Chapter 2

Toxics Release Inventory Data Overview, 2000 and 1998-2000

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This chapter provides a broad overview of TRI data for 2000 and for the period 1998-2000.

For the 2000 reporting year, 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. These chemicals are examined in detail in Chapter 3.

The seven industries that were required to report to TRI for the first time in 1998—the "new" industries—are analyzed in Chapter 4. Also in Chapter 4 is a separate analysis of reporting by federal facilities.

Detailed analyses of the 20 industries in the manufacturing sector that have been required to report to TRI since the program began in 1987 (the "original" industries) appear in Chapter 5. These original industries are in Standard Industrial Classification (SIC) codes 20 to 39. (For information on SIC codes and their use in TRI, see Box 4-1 in Chapter 4.)

Those federal facilities reporting activities within the new industry sectors are included in the “new” industries, otherwise they are included in the “original” industries. Data as reported by all federal facilities are presented in Chapter 6.

For definitions of types of releases and waste management activities, and for important information on factors to be considered when using TRI data, see Chapter 1.

TRI DATA FOR ORIGINAL AND NEW INDUSTRIES, 2000

On- and Off-site Releases

The combined industries submitted 91,513 forms for 23,484 facilities in 2000. Of those totals, new industries had 9.1 percent of the facilities but submitted 19.0 percent of the forms. In 2000, on- and off-site releases among all TRI industries totaled 7.10 billion pounds. On-site releases were 92.6 percent of the total (6.58 billion pounds), and off-site releases were 7.4 percent of the total (525.1 million pounds). (See Table 2-1.) For all TRI industries, other on-site land releases (that is other than RCRA subtitle C landfills) accounted for over half of total releases (55.3 percent). Air emissions represented 28.8 percent of the total and surface water discharges were 3.7 percent. (See Figure 2-1.)

The new industries accounted for 67.1 percent of the total on- and off-site releases—71.5 percent of the total on-site releases and 19.9 percent of the total off-site releases (transfers to off-site disposal).

In 2000, the new industries had on-site releases of 4.70 billion pounds, 97.6 percent of the new industries’ total on- and off-site releases. On-site land releases were 79.4 percent, or 3.83 billion pounds, of the total releases reported by the new industries. Air emissions accounted for 16.6 percent, or 797.8 million pounds. Underground injection and surface water discharges were a combined 1.6 percent of the total releases of the new industries.

Off-site releases accounted for the remaining 2.4 percent of the new industries total on- and off-site releases. Off-site releases to landfills/surface impoundments constituted 1.6 percent (79.3 million pounds) of the new industries’ total on- and off-site releases. Solidification/stabilization, other land dis-

Table 2-1: TRI On-site and Off-site Releases, Original (Manufacturing) and New Industries, 2000

	Original Industries		New Industries		All TRI Industries		New Industries as Percent of All TRI Industries
	Number		Number		Number		Percent
Total Facilities	21,352		2,132		23,484		9.1
Total Forms	74,131		17,382		91,513		19.0
Form Rs	63,573		14,731		78,304		18.8
Form As	10,558		2,651		13,209		20.1
	Pounds	Percent of Total	Pounds	Percent of Total	Pounds	Percent of Total	Percent
On-site Releases							
Total Air Emissions	1,106,587,862	48.4	797,818,431	16.6	1,904,406,293	26.8	41.9
Fugitive Air Emissions	249,611,942	10.9	5,736,258	0.1	255,348,200	3.6	2.2
Point Source Air Emissions	856,975,920	37.5	792,082,173	16.4	1,649,058,093	23.2	48.0
Surface Water Discharges	255,370,170	11.2	5,512,215	0.1	260,882,385	3.7	2.1
Underground Injection	207,296,301	9.1	71,740,345	1.5	279,036,646	3.9	25.7
Class I Wells	207,059,365	9.1	33,917,875	0.7	240,977,239	3.4	14.1
Class II-V Wells	236,937	0.0	37,822,470	0.8	38,059,407	0.5	99.4
On-site Land Releases	305,179,352	13.4	3,826,222,733	79.4	4,131,402,086	58.2	92.6
RCRA Subtitle C Landfills	10,469,795	0.5	195,984,872	4.1	206,454,666	2.9	94.9
Other On-site Landfills	115,513,294	5.1	183,576,714	3.8	299,090,008	4.2	61.4
Land Treatment	9,863,854	0.4	4,165,739	0.1	14,029,593	0.2	29.7
Surface Impoundments	53,710,743	2.4	1,029,706,394	21.4	1,083,417,137	15.3	95.0
Other Disposal	115,621,667	5.1	2,412,789,015	50.1	2,528,410,681	35.6	95.4
Total On-site Releases	**1,874,433,686**	**82.1**	**4,701,293,724**	**97.6**	**6,575,727,410**	**92.6**	**71.5**
Off-site Releases							
Storage Only*	8,387,770	0.4	1,069,765	0.0	9,457,535	0.1	11.3
Solidification/Stabilization**	83,687,740	3.7	8,629,482	0.2	92,317,222	1.3	6.9
Metals and Metal Compounds Only							
Wastewater Treatment (Excluding POTWs)***	6,666,824	0.3	349,897	0.0	7,016,721	0.1	5.3
Metals and Metal Compounds Only							
Transfers to POTWs****	3,153,650	0.1	40,549	0.0	3,194,199	0.0	1.3
Metals and Metal Compounds Only							
Underground Injection	23,259,561	1.0	425,919	0.0	23,685,480	0.3	1.9
Landfills/Surface Impoundments	241,837,535	10.6	79,273,086	1.6	321,110,621	4.5	25.0
Land Treatment	4,868,417	0.2	927,226	0.0	5,795,643	0.1	16.0
Other Land Disposal	10,504,441	0.5	11,631,720	0.2	22,136,161	0.3	52.6
Other Off-site Management	8,142,788	0.4	10,041,872	0.2	18,184,660	0.3	54.5
Transfers to Waste Broker for Disposal	14,448,694	0.6	1,747,897	0.0	16,196,591	0.2	10.8
Unknown*****	5,008,593	0.2	985,429	0.0	5,994,022	0.1	16.1
Total Off-site Releases	**409,966,012**	**17.9**	**115,122,842**	**2.4**	**525,088,854**	**7.4**	**19.9**
(Transfers Off-site to Disposal)							
Total On- and Off-site Releases	**2,284,399,698**	**100.0**	**4,816,416,567**	**100.0**	**7,100,816,264**	**100.0**	**67.1**

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.

* 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).

Box 2-1: Duplication of Off-site Transfers to Disposal, 2000

TRI facilities may transfer off-site chemicals in waste to other facilities for disposal. Box 1-8 in Chapter 1 explains the analysis done to avoid counting transfers by one TRI facility that are also reported as on-site releases by another facility. The off-site transfers to disposal are omitted from tables that compare or summarize on-site and off-site releases for all industries, including the new industries. Only the on-site releases from the other TRI facilities are included in such analyses.

The following shows the results of the analysis for 2000 and how much is omitted from tables that present total releases for all TRI industries.

