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2000 Toxics Release Inventory (TRI) Public Data Release Report

Executive Summary

TRI

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Background

The Toxics Release Inventory (TRI) is a publicly available database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industries as well as by federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), which requires facilities to use their best readily available data to calculate their releases and other waste management estimates. If facilities do not have actual monitoring data required under other laws, submitted values are derived from various estimation techniques. There are now more than 650 toxic chemicals and toxic chemical categories on the list of chemicals that must be reported to EPA and the States under the EPCRA/TRI Program.

A facility must report to TRI if it meets the following three criteria:

- Conducts manufacturing operations within Standard Industrial Classification (SIC) codes 20 through 39 or, beginning in the 1998 reporting year, if it is in one of the following industry categories: metal mining, coal mining, electric utilities that combust coal and/or oil, chemical wholesale distributors, petroleum terminals and bulk storage facilities, Resource Conservation and Recovery Act (RCRA) subtitle C hazardous waste treatment and disposal facilities, and solvent recovery services. Also, federal facilities must report to TRI regardless of their SIC code classification;

- Has 10 or more full-time employee equivalents; and

- For all but certain persistent bioaccumulative toxic (PBT) chemicals, manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year.

For the 2000 reporting year, the reporting criteria were changed for certain PBT chemicals. TRI was expanded to include new PBT chemicals and reporting thresholds were lowered for both the newly-added PBT chemicals and certain PBT chemicals already on the TRI list. In a rule (64 FR 58666) finalized on October 29, 1999, EPA added six PBT chemicals and one PBT chemical category. Two of the chemicals were added to the Polycyclic Aromatic Compounds category. PBT chemicals persist and bioaccumulate in the environment and they have the potential to pose greater exposure to humans and the environment over a longer period of time, making even small quantities of these chemicals of concern. Therefore, EPA established thresholds lower than the 25,000 pounds and 10,000 pounds. For those chemicals that are persistent and bioaccumulate, a threshold of 100 pounds manufactured, processed or otherwise used was established. For the subset of PBT chemicals that are highly persistent and highly bioaccumulative, a threshold of 10 pounds was established. In addition, because dioxins are highly persistent and highly bioaccumulative, but are generally produced in extremely small amounts, the threshold for dioxin and dioxin-like compounds was set at 0.1 gram.

2000 DATA RELEASE

The time period covered for the 2000 data release is the reporting year 2000. A reporting year is the same as a calendar year. The 2000 data were submitted to EPA by July 1, 2001 and are the focus of this report. The Public Data Release report is an analysis of the 2000 TRI data and trends in the data from 1988 to 2000.

For the 2000 reporting year, certain PBT chemicals (see above) were added to the list of TRI chemicals. Also, as part of the October, 1999 PBT chemical rule, EPA added vanadium compounds to the TRI list and changed the reporting qualifier for vanadium (already on the list of TRI chemicals) from "fume or dust" to "except when contained in an alloy." Vanadium and vanadium compounds have not been classified as PBT chemicals.

The 1998, 1999 and 2000 data include reporting by the "original" industries (the manufacturing sector which has been reporting since 1987) as well as the "new" industries, which have been reporting since 1998. Those federal facilities reporting activities within the new industry sectors are included in the "new" industries. Otherwise federal facilities are included in the original industries. The analysis of trends in the TRI data from 1988 to 2000 only includes the "original" industries and those listed chemicals that have been reportable since 1988.

Year-to-year comparisons must be based on a consistent set of chemicals and reporting industries to assure that any changes in releases or other waste management data do not simply reflect changes in reporting requirements from year to year. Thus, comparisons of 2000 data with prior years do not include persistent bioaccumulative toxic chemicals subject to the October 1999 PBT chemical rule, or vanadium and vanadium compounds since reporting thresholds or reporting definitions for these chemicals have changed.

Total On-site and Off-site Releases, 2000

In 2000, 23,484 facilities submitted 91,513 forms. On- and off-site releases for all TRI industries totaled 7.10 billion pounds for 2000. The manufacturing industries accounted for 32 percent of this total. Among the new industries, metal mining accounted for 47 percent and electric utilities accounted for 16 percent of this total. (See Table ES-1 and Figure ES-1.)

On-site air emissions were 1.90 billion pounds, 27 percent of total releases. More than half (58 percent) of all air emissions were reported by the manufacturing industries. Electric utilities accounted for another 41 percent. The other largest type of release was on-site land releases, primarily from metal mining. Metal mines reported about 80 percent of the total of 4.13 billion pounds of on-site land releases. RCRA subtitle C landfills accounted for 206.5 mil-

Table ES-1: TRI On-site and Off-site Releases by Industry, Original* (Manufacturing) and New Industries, 2000

				On-site Releases							Off-site Releases	
						Underground Injection		On-site Land Releases				
SIC Code	Industry	Total Facilities	Total Forms	Total Air Emissions	Surface Water Discharges	Class I Wells	Class II-V Wells	RCRA Subtitle C Landfills	Other On-site Land Releases	Total On-site Releases	Transfers Off-site to Disposal	Total On- and Off-site Releases
		Number	Number	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
20-39	Manufacturing Industries	21,352	74,131	1,106,587,862	255,370,170	207,059,365	236,937	10,469,795	294,709,557	1,874,433,686	409,966,012	2,284,399,698
10	Metal Mining	97	678	3,142,461	492,008	0	37,614,017	0	3,315,896,409	3,357,144,895	620,418	3,357,765,313
12	Coal Mining	81	271	1,183,965	741,153	14,399	208,453	0	13,820,012	15,967,981	20	15,968,001
491/493	Electric Utilities	706	6,210	787,819,955	4,206,628	0	0	1,373,383	287,498,849	1,080,898,816	71,343,970	1,152,242,786
5169	Chemical Wholesale Distributors	467	3,446	1,361,672	4,753	0	0	0	63,151	1,429,576	182,215	1,611,790
5171	Petroleum Terminals/Bulk Storage	566	4,096	3,362,183	21,909	0	0	486	36,648	3,421,226	456,862	3,878,087
4953/7389	Hazardous Waste/Solvent Recovery	215	2,681	948,196	45,763	33,903,476	0	194,611,003	12,922,792	242,431,230	42,519,359	284,950,589
	Total	**23,484**	**91,513**	**1,904,406,293**	**260,882,385**	**240,977,239**	**38,059,407**	**206,454,666**	**3,924,947,419**	**6,575,727,410**	**525,088,854**	**7,100,816,264**

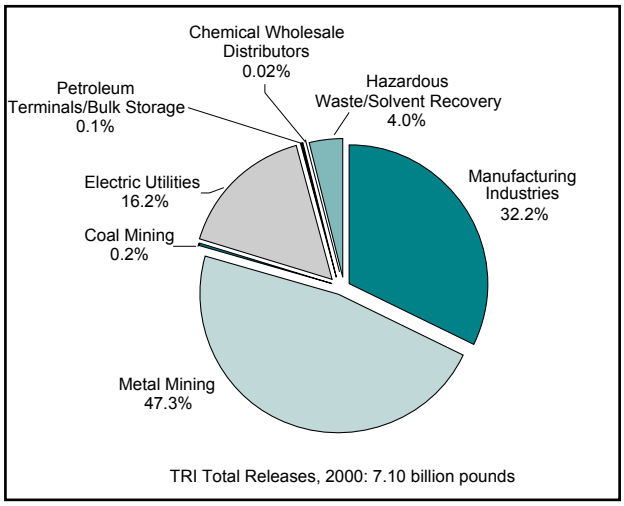
Note: On-site Releases are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs. **Off-site Releases** do not include transfers to disposal sent to other TRI facilities that reported the amount as an on-site release.

Facilities/forms are included in the original industry category if they did not report a new industry SIC code. Facilities/forms are included in the new industry category if the facility/form has a new industry SIC code and no SIC code in 20-39. If the facility reported in any year prior to 1998 and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the original industry category. If the facility reported for the first time in 1998 or later and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the new industry category.

One facility, Phelps Dodge Miami of Claypool, AZ, that reported under SIC code 33 and SIC code 10 in 2000 and previous years has been included in the new industry category SIC code 10 for the purpose of this analysis.

*Original industries include facilities in manufacturing SIC codes 20-39 as well as federal facilities that report activities in the manufacturing SIC codes or activities not falling within the new industry SIC Codes.

