1998 Toxics Release Inventory Data Release

Questions and Answers

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1998 Public Data Release

TRI Background

Q Who must report to TRI?

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

- Conducts manufacturing operations within SIC codes 20 through 39 and, beginning in the 1998 reporting year if it is in one of the following industries, metal mining, coal mining, electrical utilities, RCRA Subtitle C hazardous waste treatment and disposal facilities, chemicals distributors, petroleum terminals, and solvent recovery services

- Employs 10 or more full-time equivalent employees

- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the reporting year

Q What is EPA's role in releasing TRI data versus the role of the states?

A Facilities are required to report their data to EPA and to the states. EPA makes available its data to the public through the Internet as well as other electronic and hard copy products. A number of states also make available their data through electronic as well as hard copy products. EPA's information products tend to take a more national focus while state products may focus on more local and regional issues.

Q What are the limitations of how the data can be used or interpreted?

A 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. First, users of TRI information should be aware that TRI data reflect releases and other waste management 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. 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.

Also, TRI collects data from a specific set of sectors, including the manufacturing sector (SIC codes 20-39), metal mining, coal mining, electric utilities, petroleum bulk terminals, chemicals wholesalers, RCRA commercial hazardous waste treatment, and solvent recovery. Federal facilities also report to TRI regardless of their SIC classification. 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.

Another limitation of the existing TRI program is that the data currently collected provide limited information on the life cycle of chemicals used by facilities. Beyond reporting on releases and other waste management, only limited and very general information on storage of chemicals is provided and none on the toxicity of the chemicals. In addition, this report does not account for toxic emissions from cars and trucks, nor from the majority of sources of releases of pesticides, volatile organic compounds, fertilizers or from many other non-industrial sources.

Furthermore, facilities 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. These factors should be taken into account when considering data accuracy and comparability.

Summary of 1998 TRI Data (Original and New Industries)

Q What is the time period covered in this year's data?

A The time period covered for the data that we are releasing is for reporting year 1998. A reporting year is equal to a calendar year. This 1998 data was submitted to EPA by July 1,1999 and is the focus of the current data release.

Q What is different about the industries that reported to TRI for reporting year 1998 versus previous years?

A 1998 is the first reporting year that seven "new" industries were required to report their releases and other waste management quantities to EPA. The seven new industries are metal mining, coal mining, electric utilities, RCRA Subtitle C hazardous waste treatment and disposal facilities, chemicals distributors, petroleum bulk terminals, and solvent recovery services. 1,970 of these new facilities reported to TRI in 1998.

The "old" or "original" industries that have been reporting to TRI since 1987 are facilities in the manufacturing sector. Manufacturing facilities are defined as facilities in Standard Industrial Classification (SIC) Codes 20-39. Federal facilities, which have been required to report since 1994 regardless of their SIC code classification, are also included as an "old" or "original" industry. 21,517 of these original facilities reported to TRI in 1998.

Q 1998 was the first year that EPA collected information from the commercial

hazardous waste treatment sector. Is there double counting of some releases in TRI now that EPA collects information from this sector?

A In the analysis of this year's data, EPA has taken steps to adjust for possible double counting of some releases in TRI now that EPA collects information from this sector. The potential for double counting arises because some manufacturing facilities report transfers of chemicals to other facilities that may then report the release of these chemicals. TRI facilities transfer off-site chemicals in waste to other facilities for disposal. These other facilities can dispose of the wastes in on-site landfills, disposal surface impoundments, in land treatment facilities, other types of land disposal, and underground injection wells or, if metals are sent to a wastewater treatment facility, they may be discharged to surface waters. These other facilities generally are treatment, storage and disposal (TSD) facilities regulated under the federal Resource Conservation and Recovery Act (RCRA). As mentioned above, such facilities are in one of the new industries required to report to TRI for the first time in the 1998 reporting year.

To avoid counting the transfers to the TSD facilities that are also reported to TRI as on-site releases by the TSD facilities, off-site transfers for disposal to these TSD facilities have been omitted from tables that compare or summarize on-site and off-site releases nationally or at a state level. Only the on-site releases from the TSD facilities have been included. Conducting this exercise required that EPA match amounts transferred to TSD facilities with amounts reported by these TSD facilities by using the reported RCRA ID number. In some cases, these RCRA ID numbers were not reported correctly by the facility so there are some quantities that cannot be matched and, therefore, these quantities could not be omitted from the analysis. In general, these transfers were omitted if the data were being analyzed from a national or state perspective.

Q **EPA reclassified reporting for metals and metal compounds in the 1998 TRI data in an effort to correct facility reporting errors. Why did EPA correct this particular reporting error and what is the magnitude of this error in the off-site release category and the other waste management categories?**

A EPA requires the transfer of metals and metal compounds for further waste management be reported as either a transfer to recycling or a transfer to disposal (due to the fact that metal has no heat value and thus can not be combusted for energy recovery and can not be treated because it can not be destroyed). Two new disposal codes were added in 1997 to provide more accurate reporting, codes M41 (solidification/stabilization - metals and metal compounds) and M62 (wastewater treatment (excluding POTWs)- metals and metal compounds).

EPA found that 351 facilities submitting 593 Form R's had incorrectly reported the waste management of metals and metal compounds in 1998. These chemicals were incorrectly reported under codes M40 or M61, as being treated. In order to account for this error in the 1998 data, EPA included metals and metal compounds that were incorrectly reported in the waste treatment categories in the corresponding disposal categories for metals and metal compounds instead. This correction included 5.5 million pounds reported as transferred to solidification/stabilization (M40/M41) and 1.8 million pounds reported as transferred to wastewater treatment(excluding POTWs)(M61/M62). In order to compare data across reporting years, EPA made similar adjustments for prior years in tables that compared 1997 or 1998 data to earlier years of data.

