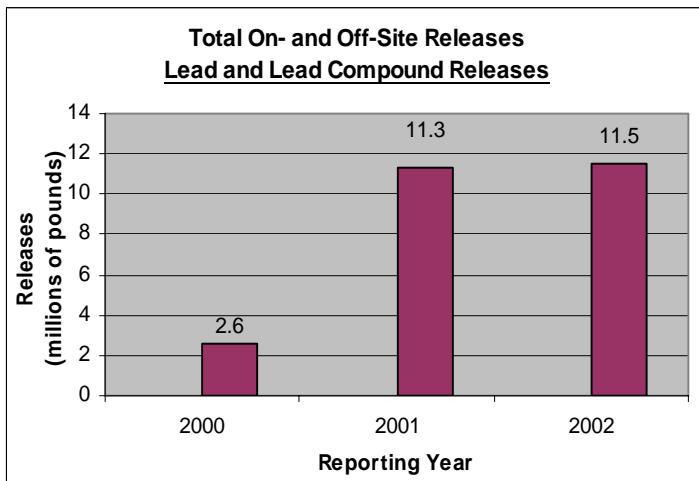
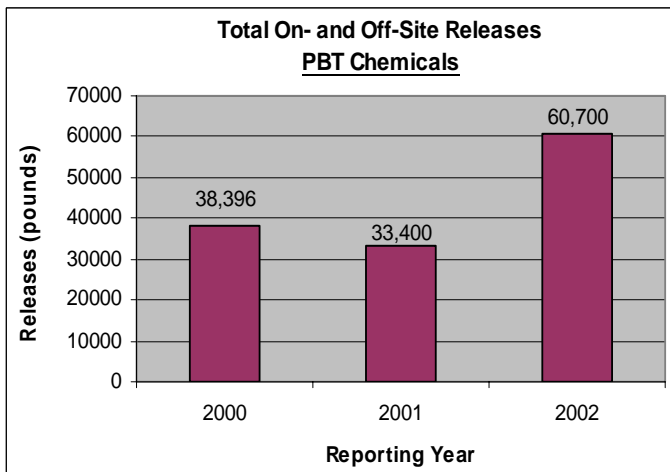
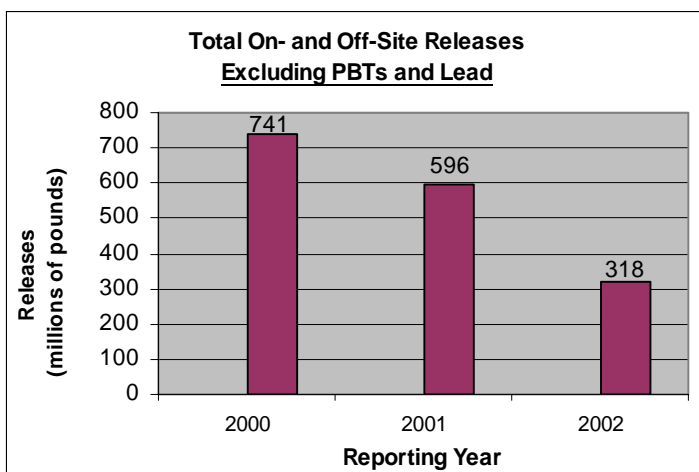




# Arizona Report: 2002 Toxics Release Inventory

**U.S. EPA Region 9**  
Arizona, California,  
Hawaii, Nevada, the  
Pacific Islands, and  
Tribal Nations

## Toxic Chemical Releases: 2000 - 2002



Total Releases for Reporting Years 2000-2002					
Year	Air	Land	Under-ground Injection	Water	Off-Site
2000	5,206,719	737,230,540	0	9,238	1,283,045
2001	4,586,195	601,487,965	0	6,377	819,101
2002	4,132,814	322,351,577	2,184,988	6,911	432,563

### The 2002 Public Data Release

EPA has just made public the 2002 data on toxic chemicals that were released to Arizona's air, water and land. This information comes from the Toxics Release Inventory (TRI), a federal community right-to-know program. In Arizona, 276 facilities reported a

total of 329 million pounds of toxic chemical releases\*.

It is important to note that release should not be directly equated with risk. To evaluate risk, release data must be combined with information about

\* Release is defined as the amount of a toxic chemical released on-site (to air, water, underground injection, landfills and other land disposal), and the amount transferred off-site for disposal. Year to year data comparisons do not reflect changes in reporting requirements.

chemical toxicity, site-specific conditions, and exposure. In addition, this data does not indicate whether a facility is violating environmental laws. Many of the substances reported through this program are subject to state and federal regulations designed to protect human health and the environment.

