens - Use, NPO, Shipped and Consumed (2000 – 2009)



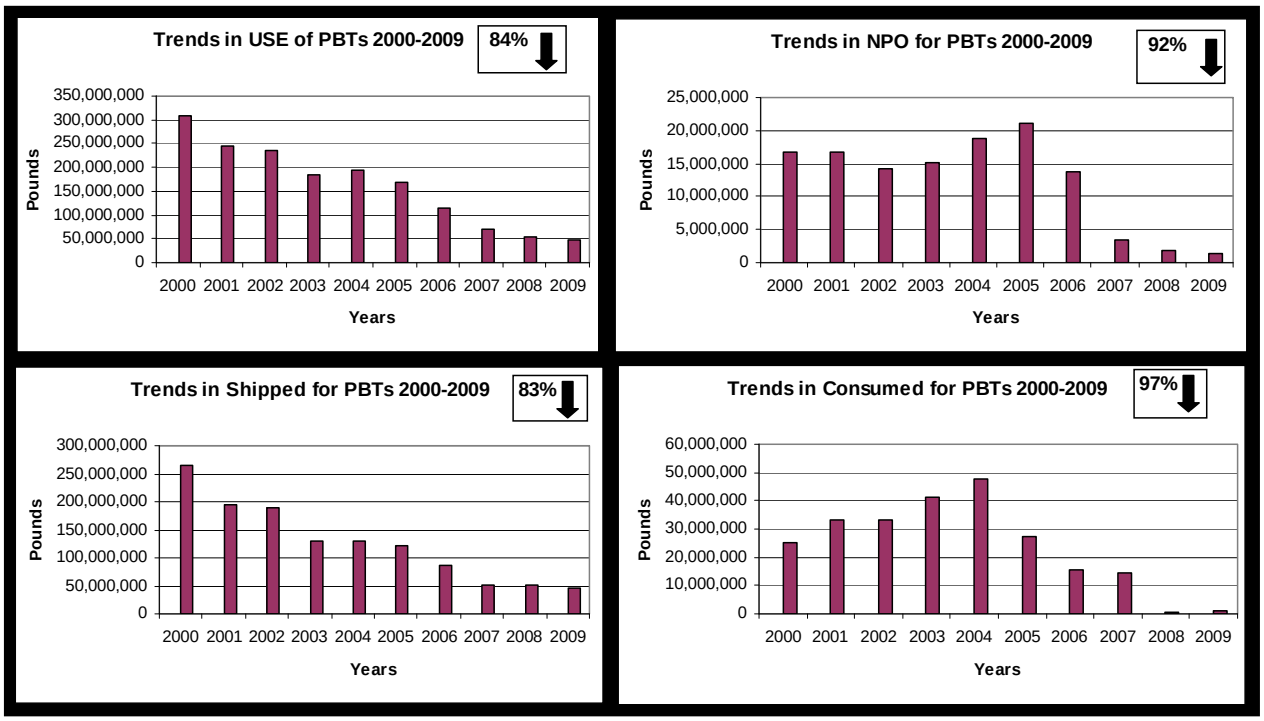
Year	Use	NPO	Shipped	Consumed
2000	10,949,057,196	41,551,726	9,498,372,406	1,414,133,064
2001	9,927,397,955	35,759,251	8,678,440,681	1,213,198,023
2002	9,487,496,096	27,842,150	8,009,833,651	1,449,820,295
2003	9,020,327,974	29,400,140	7,648,853,577	1,342,074,257
2004	8,225,517,797	32,340,132	6,676,019,819	1,517,157,846
2005	7,502,013,746	32,892,771	6,066,496,467	1,402,624,507
2006	4,990,677,282	27,591,387	3,696,878,810	1,266,207,085
2007	3,905,006,516	14,824,640	2,684,852,024	1,205,329,851
2008	3,523,414,767	11,488,474	2,440,941,339	1,070,984,954
2009	3,209,843,179	8,355,114	2,412,739,151	788,748,914
Net Change	7,739,214,017	33,196,612	7,085,633,255	625,384,150
% Change	71%	80%	75%	44%
	reduction	reduction	reduction	reduction

Figure 26/Table 40. Carcinogens – Releases (2000 – 2009)