In comparison to the total amount reported as released off-site, the 5.5 million pound shift for solidification/stabilization was approximately 1.0% of total off-site releases (567.8 million pounds) and 3.8% of the total transfers to solidification/stabilization of metals and metal compounds (144.4 million pounds). The 1.8 million pounds for wastewater treatment (excluding POTWs) represented less than 0.5% of total off-site releases and 41.7% of the total transfers to wastewater treatment (excluding POTWs)of metals and metal compounds (4.34 million pounds).

1998 Data - Reporting from Original and New Industries

Q **What are the total on- and off-site releases for 1998? How much do the new industries reporting to TRI for the first time contribute to the 1998 total?**

A In 1998, facilities reported 7.3 billion pounds of total releases to air, land, water and underground injection. The original industries reported approximately 2.4 billion pounds, or 32.6%, of the 7.3 billion pounds. These industries submitted 61,234 Form Rs and 10,840 Form As. Facilities in the new sectors reported approximately 4.9 billion pounds, or 67.4%, of the 7.3 billion pounds. The new industries submitted 12,567 Form Rs and 2,688 Form As.

Q **Are most of the 1998 releases for the original and new industries on-site? If so, to which media were the largest releases?**

A In 1998, 93.9 % (6.9 billion pounds) of the total releases were on-site. Of these on-site releases, 62.8 % were to land, 29.9 % were to air, 3.9 % were to underground injection and 3.4 % were to surface water. Reporting from the new industries accounted for 91.7% of the land releases on-site, 38.8% of the air releases, 21.2 % of the releases to underground injection wells, and 3.5% of the discharges to surface water.

Off-site releases were 6.1% (444 million pounds) of the total releases in 1998. Of these off-site releases, 65.6 % (292 million pounds) were to landfills/surface impoundments.

Q **What sectors had the largest total releases among the new industries? Also, which categories of releases contributed most to these numbers and which chemicals contribute most to these releases?**

A Of the seven new sectors, two sectors (metal mining and electric utilities) accounted for 93.9% of the 4.9 billion pounds of total releases from these newly reporting industry sectors. The metal mining sector reported 3.5 billion pounds, or 71.2 %, of the 4.9 billion pounds. 99.97 % of the metal mining sector's total releases were on-site and 98.9% of these on-site releases were to land. The chemicals that contributed the most to the metal mining sector's total releases were copper compounds (1.2 billion pounds), zinc compounds (616 million pounds), and arsenic compounds (513 million pounds). The majority of the releases of these three chemicals are to land on-site. Together, these three chemicals make up 66.7% of the total releases for the metal mining sectors. Many of the releases reported in TRI by metal mines are from their release of waste rock and processed rock to the land.

The electric utility sector (SIC code 49) reported 1.1 billion pounds of releases, or 22.7%, of the 4.9 billion pounds of the releases from the new industries. On-site releases were 94.4% of the electric utility sector's total releases and 74.3% of these on-site releases were to the air. The chemicals that contributed the most to the electric utility sector's total releases were hydrochloric acid (536 million pounds), barium compounds (180 million pounds), and sulfuric acid (169 million pounds). The majority of the releases of hydrochloric acid and sulfuric acid were to air and the majority of the releases of barium compounds were to land on-site. Together, these three chemicals make up 79.2% of the total releases for the electric utility sector. (Note that some chemicals which the electric utilities release in significant quantities, SO_x, NO_x, and CO are not on TRI.)

The sector made up of RCRA Subtitle C hazardous waste treatment and disposal facilities SIC code 4953) and solvent recovery facilities (SIC code 7389) reported 282 million pounds, or 5.7 % of the 4.9 billion pounds of releases from the new industries. On-site releases were 83.0 % of this sector's total releases and 84.0% of these on-site releases were to RCRA subtitle C landfills. The chemicals that contributed the most to these sector's total releases were zinc (fume or dust) (67 million pounds), zinc compounds (41 million pounds), and lead compounds (18 million pounds). The majority of the releases of these three chemicals were to RCRA subtitle C landfills. Together, these three chemicals make up 44.9% of the total releases for these sectors.

[Note: New industries include forms with only SIC codes in new industries, and forms with a combination of SIC codes in the range 20-39 and in the new industries from facilities not reporting before 1998.]

Q Why did metal mines report such large volumes of releases?

A Metal mines move, store and dispose of very large volumes of heavy metals which are components of waste rock and tailings. In order to get at an ore body, some mines must remove a large amount of submarginal ore, or waste rock, and dispose of it. This material may contain small amounts of various heavy metals, and if reporting thresholds are exceeded elsewhere in the facility, the amount of these TRI-listed chemicals that are disposed of must be reported.

Some mines also produce tailings, which is the processed rock that remains after the target metal is extracted from the ore. Tailings often contain various other metals, such as chromium and copper. Under TRI Regulations, mines are required to report the metal compounds contained in the tailings when the rock is disposed of.

Q Why are TRI chemicals in waste rock important to know about?

A Metal mining generates large quantities of waste rock which typically contains heavy metals (copper, arsenic, lead, etc.). The previously buried metals in waste rock are exposed to the elements upon excavation and become susceptible to leaching by rain and snow. Unless carefully controlled and monitored, the leaching process can lead to ground and surface water sources contaminated with heavy metals and other toxic chemical pollution that would not have occurred naturally. Significant factors are the chemistry of the rock, particle size, precipitation rates, and most importantly, a mine's operating and waste management practices. A review of historical mines that have become Superfund sites indicates that in most cases, the primary cause of environmental damage comes from improperly managed waste rock and tailings dumps. For this reason, many states have regulations that guide mine design, reclamation, and closure.