Figure ES-1: TRI Total Releases by Industry, Original (Manufacturing) and New Industries, 2000



Note: On-site Releases are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs. **Off-site Releases** do not include transfers to disposal sent to other TRI facilities that reported the amount as an on-site release.

lion pounds of on-site land releases and other on-site land releases accounted for 3.92 billion pounds.

Releases also include transfers of TRI chemicals in waste sent off-site for disposal to such sites as landfills and underground injection wells. The manufacturing industries reported more than three-quarters (78 percent) of these off-site releases, nearly 410.0 million pounds of the 525.1 million pounds of total off-site releases reported by all TRI industries.

On- and Off-site Releases of PBT Chemicals

PBT chemicals accounted for 12.1 million pounds of total on- and off-site releases in 2000. On-site land releases were 44 percent of the total. Air emissions of PBT chemicals in 2000 were 2.2 million pounds, 18 percent of the total. Surface water discharges and underground injection of PBT chemicals in 2000 totaled less than 45,000 pounds. Of the on-site land releases, RCRA subtitle C landfills

Table ES-2: TRI On-site and Off-site Releases, PBT Chemicals, 2000

CAS Number	Chemical	Total Forms	On-site Releases							Off-site Releases	Total On- and Off-site Releases
			Total Air Emissions	Surface Water Discharges	Underground Injection		On-site Land Releases		Total On-site Releases	Transfers Off-site to Disposal	
					Class I Wells	Class II-V Wells	RCRA Subtitle C Landfills	Other On-site Land Releases			
		Number	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
--	**Dioxin and Dioxin-like compounds***	**1,274**	**11.51**	**4.58**	**0.63**	**0.27**	**10.81**	**73.46**	**101.24**	**118.85**	**220.09**
--	*Dioxin and dioxin-like compounds (in grams)**	*1,274*	*5,217.775*	*2,075.634*	*284.112*	*121.080*	*4,903.737*	*33,313.286*	*45,915.624*	*53,898.465*	*99,814.089*
	Mercury and Mercury Compounds	**1,596**	**164,492.53**	**2,302.28**	**1,931.72**	**9,781.80**	**91,297.96**	**3,196,983.53**	**3,466,789.83**	**849,872.31**	**4,316,662.14**
7439-97-6	Mercury	566	29,833.13	392.31	1,121.00	255.70	20,280.78	18,164.40	70,047.32	24,490.28	94,537.60
--	Mercury compounds	1,030	134,659.41	1,909.98	810.72	9,526.10	71,017.18	3,178,819.12	3,396,742.51	825,382.03	4,222,124.54
	Polycyclic Aromatic Compounds	**3,550**	**1,916,436.42**	**18,137.05**	**0.00**	**10,000.00**	**201,581.64**	**115,205.99**	**2,261,361.11**	**3,141,614.53**	**5,402,975.63**
191-24-2	Benzo(g,h,i)perylene	1,366	42,318.09	531.22	0.00	0.00	976.14	5,236.07	49,061.52	116,927.71	165,989.23
--	Polycyclic aromatic compounds	2,184	1,874,118.34	17,605.83	0.00	10,000.00	200,605.50	109,969.93	2,212,299.59	3,024,686.82	5,236,986.40
1336-36-3	**Polychlorinated Biphenyls (PCBs)**	**171**	**5,854.15**	**28.82**	**0.60**	**0.00**	**1,371,343.20**	**57,544.00**	**1,434,770.77**	**26,146.07**	**1,460,916.85**
	Pesticides	**138**	**6,339.64**	**330.62**	**3.16**	**0.00**	**33,707.32**	**28,498.00**	**68,878.74**	**13,564.60**	**82,443.34**
309-00-2	Aldrin	11	0.79	0.00	0.00	0.00	2,342.00	0.00	2,342.79	2.58	2,345.37
57-74-9	Chlordane	21	13.70	0.00	0.00	0.00	8,947.74	0.00	8,961.44	828.59	9,790.03
76-44-8	Heptachlor	15	6.60	0.00	0.00	0.00	2,372.56	0.00	2,379.16	221.87	2,601.03
465-73-6	Isodrin	6	0.05	0.00	2.95	0.00	0.00	0.00	3.00	0.00	3.00
72-43-5	Methoxychlor	20	59.83	0.00	0.00	0.00	2,569.00	0.00	2,628.83	31.75	2,660.58
40487-42-1	Pendimethalin	18	733.54	329.00	0.00	0.00	332.00	20,343.00	21,737.54	9,555.00	31,292.54
8001-35-2	Toxaphene	16	20.98	1.62	0.21	0.00	5,928.02	0.00	5,950.83	176.14	6,126.97
1582-09-8	Trifluralin	31	5,504.15	0.00	0.00	0.00	11,216.00	8,155.00	24,875.15	2,748.67	27,623.82
	Other PBTs	**172**	**63,976.18**	**515.29**	**60.27**	**0.02**	**17,578.20**	**205,422.10**	**287,552.06**	**551,362.24**	**838,914.30**
118-74-1	Hexachlorobenzene	100	1,426.24	331.44	48.37	0.02	16,955.00	5,745.20	24,506.26	13,021.04	37,527.30
29082-74-4	Octachlorostyrene	4	0.00	0.00	0.00	0.00	0.00	148.30	148.30	436.90	585.20
608-93-5	Pentachlorobenzene	20	162.54	173.85	11.90	0.00	623.20	1,999.60	2,971.09	355.00	3,326.09
79-94-7	Tetrabromobisphenol A	48	62,387.41	10.00	0.00	0.00	0.00	197,529.00	259,926.41	537,549.30	797,475.71
	Total	**6,901**	**2,157,110.44**	**21,318.64**	**1,996.38**	**19,782.09**	**1,715,519.14**	**3,603,727.08**	**7,519,453.76**	**4,582,678.60**	**12,102,132.35**

Note: On-site Releases are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs. **Off-site Releases** do not include transfers to disposal sent to other TRI Facilities that reported the amount as an on-site release.

* The chemical category dioxin and dioxin-like compounds is reported in grams. Where the category dioxin and dioxin-like compounds is shown on a table with other TRI chemicals, it is presented in pounds. The grams are converted to pounds by multiplying by 0.002205.

accounted for 1.7 million pounds, with other on-site land releases (e.g, surface impoundment, other landfills, land treatment) totaling 3.6 million pounds. Off-site releases (transfers to disposal) constituted 4.6 million pounds, 38 percent of the total releases for PBT chemicals. (See Table ES-2.)

Of the 12.1 million pounds of total on- and off-site releases of PBT chemicals, polycyclic aromatic compounds constituted almost 45 percent, mercury and mercury compounds almost 36 percent, and polychlorinated biphenyls (PCBs) 12 percent.

Forms for the dioxin and dioxin-like compounds category represented 18.5 percent (1,274 out of 6,901) of all the PBT chemicals forms for 2000. Dioxin and dioxin-like compounds are reported in grams and subject to a lower reporting threshold (0.1 grams) than the other PBT chemicals. Over 99,814 grams of total releases of dioxin and dioxin-like compounds were reported for 2000. Over half (54.0 percent) were released off-site as transfers to disposal. Of the on-site releases, most (72.6 percent) were other on-site land releases, that is on-site land releases to other than RCRA subtitle C landfills, such as other types of landfills, surface impoundments, and land treatment.

More detailed information on releases of PBT chemicals, including dioxin and dioxin-like compounds, can be found in Chapter 3 of this report.

On- and Off-site Releases by State

Nevada, followed by Utah, Arizona, Alaska and Texas were the five states with the largest total on- and off-site releases of chemicals in 2000. The first four states were ranked highest due to reporting by mining facilities in the states. Texas ranked high because of reporting by manufacturing facilities. (See Table ES-3.)

Nevada was the state with the largest total releases reported by new industries. New industry facilities in Nevada reported 1.00 billion pounds of total releases, over 20 percent of all releases reported by new industries. Utah had the second largest total releases reported by new industries, with 849.8 million pounds, over 17 percent of the total releases reported by new industries. Two other states had over 500 million pounds reported by new industries: Arizona with 705.3 million pounds and Alaska with 533.5 million pounds.