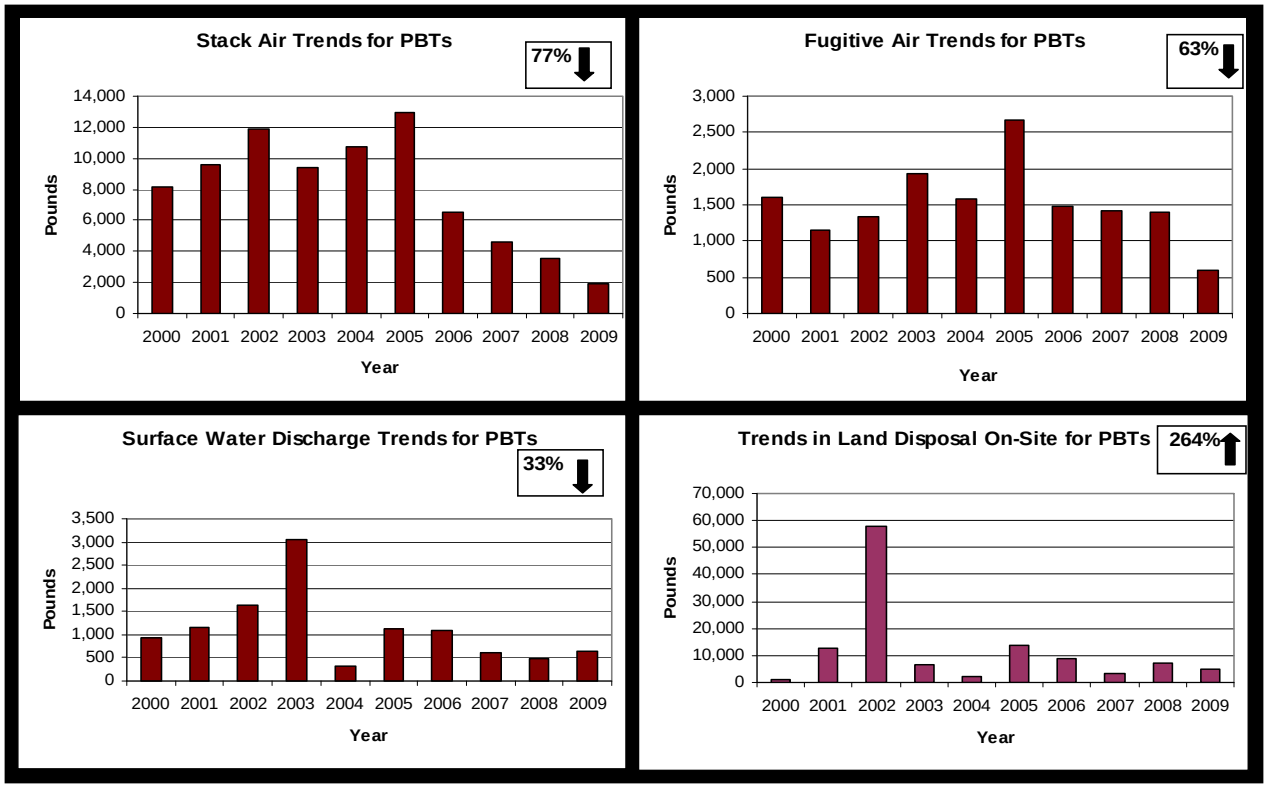
Year	Stack Air	Fugitive Air	Surface Water Discharge	Land Disposal On-Site
2000	1,558,297	472,875	63,999	39,187
2001	1,015,760	346,299	28,286	38,032
2002	936,413	198,233	16,662	130,531
2003	826,474	239,516	24,897	51,777
2004	777,935	199,546	41,838	30,570
2005	696,178	168,073	50,655	62,051
2006	473,703	141,016	61,185	59,598
2007	405,546	98,583	17,291	15,378
2008	382,677	76,527	21,407	105,116
2009	235,804	45,929	9,301	40,457
Net Change	1,322,493	426,946	54,698	-1,270
% Change	85%	90%	85%	-3%
	reduction	reduction	reduction	increase

Figure 27/Table 41. PBTs - Use, NPO, Shipped and Consumed (2000 – 2009)