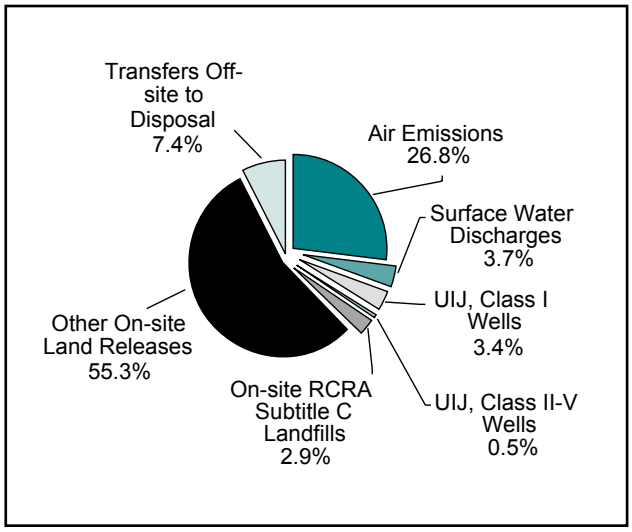
Off-site Transfer M Code	Total Transfers to Disposal	Transfers to Disposal for Matching RCRA ID	Transfers Omitted Because Duplicated in Section 5 of Recipient TRI Facility	Section 5 Checked for Recipient TRI Facilities Based on Matching Chemical or, if Metal, Metal plus Metal Compound
	Pounds	Pounds	Pounds	
M10	9,457,542	4,149,466	7	5.5.4
M41*	153,254,803	179,979,934	60,937,581	5.5.1 A and B
M62*	7,114,525	3,501,718	97,804	5.5.1 A and B, 5.5.3 and 5.3
M71	36,032,917	50,772,804	12,347,437	5.4
M72	336,101,699	60,236,387	14,991,078	5.5.1 A and B, 5.5.3
M73	5,795,643	610,582	0	5.5.2
M79	22,174,663	8,916,450	38,502	5.5.4
M90	18,477,410	3,647,203	292,751	All Section 5
M99	6,170,573	3,224,110	176,551	All Section 5
Total	594,579,775	315,038,654	88,881,710	
Number of Form Rs	91,513	9,507	2,899	

* Includes metals and metal compounds reported under codes M40 and M61.

posal (not land treatment), and other off-site management each accounted for less than 0.2 percent of total on- and off-site releases. Storage only, wastewater treatment (excluding POTWs), transfers to POTWs, underground injection, land treatment, transfers to waste brokers for disposal, and unknown were negligible percentages of total on- and off-site releases.

In 2000, the original industries had on-site releases of 1.87 billion pounds, 82.1 percent of the original industries' total on- and off-site releases. Of on-site releases in the original industries, air emissions constituted 48.4 percent, or 1.11 billion pounds, of total on- and off-site releases, with land releases accounting for 13.4 percent (305.2 million pounds) and surface water discharges accounting for 11.2 percent (255.4 million pounds) of total on- and off-site releases of the original industries. On-site releases to underground injection were 9.1 percent, or 207.3 million pounds, of the total on- and off-site releases.

Figure 2-1: Distribution of TRI On-site and Off-site Releases, All 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.
UIJ = Underground Injection

Meanwhile, off-site releases constituted 17.9 percent, or 410.0 million pounds, of the total on- and off-site releases for the original industries. Off-site releases to landfills/surface impoundments were 10.6 percent, or 241.8 million pounds, of the total on- and off-site releases. Solidification/stabilization accounted for 3.7 percent, or 83.7 million pounds, of total on- and off-site releases. Storage only, transfers to POTWs, underground injection, land treatment, other land disposal, other off-site disposal, transfers to waste broker for disposal, and unknown waste management were each less than 1 percent of total on- and off-site releases.

Starting in 1998, hazardous waste treatment and disposal facilities in SIC code 4953 were required to report to TRI. The result is that TRI chemicals in waste may be sent by one TRI facility (which reports the amounts as transfers off-site to disposal) to another TRI facility (which reports the amounts as on-site releases). Box 2-1 shows how much of the off-site transfers to disposal were also reported as on-site releases in 2000.

Waste Management Data

Quantities of TRI Chemicals in Waste

Table 2-2 compares the new and original industries' waste management activities for 2000. The combined TRI industries managed 37.89 billion pounds of production-related waste in 2000. (The TRI industries also managed 264.1 million pounds of non-production-related waste in 2000, 84.9 percent of which came from the new industries.) The original industries accounted for 83.8 percent (31.73 billion pounds) of the total production-related waste managed while the new industries accounted for 16.2 percent (6.15 billion pounds).

Of the total production-related waste managed by all industries, 39.0 percent, or 14.78 billion pounds was treated on-site. The original industries accounted for 93.2 percent, or 13.78 billion pounds, of the production-related waste treated on-site by all industries. Across all industries, 26.0 percent (9.85 billion pounds) of waste was recycled on-site. Again, the original industries accounted for most (98.0 percent or 9.65 billion pounds) of the waste recycled on-site.

Waste released on- and off-site was the third most common management method across all industries, accounting for 18.3 percent (6.94 billion pounds) of the total production-related waste managed. In this category, however, new industries reported 66.3 percent (4.60 billion pounds) of the total quantity released on- and off-site by all industries.

Of the 31.73 billion pounds of TRI chemicals managed in 2000 by the original industries, 43.4 percent (13.78 billion pounds) was treated on-site. Another 30.4 percent (9.65 billion pounds) was recycled on-site. Recycled off-site, energy recovery on- and off-site, treated off-site, and releases on- and off-site accounted for the remaining 26.2 percent.

Of the 6.15 billion pounds of TRI chemicals managed in 2000 by the new industries, 74.8 percent (just over 4.59 billion pounds) was released on- and off-site and 16.3 percent (just over 1 billion pounds) was treated on-site. The remaining 8.9 percent was

Table 2-2: Quantities of TRI Chemicals in Waste by Waste Management Activity, Original (Manufacturing) and New Industries, 2000

Waste Management Activity	Original Industries		New Industries		All TRI Industries		New Industries as Percent of All TRI Industries
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Percent
Recycled On-site	9,653,794,985	30.4	195,551,210	3.2	9,849,346,195	26.0	2.0
Recycled Off-site	2,159,966,719	6.8	33,176,920	0.5	2,193,143,639	5.8	1.5
Energy Recovery On-site	2,686,643,776	8.5	7,045,642	0.1	2,693,689,418	7.1	0.3
Energy Recovery Off-site	549,039,983	1.7	266,124,188	4.3	815,164,171	2.2	32.6
Treated On-site	13,778,146,072	43.4	1,002,815,347	16.3	14,780,961,420	39.0	6.8
Treated Off-site	571,131,526	1.8	47,733,528	0.8	618,865,054	1.6	7.7
Quantity Released On- and Off-site	2,335,337,556	7.4	4,599,691,226	74.8	6,935,028,782	18.3	66.3
Total Production-related Waste Managed	**31,734,060,618**	**100.0**	**6,152,138,062**	**100.0**	**37,886,198,679**	**100.0**	**16.2**
Non-production-related Waste Managed	39,973,193		224,105,347		264,078,540		84.9

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

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.

recycled on- and off-site, burned for energy recovery on- and off-site, or treated off-site.