Texas was the state with the largest total releases reported by original (manufacturing) industries. Manufacturing industry facilities in Texas reported 245.8 million pounds of total releases, almost 11 percent of all releases reported by the manufacturing industries. Pennsylvania, Ohio, Louisiana and Indiana all had over 130 million pounds of releases reported by manufacturing industries, each representing about 6 percent of total releases by manufacturing industries in 2000. Manufacturing industry facilities in Pennsylvania reported 139.3 million pounds, those in Ohio reported 137.1 million pounds, those in Louisiana reported 135.2 million pounds and those in Indiana reported 134.3 million pounds.

Waste Management Data, 2000

All TRI Chemicals

A total of 37.89 billion pounds of TRI chemicals in production-related waste was reported as managed during 2000. Nearly 84 percent of the production-related waste in 2000 was managed by manufacturing industry facilities. Metal mines reported another 9 percent, and electric utilities reported managing just over 4 percent. (See Table ES-4 and Figure ES-2.)

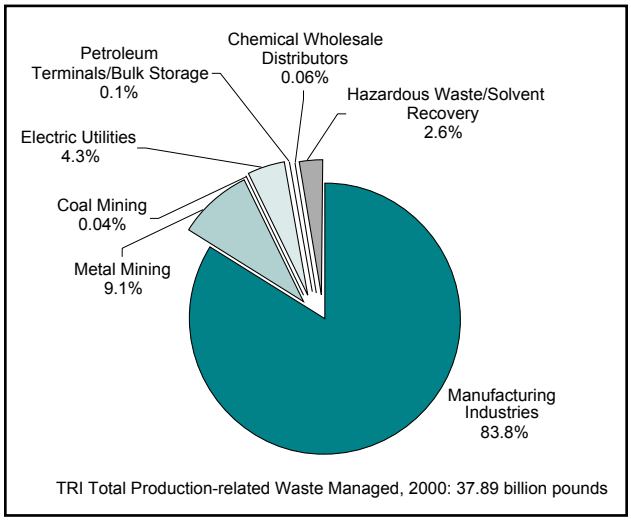
Over 14.78 billion pounds of total production-related waste were treated on-site in 2000, representing 39 percent of all production-related waste. For manufacturing industries, waste treated on-site represented 43 percent of their reported production-related waste and recycled on-site represented 30 percent. Metal mining reported the largest amount of production-related waste of the new industries; 91 percent of this industry's waste was released on- or off-site. Electric utilities, the new industry sector with the second largest production-related waste, released (on- and off-site) 70 percent of its production-related waste.

Table ES-3: TRI Total Releases by State, Original (Manufacturing) and New Industries, 2000

State	Original Industries		New Industries		All TRI Industries	
	Pounds	Rank	Pounds	Rank	Pounds	Rank
Alabama	77,329,585	9	73,307,119	11	150,636,704	12
Alaska	1,976,440	47	533,512,830	4	535,489,271	4
American Samoa	16,780	53	0	--	16,780	55
Arizona	39,383,505	22	705,336,645	3	744,720,149	3
Arkansas	47,564,128	19	3,870,334	45	51,434,462	29
California	39,960,263	21	35,649,083	23	75,609,346	27
Colorado	6,932,142	39	23,668,364	27	30,600,506	37
Connecticut	6,384,133	41	2,362,469	47	8,746,602	47
Delaware	8,240,553	38	5,360,453	44	13,601,006	43
District of Columbia	13,257	54	53,008	52	66,265	54
Florida	74,234,577	10	69,422,519	15	143,657,096	14
Georgia	61,702,191	13	60,506,600	18	122,208,791	18
Guam	0	--	224,283	50	224,283	53
Hawaii	501,163	51	772,808	48	1,273,971	50
Idaho	25,301,075	29	51,367,069	22	76,668,144	26
Illinois	94,014,634	8	56,326,276	19	150,340,910	13
Indiana	134,272,453	5	69,824,616	14	204,097,069	8
Iowa	33,584,800	24	9,840,738	37	43,425,537	32
Kansas	28,697,983	26	9,649,399	38	38,347,383	33
Kentucky	40,702,871	20	60,728,061	17	101,430,933	20
Louisiana	135,215,670	4	19,306,965	30	154,522,635	11
Maine	10,371,598	37	225,806	49	10,597,403	45
Maryland	15,722,576	35	29,471,717	25	45,194,293	31
Massachusetts	5,670,598	42	7,326,029	41	12,996,627	44
Michigan	59,973,529	14	80,216,465	9	140,189,994	15
Minnesota	19,532,793	32	13,470,424	32	33,003,217	34
Mississippi	64,402,242	11	16,681,199	31	81,083,440	24
Missouri	58,417,546	16	72,539,700	12	130,957,247	16
Montana	51,864,792	18	70,284,647	13	122,149,439	19
Nebraska	21,144,939	31	8,916,445	40	30,061,384	38
Nevada	4,457,939	43	1,003,811,775	1	1,008,269,713	1
New Hampshire	2,855,010	45	3,305,851	46	6,160,861	48
New Jersey	18,499,140	33	10,511,310	35	29,010,449	39
New Mexico	839,391	49	124,369,822	6	125,209,213	17
New York	30,389,315	25	30,146,954	24	60,536,268	28
North Carolina	61,930,420	12	95,349,390	7	157,279,810	10
North Dakota	2,228,963	46	21,971,456	28	24,200,419	40
Northern Marianas	0	--	7,990	54	7,990	56
Ohio	137,075,843	3	145,944,153	5	283,019,996	6
Oklahoma	23,679,590	30	9,323,277	39	33,002,867	35
Oregon	26,990,431	27	55,169,231	21	82,159,662	23
Pennsylvania	139,337,978	2	86,574,799	8	225,912,777	7
Puerto Rico	6,403,284	40	12,211,705	33	18,614,988	42
Rhode Island	1,198,732	48	76,818	51	1,275,550	49
South Carolina	59,046,658	15	20,322,166	29	79,368,824	25
South Dakota	3,977,765	44	5,627,988	43	9,605,753	46
Tennessee	98,979,347	7	63,876,540	16	162,855,887	9
Texas	245,761,545	1	55,757,413	20	301,518,958	5
Utah	106,141,261	6	849,800,537	2	955,941,798	2
Vermont	401,956	52	0	--	401,956	52
Virgin Islands	654,616	50	31,174	53	685,790	51
Virginia	57,791,987	17	24,402,215	26	82,194,202	22
Washington	26,066,915	28	5,640,960	42	31,707,875	36
West Virginia	17,529,931	34	80,183,672	10	97,713,602	21
Wisconsin	37,918,089	23	11,760,631	34	49,678,719	30
Wyoming	11,114,777	36	10,016,671	36	21,131,448	41
Total	**2,284,399,698**		**4,816,416,567**		**7,100,816,264**	

Note: On-site Releases are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs. **Off-site Releases** do not include transfers to disposal sent to other TRI facilities that reported the amount as an on-site release.

Figure ES-2: TRI Total Production-related Waste Managed, Original (Manufacturing) and New Industries, 2000



Note: Data are from Section 8 of Form R for year indicated.

PBT Chemicals

Production-related waste for PBT chemicals totaled 71.6 million pounds for 2000. Almost two-thirds of the waste was treated on-site, another 17 percent was released on- and off-site, 11 percent was burned for energy recovery on-site, and 5 percent was recycled on-site. (See Table ES-5.)

Almost 43.0 million pounds of production-related waste of polycyclic aromatic compounds, representing 60 percent of all production-related waste of PBT chemicals, was reported in 2000. Almost 60 percent of the production-related waste of polycyclic aromatic compounds was treated on-site. Another 18 percent was burned for energy recovery on-site and 13 percent was released on- and off-site.

Production-related waste of polychlorinated biphenyls (PCBs) was 13.7 million pounds, constituting 19 percent of all production-related waste of PBT chemicals in 2000. Almost 87 percent of the production-related waste of polychlorinated biphenyls was treated on-site. Production-related waste of mercury and mercury compounds was 4.9 million pounds, representing almost 7 percent of all production-related waste of PBT chemicals in 2000. Most (83 percent) of the production-related waste of mercury and mercury compounds was released on- and off-site.