Q Why do some mines report for many metals, and others for none at all?

A TRI regulations require that mines calculate and provide release estimates only for chemicals for which they have exceeded manufacture, process, or otherwise use thresholds. Some ore beneficiation processes cause reporting thresholds to be exceeded for all the metals present in the ore, requiring release reports to be prepared for each metal compound, while other processes do not.

Q Are these releases legal?

A The TRI report alone does not indicate whether a facility's chemical releases are legal. These releases must be compared with applicable permits to evaluate whether the facility is in compliance with other environmental regulations. Many of the releases included in the TRI report are permitted by EPA and State Regulatory Agencies.

In addition, the purpose of TRI is to provide data on releases (and other waste management) of toxic chemicals to communities so that they can use these data in conjunction with toxicity information for the chemical and site-specific information to determine if releases present a potential risk.

Q Why do some mines have such high releases of cyanide?

A Sodium cyanide is used by some mines to leach gold out of ore. It is reportable as a member of the cyanide compounds category, and is released mostly to the land. As sodium cyanide degrades, hydrogen cyanide may be created and released to the air. However, hydrogen cyanide is a separately listed chemical, and under the TRI regulations, a facility must do separate threshold and release calculations for that chemical. In effect, a mine would report air releases of hydrogen cyanide only if more than 25,000 pounds of hydrogen cyanide were created and released. The quantity of cyanide used and released depends on the type of processing the mine uses.

Q Isn't cyanide very toxic?

A Yes, cyanide is a very toxic material when inhaled as hydrogen cyanide or ingested orally as sodium cyanide or some other cyanide salt. Mines using cyanide to leach metals such as gold from rock are expected to employ strict controls over their use of cyanide and the generation of any waste that might contain cyanide. Open-air facilities rarely, if ever, have a high enough concentration in the air to be a human health risk.

Q Many vitamin supplements contain metals like zinc and selenium. Why are they on the TRI list?

A Though metals are natural substances, in certain forms or concentrations they can be harmful to human health and/or the environment, and for that reason they are on the reporting list.

Most creatures need trace amounts of many metals, while more concentrated forms can often be toxic. It is the concentration that matters, not the mere presence. Also, different species have different sensitivities. For example, wildlife is more sensitive to copper and selenium than humans. Even at low levels, selenium can cause reproductive problems for birds.

Q Some mines report stack air releases of mercury compounds. Why?

A Mercury is no longer used, as it had been historically, to remove gold from ore. The mercury emitted originates as a naturally occurring element often found in gold-bearing ore. Some mines use heat to pretreat ore to improve leaching characteristics, a step which may generate air releases of mercury. Another emission point is at the retort/refinery

process. Mercury is generally leached out of the ore along with gold, and must be removed from the final product. Some facilities use heat to vaporize mercury from the gold, most of which is captured and sold as a product.

Q Why did electric utilities report such large volumes of releases and do these releases pose a risk to public health and the environment?

A Most of the releases from electric utilities are the result of burning coal or oil to generate electricity. Both coal and oil contain metals that are released to the air when the fuel is combusted. These metals include barium, copper, chromium, manganese, lead, nickel and zinc. Other chemicals formed during combustion include hydrochloric acid, sulfuric acid, and hydrogen fluoride. The ash that remains after coal is combusted will also contain metals. Large quantities of this ash may be disposed of in on- or off-site landfills, or returned to coal mines for disposal there.

Q Are these releases legal?

A The TRI report alone does not indicate whether a facility's chemical releases are legal. These releases must be compared with applicable permits to evaluate whether the facility is in compliance with other environmental regulations. Many of the releases included in the TRI report are permitted by EPA and State Regulatory Agencies.

In addition, the purpose of TRI is to provide data on releases (and other waste management) of toxic chemicals to communities so that they can use these data in conjunction with toxicity information for the chemical and site-specific information to determine if releases present a potential risk.

1998 Data - Reporting from the Original Industries

Q In terms of reporting from the original industries, what are the top 3 sectors for total releases? Which chemicals contribute the most to these quantities?

A The chemical manufacturing sector (SIC code 28) reported 739 million pounds of total releases, or 31.1%, of the 2.4 billion pounds reported by the original industries. 94.4 % of the 739 million pounds were on-site releases and 46.2 % of those on-site releases were to air and 29.6% were to Class I underground injection wells. The chemicals that contributed the most to the chemical manufacturing sector's total releases were nitrate compounds (111 million pounds), ammonia (109 million pounds), and phosphoric acid (52 million pounds). The majority of the releases of the nitrate compounds were to surface water and to Class I underground injection wells while the majority of the releases of ammonia were to air. The majority of the releases of phosphoric acid were to surface water.

The primary metals sector (SIC code 33) reported 614 million pounds of total releases, or 25.8%, of the 2.4 billion pounds reported by the original industries. 68.6% of the 614 million pounds were on-site releases and 31.4% were off-site releases. Of the on-site releases, 58.0% were to land, 29.0 % were to air, and 12.8% were to surface water. The chemicals that contributed the most to the primary metals sector's total releases were zinc compounds (189 million pounds), copper compounds (58 million pounds), and manganese compounds (57 million pounds). The majority of the releases of all three of these chemicals were to land on- and off-site.