Year	Use	NPO	Shipped	Consumed
2000	307,643,773	16,757,589	265,743,978	25,142,205
2001	245,640,142	16,634,659	195,576,151	33,429,332
2002	235,912,357	14,152,957	188,554,441	33,204,959
2003	185,630,738	15,039,364	129,140,547	41,450,827
2004	195,476,293	18,883,097	128,676,918	47,916,278
2005	168,985,533	21,169,339	120,433,596	27,382,598
2006	116,051,432	13,829,098	86,579,933	15,642,401
2007	70,408,985	3,328,960	52,589,211	14,490,813
2008	54,377,115	1,817,897	51,809,090	750,127
2009	48,061,015	1,294,592	45,948,704	817,719
net change in pounds	259,582,758	15,462,997	219,795,274	24,324,486
net change in percent	84.38%	92.27%	82.71%	96.75%
	reduction	reduction	reduction	reduction

Figure 28/Table 42. PBTs - Releases (2000 – 2009)



Year	Stack Air	Fugitive Air	Surface Water Discharges	Land Disposal On Site
2000	8,179	1,603	943	1,373
2001	9,567	1,156	1,141	12,436
2002	11,862	1,328	1,624	57,928
2003	9,417	1,922	3,044	6,363
2004	10,748	1,577	309	2,095
2005	12,981	2,664	1,135	13,582
2006	6,535	1,474	1,100	8,982
2007	4,564	1,425	624	3,566
2008	3,559	1,394	475	7,208
2009	1,898	599	635	5,000
net change	6,281	1,004	308	-3,627
% change	76.79 %	62.63 %	32.66 %	-264.17
	reduction	reduction	reduction	increase

VI. Conclusions

New Jersey manufacturing facilities as a group, continue to reduce the quantity of hazardous substances used, generated as NPO, and shipped as (or in) product for all the universes that were analyzed. Additionally, there has been a net decrease of 96 facilities, 72 substances and 801 substance reports received from 2000 to 2009. Some factors that contribute to this reduction include: facilities reducing their annual hazardous substance usage below the regulatory thresholds; delisting of chemicals; implementation of pollution prevention measures; and the discontinuance of operations.

While reductions have occurred, industrial facilities in New Jersey, in 2009, reported using over 17 billion pounds of hazardous substances; generating almost 140 million pounds as NPO and shipping over 11 billion pounds as (or in) products. The majority used and shipped can be attributed to facilities in the petroleum sector. For example, in 2009, Petroleum and Coal Products and Chemical and Petroleum Wholesalers were responsible for 88 percent of hazardous substances used and 95 percent of hazardous substances shipped as (or in) product. Petroleum bulk terminals (wholesalers) are the recipients of a large quantity of the amounts generated at petroleum refineries (manufacturers).

Since the majority of hazardous substances are contained in the products, petroleum sector facilities generate relatively small quantities of NPO compared to other manufacturing sectors. In 2009, Chemical Manufacturing accounted for 50 percent, Primary Metal Manufacturing 21 percent, and Petroleum & Coal Products sector only10 percent. The remaining sectors reported 19 percent of the NPO. Three sectors reported the bulk of on-site releases – Chemical Manufacturing 43 percent, Petroleum & Coal Products 29 percent, and Electrical Utilities 19 percent. The remaining sectors reported only 9% of total on-site releases.

Facilities in New Jersey are implementing pollution prevention measures as indicated by the reductions achieved by the Consistent Facilities universes. Through the implementation of P2 measures, these facilities were able to reduce the amount of hazardous substances used by 13%, the amount generated as NPO by 22%, the amount shipped as/or in product by 23% and the amount consumed by 8%. This universe continued to get substantial reductions in NPO and releases; 11% and 26% respectively from 2008-2009.

Releases of hazardous substances indicated mixed results. Air emissions, both fugitive and stack, are substantially lower for all universes, however, surface water discharges and on-site land disposal have increased. Much of that increase is due to the release of nitrate compounds by one large facility, the E.I DuPont De Nemours & Co. Inc. Chambers Works facility. The Chambers Works facility includes one of the world's largest commercial industrial wastewater treatment facilities. This wastewater treatment plant receives wastewater generated from several of DuPont's manufacturing operations as well as commercial off-site wastes. From 2000 through 2009 approximately 90 percent of the surface water releases from this facility were nitrate compounds.