Production-related waste for the dioxin and dioxin-like compounds totaled 393,963 grams for 2000. Dioxin and dioxin-like compounds are reported in grams and subject to a lower reporting threshold (0.1 grams) than the other PBT chemicals. Two-thirds (63 percent or 249,513 grams) of the total production-related waste of dioxin and dioxin-like

Table ES-4: Quantities of TRI Chemicals in Waste by Industry, Original (Manufacturing) and New Industries, 2000

		Recycled		Energy Recovery		Treated				
SIC Code	Industry	On-site Pounds	Off-site Pounds	On-site Pounds	Off-site Pounds	On-site Pounds	Off-site Pounds	Quantity Released On- and Off-site Pounds	Total Production-related Waste Managed Pounds	Non-production-related Waste Managed Pounds
20-39	Manufacturing Industries	9,653,794,985	2,159,966,719	2,686,643,776	549,039,983	13,778,146,072	571,131,526	2,335,337,556	31,734,060,618	39,973,193
10	Metal Mining	32,398,053	2,042,398	0	0	258,763,697	166,274	3,138,140,726	3,431,511,148	219,374,009
12	Coal Mining	35,718	7,774	0	0	358,555	0	15,985,805	16,387,852	2,646,699
491/493	Electric Utilities	94,645	7,231,764	25,745	13,607	481,671,522	370,726	1,150,350,804	1,639,758,814	328,780
5169	Chemical Wholesale Distributors	7,548,921	153,469	0	9,957,310	574,681	3,028,130	1,517,566	22,780,077	170,919
5171	Petroleum Terminals/Bulk Storage	27,082,736	1,729,889	34,706	123,547	7,176,661	441,525	3,976,827	40,565,892	86,622
4953/7389	Hazardous Waste/Solvent Recovery	128,391,137	22,011,626	6,985,191	256,029,724	254,270,231	43,726,873	289,719,497	1,001,134,279	1,498,318
	Total	**9,849,346,195**	**2,193,143,639**	**2,693,689,418**	**815,164,171**	**14,780,961,420**	**618,865,054**	**6,935,028,782**	**37,886,198,679**	**264,078,540**

Note: Data are from Section 8 of Form R for year indicated.

Facilities/forms are included in the original industry category if they did not report a new industry SIC code. Facilities/forms are included in the new industry category if the facility/form has a new industry SIC code and no SIC code in 20-39. If the facility reported in any year prior to 1998 and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the original industry category. If the facility reported for the first time in 1998 or later and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the new industry category.

One facility, Phelps Dodge Miami of Claypool, AZ, that reported under SIC code 33 and SIC code 10 in 2000 and previous years has been included in the new industry category SIC code 10 for the purpose of this analysis.

compounds were treated on-site with most of the remaining released on- and off-site (105,710 grams).

More detailed information on releases and other waste management of PBT chemicals, including dioxin and dioxin-like compounds, can be found in Chapter 3 of this report.

Waste Management by State

Facilities in Louisiana, followed by those in Texas, Alabama, Illinois and Nevada, reported the largest amounts of production-related waste in 2000. The first four states ranked highest because of facilities in the original industries and Nevada ranked fifth because of facilities in the new industries. (See Table ES-6.)

Louisiana was the state with the largest quantity of production-related waste reported by original industries. Original industry facilities in Louisiana reported 9.39 billion pounds of production-related waste, almost 30 percent of all production-related waste reported by original industries in 2000. Texas, with 4.4 billion pounds of production-related waste from original industries, represented almost 14 percent of the total for original industries. Three other states also reported more than one billion pounds of production-related waste from original industries: Alabama with 2.81 billion pounds, Illinois with 1.51 billion pounds and Pennsylvania with 1.12 billion pounds.

Nevada was the state with the largest quantity of production-related waste reported by new industries. New industry facilities in Nevada reported 1.27 billion pounds of production-related waste, over 20 percent of all production-related waste from new industry facilities in 2000. Three other states had more than 500 million pounds of production-related waste reported by new industries: Arizona with 722.2 million pounds, Utah with 672.4 million pounds and Alaska with 534.2 million pounds.

Table ES-5: Quantities of TRI Chemicals in Waste, PBT Chemicals, 2000

CAS Number	Chemical	Recycled		Energy Recovery		Treated		Quantity Released On- and Off-site	Total Production-related Waste Managed	Non-production-related Waste Managed
		On-site Pounds	Off-site Pounds	On-site Pounds	Off-site Pounds	On-site Pounds	Off-site Pounds	Pounds	Pounds	Pounds
--	**Dioxin and Dioxin-like compounds***	9.81	0.01	0.04	4.40	550.18	71.16	233.09	868.69	59.14
--	*Dioxin and dioxin-like compounds (in grams)**	*4,448.559*	*5.393*	*19.698*	*1,994.612*	*249,513.356*	*32,271.529*	*105,709.934*	*393,963.081*	*26,821.006*
	Mercury and Mercury Compounds	**646,940.05**	**161,929.47**	**77.73**	**126.01**	**19,768.28**	**5,864.61**	**4,041,157.67**	**4,875,863.82**	**18,143.88**
7439-97-6	Mercury	301,682.87	64,712.99	67.73	69.01	365.53	5,334.76	87,957.08	460,189.97	4,903.71
--	Mercury compounds	345,257.18	97,216.48	10.00	57.00	19,402.75	529.84	3,953,200.59	4,415,673.84	13,240.17
	Polycyclic Aromatic Compounds	**2,932,858.97**	**622,842.53**	**7,570,145.81**	**212,142.99**	**25,600,382.12**	**257,264.86**	**5,744,191.79**	**42,939,829.07**	**64,717.07**
191-24-2	Benzo(g,h,i)perylene	100,105.08	9,925.22	1,804,355.26	5,656.33	1,451,368.24	2,665.42	167,216.09	3,541,291.65	639.53
--	Polycyclic aromatic compounds	2,832,753.89	612,917.31	5,765,790.55	206,486.66	24,149,013.88	254,599.44	5,576,975.70	39,398,537.42	64,077.54
1336-36-3	**Polychlorinated Biphenyls (PCBs)**	**358.00**	**752.65**	**1,410.77**	**10,517.00**	**11,906,010.41**	**288,785.81**	**1,481,214.78**	**13,689,049.42**	**22,122.52**
	Pesticides	**11,501.00**	**0.00**	**1,569.00**	**983.00**	**2,312,740.17**	**140,172.19**	**87,061.74**	**2,554,027.10**	**45.00**
309-00-2	Aldrin	0.00	0.00	0.00	0.00	82,504.75	283.00	2,345.32	85,133.07	0.00
57-74-9	Chlordane	0.00	0.00	230.00	0.00	812,322.92	5,686.05	9,010.26	827,249.23	0.00
76-44-8	Heptachlor	0.00	0.00	42.00	0.00	237,739.73	3,773.30	2,394.03	243,949.06	0.00
465-73-6	Isodrin	0.00	0.00	0.00	0.00	6,603.84	0.00	3.00	6,606.84	0.00
72-43-5	Methoxychlor	0.00	0.00	225.00	755.00	290,474.16	431.60	2,682.64	294,568.40	0.00
40487-42-1	Pendimethalin	4,000.00	0.00	0.00	0.00	656,145.00	19,602.00	31,358.55	711,105.55	0.00
8001-35-2	Toxaphene	0.00	0.00	1,072.00	0.00	210,240.69	589.24	6,008.47	217,910.40	0.00
1582-09-8	Trifluralin	7,501.00	0.00	0.00	228.00	16,709.08	109,807.00	33,259.47	167,504.55	45.00
	Other PBTs	**6,605.50**	**12,450.00**	**140,662.00**	**58,434.00**	**6,504,174.17**	**28,488.96**	**839,475.17**	**7,590,289.80**	**21,754.65**
118-74-1	Hexachlorobenzene	6,000.50	12,039.00	140,662.00	56,585.00	6,154,926.17	19,461.15	48,420.58	6,438,094.40	21,752.30
608-93-5	Octachlorostyrene	0.00	0.00	0.00	0.00	19.00	0.00	585.20	604.20	0.00
79-94-7	Pentachlorobenzene	40.00	401.00	0.00	0.00	342,267.00	1,390.81	3,326.28	347,425.09	2.35
29082-74-4	Tetrabromobisphenol A	565.00	10.00	0.00	1,849.00	6,962.00	7,637.00	787,143.11	804,166.11	0.00
	Total	**3,598,273.32**	**797,974.66**	**7,713,865.36**	**282,207.40**	**46,343,625.33**	**720,647.59**	**12,193,334.24**	**71,649,927.90**	**126,842.26**

Note: Data are from Section 8 of Form R for year indicated.