Transfers Off-site for Further Waste Management/Disposal

As shown in Table 2-3, transfers off-site for further waste management and disposal in 2000 totaled just under 4.14 billion pounds among all TRI industries. Of that total, the original industries accounted for 89.1 percent (3.69 billion pounds), and the new industries accounted for 10.9 percent (453.1 million pounds).

In all TRI industries, over half of the transfers for further waste management and disposal was from transfers to recycling—just over 2.09 billion pounds. Transfers to energy recovery accounted for 19.3 percent (800.4 million pounds), and other off-site transfers to disposal accounted for 14.8 percent (610.8 million pounds).

Transfers to recycling accounted for 56.0 percent (2.06 billion pounds) of the transfers for further management and disposal by the original industries in 2000. Transfers to energy recovery accounted for 14.7 percent (542.5 million pounds), while other off-site transfers to disposal (not including transfers to POTWs of metals and metal compounds) were 13.3 percent (488.6 million pounds). Transfers to treatment, transfers to POTWs, and other off-site transfers comprised the remaining 16.0 percent.

Transfers to energy recovery accounted for 56.9 percent (257.9 million pounds) of the total off-site transfers for further waste management and disposal by the new industries in 2000. Off-site transfers to disposal (not including transfers to POTWs of metals and metal compounds) were 27.0 percent (122.2 million pounds) of the total off-site transfers for further waste management and disposal. Transfers to recycling, transfers to treatment, transfers to POTWs accounted for the remaining combined 16.1 percent of total transfers for further waste management and disposal.

Projections of TRI Chemicals in Waste and Source Reduction

As described in **Waste Management** in Chapter 1, on each Form R that it submits, a facility reports actual waste management quantities for the current and prior years and projected quantities for the next two years. TRI facilities (both original and new industries) projected a 1.6 percent increase in total production-related waste, from 37.89 billion pounds in 2000 to 38.49 billion pounds in 2002 (see Table 2-4.)

Table 2-3: TRI Off-site Transfers for Further Waste Management/Disposal, Original (Manufacturing) and New Industries, 2000

Type of Transfer	Original Industries		New Industries		All TRI Industries		New Industries as Percent of All TRI Industries
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Percent
Transfers to Recycling	2,064,722,344	56.0	30,409,774	6.7	2,095,132,118	50.6	1.5
Transfers to Energy Recovery	542,491,264	14.7	257,859,893	56.9	800,351,157	19.3	32.2
Transfers to Treatment	242,879,243	6.6	39,285,277	8.7	282,164,520	6.8	13.9
Transfers to POTWs	337,225,110	9.1	3,386,348	0.7	340,611,459	8.2	1.0
Metals and Metal Compounds Only	3,153,650	0.1	40,549	0.0	3,194,199	0.1	1.3
Non-metal TRI Chemicals	334,071,460	9.1	3,345,800	0.7	337,417,260	8.2	1.0
Other Off-site Transfers*	10,628,445	0.3	6,750	0.0	10,635,195	0.3	0.1
Other Off-site Transfers to Disposal**	488,580,198	13.3	122,196,168	27.0	610,776,366	14.8	20.0
Total Transfers for Further Waste Management/Disposal	**3,686,526,604**	**100.0**	**453,144,211**	**100.0**	**4,139,670,815**	**100.0**	**10.9**

Note: Total Transfers Off-site for Further Waste Management/Disposal are from Section 6 of Form R.

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.

* Other Off-site Transfers are transfers reported without a valid waste management code.
** Does not include transfers to POTWs of metals and metal compounds.

The original industries expected their total to increase by 3.6 percent, from 31.73 billion pounds in 2000 to 32.88 billion pounds in 2002, while the new industries expected their total production-related waste to decrease by 8.8 percent, from 6.15 billion pounds in 2000 to 5.61 billion pounds in 2002. The expected decreases would reduce the new industries' proportion of total production-related waste from all industries from 16.2 percent in 2000 to a projected 14.6 percent in 2002.

Quantities released on- and off-site are expected to decrease, for both original and new industries and for TRI industries as a whole. Releases on- and off-site represent the least-desirable option under the waste management hierarchy described in **Waste Management** in Chapter 1. The projected decrease of 8.8 percent in such releases—from 6.94 billion pounds in 2000 to 6.32 billion pounds in 2002 for all TRI industries—therefore represents a positive development in TRI facilities' waste management. For new industries the expected decrease would be 8.9 percent and for original industries 8.7 percent.

As shown in Table 2-5, TRI industries submitted 78,304 Form Rs, 15.5 percent of which (12,165 forms) reported source reduction activities. As noted in **Waste Management** in Chapter 1, source reduction—activity that prevents the generation of waste—is the preferred waste management option.

Good operating practices were the most frequently cited source reduction activity, with 7,051 forms reporting good operating practices during 2000. Process modifications were cited on 3,891 forms and spill and leak prevention on 3,166 forms.

The original industries accounted for over 89 percent of the reported source reduction activities: all of the surface preparation and finishing and 93.8 percent of the product modifications. Good operating practices were cited most frequently by electric utilities and chemical wholesale distributors while spill and leak prevention was by the petroleum terminals and bulk storage facilities.

TRI DATA FOR ORIGINAL AND NEW INDUSTRIES, 1998-2000

As shown in Table 2-6, the numbers of facilities reporting and of forms submitted were slightly lower, by 2 to 4 percent between 1999 and 2000 for TRI industries as a whole. The data used to com-

Table 2-4: Current Year and Projected Quantities of TRI Chemicals in Waste, Original (Manufacturing) and New Industries, 2000-2002

Waste Management Activity	Original Industries			New Industries		
	2000	2001	2002	2000	2001	2002
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Recycled On-site	9,653,794,985	10,943,551,394	11,117,660,076	195,551,210	202,796,256	204,887,689
Recycled Off-site	2,159,966,719	2,153,142,168	2,091,310,140	33,176,920	29,021,924	29,084,705
Energy Recovery On-site	2,686,643,776	2,686,510,762	2,696,940,447	7,045,642	6,656,802	6,663,060
Energy Recovery Off-site	549,039,983	522,332,195	493,309,526	266,124,188	197,678,806	201,219,234
Treated On-site	13,778,146,072	13,430,834,085	13,800,528,890	1,002,815,347	940,954,808	934,280,186
Treated Off-site	571,131,526	543,528,000	549,510,895	47,733,528	41,761,947	41,797,393
Quantity Released On- and Off-site	2,335,337,556	2,189,276,304	2,132,294,892	4,599,691,226	4,179,927,776	4,190,141,292
Total Production-related Waste Managed	**31,734,060,618**	**32,469,174,909**	**32,881,554,865**	**6,152,138,062**	**5,598,798,319**	**5,608,073,557**
	All TRI Industries			**Projected Change 2000-2002**		
Waste Management Activity	**2000**	**2001**	**2002**	**Original Industries**	**New Industries**	**All Industries**
	Pounds	Pounds	Pounds	Percent	Percent	Percent
Recycled On-site	9,849,346,195	11,146,347,650	11,322,547,765	15.2	4.8	15.0
Recycled Off-site	2,193,143,639	2,182,164,092	2,120,394,845	-3.2	-12.3	-3.3
Energy Recovery On-site	2,693,689,418	2,693,167,564	2,703,603,507	0.4	-5.4	0.4
Energy Recovery Off-site	815,164,171	720,011,001	694,528,760	-10.2	-24.4	-14.8
Treated On-site	14,780,961,420	14,371,788,892	14,734,809,075	0.2	-6.8	-0.3
Treated Off-site	618,865,054	585,289,948	591,308,288	-3.8	-12.4	-4.5
Quantity Released On- and Off-site	6,935,028,782	6,369,204,080	6,322,436,183	-8.7	-8.9	-8.8
Total Production-related Waste Managed	**37,886,198,679**	**38,067,973,228**	**38,489,628,422**	**3.6**	**-8.8**	**1.6**