Quantities of chemicals of concern in New Jersey such as carcinogens and persistent, bioaccumulative, toxic (PBT) substances have been substantially reduced. The amount of

carcinogens used has decreased by 71%, the amount generated as NPO by 80%, and the amount shipped as or in product by 75%. Most releases of carcinogens and PBTs were also reduced substantially; stack air emissions were down 85%, fugitive air emissions 90%, and surface water discharges 44%. On-site land disposal was up slightly by 3%. PBTs demonstrate similar trends in reductions, however on-site land disposal increased from 1,373 pounds to 5,000 pounds, an increase of 264%. This increase can be explained by the fact that one facility, Hess Corporation reported lead in 2009 but not in 2000; and E.I DuPont De Nemours & Co. Inc. Chambers Works reported a greater amount of polycyclic aromatic compounds in 2009 than in 2000 due to the on-site land disposal of creosote treated railroad ties.

This report emphasizes that facilities in New Jersey continue to reduce their use and generation of NPO of hazardous substances through the implementation of P2 measures, which indicates the value of the planning process. However, it must be recognized that many facilities have undergone at least three five-year planning cycles. These facilities may have already been able to get at the "low hanging fruit" to achieve reductions with further reductions being cost prohibitive. Therefore, it may be time to focus planning efforts on other areas such as non-TRI substances; or other assets such as water, solid waste, and energy.

Appendix A

List of Persistent, Bioaccumulative, Toxic Substances

Persistent, Bioaccumulative, and Toxic Substances covered by the NJ Release and Pollution Prevention Report (RPPR)

Chemical Name or Chemical Category	CAS Number (Group #)	Reporting Threshold (in pounds unless noted otherwise)
Aldrin	309-00-2	100
Benzo(g,h,i)perylene	191-24-2	10
Chlordane	57-74-9	10
Dioxin and dioxin-like compounds category [1, 3]	N150	0.1 gram
Heptachlor	76-44-8	10
Hexachlorobenzene	118-74-1	10
Isodrin	465-73-6	10
Lead [2]	7439-92-1	100
Lead compounds category [2]	N420	100
Mercury	7439-97-6	10
Mercury compounds	N458	10
Methoxychlor	72-43-5	100
Octachlorostyrene	29082-74-4	10
Pendimethalin	40487-42-1	100
Pentachlorobenzene	608-93-5	10
Polychorinated biphenyls (PCBs)	1336-36-3	10
Polycyclic aromatic compounds category [3,4]	N590	100
Tetrabromobisphenol A	79-94-7	100
Toxaphene	8001-35-2	10
Trifluralin	1582-09-8	100

1. Qualifier: "manufacturing; and the processing or otherwise use of dioxin and dioxin-like compounds if the dioxin and dioxin-like compounds are present as contaminants in a chemical and if they were created during the manufacturing of that chemical."
2. The lower reporting thresholds apply to lead and all lead compounds, except for lead contained in stainless steel, brass, and bronze alloys. For the federal TRI, lead contained in stainless steel, brass, and bronze alloys remains reportable under the 25,000-pound manufacture and process reporting threshold and the 10,000-pound otherwise use reporting threshold. For the state RPPR, lead contained in stainless steel, brass, and bronze alloys remains reportable under the 10,000-pound manufacture, process and otherwise use reporting threshold.
3. See *Appendix C of the RPPR instructions* for the specific substances reportable under this category.
4. Two chemicals, benzo(j,k)fluorene (CAS # 206-44-0) and 3-methylcholanthrene (CAS # 56-49-5), were added to this category effective RY 2000.

Appendix B

Materials Accounting Data Elements

The specific data elements included in a materials accounting are:

Input components include:

- ✓ the starting inventory of the toxic chemical for the year; (including starting inventory as NPO)
- ✓ the quantity produced on site;
- ✓ the quantity brought on site; (including brought on site as recycled) and
- ✓ the quantity recycled and reused on site.