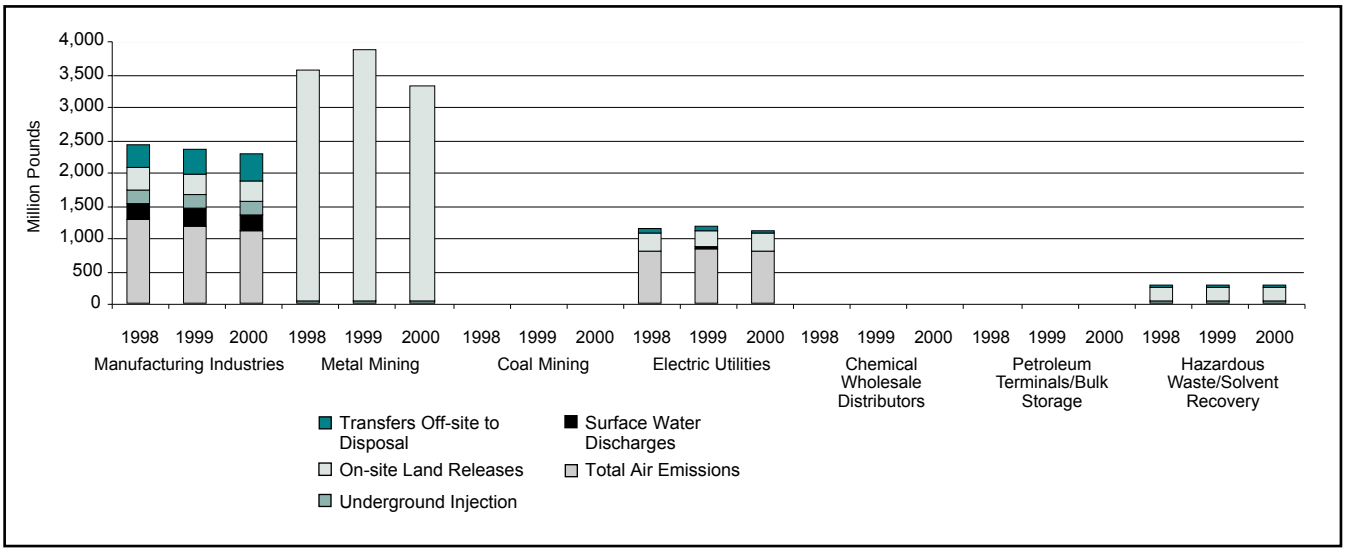
* The chemical category dioxin and dioxin-like compounds is reported in grams. Where the category dioxin and dioxin-like compounds is shown on a table with other TRI chemicals, it is presented in pounds. The grams are converted to pounds by multiplying by 0.002205.

Table ES-6: TRI Total Production-related Waste by State, Original (Manufacturing) and New Industries, 2000

State	Original Industries		New Industries		All TRI Industries	
	Pounds	Rank	Pounds	Rank	Pounds	Rank
Alabama	2,808,342,440	3	89,020,397	18	2,897,362,837	3
Alaska	4,476,547	50	534,158,062	4	538,634,609	17
American Samoa	16,780	54	0	--	16,780	55
Arizona	173,627,053	29	722,224,982	2	895,852,035	10
Arkansas	382,791,579	20	83,798,618	20	466,590,197	20
California	385,346,048	19	85,273,713	19	470,619,761	19
Colorado	76,351,789	39	27,815,907	33	104,167,696	42
Connecticut	151,594,911	30	5,488,691	46	157,083,602	35
Delaware	146,640,101	31	5,969,759	45	152,609,860	36
District of Columbia	21,150	53	53,228	53	74,378	54
Florida	277,332,292	26	115,551,203	13	392,883,495	26
Georgia	448,129,555	15	65,180,615	23	513,310,170	18
Guam	0	--	224,641	51	224,641	53
Hawaii	1,011,836	52	770,278	49	1,782,114	52
Idaho	68,972,405	40	51,577,580	26	120,549,985	39
Illinois	1,511,729,126	4	114,910,108	14	1,626,639,234	4
Indiana	888,007,246	6	137,168,296	10	1,025,175,542	9
Iowa	437,436,722	16	10,279,437	42	447,716,159	23
Kansas	282,542,381	25	13,718,505	40	296,260,886	30
Kentucky	612,488,077	10	152,069,826	7	764,557,903	13
Louisiana	9,391,988,312	1	24,609,743	34	9,416,598,055	1
Maine	88,580,552	37	264,456	50	88,845,008	44
Maryland	104,253,919	35	37,251,656	31	141,505,575	38
Massachusetts	93,304,125	36	10,049,835	43	103,353,960	43
Michigan	519,281,599	14	142,970,573	8	662,252,171	15
Minnesota	324,857,821	23	19,397,053	36	344,254,874	29
Mississippi	385,475,871	18	17,490,460	37	402,966,331	24
Missouri	541,233,915	13	81,638,267	21	622,872,181	16
Montana	106,742,931	34	72,821,892	22	179,564,822	33
Nebraska	60,569,098	41	45,682,295	27	106,251,394	41
Nevada	31,037,975	44	1,266,117,881	1	1,297,155,855	5
New Hampshire	48,570,893	42	3,277,937	47	51,848,829	45
New Jersey	373,411,703	21	91,176,534	17	464,588,237	22
New Mexico	35,380,598	43	131,791,362	11	167,171,961	34
New York	426,618,231	17	38,895,206	30	465,513,437	21
North Carolina	699,734,269	9	102,122,289	16	801,856,558	12
North Dakota	7,924,738	49	23,172,365	35	31,097,102	47
Northern Marianas	0	--	7,990	54	7,990	56
Ohio	817,018,936	8	293,814,165	5	1,110,833,101	8
Oklahoma	129,063,399	33	16,611,572	38	145,674,972	37
Oregon	146,224,732	32	55,277,299	24	201,502,031	31
Pennsylvania	1,121,034,762	5	140,718,372	9	1,261,753,134	6
Puerto Rico	83,472,279	38	32,226,907	32	115,699,186	40
Rhode Island	29,147,967	45	932,546	48	30,080,513	48
South Carolina	832,475,366	7	54,813,720	25	887,289,086	11
South Dakota	8,494,367	48	8,856,631	44	17,350,998	50
Tennessee	588,507,674	11	111,373,252	15	699,880,926	14
Texas	4,376,025,985	2	207,489,081	6	4,583,515,066	2
Utah	563,191,609	12	672,402,031	3	1,235,593,640	7
Vermont	3,559,034	51	0	--	3,559,034	51
Virgin Islands	17,360,305	46	64,284	52	17,424,589	49
Virginia	351,339,431	22	45,143,948	28	396,483,379	25
Washington	183,523,467	28	12,513,077	41	196,036,544	32
West Virginia	260,868,910	27	118,021,620	12	378,890,530	27
Wisconsin	310,094,086	24	42,578,567	29	352,672,652	28
Wyoming	16,833,722	47	15,309,347	39	32,143,069	46
Total	**31,734,060,618**		**6,152,138,062**		**37,886,198,679**	

Note: Data are from Section 8 of Form R for 2000.

Figure ES-3: TRI Total Releases, Original (Manufacturing) and New Industries, 1998-2000



Note: On-site Releases are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs. **Off-site Releases** do not include transfers to disposal sent to other TRI facilities that reported the amount as an on-site release.

Total On-site and Off-site Releases 1998-1999

From 1999 to 2000, total TRI releases by all industries fell by 644.4 million pounds or over 8 percent. In the three year period, from 1998 to 2000, the decline was 409.3 million pounds total, a 5.5 percent decrease. The data used to compare 1998, 1999 and 2000 do not include the PBT chemicals or vanadium or vanadium compounds since certain PBT chemicals and vanadium compounds were added to the TRI list of chemicals in 2000 and the reporting definition for vanadium changed. Also, the reporting thresholds for all PBT chemicals changed. (See Table ES-7 and Figure ES-3.)