The paper sector (SIC code 26) reported 230 million pounds of total releases, or 9.7%, of the 2.4 billion pounds reported by the original industries. 97.9% of the 230 million pounds were on-site releases and 82.7% of those on-site releases were to air and 9.7% were to surface water. The chemicals that contributed the most to the paper sector's total releases were methanol (110 million pounds), hydrochloric acid (17 million pounds), and ammonia (14 million pounds). The majority of the releases of all three of these chemicals were to air.

[Note: Original industries include forms with only SIC codes 20-39, forms with no SIC codes in newly added industries, and forms with a combination of SIC codes in the range 20-39 and in the added industries from facilities reporting before 1998.]

Release Trends Between 1997-1998 (using the 1995 core set of chemicals)

Total Releases:

Q What are the general trends in releases between 1997 and 1998?

A Overall, between 1997 and 1998, total releases (including both on-site and off-site releases) decreased approximately 3.5% or 90 million pounds. On-site releases decreased 4% or 85 million pounds and off-site releases decreased 1.2% or 6 million pounds. At the same time, total forms submitted decreased 1.4% (Form A's increased 1.4% and Form R's decreased 1.9%) and total facilities decreased 1.9% (410 fewer facilities reported in 1998 compared to 1997).

Of the four on-site release categories, two decreased and two increased. Air releases decreased 6% or 80 million pounds, and underground injection decreased 5% or 11 million pounds. Surface water increased 0.5% or 1 million pounds, and on-site land releases increased 1.5% or 5 million pounds.

On-site Releases:

Q **On-site air releases decreased 80 million pounds or 6% accounting for the majority of the total 90 million pound on- and off-site decrease in release. What chemicals had the largest decreases in releases for this category? What types of facilities had the largest decreases?**

A Three chemicals, toluene, dichloromethane, and carbon disulfide (individually reporting decreases of 16, 8 and 8 million pounds respectively), account for approximately 32 million pounds, or 40%, of the total air release decrease. Of the three facilities reporting the largest decreases in air releases, one is in the primary metals industry and two are in the chemical industry. They account for approximately 12 million pounds, or 15%, of the total air release decrease.

Q **On-site underground injection decreased 11 million pounds or 5%. What chemicals had the largest decreases in releases for this category? What types of facilities had the largest decreases?**

A Three chemicals, manganese compounds, acetonitrile, and ethylene glycol (individually reporting decreases of 7, 4 and 3 million pounds respectively), account for approximately 14 million pounds, or approximately 3 million pounds more than the total underground injection release decrease. The three facilities (all in the chemical industry) reporting the largest decreases in underground injection releases account for approximately 14 million pounds of the decrease in underground injection releases. In addition, several facilities reported significant increases in underground injection releases which were offset by larger decreases resulting in an overall decrease.

Q **Surface water discharges increased 1 million pounds or 0.5%. What chemicals had the largest increases in releases for this category? What types of facilities had the largest increases?**

A One chemical, nitrate compounds, had an increase of 18 million pounds. This large increase was offset by large decreases in releases of phosphoric acid and methanol (individually reporting decreases of 16 million pounds and 1 million pounds respectively). The three facilities (one in primary metals, one in the food sector, and one in paper and allied products) reporting the largest increases in surface water discharges account for approximately 13 million pounds of the increase in surface water discharges. In addition, several facilities reported significant decreases in surface water discharges which were offset by larger increases resulting in an overall net increase.

Q What are the general trends in the on-site land releases category?

A Within the on-site land releases category, two sub-categories increased; on-site landfills increased 5 million pounds and other disposal increased 8 million pounds, and two subcategories decreased; land treatment decreased 905 thousand pounds and surface impoundments decreased 7 million pounds.

Q What chemicals had the largest increases in releases for on-site landfills and other disposal subcategories (the two subcategories with significant increases)? What chemicals had the largest decreases in releases for the surface impoundments subcategory (the one subcategory with significant decreases)?

A For the on-site landfills subcategory increases, three chemicals, manganese compounds, copper compounds, and zinc compounds (individually reporting increases of 4, 1 and 1 million pounds respectively), account for approximately 6 million pounds. For the other disposal subcategory, three chemicals, zinc compounds, copper compounds, and lead compounds (individually reporting increases of 7, 6, and 2 million pounds), account for 15 million pounds.

For the on-site surface impoundments subcategory decreases, three chemicals, zinc compounds, manganese compounds, and copper compounds (individually reporting decreases of 8, 3 and 1 million pounds respectively), account for approximately 12 million pounds.

Off-site Releases:

Q What are the general trends in off-site releases?

A The off-site release decrease of 6 million pounds included significant decreases offset by significant increases. The two largest decreases include a 13 million pound decrease in landfills/surface impoundments and an 8 million pound decrease in solidification/stabilization of metals and metal compounds. The two largest increases include a 6 million pound increase in transfers to waste broker for disposal and a 5 million pound increase in storage.

Off-site landfills/surface impoundments subcategory decrease – three chemicals, zinc compounds, manganese compounds, and copper (individually reporting decreases of 10, 4 and 3 million pounds respectively), account for approximately 17 million pounds. The three facilities (two in primary metals and one in the chemical industry) reporting the largest decreases in off-site releases to landfills/surface impoundments account for approximately 17 million pounds.

Off-site solidification/stabilization subcategory decrease -- three chemicals, zinc (fume or dust), chromium compounds, and lead compounds (individually reporting decreases of 8, 4, and 2 million pounds), account for approximately 14 million pounds. The three facilities (two in primary metals and one in the chemical industry) reporting the largest decreases in off-site releases to solidification/stabilization account for approximately 12 million pounds.