### **Industries**

A facility is subject to TRI reporting requirements if it: has 10 or more full-time employees; is classified under a reportable Standard Industrial Classification (SIC) code; and manufactures, processes, or otherwise uses any of the listed toxic chemicals in amounts greater than the threshold quantities. For most chemicals (excluding PBTs) the thresholds are 25,000 pounds for manufactured or processed, and 10,000 pounds for otherwise used.

Manufacturing industries have been reporting their releases since 1987, and federal facilities started reporting in 1994. In 1998, an additional seven industry sectors began reporting their toxic chemical releases for the first time. These sectors are metal and coal mining, electricity generation, commercial hazardous waste treatment, solvent recovery, petroleum bulk terminals, and wholesale chemical distributors.

### **Releases**

On April 2, 2003 the District Court for the District of Columbia issued a decision in *Barrick Goldstrike Mines, Inc. v. Whitman*, (Civ. Action No. 99-958 (TPJ)), regarding the TRI reporting obligations of mining facilities. The court determined that non-PBT chemicals present in waste rock are eligible for the de minimis exemption. The de minimis exemption states that a facility is not required to consider the quantity of a toxic chemical present in a mixture if it is below 1% of the mixture, or 0.1% of the mixture in the case of a toxic chemical which is a carcinogen. Prior to the decision mining facilities were required to consider all concentrations of toxic chemicals in waste rock.

This decision is greatly responsible for the 46% decrease from reporting year 2001 for on- and off-site releases for the state. Primary smelting and refining of copper and copper ore metal mining facilities make up

96.7% of the total on- and off-site releases and experienced a 47% decrease in land releases.

Many mines extract, move, store, process, and dispose of large amounts of waste rock and ore -- materials which often contain low concentrations of naturally occurring metals. The vast majority of this material is placed in surface impoundments or on the land, and the metals are reported as on-site releases to land. This previously buried material is exposed to potential leaching by rain, snow, and acid mine drainage, and must be carefully managed and monitored to prevent any surface water or ground-water contamination.

For the first time since the inception of the TRI program Arizona has significant releases by underground injection. All of the reported releases were from BHP San Manuel. The facility discontinued a portion of its operations, which resulted in a one-time release to a permitted underground injection well.

### **Persistent, Bioaccumulative, and Toxic Chemicals**

In the year 2000, TRI was expanded to include additional persistent, bioaccumulative and toxic (PBT) chemicals, and to require reporting for these chemicals at lower thresholds, ranging from 0.1 grams to 100 pounds. PBT pollutants are toxic chemicals that persist in the environment and bioaccumulate in food chains, thus posing risks to human health and ecosystems.

In Arizona, 11.6 million pounds of total on- and off-site releases of PBT chemicals were reported. Below is a table of the PBT releases in Arizona ranked by total on- and off-site releases. The data is in pounds for all chemicals except dioxin, which is given in grams.

**Table of PBT Chemical Releases in Arizona**

Chemical	Total On- and Off-Site Releases		Percent Change
	2001	2002	
Lead Compounds	11,198,441.6	11,420,208.43	2
Lead	82,694.95	97,524.96	18
Mercury Compounds	30,097.38	56,873.66	89
Tetrabromobisphenol A	218.21	1,883.00	763
Polycyclic Aromatic Compounds	1,638.35	1,098.30	-33
Mercury	703.01	831.14	18
Dioxin and dioxin-like compounds (in grams)	16.38	13.28	-19
Benzo (g,h,i)perylene	0.74	1.07	44
Polychlorinated Biphenyls	726.00	0.00	-100

*Releases of persistent, bioaccumulative and toxic (PBT) chemicals in pounds. Dioxin and dioxin-like compounds data not in Toxicity Equivalence (TEQ).*

**Lead and Lead Compounds**

Starting in the year 2001, lead and lead compounds were reported as persistent, bioaccumulative and toxic (PBT) chemicals. While lead and lead compounds have been on the list of reportable chemicals since 1987, for the year 2001 the reporting threshold was lowered from 25,000 pounds manufactured or processed, and 10,000 pounds otherwise used to 100 pounds for the manufacture, process, or otherwise use of lead and lead compounds. As a result, additional facilities are required to report releases of lead and lead compounds.

Over 11.5 million pounds of total on- and off-site releases of lead and lead compounds were reported in Arizona. Ninety-eight percent of these releases are land releases from copper mining facilities.