The largest decreases from 1999 to 2000 came in the metal mining industry: releases decreased by

Table ES-7: TRI Total Releases by Industry, Original (Manufacturing) and New Industries, 1998-2000

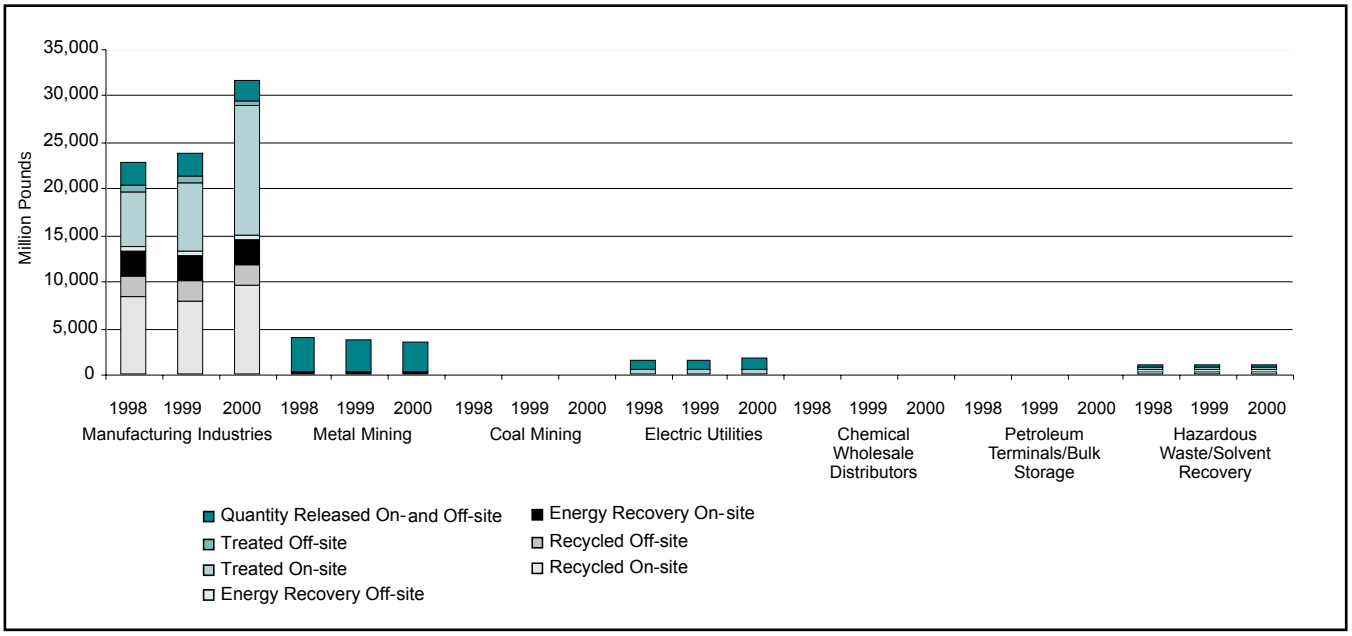
SIC Code	Industry	Total On- and Off-site Releases			Change 1999-2000		Change 1998-2000	
		1998	1999	2000				
		Pounds	Pounds	Pounds	Pounds	Percent	Pounds	Percent
20-39	Manufacturing Industries	2,421,337,219	2,328,075,238	2,267,118,555	-60,956,683	-2.6	-154,218,664	-6.4
10	Metal Mining	3,563,140,043	3,866,021,504	3,310,956,485	-555,065,019	-14.4	-252,183,558	-7.1
12	Coal Mining	13,392,904	10,737,088	15,327,860	4,590,772	42.8	1,934,956	14.4
491/493	Electric Utilities	1,130,449,946	1,157,870,693	1,120,615,348	-37,255,345	-3.2	-9,834,598	-0.9
5169	Chemical Wholesale Distributors	1,520,440	1,999,646	1,611,790	-387,856	-19.4	91,350	6.0
5171	Petroleum Terminals/Bulk Storage	4,511,772	4,333,895	3,725,152	-608,743	-14.0	-786,620	-17.4
4953/7389	Hazardous Waste/Solvent Recovery	276,048,273	276,499,126	281,782,838	5,283,711	1.9	5,734,564	2.1
	Total	**7,410,400,596**	**7,645,537,190**	**7,001,138,027**	**-644,399,163**	**-8.4**	**-409,262,569**	**-5.5**

Note: Does not include PBT chemicals, vanadium and vanadium compounds. **On-site Releases** are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs. **Off-site Releases** do not include transfers to disposal sent to other TRI facilities that reported the amount as an on-site release.

Facilities/forms are included in the original industry category if they did not report a new industry SIC code. Facilities/forms are included in the new industry category if the facility/form has a new industry SIC code and no SIC code in 20-39. If the facility reported in any year prior to 1998 and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the original industry category. If the facility reported for the first time in 1998 or later and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the new industry category.

One facility, Phelps Dodge Miami of Claypool, AZ, that reported under SIC code 33 and SIC code 10 in 2000 and previous years has been included in the new industry category SIC code 10 for the purpose of this analysis.

Figure ES-4: TRI Production-related Waste Managed, Original (Manufacturing) and New Industries, 1998-2000



Note: Does not include PBT chemicals, vanadium and vanadium compounds. Data are from Section 8 of Form R for year indicated.

almost 555.1 million pounds. Metal mining releases declined by 14 percent, while the manufacturing industries decrease was less than 3 percent. Chemical wholesale distributors saw the sharpest percentage drop, 19 percent, from 1999-2000. Coal mining, the only industry group to report an increase from 1999 to 2000, increased by 4.6 million pounds, almost 43 percent.

For the three year period, 1998-2000, the decreases in releases were less than from 1999 to 2000 for metal mining and electric utilities. Metal mining reported decreases in releases of 252.2 million pounds, or 7 percent from 1998-2000 and electric utilities reported decreases in releases of 9.8 million pounds, less than one percent. Both coal mining and the hazardous waste/solvent recovery industries reported increases in releases for the 1998-2000 period. Coal mining's increase was 14 percent (1.9 million pounds) and hazardous waste/solvent recovery industries reported an increase in releases of 2 percent (5.7 million pounds). The manufacturing industries, however, recorded decreases in releases throughout the 1998-2000 period, with a decrease of 154.2 million pounds or 6 percent.

Waste Management Data, 1998-2000

Overall, total production-related waste reported by all TRI industries increased by 26 percent from 1999-2000, a net increase of 7.77 billion pounds. The original industries saw an increase of 34 percent or 8.03 billion pounds, while the new industries saw a decrease of 4 percent or 267.5 million pounds. The decrease for the new industries was mainly in the quantity released on- and off-site, which decreased by 292.7 million pounds or 6 percent, and the amount treated off-site, which decreased by 24.9 million pounds or 34 percent. (See Table ES-8 and Figure ES-4.)

The increase for the original industries occurred in the amount treated on-site, which increased by 6.33 billion pounds or 85 percent. One facility in Louisiana reported an increase of 5.73 billion pounds treated on-site. The amount of production-related waste recycled on-site also increased, by 1.89 billion pounds or 24 percent. One facility in Alabama reported for the first time in 2000 a total of 2.08 billion pounds recycled on-site. The quantity of waste released on- and off-site for the original

Table ES-8: Quantities of TRI Chemicals in Waste by Waste Management Activity, Original (Manufacturing) and New Industries, 1998-2000