Off-site transfers to a waste broker subcategory increase -- three chemicals, phthalic anhydride, zinc compounds, and hydrochloric acid (individually reporting increases of 4 million pounds, 2 million pounds, and 810 thousand pounds respectively), account for approximately 7 million pounds. Of the three facilities reporting the largest increases in off-site transfers to a waste broker, one is in the chemical industry, one is in the primary metals industry, and one is in the fabricated metals industry. These facilities account for approximately 7 million pounds of the increase.

Off-site storage subcategory increase -- three chemicals, copper, aluminum, and barium compounds (individually reporting increases of 6 million pounds, 409 thousand pounds, and 274 thousand pounds respectively), account for approximately 7 million pounds. This category of storage off-site is typically used for the reporting of "mixed wastes" (i.e., waste that is radioactive as well as hazardous). The three facilities (two in primary metals and one in fabricated metals) reporting the largest increases in off-site releases to storage account for approximately 6 million pounds.

Release Trends Between 1995-1998 (using the 1995 core set of chemicals)

*On-site Releases***:**

Q What are the general trends in releases between 1995 and 1998?

A Overall, between 1995 and 1998, total releases (including both on-site and off-site releases) decreased approximately 5% or 141 million pounds. On-site releases decreased 12% or 274 million pounds while off-site releases increased 42% or 134 million pounds. At the same time, total forms submitted decreased 5.3% (Form A's increased 63% and Form R's decreased 12%) and total facilities decreased 5.9% (1,342 fewer facilities reported in 1998 compared to1995).

Of the four on-site release categories, two decreased and two increased. Air releases decreased 21% or 328 million pounds and underground injection decreased 11% or 26 million pounds. Releases to surface water increased 24% or 43 million pounds, and on-site land releases increased 11% or 36 million pounds.

Q **In looking at the two on-site release categories with increases (surface water and on-site land releases), what chemicals had the largest increase in reported releases for each category.**

A Surface water discharge increases -- three chemicals, nitrate compounds, phosphoric acid, and manganese compounds (individually reporting increases of 38, 7, and 3 million pounds respectively), account for approximately 48 million pounds (on-site surface water releases increased a total of 43 million pounds).

On-site land increases -- three chemicals, copper compounds, manganese compounds, and chromium compounds (individually reporting increases of 11, 11, and 8 million pounds respectively), account for approximately 30 million pounds of the 36 million pounds of increases in on-site land releases.

Q **In looking at the two on-site release categories with decreases (air releases and underground injection), what chemicals had the largest decrease in reported releases for each category?**

A Air decreases -- three chemicals, toluene, carbon disulfide, and xylene (individually reporting decreases of 50, 41, and 30 million pounds respectively), account for approximately 121 million pounds of the total 328 million pounds of decreases in air releases.

Underground injection decreases -- three chemicals, ethylene glycol, methanol, and acetonitrile (individually reporting decreases of 12, 11, and 10 million pounds respectively), account for approximately 33 million pounds (total underground injection releases decreased a total of 26 million pounds).

Off-site Releases:

Q **What off-site release categories accounted for the large increase in releases? What chemicals had the largest increase in reported releases? Is there a reason for such a large increase in the off-site release category?**

A Off-site releases increased 42% or 134 million pounds between 1995 and 1998. Three off-site release categories, storage, solidification/stabilization of metals, and landfills/surface impoundments (individually reporting increases of 9, 110, and 9 million pounds respectively), account for approximately 128 million pounds.

Of the large increase in solidification/stabilization of metals, three chemicals, zinc compounds, manganese compounds, and zinc (fume or dust) (individually reporting increases of 73, 12 and 8 million pounds respectively), account for approximately 93 million pounds of the 110 million pound increase in this category. The large increase in

the solidification/stabilization of metals category is partly due to the shift of a number of primary metal facilities from recycling to off-site land disposal of zinc and other metals.

Release Trends Between 1988-1998 (using the 1988 core set of chemicals)

Q What are the on- and off-site release trends from 1988 to 1998?

A Overall, on- and off-site releases have decreased 1.5 billion pounds or 45% since 1988. On-site releases substantially decreased with air releases making up 1.3 billion pounds of the 1.5 billion pound total decrease in on-site releases. Off-site releases increased 2.0 million pounds or 0.5 percent. In terms of absolute amounts, four categories made up most of the off-site releases: solidification/stabilization (metals and metal compounds), landfills/disposal surface impoundments, other off-site management, and transfers to waste broker for disposal. In terms of the change in off-site releases from 1988 to 1998, solidification/stabilization (metals and metal compounds) increased 107 million pounds and was off-set by decreases in three categories including landfills/disposal surface impoundments, other off-site management, and transfers to waste broker for disposal (decreases of 44 million pounds, 31 million pounds, 18 million pounds, respectively).

Waste Management Trends Between 1997-1998 and 1995-1998

Q What is waste management?

A Under TRI, a toxic chemical is considered a waste if it is released (including disposed), treated for destruction, burned for energy recovery, or recycled. It also includes any toxic chemical shipped off-site for one of these waste management activities. For purposes of TRI, waste management includes: quantities released to the environment both at the facility and sent off-site for disposal; quantities treated at the facility or sent off-site for treatment; quantities used for energy recovery at the facility or sent off-site for energy recovery; and quantities recycled at the facility or sent off-site for recycling. The amount of chemicals in waste reported includes both waste generated and waste received by the facility. Production-related wastes do not include quantities reported as released to the environment due to one-time events.