Note: Current year (2000) and projected (2001 and 2002) amounts are from Section 8 of Form R for 2000.

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.

Table 2-5: Forms Reporting Source Reduction Activity, by Category, Original (Manufacturing) and New Industries, 2000

SIC Code	Industry	Total Form Rs	Forms Reporting Source Reduction Activity		Category of Source Reduction Activity							
				Percent of All Form Rs	Good Operating Practices	Inventory Control	Spill and Leak Prevention	Raw Materials Modifi-cations	Process Modifi-cations	Cleaning and Degreasing	Surface Preparation and Finishing	Product Modifi-cations
		Number	Number	Percent	Number	Number	Number	Number	Number	Number	Number	Number
20-39	Original Industries	63,573	10,869	17.1	6,095	1,392	2,690	1,623	3,704	615	1,088	798
10	Metal Mining	655	24	3.7	4	1	4	0	14	0	0	1
12	Coal Mining	203	0	0.0	0	0	0	0	0	0	0	0
491/493	Electric Utilities	6,038	497	8.2	344	63	41	96	61	0	0	1
5169	Chemical Wholesale Distributors	1,871	237	12.7	143	36	130	11	30	24	0	2
5171	Petroleum Terminals/Bulk Storage	3,499	188	5.4	100	26	160	0	48	16	0	7
4953/7389	Hazardous Waste/Solvent Recovery	2,465	350	14.2	365	0	141	0	34	0	0	3
	Total	**78,304**	**12,165**	**15.5**	**7,051**	**1,518**	**3,166**	**1,730**	**3,891**	**655**	**1,088**	**812**

Note: All source reduction activities on a form are counted in the corresponding category. Totals do not equal the sum of the categories because forms may report more than one source reduction activity.

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.

pare 1998, 1999 and 2000 do not include the PBT chemicals or vanadium or vanadium compounds since some PBT chemicals and vanadium compounds were added to the TRI list of chemicals in 2000 and the reporting definition for vanadium changed and the reporting thresholds for all PBT chemicals changed. Chapter 3 examines in more detail reporting on PBT chemicals in 2000.

On- and Off-site Releases, 1998-2000

On- and off-site releases in 2000 for all TRI industries totaled 7.00 billion pounds, a decrease from 7.65 billion pounds in 1999, or 8.4 percent. From 1999 to 2000, total releases by the new industries decreased by 11.0 percent, from 5.32 billion pounds to 4.73 billion pounds. Total releases by original industries, decreased from 1999 to 2000 by 2.6 percent, from 2.33 billion pounds to 2.27 billion pounds.

After increasing from 1998 to 1999 and then falling from 1999 to 2000, for the three-year period 1998-2000, total on- and off-site releases fell 5.1 percent in the new industries. Total on- and off-site releases fell 6.4 percent in the original industries. Overall total on- and off-site releases decreased 5.5 percent for all TRI industries. The increase from 1998 to 1999 was due to reporting by the new industries.

On-site releases from all TRI industries declined in 2000 to 6.49 billion pounds from 7.19 billion pounds in 1999, a decrease of 9.8 percent. The original industries' on-site releases fell from 1.98 billion pounds in 1999 to 1.86 billion pounds in 2000, by 5.8 percent. The new industries' on-site releases decreased by 11.2 percent, from 5.21 billion pounds in 1999 to 4.63 billion pounds in 2000.

For the three-year period 1998-2000, total on-site releases fell 10.5 percent in the original industries and 5.4 percent in the new industries for a combined decrease of 6.9 percent for all TRI industries. On-site releases for all industries rose from 1998 to 1999 and then decreased. The increase from 1998 to 1999 was due to reporting by the new industries. (See Figures 2-2 and 2-3.)

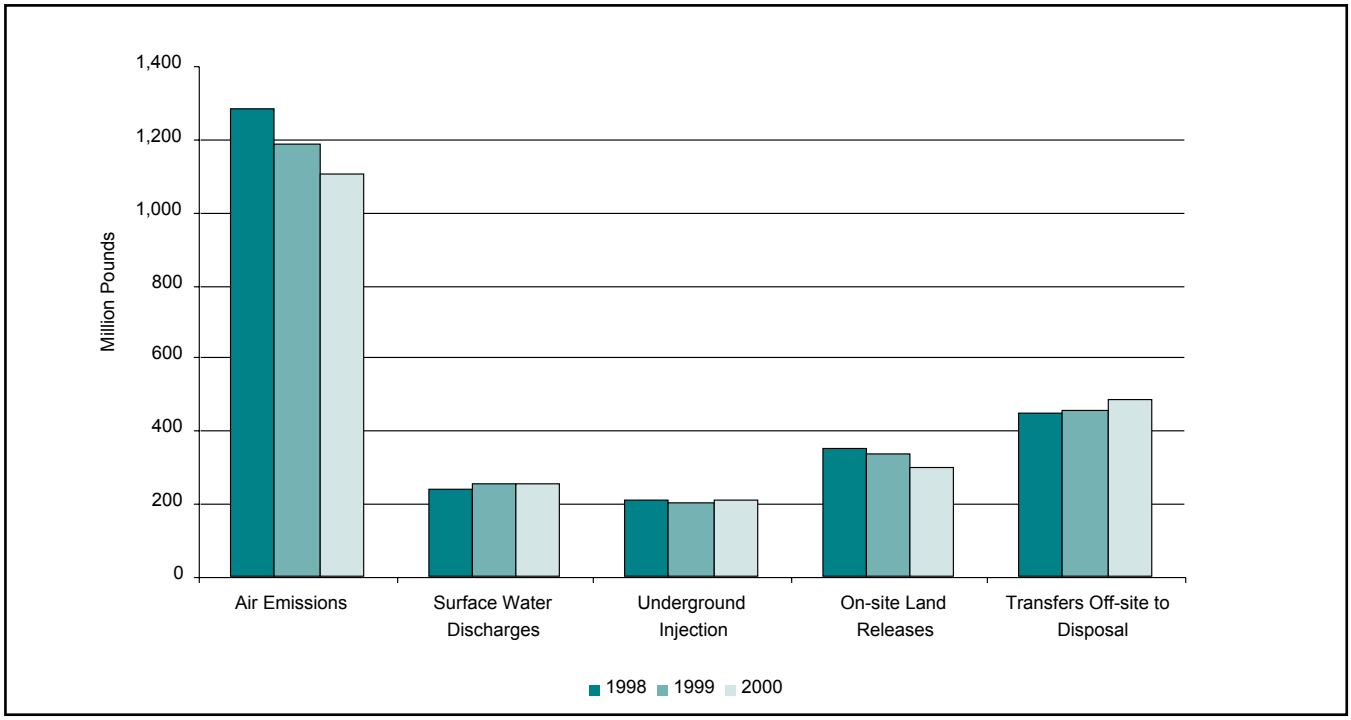
The new industries saw the largest decline in on-site releases from land releases from 1999 to 2000. On-site land releases fell by 541.7 million pounds or 12.6 percent, from 4.29 billion pounds in 1999 to 3.75 billion pounds in 2000. Air emissions saw the second largest decline by new industries falling 6.8 percent, or nearly 58.0 million pounds led by a drop in point-source air emissions of 57.2 million pounds. The largest increase in on-site releases in the new industries came from underground injection, which rose 23.4 percent, but the quantities involved were somewhat smaller—13.6 million pounds increase from 1999 to 2000.