Output components include:

- ✓ the quantity consumed (chemically reacted) in process on site;
- ✓ the quantity shipped off site as (or in) product;
- ✓ the ending inventory; (including ending inventory as NPO) and
- ✓ all nonproduct output. (including releases)

- starting inventory is the total quantity of the substance already on site as of the beginning of the year;
- starting inventory as NPO (SI (NPO)) is the total quantity of the substance on site at the beginning of the calendar year that is nonproduct output;
- produced is the total quantity of the substance produced on site during the calendar year;
- brought on site is the total quantity of the substance brought into the facility from all off-site suppliers, including other facility locations and divisions of a facility's own company, during the calendar year;
- brought on site as recycled is the total quantity of the substance brought into the facility as recycled substance from all off-site suppliers, including other facility locations and divisions of a facility's own company, during the calendar year;
- recycled and reused on site is
- consumed is the total quantity of the substance consumed in production processes during the calendar year;
- shipped as (or in) product is the total quantity of the substance shipped off the facility site during the calendar year in a form suitable for final use, as intermediates subject to further processing leading to final use, or even shipped in its "raw" form as found in inventory;
- ending inventory is the total quantity of the substance remaining on site at the end of the calendar year;
- ending inventory as NPO (EI (NPO)) is the total quantity of the substance on site at the end of the calendar year that is nonproduct output;
- nonproduct output is the quantity of the reported substance that was generated prior to storage, out-of-process recycling, treatment, control or disposal, and that was not intended for use as a product;
- stack air emissions are emissions that were released into the atmosphere from a readily-identifiable point source such as a stack, exhaust vent, duct, pipe, or other confined air stream, and storage tanks;
- fugitive air emissions are emissions that were not released through stack, vents, ducts, pipes or any other confined air stream;
- surface water discharges are releases to streams, rivers, lakes, oceans, and other bodies of water;
- groundwater discharges are releases such as spray irrigation on land, discharges to infiltration basins, and discharges to subsurface systems;

- on-site land releases (at the facility) are releases including, but not limited to: 1) surface impoundments, 2) on-site landfills, and 3) land treatment (land spreading), including other activities such as incorporating wastes into soil for treatment;
- recycled and reused on site is the quantity of the substance that was recycled out-of-process on site and then processed or otherwise used again at the facility during the calendar year;
- energy recovery on site is the total quantity of the substance that was destroyed through an on-site energy recovery process;
- destroyed through on-site treatment is the total quantity of the substance that was destroyed or neutralized through on-site treatment processes;
- transfers to publicly owned treatment works (POTW) are those discharges through pipes or ducts into a municipal sewer system or one owned by a municipal utilities authority, sewerage authority, or regional utilities authority; the substance may be treated at the POTW, may evaporate into the atmosphere, or may be collected and subsequently discharged by the POTW into a water body or to another treatment facility;
- off-site recycling is the quantity of the substance that is recovered or regenerated by a variety of recycling methods off site;
- off-site energy recovery is the quantity of the substance that is combusted off-site in industrial furnaces (including kilns) or boilers and that generates heat or energy for use at that location;
- off-site treatment is the quantity of the substance that is treated through a variety of methods, including biological treatment, neutralization, incineration, and physical separation;
- off-site disposal is the quantity of the substance that is generally either released to the land or injected underground; most disposal occurs at landfills;
- chemical throughput is the total quantity of the substance that is introduced into processes, chemically reacted or converted, blended into mixtures, or generated as a non-product output that is released to the environment, managed on site, or sent off site for further management or disposal.

Appendix C

Adjusting for Impacts from Production

The calculation measures the actual change in reported quantities and compares them to a normalized or "adjusted" change based on TRI reported production levels. This methodology assumes that the TRI Form R reported production ratio (PR) accurately reflects the production change in the current year relative to the production in the previous year. It also assumes that changes in production are directly proportional to changes in both Use and generated NPO.

To determine a statewide production ratio, it is necessary to start with individual facility-chemical pairs that were matched when an actual quantity is reported both in the first and second years. A weighted average production ratio was calculated using all the matched pairs that had a first year quantity and a second year production ratio using the following formula:

$$PR_{WA} = \frac{\sum (PR_{2i})\,(TU_{1i})}{\sum TU_{1i}} \qquad (1.1)$$

i = all records in universe with non-zero total Use in year 1 and PR>0 for year 2
PR_2 = production ratio for an individual record in year 2
TU_1 = total Use (consumed + shipped in product + NPO)

Equation 1.1 determines an approximation of the average production ratio for all matched pairs. Once the PR_{WA} has been calculated, it can be used to calculate the adjusted quantities for the entire state:

$$Q_A = \frac{Q_{T2}}{PR_{WA}} \qquad (1.2)$$

Q_A = production adjusted quantity
Q_{T2} = total quantity actually reported in year 2
PR_{WA} = weighted production ratio