Q How accurate are the waste data reported by industry? Aren't there real definitional and reporting issues associated with this data?

A EPA collects the TRI data under the authority of two laws, EPCRA and the PPA (Emergency Planning and Community Right-to-Know Act and the Pollution Prevention Act). When Congress enacted these laws, they made it clear that facilities should provide their best estimates, but that EPA should not require facilities to do any additional monitoring or testing to comply. As such, the data reported represent facility estimates,

based on the best available information. Therefore, the accuracy of the data is dependent on the quality and quantity of data used by each facility.

Under the Pollution Prevention Act, Congress authorized EPA to collect certain source reduction and waste management information. In 1991, EPA issued a proposal that would have provided the regulated community with regulatory definitions and reporting guidance to implement the PPA. However, this proposal raised complex issues that were not easily resolved, given the wide variety of manufacturing facilities that exist in the United States. To help resolve these issues, EPA has engaged in a series of formal and informal discussions with all stakeholders. Based on these discussions, and the experience gained from several years of collecting data under the PPA, we are working to issue an amended proposal. Until EPA promulgates regulations, facilities may report based on their interpretation of the statutory requirements.

Q What are the general trends in waste management between 1997 and 1998?

A Overall, production-related waste increased 1.3 billion pounds, or 6%, between 1997 and 1998. Of the different waste management categories, on-site recycling increased 17% or 1.4 billion pounds (the most significant and largest increase of the waste management reporting categories), while off-site recycling decreased 7% or 143 million pounds. On-site energy recovery increased 2% or 57 million pounds, while off-site energy recovery decreased 7% or 36 million pounds. On-site treatment decreased 0.1% or 8 million pounds and off-site treatment increased 3% or 16 million pounds. The total amount of chemicals released on- and off-site decreased 1.9% or 47 million pounds (from section 8.1 of the Form R).

Q What are the general trends in waste management between 1995 and 1998?

A Overall, production-related waste decreased 3.1 billion pounds, or 12%, between 1995 and 1998. Over this time period, production-related waste decreased 5.2 billion pounds between 1995 and 1996, increased 0.9 billion pounds between 1996 and 1997, and increased 1.3 billion pounds between 1997 and 1998.

Of the different waste management categories, on-site recycling decreased 17% or 2 billion pounds (the most significant and largest decrease of the waste management reporting categories) and off-site recycling decreased 12% or 291 million pounds. On-site energy recovery increased 4% or 111 million pounds, while off-site energy recovery decreased 4% or 19 million pounds. On-site treatment decreased 12% or 782 million pounds and off-site treatment decreased 4% or 22 million pounds. Quantity released on- and off-site decreased 4% or 107 million pounds (from section 8.1 of the Form R).

Chemical Right-to-Know (CRTK) Initiative

Q What is the Chemical Right To Know Initiative?

A The Chemical Right-to-Know Program (ChemRTK) is a comprehensive new initiative that is designed to assure that adequate information is available to the public to assess risks for chemicals that are present in the local environments. The program responds to study findings that many commercial chemicals have very little toxicity information that is publicly available and that would be adequate for chemical risk assessment purposes. The project being implemented primarily by EPA's Office of Pollution Prevention and Toxics (OPPT), is accelerating the development and dissemination of public health and environmental testing data through three main components:

- Expansion of the public availability of basic screening-level hazard data on high production volume (HPV) chemicals — the chemicals manufactured in or imported into the US in amounts greater than 1 million pounds per year.

- Development of health hazard information on industrial chemicals to which children may be exposed.

- Increased reporting of Persistent, Bioaccumulative and Toxic (PBT) chemicals to reduce the introduction of PBTs into the environment. (This was done through a rulemaking adding certain PBTs to the TRI and lowering reporting thresholds for these and other PBTs on TRI.)

The Chemical Right-to-Know Initiative was announced by Vice President Al Gore on the eve of Earth Day, 1998. The ChemRTK Initiative responds to studies by ED, CMA as well as EPA that found that very little basic toxicity information is publicly available on most of the high production volume (HPV) commercial chemicals made and used in the United States. Without this basic hazard information, it is hard to make sound judgments about what potential risks these chemicals could present to people and the environment. The Initiative is an ambitious effort to tackle this problem in partnership with industry to collect and where necessary develop screening-level hazard data on HPV chemicals and make these important data available to scientists, policy makers, industry, and the public.

There are serious deficiencies in the public availability of basic health and environmental hazard data on the approximately 2,800 highest production volume chemicals used in the United States. Surprisingly, only 7 percent of the 2,800 have a full set of basic information readily available; only 25 percent of consumer chemicals have the full set. The Chemical Right-to-Know (ChemRTK) Initiative addresses this very important gap in the nation’s knowledge about whether some of our most commonly used chemicals present currently unknown hazards.

The Elements of the ChemRTK Initiative

- Companies that manufacture or import HPV chemicals have been invited to participate in the HPV Challenge Program by sponsoring chemicals, pledging to make basic hazard information publicly available by 2005.

C HPV chemicals not sponsored through the HPV Challenge Program will be subject to data collection requirements under HPV Test Rules promulgated under Section 4 of the Toxic Substances Control Act (TSCA).

C Companies that manufacture or import chemicals which may likely pose high exposures to children will be asked to develop test data so that health effects can be better understood.

C The PBT Rule for the Toxics Release Inventory (TRI) will increase the utility of TRI to the public by adding a number of chemicals that persist and bioaccumulate in the environment to the section 313 list and by lowering the reporting thresholds for these types of toxic chemicals. Even small amounts of these chemicals have been found to present real risks, since they accumulate in the food chain and do not break down readily in the environment.