For the original industries, all the main categories of release declined in quantity, except for underground injection, which increased 2.6 percent. The largest decrease was in air emissions, which decreased by 79.6 million pounds, or 6.7 percent, from 1.18 billion pounds in 1999 to 1.10 billion pounds in 2000.

Off-site releases reported by both original industries and the new industries increased from 1999 to 2000. Off-site releases (transfers off-site to disposal) for all TRI industries rose 12.5 percent, from 456.0 million pounds in 1999 to 513.0 million pounds in 2000.

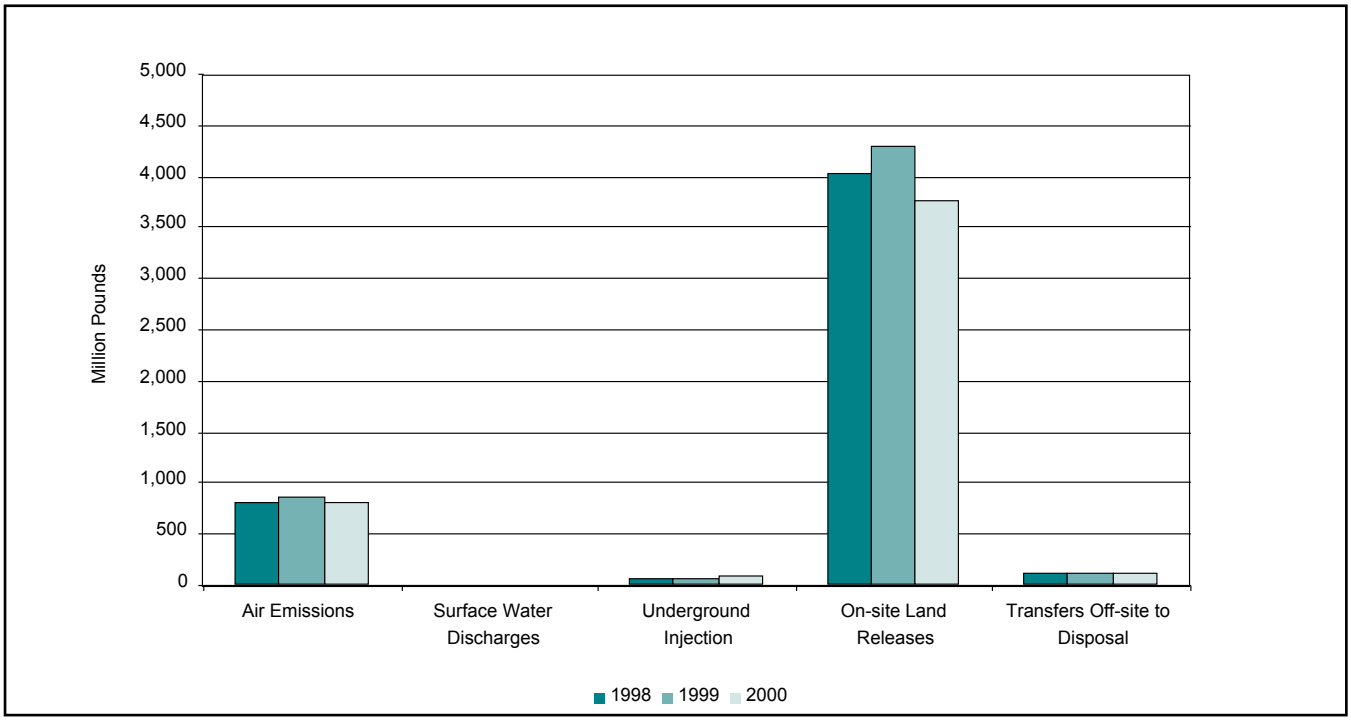
The original industries reported off-site releases of 350.0 million pounds in 1999 and 404.7 million pounds in 2000, a 15.6 percent increase. The main categories in which the original industries reported increases were solidification/stabilization, which increased 33.0 million pounds, a 65.3 percent increase, and landfills/surface impoundments, which increased 20.8 million pounds, a 9.6 percent increase. Storage only increased by 30.6 percent, almost 2.0 million pounds, and underground injection and wastewater treatment (excluding POTWs) had modest increases. The only categories of off-site releases by the original industries to register decreases were other land disposal (down 3.9 million pounds), other off-site management (down 3.1 million pounds), and transfers to POTWs (down 1,400 pounds).

Figure 2-2: Distribution of TRI On-site and Off-site Releases, Original Industries, 1998-2000



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.

Figure 2-3: Distribution of TRI On-site and Off-site Releases, New Industries, 1998-2000



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.