Waste Management Activity	Original Industries						
	1998	1999	2000	Change 1999-2000		Change 1998-2000	
	Pounds	Pounds	Pounds	Pounds	Percent	Pounds	Percent
Recycled On-site	8,385,540,278	7,760,371,765	9,648,793,825	1,888,422,060	24.3	1,263,253,547	15.1
Recycled Off-site	2,104,267,249	2,170,640,184	2,155,918,552	-14,721,631	-0.7	51,651,304	2.5
Energy Recovery On-site	2,733,353,748	2,807,080,971	2,678,931,507	-128,149,464	-4.6	-54,422,241	-2.0
Energy Recovery Off-site	490,658,304	513,659,423	548,777,370	35,117,947	6.8	58,119,066	11.8
Treated On-site	5,959,218,668	7,426,442,587	13,755,052,371	6,328,609,784	85.2	7,795,833,703	130.8
Treated Off-site	596,249,888	548,518,807	570,596,827	22,078,020	4.0	-25,653,060	-4.3
Quantity Released On- and Off-site	2,498,382,894	2,416,857,735	2,318,298,838	-98,558,896	-4.1	-180,084,056	-7.2
Total Production-related Waste Managed	**22,767,671,028**	**23,643,571,472**	**31,676,369,292**	**8,032,797,820**	**34.0**	**8,908,698,263**	**39.1**
Non-production-related Waste Managed	26,278,484	305,689,636	39,828,556	-265,861,080	-87.0	13,550,072	51.6
Waste Management Activity	**New Industries**						
	1998	1999	2000	Change 1999-2000		Change 1998-2000	
	Pounds	Pounds	Pounds	Pounds	Percent	Pounds	Percent
Recycled On-site	203,076,708	199,404,215	195,466,701	-3,937,514	-2.0	-7,610,007	-3.7
Recycled Off-site	36,994,728	36,793,121	32,838,059	-3,955,062	-10.7	-4,156,669	-11.2
Energy Recovery On-site	11,399,201	10,762,603	7,044,038	-3,718,565	-34.6	-4,355,163	-38.2
Energy Recovery Off-site	412,406,220	270,806,332	266,104,594	-4,701,738	-1.7	-146,301,626	-35.5
Treated On-site	808,546,067	912,997,890	979,399,297	66,401,407	7.3	170,853,230	21.1
Treated Off-site	90,263,036	72,354,931	47,475,922	-24,879,009	-34.4	-42,787,114	-47.4
Quantity Released On- and Off-site	4,999,898,097	4,813,430,648	4,520,758,586	-292,672,062	-6.1	-479,139,511	-9.6
Total Production-related Waste Managed	**6,562,584,057**	**6,316,549,740**	**6,049,087,197**	**-267,462,543**	**-4.2**	**-513,496,860**	**-7.8**
Non-production-related Waste Managed	1,611,653	506,552,315	220,800,646	-285,751,669	-56.4	219,188,993	13,600.3
Waste Management Activity	**All TRI Industries**						
	1998	1999	2000	Change 1999-2000		Change 1998-2000	
	Pounds	Pounds	Pounds	Pounds	Percent	Pounds	Percent
Recycled On-site	8,588,616,986	7,959,775,980	9,844,260,526	1,884,484,546	23.7	1,255,643,540	14.6
Recycled Off-site	2,141,261,977	2,207,433,305	2,188,756,611	-18,676,693	-0.8	47,494,635	2.2
Energy Recovery On-site	2,744,752,949	2,817,843,574	2,685,975,545	-131,868,029	-4.7	-58,777,404	-2.1
Energy Recovery Off-site	903,064,524	784,465,755	814,881,964	30,416,209	3.9	-88,182,560	-9.8
Treated On-site	6,767,764,735	8,339,440,477	14,734,451,668	6,395,011,191	76.7	7,966,686,933	117.7
Treated Off-site	686,512,924	620,873,738	618,072,750	-2,800,989	-0.5	-68,440,174	-10.0
Quantity Released On- and Off-site	7,498,280,991	7,230,288,383	6,839,057,424	-391,230,959	-5.4	-659,223,567	-8.8
Total Production-related Waste Managed	**29,330,255,085**	**29,960,121,212**	**37,725,456,489**	**7,765,335,277**	**25.9**	**8,395,201,403**	**28.6**
Non-production-related Waste Managed	27,890,137	812,241,951	260,629,202	-551,612,749	-67.9	232,739,065	834.5

Note: Does not include PBT chemicals, vanadium and vanadium compounds. Data are from Section 8 of Form R for year indicated.

Facilities/forms are included in the original industry category if they did not report a new industry SIC code. Facilities/forms are included in the new industry category if the facility/form has a new industry SIC code and no SIC code in 20-39. If the facility reported in any year prior to 1998 and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the original industry category. If the facility reported for the first time in 1998 or later and the facility/form has a combination of original and new industry SIC codes, then the facility/form is included in the new industry category.

One facility, Phelps Dodge Miami of Claypool, AZ, that reported under SIC code 33 and SIC code 10 in 2000 and previous years has been included in the new industry category SIC code 10 for the purpose of this analysis.

industries decreased from 1999 to 2000 by 98.6 million pounds, or 4 percent.

The total production-related waste managed during the three-year period 1998-2000 increased by almost 29 percent, a net increase of 8.40 billion pounds. The original industries saw a 39 percent increase, or 8.91 billion pounds. Two facilities accounted for most of this increase; one facility in Lousiana reported an increase of 5.78 billion pounds from 1999 to 2000 and one facility in Alabama reporting for the first time in 2000 reported a total of 2.10 billion pounds. The new industries saw an 8 percent decline of 513.5 million pounds, from 1998-2000.

From 1998-2000, all types of waste managed decreased for the new industries except for that treated on-site, which increased by 170.9 million pounds or 21 percent. The quantity released on- and off-site by the new industries decreased by 479.1 million pounds or nearly 10 percent. The amount burned for energy recovery off-site decreased by 146.3 million pounds or 35.5 percent.

Original industries also reported decreases from 1998 to 2000 in the quantity released on- and off-site, by 180.1 million pounds or 7 percent. However, the amount treated on-site increased by 7.80 billion pounds or over 130 percent. One facility in Louisiana reported an increase of 5.73 billion pounds treated on-site. The amount recycled on-site also increased by 1.26 billion pounds or 15 percent. One facility in Alabama reported for the first time in 2000 2.08 billion pounds recycled on-site.

Total On-site and Off-site Releases, 1988-2000

For the core set of chemicals from industries that have reported consistently since 1988, total on- and off-site releases decreased by 48 percent between 1988 and 2000, a reduction of 1.55 billion pounds. At the same time, the number of forms submitted also declined, by 4.6 percent. On-site releases decreased by almost 57 percent or 1.58 billion pounds. However, off-site releases increased over this period by almost 7 percent or 27.6 million pounds. (See Table ES-9 and Figure ES-5.)

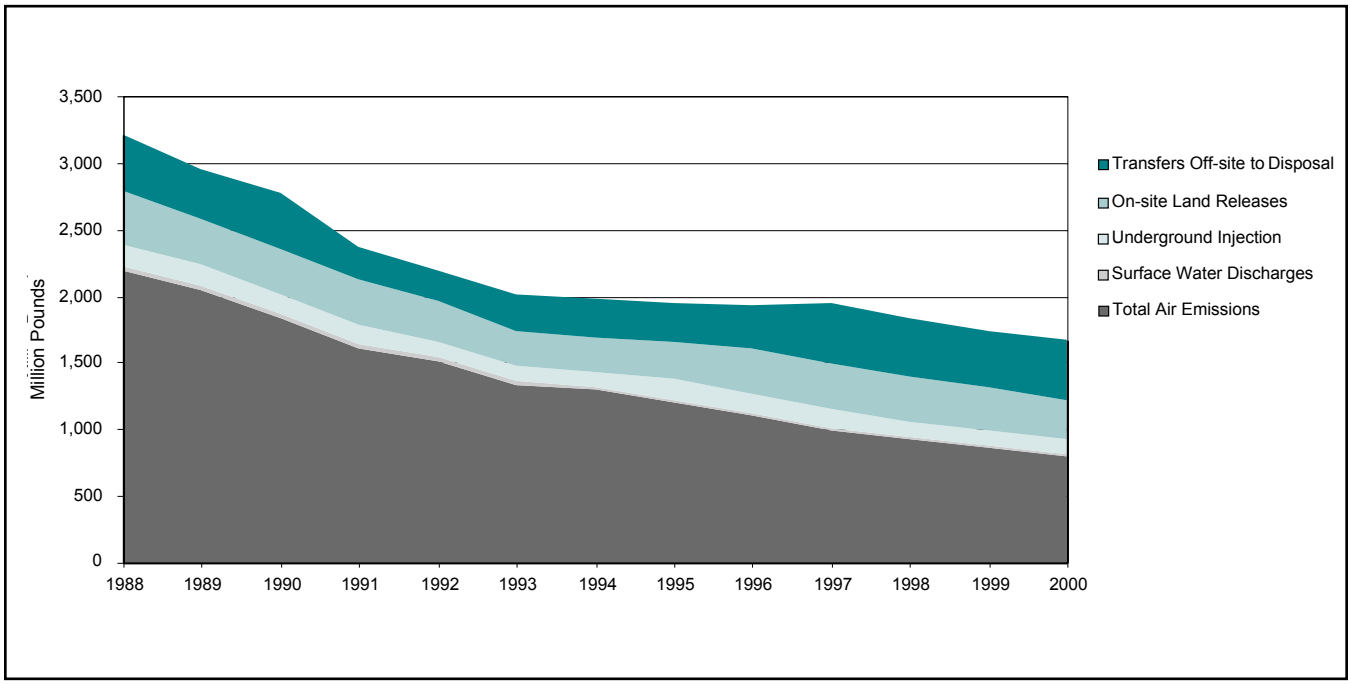
Table ES-9: Comparison of TRI On-site and Off-site Releases, Original (Manufacturing) Industries, 1988, 1995, 1998-2000