Q Who is participating in the HPV Challenge Program? How many chemicals are being sponsored, how many consortia and how many companies are participating?

A The Chemical Manufacturers Association, the American Petroleum Institute, the Environmental Defense, formally the Environmental Defense Fund, and other groups are supporting this initiative.

In press announcements released on February 3, 2000 by the Chemical Manufacturers Association, Environmental Defense, and the U.S. EPA, the Agency identified 403 companies, acting individually and through 148 consortia, which have volunteered to sponsor 2011 chemicals in the HPV Challenge Program.

Q Where can I find more information on the Chemical Right-To-Know Initiative?

A More information on the Chemical Right to Know Initiative can be found online at http://www.epa.gov/chemrtk.

TRI Data Quality

Q What are the top things that EPA does to insure that the TRI data are of high quality?

A

- EPA provides extensive compliance assistance to both the manufacturing industry and the new industry sectors by providing industry training on how to report and issuing reporting guidance.

- The Agency also provides a toll-free hotline for facilities to call and ask detailed questions regarding TRI reporting.

- EPA assesses the quality of the data through technical surveys and uses the results to work with the industry to improve the quality of the reported data.

- EPA's Data Entry Process is virtually (99.9%) error free. A key component of this process is double key entry.

- Further double checks key data elements, such as facility identification, to make sure that they were entered properly.

- EPA automatically checks for 60 data errors that may be in the information sent in by the facility.

- After EPA enters the TRI data, it sends the facility a copy of the entered data to check.

- EPA reviews the TRI data for facilities that report large increases or decreases in their releases from one year to the next and calls facilities if it appears there could have been an error in reporting.

- EPA sends each state a list of all the facilities that submitted a TRI report to EPA and all the chemicals that they reported so that the states can crosswalk this with the TRI reports they directly receive.

- EPA sends each state a list of the 100 facilities with the largest releases in that state. EPA asks the state to make sure that there are no facilities incorrectly included or excluded. This year EPA followed-up with telephone calls to the states.

- This year, EPA reviewed 31% - 100% of the data submitted by electric utilities, hazardous waste facilities and solvent recyclers, coal mines and metal mines -- the new industry sectors with the largest releases.

- This year EPA reviewed the forms for the 50 facilities with the largest releases in each industry group.

- Where consistent errors were found EPA advised trade associations so that they could relay this to their members.

More Efficient Data Collection (*TRI-ME)*

Q What is the Agency doing to make data collection more efficient? What is *TRI-ME*?

A EPA is carrying out a number of activities to make data collection more efficient.

EPA is developing a software program entitled TRI MADE EASY or *TRI-ME*, which is designed to simplify facility reporting. By leading TRI reporters through easy-to-follow input screens, *TRI-ME* will eliminate a significant amount of analysis required to determine whether a facility meets TRI reporting thresholds. For those facilities that meet TRI reporting thresholds, *TRI-ME* will aid in determining emissions and other release calculations. *TRI-ME* will also transcribe release and other waste management calculations to the Form R. The software is currently under development and will be made available as soon as the desired functionality is complete and has undergone sufficient review and testing.

EPA is also working to enable reporting facilities to electronically send the completed Form R to EPA via the Internet.

Electronic Reporting to TRI

Q What percentage of the current TRI reporting community is reporting electronically?

A Approximately 70% of all facilities reporting to TRI report electronically by using EPA's *Automated TRI Reporting Software (ATRS).* ATRS both simplifies facility reporting and improves data quality and processing. Approximately 70% of all TRI reports were submitted electronically in 1998 (up from 13% in 1990 and 54% in 1993). EPA is working to provide facilities the ability to submit TRI reports via the Internet. In addition, the Agency is developing *TRI-ME*, software that will provide on-line help and automatic logic checks for TRI reporters.

Internet Security Issues

Q What steps does EPA take to protect non-confidential data and information?

A Publicly-accessible databases are secured by the Agency's firewall infrastructure that makes it extremely difficult for unauthorized personnel to tamper with the data. The source non-confidential data and information are housed in secured data management centers that cannot be accessed by those who are not authorized to access the data.

Q What steps does EPA take to protect data that is submitted to the TRI program, when a reporter claims that the data are confidential business information?

A Anyone who reports TRI data may claim that the data that they are submitting should be protected as trade secrets. These trade secret data are submitted on a separate form and are handled using separate security procedures to assure that only authorized EPA and contractor staff can access them. No TRI trade secret data are stored on the Agency's public access servers or mainframe computer. It is not possible to obtain on-line access to TRI trade secret data.

Q How does EPA protect the security of the Agency's web site users?

A EPA's privacy and security policy is explained in the following notice, which is provided to users of the EPA web.

About Privacy and Security

- This World Wide Web (WWW) site is provided as a public service by the Environmental Protection Agency.

- Information presented on this WWW site is considered public information and may be distributed or copied. The U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce these documents, or allow others to do so, for U.S. Government purposes. These documents may be freely distributed and used for non-commercial, scientific and educational purposes. Commercial use of the documents available from this server may be protected under the U.S. and Foreign Copyright Laws. Individual documents on this server may have different copyright conditions, and that will be noted in those documents.

- When you come to this web site to browse, you do so anonymously. EPA does not collect identifying information about you. We collect only summary information [see below] about the numbers of individuals who visit our web site and what those individuals look at. This government computer system uses industry-standard software to create summary statistics, which are used for such things as assessing what information is of most and least interest, determining technical design specifications, and identifying system performance or problem areas.