Table 2-6: TRI On-site and Off-site Releases, Original (Manufacturing) and New Industries, 1998-2000

	Original Industries					New Industries				
	1998	1999	2000	Change 1999-2000	Change 1998-2000	1998	1999	2000	Change 1999-2000	Change 1998-2000
	Number	Number	Number	Percent	Percent	Number	Number	Number	Percent	Percent
Total Facilities	21,575	21,089	20,789	-1.4	-3.6	1,982	1,949	2,006	2.9	1.2
Total Forms	71,492	70,276	69,733	-0.8	-2.5	15,001	14,572	14,349	-1.5	-4.3
Form Rs	61,077	59,935	59,187	-1.2	-3.1	12,365	12,088	11,701	-3.2	-5.4
Form As	10,415	10,341	10,546	2.0	1.3	2,636	2,484	2,648	6.6	0.5
	Pounds	Pounds	Pounds	Percent	Percent	Pounds	Pounds	Pounds	Percent	Percent
On-site Releases										
Total Air Emissions	1,277,155,829	1,184,024,043	1,104,442,103	-6.7	-13.5	810,750,237	853,535,229	795,560,618	-6.8	-1.9
Fugitive Air Emissions	298,429,681	269,152,806	249,329,161	-7.4	-16.5	7,037,092	6,502,027	5,716,185	-12.1	-18.8
Point Source Air Emissions	978,726,148	914,871,237	855,112,942	-6.5	-12.6	803,713,145	847,033,202	789,844,433	-6.8	-1.7
Surface Water Discharges	240,910,126	256,457,046	255,054,853	-0.5	5.9	7,181,525	4,999,744	5,213,657	4.3	-27.4
Underground Injection	210,831,862	200,786,511	206,084,829	2.6	-2.3	56,688,648	58,114,841	71,728,935	23.4	26.5
Class I Wells	210,651,959	200,624,023	205,858,154	2.6	-2.3	23,516,655	22,861,227	33,915,985	48.4	44.2
Class II-V Wells	179,903	162,488	226,675	39.5	26.0	33,171,993	35,253,614	37,812,950	7.3	14.0
On-site Land Releases	352,062,146	336,786,793	296,873,973	-11.9	-15.7	4,013,016,076	4,294,805,255	3,753,134,552	-12.6	-6.5
RCRA Subtitle C Landfills	15,277,761	14,078,096	10,456,759	-25.7	-31.6	203,422,089	195,552,557	193,573,615	-1.0	-4.8
Other On-site Landfills	336,784,385	322,708,697	286,417,214	-11.2	-15.0	3,809,593,987	4,099,252,698	3,559,560,937	-13.2	-6.6
Total On-site Releases	**2,080,959,963**	**1,978,054,393**	**1,862,455,758**	**-5.8**	**-10.5**	**4,887,636,486**	**5,211,455,069**	**4,625,637,761**	**-11.2**	**-5.4**
Off-site Releases										
Storage Only*	5,718,994	6,409,809	8,368,501	30.6	46.3	2,716,588	786,178	836,341	6.4	-69.2
Solidification/Stabilization**	47,555,111	50,484,555	83,461,022	65.3	75.5	4,717,403	5,601,927	8,134,367	45.2	72.4
Metal and Metal Compounds Only										
Wastewater Treatment (Excluding POTWs)***	2,737,129	6,454,669	6,633,921	2.8	142.4	115,134	180,483	342,626	89.8	197.6
Metal and Metal Compounds Only										
Transfers to POTWs****	3,339,395	3,144,502	3,143,092	0.0	-5.9	359,202	22,833	40,422	77.0	-88.7
Metal and Metal Compounds Only										
Underground Injection	7,932,893	22,143,601	23,259,461	5.0	193.2	343,674	2,780,073	415,919	-85.0	21.0
Landfills/Surface Impoundments	228,147,265	216,271,855	237,107,755	9.6	3.9	69,977,544	64,499,355	75,294,090	16.7	7.6
Land Treatment	1,703,321	4,301,369	4,864,479	13.1	185.6	487,775	598,919	855,389	42.8	75.4
Other Land Disposal	15,405,032	14,225,321	10,332,633	-27.4	-32.9	12,360,274	10,828,416	10,942,491	1.1	-11.5
Other Off-site Management	10,282,696	11,166,472	8,088,498	-27.6	-21.3	9,012,914	17,666,970	9,036,128	-48.9	0.3
Transfers to Waste Broker for Disposal	13,943,110	11,743,932	14,412,045	22.7	3.4	883,644	2,505,848	1,608,459	-35.8	82.0
Unknown*****	3,612,309	3,674,761	4,991,390	35.8	38.2	452,741	535,880	875,480	63.4	93.4
Transfers Off-site to Disposal	**340,377,256**	**350,020,845**	**404,662,797**	**15.6**	**18.9**	**101,426,892**	**106,006,883**	**108,381,711**	**2.2**	**6.9**
(Transfers Off-site to Disposal)										
Total On- and Off-site Releases	**2,421,337,219**	**2,328,075,238**	**2,267,118,555**	**-2.6**	**-6.4**	**4,989,063,378**	**5,317,461,952**	**4,734,019,472**	**-11.0**	**-5.1**

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.

* 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)

Table 2-6: TRI On-site and Off-site Releases, Original (Manufacturing) and New Industries, 1998-2000 (continued)

	All TRI Industries				
	1998	1999	2000	Change 1999-2000	Change 1998-2000
	Number	Number	Number	Percent	Percent
Total Facilities	23,557	23,038	22,795	-1.1	-3.2
Total Forms	86,493	84,848	84,082	-0.9	-2.8
Form Rs	73,442	72,023	70,888	-1.6	-3.5
Form As	13,051	12,825	13,194	2.9	1.1
	Pounds	Pounds	Pounds	Percent	Percent
On-site Releases					
Total Air Emissions	2,087,906,066	2,037,559,272	1,900,002,721	-6.8	-9.0
Fugitive Air Emissions	305,466,773	275,654,833	255,045,346	-7.5	-16.5
Point Source Air Emissions	1,782,439,292	1,761,904,439	1,644,957,375	-6.6	-7.7
Surface Water Discharges	248,091,651	261,456,790	260,268,510	-0.5	4.9
Underground Injection	267,520,510	258,901,352	277,813,764	7.3	3.8
Class I Wells	234,168,614	223,485,250	239,774,139	7.3	2.4
Class II-V Wells	33,351,896	35,416,102	38,039,625	7.4	14.1
On-site Land Releases	4,365,078,222	4,631,592,048	4,050,008,524	-12.6	-7.2
RCRA Subtitle C Landfills	218,699,850	209,630,653	204,030,374	-2.7	-6.7
Other On-site Landfills	4,146,378,372	4,421,961,395	3,845,978,150	-13.0	-7.2
Total On-site Releases	**6,968,596,449**	**7,189,509,462**	**6,488,093,519**	**-9.8**	**-6.9**
Off-site Releases					
Storage Only*	8,435,582	7,195,987	9,204,842	27.9	9.1
Solidification/Stabilization**	52,272,514	56,086,482	91,595,389	63.3	75.2
Metal and Metal Compounds Only					
Wastewater Treatment (Excluding POTWs)***	2,852,263	6,635,152	6,976,547	5.1	144.6
Metal and Metal Compounds Only					
Transfers to POTWs****	3,698,597	3,167,335	3,183,514	0.5	-13.9
Metal and Metal Compounds Only					
Underground Injection	8,276,566	24,923,675	23,675,380	-5.0	186.1
Landfills/Surface Impoundments	298,124,809	280,771,211	312,401,845	11.3	4.8
Land Treatment	2,191,096	4,900,288	5,719,868	16.7	161.1
Other Land Disposal	27,765,306	25,053,737	21,275,124	-15.1	-23.4
Other Off-site Management	19,295,611	28,833,442	17,124,626	-40.6	-11.3
Transfers to Waste Broker for Disposal	14,826,754	14,249,780	16,020,504	12.7	9.3
Unknown*****	4,065,050	4,210,641	5,866,870	37.5	37.6
Transfers Off-site to Disposal (Transfers Off-site to Disposal)	**441,804,147**	**456,027,728**	**513,044,508**	**12.5**	**16.1**
Total On- and Off-site Releases	**7,410,400,596**	**7,645,537,190**	**7,001,138,027**	**-8.4**	**-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.