**Mercury and Mercury Compounds**

Much of the mercury and mercury compound releases reported were released to land (nearly 55,000 pounds) by BHP San Manuel. Air emissions of mercury and mercury compounds accounted for 2.7% (1,560 pounds) of the total releases and were released from electric generating facilities.

**Top Facilities for Releases**

The top 10 facilities for total on- and off-site releases, for all chemicals, in Arizona are:

- ① BHP Copper N.A. San Manuel (San Manuel, Pinal County) with 248.7 million pounds.
- ② ASARCO Inc. Ray Complex Hayden Smelter & Concentrator (Hayden, Gila County), with 34.9 million pounds.
- ③ Phelps Dodge Miami Inc. (Claypool, Gila County) with 22.8 million pounds.
- ④ Phelps Dodge Morenci Inc. (Morenci, Greenlee County) with 4.3 million pounds.
- ⑤ ASARCO Inc. Mission Complex (Sahuarita, Pima County) with 3.1 million pounds.
- ⑥ Tucson Electric Power Springerville Generating Station (Springerville, Apache County) with 2.8 million pounds.
- ⑦ ASARCO Inc. Ray Ops. Mine (Kearny, Pinal County) with 2.3 million pounds.
- ⑧ Navajo Generating Station (Page, Coconino County) with 1.9 million pounds.
- ⑨ Phelps Dodge Sierra Inc. (Green Valley, Pima County) with 1.6 million pounds.
- ⑩ Cholla Power Plant (Joseph City, Navajo County) with 1.2 million pounds.

The top 10 facilities for total on- and off-site releases, for PBT chemicals, in Arizona are:

- ① BHP Copper N.A. San Manuel (San Manuel, Pinal County) with 55,000 pounds.
- ② Isola Laminate System (Chandler, Maricopa County) with 1,883 pounds.
- ③ Navajo Generating Station (Page, Coconino County) with 733 pounds.
- ④ ASARCO Inc. Ray Ops. Mine (Kearny, Pinal County) with 649 pounds.
- ⑤ Tucson Electric Power Springerville Generating Station (Springerville, Apache County) with 597 pounds.
- ⑥ Coronado Generating Station (Saint Johns, Apache County) with 357 pounds.
- ⑦ Phelps Morenci Inc. (Morenci, Greenlee County) with 341 pounds.
- ⑧ ASARCO Inc. Ray Complex Hayden Smelter & Concentrator (Hayden, Gila County) with 304 pounds.
- ⑨ Cholla Power Plant (Joseph City, Navajo County) with 226 pounds.

- ⑩ Arizona Electric Power Cooperative Inc. (Cochise, Cochise County) with 164 pounds.

The top 10 facilities for total on- and off-site releases, for lead and lead compounds, in Arizona are:

- ① ASARCO Inc. Ray Complex Hayden Smelter & Concentrator (Hayden, Gila County) with 3.4 million pounds.
- ② ASARCO Inc. Mission Complex (Sahuarita, Pima County) with 2.6 million pounds.
- ③ ASARCO Inc. Ray Ops. Mine (Kearny, Pinal County) with 2.0 million pounds.
- ④ Phelps Dodge Miami Inc. (Claypool, Gila County) with 1.4 million pounds.
- ⑤ BHP Copper N.A. San Manuel Ops. (San Manuel, Pinal County) with 1.3 million pounds.
- ⑥ Phelps Dodge Sierrita Inc. (Green Valley, Pima County) with 445.7 thousand pounds.
- ⑦ Phelps Dodge Bagdad Inc. (Bagdad, Yavapai County) with 95.0 thousand pounds.
- ⑧ Tucson Electric Power Springerville Generating Station (Springerville, Apache County) with 74.7 thousand pounds.
- ⑨ U.S. Marine Corps Barry M. Goldwater Range (Yuma, Yuma County) with 21.4 thousand pounds.
- ⑩ Navajo Generating Station (Page, Coconino County) with 18.9 thousand pounds.

### **On-line Access**

For national information on data releases, see:

<http://www.epa.gov/tri>

The TRI data is available through Envirofacts Warehouse, EPA's premier internet site for distributing environmental information at:

<http://www.epa.gov/enviro>

or the TRI Explorer tool:

<http://www.epa.gov/triexplorer>

For general information on the Toxics Release Inventory, including reporting requirements for businesses, go to:

<http://www.epa.gov/region09/toxic/tri>

For more information on the EPA's PBT Chemicals Program, go to:

<http://www.epa.gov/opptintr/pbt/>

### **Information and Assistance**

We are happy to answer your questions and assist you in learning more about the TRI Program in Region 9.

**U.S. EPA Region 9**  
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