- Where identifying information is asked of you (to respond to an information request, etc.) that information is used only for responding to your comment or question and is not made available for other purposes. See our comments notice of use.

- For site security purposes and to ensure that this service remains available to all users, this government computer system employs industry-standard methods to monitor network traffic to identify unauthorized attempts to upload or change information, or otherwise cause damage.

- No other attempts are made to identify individual users or their usage habits. Raw data logs are used for no other purposes and are scheduled for regular destruction in accordance with National Archives and Records Administration guidelines.

- Unauthorized attempts to upload information or change information on this service are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986.

- If you have any questions or comments about the information presented here, please forward them to us through the address on our Comments Page.

Underground Injection (UIJ)

Q Why does EPA continue to treat underground injection as a release to the environment?

A EPA believes that EPCRA clearly identifies underground injection as a release to the environment. However, EPA does recognize the difference in the management and regulatory oversight provided by the Underground Injection Control program of Class I wells from other forms of injection into the land. As a consequence, beginning with the 1996 reporting year, EPA redesigned the Form R to distinguish Class I injection well data from data for other classes of injection wells in a way that makes that distinction clear for the public.

Federal Facilities

Q Why did the number of Federal facilities reporting to TRI drop from 1994 to 1998? (193 Federal facilities reported in 1994 and 123 facilities reported in 1998)

A There appear to be a variety of reasons for this change. As a result of Executive Order 12856, as well as internal policies, Federal Agencies are pursuing pollution prevention activities to lower the amount of toxic chemicals used at Federal facilities. An example is the Defense Logistics Agency, which changed the formulation of fuels stored at its bulk storage facilities. Other reasons include changes in reporting requirements for ammonia hydrochloric acid and sulfuric acid, as well as military base closures.

Q Why were there so few reports filed by EPA in 1998?

A Most EPA facilities do not handle or generate significant quantities of TRI chemicals. EPA facilities voluntarily used a lower reporting threshold of 8000 pounds instead of the regulatory 10,000 pound use threshold. Only one facility, the National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, exceeded that lower reporting threshold and filed TRI reports.

Q Did any federal facilities report to TRI prior to 1994?

A Prior to the 1994 reporting year, government-owned government-operated (GOGO) facilities were not required to report by law, but some reported voluntarily. In the 1993 reporting year, 36 Federal facilities voluntarily reported to TRI including: 23 from the Department of Energy (DOE), nine from the Department of Defense (DOD), two from National Aeronautics and Space Administration (NASA), and two from US Enrichment Corporation (USEC). The Department of Energy voluntarily submitted 23 reports for the 1993 reporting year. Government-owned facilities operated by contractors always have been subject to EPCRA and have had to report if they exceeded thresholds.

Q For the 1998 reporting year, there are several federal facilities that are submitting TRI reports for the first time. Why did these facilities not submit reports for earlier reporting years?

A There appears to have been some confusion by federal facilities about the requirements of Executive Order 12856. This directive requires federal facilities to comply with the provisions of EPCRA section 313 regardless of Standard Industrial Classification (SIC) code. However, several federal facilities that submitted TRI reports for the first time for the 1998 reporting year are facilities that have activities that are similar to some of the newly added industry sectors (i.e., electric generating facilities). Although SIC code 4911 (limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce) is newly subject to reporting under EPCRA section 313, federal facilities that fall within this SIC code should have reported starting with the 1994 reporting year, provided they met the threshold requirements of EPCRA section 313.

Establishment of EPA Office of Environmental Information (OEI)

Q What is the status of the reorganization of the Agency's Information Function?

A On October 26, 1999, the Administrator announced the establishment of the new Office of Environmental Information (OEI). The OEI will play a key role in supporting the Agency's mission to enhance public health and environmental protection by working to improve the way EPA collects, manages, integrates, and provides access to environmental information. In addition to working on data collection, information quality and

integration, burden reduction, technology improvement and public access, the Office will be involved in new information initiatives in the future. Margaret Schneider is the Principal Deputy Assistant Administrator for the new office.

With the reorganization, all regulatory and outreach functions of the Toxic Releases Inventory program now fall under the new Office of Environmental Information. (The TRI program was formerly part of the Office of Pollution Prevention and Toxic Substances, (OPPTS).)

Early Data Release of the 1999 Reporting Year Data in 2001

Q Is the Agency planning to release the 1999 TRI data earlier next year?

A EPA is working towards releasing the data the year it is received and is taking steps to speed up processing of the data. However, FY2000 resource constraints may not allow EPA to release the 1999 data by the end of 2000.

Access to TRI Data Via TRI Explorer and Envirofacts

Q How will the Agency assist stakeholders and the public in accessing the data?

A EPA has developed the *TRI Explorer*, a web-based reporting tool, that will provide a fast and easy to understand interface for TRI data users. EPA will be releasing the *TRI Explorer version 2* as close to the date of data release as possible. The *TRI Explorer* provides access to the TRI data to help communities identify facilities and chemical release patterns that warrant further study and analysis. EPA created the *TRI Explorer* to provide access to TRI data -- currently on- and off-site releases -- that is both easy to understand and flexible. It will be updated to include other waste management data (recycling, energy recovery, and treatment) in the future. The *TRI Explorer* will generate on- and off-site release reports that will sort on facility, chemical, geographic area, or industry (SIC code) at the county, state, and national level. Combined with hazard and exposure information, the *TRI Explorer* can be a valuable tool for risk identification. The TRI data are also accessible on *Envirofacts*. Both tools can be accessed through the TRI Home Page at www.epa.gov/tri.