* 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).

Table 2-7: Quantities of TRI Chemicals in Waste by Waste Management Activity, Original (Manufacturing) and New Industries, 1998-2000

	Original Industries					New Industries				
Waste Management Activity	1998 Pounds	1999 Pounds	2000 Pounds	Change 1999-2000 Percent	Change 1998-2000 Percent	1998 Pounds	1999 Pounds	2000 Pounds	Change 1999-2000 Percent	Change 1998-2000 Percent
Recycled On-site	8,385,540,278	7,760,371,765	9,648,793,825	24.3	15.1	203,076,708	199,404,215	195,466,701	-2.0	-3.7
Recycled Off-site	2,104,267,249	2,170,640,184	2,155,918,552	-0.7	2.5	36,994,728	36,793,121	32,838,059	-10.7	-11.2
Energy Recovery On-site	2,733,353,748	2,807,080,971	2,678,931,507	-4.6	-2.0	11,399,201	10,762,603	7,044,038	-34.6	-38.2
Energy Recovery Off-site	490,658,304	513,659,423	548,777,370	6.8	11.8	412,406,220	270,806,332	266,104,594	-1.7	-35.5
Treated On-site	5,959,218,668	7,426,442,587	13,755,052,371	85.2	130.8	808,546,067	912,997,890	979,399,297	7.3	21.1
Treated Off-site	596,249,888	548,518,807	570,596,827	4.0	-4.3	90,263,036	72,354,931	47,475,922	-34.4	-47.4
Quantity Released On- and Off-site	2,498,382,894	2,416,857,735	2,318,298,838	-4.1	-7.2	4,999,898,097	4,813,430,648	4,520,758,586	-6.1	-9.6
Total Production-related Waste Managed	**22,767,671,028**	**23,643,571,472**	**31,676,369,292**	**34.0**	**39.1**	**6,562,584,057**	**6,316,549,740**	**6,049,087,197**	**-4.2**	**-7.8**
Non-production-related Waste Managed	26,278,484	305,689,636	39,828,556	-87.0	51.6	1,611,653	506,552,315	220,800,646	-56.4	13,600.3

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.

Total off-site releases from facilities in the new industries rose from 106.0 million pounds in 1999 to 108.4 million pounds in 2000, a 2.2 percent increase. The largest increase was landfills/surface impoundments, which increased 10.8 million pounds, or 16.7 percent. Solidification/stabilization had the next largest increase, 2.5 million pounds, a 45.2 percent increase. By contrast, other off-site management fell by 8.6 million pounds, and underground injection fell by 2.4 million pounds. Transfers to waste brokers also had a modest decrease of nearly 862,100 pounds. All other major categories had modest increases.

For the three-year period, 1998-2000, off-site releases for all TRI industries increased by 16.1 percent, 71.2 million pounds. The largest component of this increase was in solidification/stabilization, which increased by 39.2 million pounds or 75.2 percent. Off-site releases to underground injection increased by 15.4 million pounds or 186.2 percent and off-site releases to landfills/surface impoundments increased by 14.3 million pounds or 4.8 percent.

Waste Management Data, 1998-2000

Quantities of TRI Chemicals in Waste, 1998-2000

Table 2-7 compares the quantities of TRI chemicals in waste for original and new industries for the years 1998-2000. Total production-related waste for all TRI industries in 2000 was 37.73 billion pounds, an increase of 25.9 percent from 1999. The quantities of TRI chemicals managed in waste increased 28.6 percent from 1998 to 2000.

The original industries reported production-related waste totaling 31.68 billion pounds in 2000, up from 23.64 billion pounds in 1999, an increase of 34.0 percent. The original industries had an overall increase in production-related waste of 8.91 billion pounds or 39.1 percent for the three-year period 1998-2000. Two facilities in the chemical manufacturing industry accounted for most of this increase; one facility in Louisiana 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.

For the new industries, production-related waste amounted to 6.05 billion pounds in 2000, a decrease

Table 2-7: Quantities of TRI Chemicals in Waste by Waste Management Activity, Original (Manufacturing) and New Industries, 1998-2000 (continued)

Waste Management Activity	All TRI Industries				
	1998 Pounds	1999 Pounds	2000 Pounds	Change 1999-2000 Percent	Change 1998-2000 Percent
Recycled On-site	8,588,616,986	7,959,775,980	9,844,260,526	23.7	14.6
Recycled Off-site	2,141,261,977	2,207,433,305	2,188,756,611	-0.8	2.2
Energy Recovery On-site	2,744,752,949	2,817,843,574	2,685,975,545	-4.7	-2.1
Energy Recovery Off-site	903,064,524	784,465,755	814,881,964	3.9	-9.8
Treated On-site	6,767,764,735	8,339,440,477	14,734,451,668	76.7	117.7
Treated Off-site	686,512,924	620,873,738	618,072,750	-0.5	-10.0
Quantity Released On- and Off-site	7,498,280,991	7,230,288,383	6,839,057,424	-5.4	-8.8
Total Production-related Waste Managed	**29,330,255,085**	**29,960,121,212**	**37,725,456,489**	**25.9**	**28.6**
Non-production-related Waste Managed	27,890,137	812,241,951	260,629,202	-67.9	834.5

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

of 4.2 percent from 1999. New industries' production-related waste decreased throughout the three-year period 1998-2000, for an overall reduction of 7.8 percent or 513.5 million pounds.

The amount of production-related waste treated on-site for all TRI industries increased by 76.7 percent between 1999 and 2000, from 8.34 billion pounds to 14.7 billion pounds. This was after an increase from 6.77 billion pounds in 1998 to the 8.34 billion pounds in 1999. The largest portion of the increase was due to increases of 7.80 billion pounds for original industries from 1998-2000. However, on-site treatment by new industries also increased, by 170.9 million pounds for the three-year period, 1998-2000.

On-site recycling also registered large increases. From 1999 to 2000, all TRI industries reported an increase of 1.88 billion pounds, or 23.7 percent, in on-site recycling. The original industries reported an increase of 1.89 billion pounds, 24.3 percent, in on-site recycling from 1999 to 2000. The new industries reported a decrease in on-site recycling from 1999 to 2000 of 3.9 million pounds or 2.0 percent. Likewise, for the three-year period, 1998-2000, the increase in on-site recycling was due to increases reported by the original industries of 1.26 billion pounds or 15.1 percent while the new industries reported an overall decrease of 7.6 million pounds or 3.7 percent.

Off-site recycling was the other type of waste management activity that registered an increase for the three-year period from 1998 to 2000. However, off-site recycling decreased from 1999 to 2000, by 18.7 million pounds or 0.8 percent. The increase in off-site recycling from 1998 to 2000 occurred in the original industries, which reported increases of 51.7 million pounds, 2.5 percent, during this period. The new industries reported decreases in off-site recycling of 4.2 million pounds, or 11.2 percent from 1998 to 2000.