	1988	1995	1998	1999	2000	Change 1988-2000	
	Number	Number	Number	Number	Number	Number	Percent
Total Forms	60,100	61,049	59,042	57,800	57,321	-2,779	-4.6
Form Rs	60,100	56,008	50,754	49,601	48,865	--	--
Form As	--	5,041	8,288	8,199	8,456	--	--
On-site Releases	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Percent
Total Air Emissions	2,180,542,989	1,205,159,279	928,928,863	862,632,766	800,756,085	-1,379,786,904	-63.3
Fugitive Air Emissions	680,408,475	307,072,846	219,337,574	198,457,524	183,898,550	-496,509,925	-73.0
Point Source Air Emissions	1,500,134,514	898,086,433	709,591,289	664,175,242	616,857,536	-883,276,978	-58.9
Surface Water Discharges	41,912,257	17,094,344	17,426,363	14,403,138	14,621,472	-27,290,785	-65.1
Underground Injection	161,910,712	154,738,867	114,708,252	109,328,491	111,331,713	-50,578,999	-31.2
On-site Land Releases	405,807,542	269,871,022	340,391,183	325,046,057	285,580,038	-120,227,504	-29.6
Total On-site Releases	2,790,173,500	1,646,863,512	1,401,454,661	1,311,410,452	1,212,289,308	-1,577,884,192	-56.6
Off-site Releases							
Storage Only*	13,774,065	2,220,372	5,234,408	6,046,121	7,820,720	-5,953,345	-43.2
Solidification/Stabilization**	29,504,218	26,444,178	135,453,510	133,633,858	142,351,513	112,847,295	382.5
Metals and Metal Compounds Only							
Wastewater Treatment (Excluding POTWs)***	4,645,783	3,882,834	2,817,951	6,583,081	6,701,369	2,055,586	44.2
Metals and Metal Compounds Only							
Transfers to POTWs****	9,587,143	2,722,085	3,339,395	3,144,502	3,143,092	-6,444,051	-67.2
Metals and Metal Compounds Only							
Underground Injection	8,734,876	12,129,030	9,783,826	19,895,785	19,009,127	10,274,251	117.6
Landfills/Surface Impoundments	264,707,267	215,580,481	229,176,392	220,705,243	234,977,336	-29,729,931	-11.2
Land Treatment	2,701,526	853,636	536,324	2,853,007	2,174,105	-527,421	-19.5
Other Land Disposal	9,349,634	10,523,661	13,297,507	12,123,026	7,770,612	-1,579,022	-16.9
Other Off-site Management	37,438,997	13,529,710	9,086,260	9,064,895	7,418,660	-30,020,337	-80.2
Transfers to Waste Broker for Disposal	29,723,527	4,746,053	12,301,123	10,821,657	13,648,286	-16,075,241	-54.1
Unknown*****	11,242,692	1,847,406	3,535,558	3,358,968	4,022,510	-7,220,182	-64.2
Total Off-site Releases	421,409,728	294,479,446	424,562,254	428,230,142	449,037,330	27,627,602	6.6
(Transfers Off-site to Disposal)							
Total On- and Off-site Releases	3,211,583,228	1,941,342,958	1,826,016,915	1,739,640,594	1,661,326,638	-1,550,256,590	-48.3

Note: Does not include delisted chemicals, chemicals added in 1990, 1994 and 1995, aluminum oxide, ammonia, hydrochloric acid, PBT chemicals, sulfuric acid, vanadium and vanadium compounds. **On-site Releases** are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-Site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs.

* Storage only (disposal code M10) indicates that the toxic chemical is sent off-site for storage because there is no known disposal method. Amounts reported as transferred to storage only are included as a form of disposal (off-site release). See Box 1-5.
** Beginning in reporting year 1997, transfers to solidification/stabilization of metals and metal compounds (waste treatment code M41) are reported separately from transfers to solidification/stabilization of non-metal TRI chemicals (waste treatment code M40). Because this treatment method prepares a metal for disposal, but does not destroy it, such transfers are included as a form of disposal (off-site release). See Box 1-6. Reports under code M40 of metals and metal compounds have been included in solidification/stabilization of metals and metal compounds in this report.
*** Beginning in reporting year 1997, transfers to wastewater treatment (excluding POTWs) of metals and metal compounds (waste treatment code M61) are reported separately from transfers to wastewater treatment of non-metal TRI chemicals (waste treatment code M60). Because wastewater treatment does not destroy metals, such transfers are included as a form of disposal (off-site release). See Box 1-6. Transfers of metals and metal compounds reported under code M60 have been included in transfers of metals and metal compounds to wastewater treatment.
**** Reported as discharges to POTWs in Section 6.1 of Form R. EPA considers transfers of metals and metal compounds to POTWs as an off-site release because sewage treatment does not destroy the metal content of the waste material.
***** Unknown (disposal code M99) indicates that a facility is not aware of the type of waste management used for the toxic chemical that is sent off-site. Amounts reported as unknown transfers are treated as a form of disposal (off-site release).

Figure ES-5: Distribution of TRI On-site and Off-site Releases, Original (Manufacturing) Industries, 1988-2000



Note: Does not include delisted chemicals, chemicals added in 1990, 1994 and 1995, aluminum oxide, ammonia, hydrochloric acid, PBT chemicals, sulfuric acid, vanadium and vanadium compounds. **On-site Releases** are from Section 5 of Form R. **Off-site Releases** are from Section 6 (transfers off-site to disposal) of Form R. **Off-site Releases** include metals and metal compounds transferred off-site for solidification/stabilization and for wastewater treatment, including to POTWs.

All on-site release categories showed decreases. Air emissions decreased by 63 percent or 1.38 billion pounds. Surface water discharges decreased by 65 percent or 27.3 million pounds. Underground injection decreased by 31 percent or 50.6 million pounds, and on-site land releases fell almost 30 percent or 120.2 million pounds.

The largest increases in off-site releases (transfers to disposal) occurred in solidification/stabilization of metals for subsequent disposal, an increase of 112.8 million pounds or over 382 percent and in off-site underground injection, an increase of 10.3 million pounds or 118 percent. The amount of metals and metal compounds in waste sent for wastewater treatment also increased by 2.1 million pounds or 44 percent. The categories of off-site release with the largest decreases were other off-site management, which decreased by 30.0 million pounds or 80 percent, and disposal in landfills/surface impoundments, which decreased by 29.7 million pounds or 11 percent.

UNDERSTANDING THE USES, SCOPE AND LIMITS OF TRI DATA

While TRI provides the public, industry, and state and local governments an invaluable source of key environmental data, it has some limitations that must be considered when using the data. Although the Agency has expanded the number of industries that must report, the program does not cover all sources of releases and other waste management activities of TRI chemicals. Although TRI is successful in capturing information on a significant portion of toxic chemicals currently being used by covered industry sectors, it does not cover all toxic chemicals or all industry sectors. In addition, facilities that do not meet the TRI threshold levels (those with fewer than 10 full-time employees or those not meeting TRI quantity thresholds) are not required to report. Thus, while the TRI includes 91,513 reports from 23,484 facilities for 2000, the 7.10 billion pounds of on-and off-site releases reported represent only a portion of all toxic chemical releases nationwide.

Furthermore, facilities often report estimated data to TRI, and the program does not mandate that they monitor their releases. Various estimation techniques are used when monitoring data are not available, and EPA has published estimation guidance for the regulated community. Variations between facilities can result from the use of different estimation methodologies. Patterns of releases and other waste management activities can change dramatically from one year to the next. These factors should be taken into account when considering data accuracy and comparability.

TRI reports reflect releases and other waste management activities of chemicals, not exposures of the public to those chemicals. Release estimates alone are not sufficient to determine exposure or to calculate potential adverse effects on human health and the environment. Although additional information is necessary to assess exposure and risk, TRI data can be used to identify areas of potential concern.

TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and other waste management activities of toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical after it is released, the locality of the release, and the populations that are exposed to the chemical after its release.

ACCESSING THE TRI DATA

The TRI data and data release reports may be accessed through the EPA's TRI home page at http://www.epa.gov/tri. The TRI home page also includes other background information on the TRI program and TRI data as well as information on applicable statutes, regulations and guidance.