Table C-1. Example for Calculating Adjusted Use

	USE		Nonproduct Output		Shipped as (or in) Product		Consumed		Weighted Production Index	
Year	Use (Adjusted)	Use	NPO (Adjusted)	NPO	Shipped (Adjusted)	Shipped	Consumed (Adjusted)	Consumed	**Yearly**	**Cum**
1994	13,824,248,003	13,824,248,003	217,888,932	217,888,932	10,797,827,924	10,797,827,924	2,808,531,147	2,808,531,147	1.00	1.00
1995	13,912,432,280	14,635,878,759	234,629,257	246,829,978	10,950,895,804	11,520,342,386	2,726,907,220	2,868,706,395	1.05	1.05
1996	13,583,697,063	15,261,772,663	204,113,465	229,328,826	10,858,465,089	12,199,876,432	2,521,118,509	2,832,567,405	1.07	1.12
1997	13,929,267,302	15,728,283,434	198,860,752	224,544,350	11,152,069,754	12,592,400,602	2,578,336,796	2,911,338,482	1.01	1.13
1998	14,751,666,831	17,989,450,799	170,570,751	208,008,639	12,226,122,998	14,909,585,517	2,354,973,082	2,871,856,643	1.08	1.22
1999	12,994,103,799	15,592,589,296	163,793,596	196,548,089	10,784,721,167	12,941,387,142	2,045,589,037	2,454,654,066	0.98	1.20
2000	13,957,313,926	15,944,492,599	175,981,389	201,036,816	11,575,371,315	13,223,419,868	2,205,961,222	2,520,035,916	0.95	1.14
2001	13,597,144,743	14,911,722,405	146,205,649	160,340,872	11,277,406,658	12,367,711,068	2,173,532,438	2,383,670,466	0.96	1.10
Total Change	-227,103,260	1,087,474,402	-71,683,283	-57,548,060	479,578,734	1,569,883,144	-634,998,709	-424,860,681	**10% increase**	
Percent Change	2%	8%	33%	26%	4%	15%	23%	15%		
	reduction	increase	reduction	reduction	increase	increase	reduction	reduction		

$$\text{Adjusted Use} = \frac{\text{Current year Use}}{\text{Cumulative Weighted Production Index}}$$

For example, in 1997 Current Year Use = 15,728.3 million pounds
Cumulative Weighted Production Index = 1.13

$$\text{Therefore Adjusted Use} = \frac{15{,}728.3}{1.13} = 13{,}918.8 \text{ million pounds}$$

The difference in the adjusted Use of 13,918.8 million pounds versus 13,929.3 reported in the table is due to rounding of the Use numbers.

Appendix D

List of Carcinogens reported on the RPPR (2000 – 2009)