The quantity of chemicals in waste released on- and off-site from 1999 to 2000 decreased overall. The decrease reported by the new industries was 292.7 million pounds, or 6.1 percent. The decrease by the original industries was 98.6 million pounds, or 4.1 percent. Releases on- and off-site also decreased over the three-year period, 1998-2000, by 659.2 million pounds, 8.8 percent, for all TRI industries, by 180.1 million pounds or 7.2 percent for the original industries and by 479.1 million pounds or 9.6 percent by the new industries.

Transfers Off-site for Further Waste Management/Disposal, 1998-2000

As shown in Table 2-8 transfers off-site for further waste management and disposal decreased slightly from 1999 to 2000 by 0.04 percent or 1.8 million pounds. Over the three-year period, 1998-2000, transfers off-site for further waste management and

Table 2-8: TRI Off-site Transfers for Further Waste Management/Disposal, Original (Manufacturing) and New Industries, 1998-2000

Type of Transfer	Original Industries					New Industries				
	1998 Pounds	1999 Pounds	2000 Pounds	Change 1999-2000 Percent	Change 1998-2000 Percent	1998 Pounds	1999 Pounds	2000 Pounds	Change 1999-2000 Percent	Change 1998-2000 Percent
Transfers to Recycling	2,039,193,067	2,123,230,926	2,060,661,857	-2.9	1.1	37,759,933	36,928,144	29,721,539	-19.5	-21.3
Transfers to Energy Recovery	483,616,887	516,501,118	542,228,596	5.0	12.1	429,535,326	264,792,051	257,839,548	-2.6	-40.0
Transfers to Treatment	255,153,901	235,794,275	242,413,085	2.8	-5.0	72,252,734	51,710,328	39,044,612	-24.5	-46.0
Transfers to POTWs	330,947,045	327,718,047	337,209,427	2.9	1.9	2,012,296	2,086,573	3,385,983	62.3	68.3
Metals and Metal Compounds Only	3,339,395	3,144,502	3,143,092	0.0	-5.9	359,202	22,833	40,422	77.0	-88.7
Non-metal TRI Chemicals	327,607,650	324,573,545	334,066,335	2.9	2.0	1,653,094	2,063,740	3,345,562	62.1	102.4
Other Off-site Transfers*	690,139	166,400	10,570,089	6,252.2	1,431.6	10,320	0	6,750	--	-34.6
Other Off-site Transfers to Disposal**	445,204,520	452,348,267	482,965,754	6.8	8.5	105,852,380	111,750,521	115,174,442	3.1	8.8
Total Transfers for Further Waste Management/Disposal	**3,554,805,559**	**3,655,759,032**	**3,676,048,807**	**0.6**	**3.4**	**647,422,989**	**467,267,617**	**445,172,874**	**-4.7**	**-31.2**

Note: Does not include PBT chemicals, vanadium and vanadium compounds. **Total Transfers Off-site for Further Waste Management/Disposal** are from Section 6 of Form R.

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.

* Other Off-site Transfers are transfers reported without a valid waste management code.
** Does not include transfers to POTWs of metals and metal compounds.

disposal decreased by 1.9 percent, from 4.20 billion pounds in 1998 to 4.12 billion pounds in 2000.

This decrease was due to reporting by the new industries, which registered a 4.7 percent decrease from 467.3 million pounds in 1999 to 445.2 million pounds in 2000 after decreasing from 647.4 million pounds in 1998. The percentage decrease for new industries was 31.2 percent from 1998 to 2000. Original industries reported increases in transfers off-site for further waste management and disposal of 0.6 percent, from 3.66 billion pounds in 1999 to 3.68 billion pounds in 2000, and an increase of 3.4 percent for the three-year period, 1998-2000, from 3.55 billion pounds in 1998.

Transfers to recycling registered the largest decrease of all types of transfers off-site for further waste management and disposal from 1999 to 2000. Transfers to recycling fell from 2.16 billion pounds in 1999 to 2.09 billion pounds in 2000, a 3.2 percent decrease. Transfers to recycling for all TRI industries did increase from 1998 to 1999, for an overall increase for the three-year period, 1998-2000, of 0.6 percent.

Transfers to recycling from new industries decreased by 19.5 percent, from 36.9 million pounds in 1999 to 29.7 million pounds in 2000. The overall change in transfers to recycling by the new industries was a decrease of 21.3 percent for the period 1998-2000. For the original industries, transfers to recycling decreased by 2.9 percent, from 2.12 billion pounds in 1999 to 2.06 billion pounds in 2000, but overall for the three-year period, 1998-2000, transfers to recycling from original industries increased by 1.1 percent.

The type of transfer with the largest increase was other off-site transfers to disposal (other than of metals and metal compounds to POTWs), which increased by 34.0 million pounds or 6.0 percent from 1999 to 2000 for all TRI industries. For the original industries, such transfers increased by 6.8 percent, from 452.3 million pounds in 1999 to 483.0 million pounds in 2000. The new industries reported 111.8 million pounds in 1999 and 115.2 million pounds in 2000, for an increase of 3.1 percent. Over the three-year period, 1998-2000, other off-site transfers to disposal increased by 8.5 percent from 551.1 million pounds in 1998 to 598.1 million pounds in 2000 for all TRI industries. Both the original industries and the new industries reported similar percentage increases of over 8.5 percent.

Table 2-8: TRI Off-site Transfers for Further Waste Management/Disposal, Original (Manufacturing) and New Industries, 1998-2000 (continued)

Type of Transfer	All TRI Industries				
	1998 Pounds	1999 Pounds	2000 Pounds	Change 1999-2000 Percent	Change 1998-2000 Percent
Transfers to Recycling	2,076,953,000	2,160,159,070	2,090,383,396	-3.2	0.6
Transfers to Energy Recovery	913,152,213	781,293,169	800,068,144	2.4	-12.4
Transfers to Treatment	327,406,635	287,504,603	281,457,697	-2.1	-14.0
Transfers to POTWs	332,959,341	329,804,620	340,595,410	3.3	2.3
Metals and Metal Compounds Only	3,698,597	3,167,335	3,183,514	0.5	-13.9
Non-metal TRI Chemicals	329,260,744	326,637,285	337,411,896	3.3	2.5
Other Off-site Transfers*	700,459	166,400	10,576,839	6,256.3	1,410.0
Other Off-site Transfers to Disposal**	551,056,900	564,098,788	598,140,196	6.0	8.5
Total Transfers for Further Waste Management/Disposal	**4,202,228,548**	**4,123,026,649**	**4,121,221,682**	**-0.04**	**-1.9**

Note: Does not include PBT chemicals, vanadium and vanadium compounds. **Total Transfers Off-site for Further Waste Management/Disposal** are from Section 6 of Form R.

* Other Off-site Transfers are transfers reported without a valid waste management code.
** Does not include transfers to POTWs of metals and metal compounds.