10034-93-2	HYDRAZINE SULFATE	302-01-2	HYDRAZINE
100-41-4	ETHYLBENZENE	309-00-2	ALDRIN
100-42-5	STYRENE	50-00-0	FORMALDEHYDE
100-44-7	BENZYL CHLORIDE	51-79-6	URETHANE
101-14-4	4,4-METHYLENEBIS(2-CHLOROANILINE)	542-75-6	1,3-DICHLOROPROPYLENE
101-77-9	4,4-METHYLENEDIANILINE	542-88-1	BIS(CHLOROMETHYL) ETHER
101-80-4	4,4-DIAMINODIPHENYL ETHER	56-23-5	CARBON TETRACHLORIDE
101-90-6	DIGLYCIDYL RESORCINOL ETHER	57-74-9	CHLORDANE
106-46-7	1,4-DICHLOROBENZENE	584-84-9	TOLUENE-2,4-DIISOCYANATE
106-47-8	P-CHLOROANILINE	58-89-9	LINDANE
106-88-7	1,2-BUTYLENE OXIDE	60-09-3	4-AMINOAZOBENZENE
106-89-8	EPICHLOROHYDRIN	612-82-8	3,3-DIMETHYLBENZIDINE DIHYDROCHLORIDE
106-93-4	1,2-DIBROMOETHANE	612-83-9	3,3-DICHLOROBENZIDINE DIHYDROCHLORIDE
106-99-0	1,3-BUTADIENE	62-53-3	ANILINE (AND SALTS)
107-05-1	ALLYL CHLORIDE	62-56-6	THIOUREA
107-06-2	1,2-DICHLOROETHANE	64-67-5	DIETHYL SULFATE
107-13-1	ACRYLONITRILE	67-66-3	CHLOROFORM
107-30-2	CHLOROMETHYL METHYL ETHER	67-72-1	HEXACHLOROETHANE
108-05-4	VINYL ACETATE	71-43-2	BENZENE
111-44-4	BIS(2-CHLOROETHYL) ETHER	7439-92-1	LEAD
117-81-7	DI(2-ETHYLHEXYL) PHTHALATE [DEHP]	7440-02-0	NICKEL
118-74-1	HEXACHLOROBENZENE	7440-38-2	ARSENIC
119-90-4	3,3-DIMETHOXYBENZIDINE	7440-41-7	BERYLLIUM
119-93-7	3,3-DIMETHYLBENZIDINE	7440-43-9	CADMIUM
120-12-7	ANTHRACENE	7440-47-3	CHROMIUM
120-71-8	P-CRESIDINE	7440-48-4	COBALT
120-80-9	CATECHOL	74-87-3	CHLOROMETHANE
121-14-2	2,4-DINITROTOLUENE	75-01-4	VINYL CHLORIDE
123-91-1	1,4-DIOXANE	75-07-0	ACETALDEHYDE
127-18-4	TETRACHLOROETHYLENE [PERCHLOROETHYLENE]	75-09-2	DICHLOROMETHANE
132-27-4	SODIUM O-PHENYLPHENOXIDE	75-21-8	ETHYLENE OXIDE
133-06-2	CAPTAN	75-55-8	PROPYLENEIMINE
1332-21-4	ASBESTOS (FRIABLE)	75-56-9	PROPYLENE OXIDE
1336-36-3	POLYCHLORINATED BIPHENYLS (PCBS)	76-44-8	HEPTACHLOR
140-88-5	ETHYL ACRYLATE	77-78-1	DIMETHYL SULFATE
1582-09-8	TRIFLURALIN	78-87-5	1,2-DICHLOROPROPANE
1634-04-4	METHYL TERT-BUTYL ETHER	79-00-5	1,1,2-TRICHLOROETHANE
1836-75-5	NITROFEN	79-01-6	TRICHLOROETHYLENE
1897-45-6	CHLOROTHALONIL	79-06-1	ACRYLAMIDE
191-24-2	BENZO(G,H,I)PERYLENE	79-34-5	1,1,2,2-TETRACHLOROETHANE
25321-22-6	DICHLOROBENZENE (MIXED ISOMERS)	79-44-7	DIMETHYLCARBAMYL CHLORIDE
25376-45-8	DIAMINOTOLUENE (MIXED ISOMERS)	79-46-9	2-NITROPROPANE
26471-62-5	TOLUENE DIISOCYANATE (MIXED ISOMERS)	8001-35-2	TOXAPHENE [CAMPHECHLOR]

List of Carcinogens reported on the RPPR (2000 – 2009)
(continued)

8001-58-9	CREOSOTE
87-62-7	2,6-XYLIDINE
87-68-3	HEXACHLORO-1,3-BUTADIENE
87-86-5	PENTACHLOROPHENOL (PCP)
88-06-2	2,4,6-TRICHLOROPHENOL
90-04-0	O-ANISIDINE
91-08-7	TOLUENE-2,6-DIISOCYANATE
91-20-3	NAPHTHALENE
91-22-5	QUINOLINE
91-94-1	3,3-DICHLOROBENZIDINE
92-87-5	BENZIDINE
95-53-4	O-TOLUIDINE
95-80-7	2,4-DIAMINOTOLUENE
96-09-3	STYRENE OXIDE
96-45-7	ETHYLENE THIOUREA
97-56-3	C.I. SOLVENT YELLOW 3
98-07-7	BENZOIC TRICHLORIDE
98-95-3	NITROBENZENE
N020	ARSENIC COMPOUNDS
N078	CADMIUM COMPOUNDS
N090	CHROMIUM COMPOUNDS
N096	COBALT COMPOUNDS
N420	LEAD COMPOUNDS
N495	NICKEL COMPOUNDS
N583	POLYCHLORINATED ALKANES
N590	POLYCYCLIC AROMATIC COMPOUNDS
Count:	112