



## **Toxic Release Inventory**

If you have questions about TRI you may [contact us](#).

*We're committed to a clean environment*



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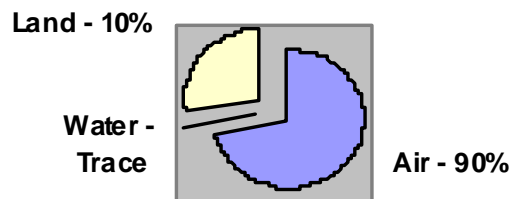


## Summary

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To meet the Environmental Protection Agency (EPA) requirements of providing an accounting for any of the 650 designated chemicals used or released by industrial facilities, RRI Energy submitted a report in 2008 for the ninth year. This report is for information purposes only.

- Emission inventories are for information purposes only. The Environmental Protection Agency simply requires companies to provide an estimate of certain releases to the environment.
- All RRI Energy facilities already meet stringent federal and state environmental standards to minimize emissions.
- RRI Energy already controls air emissions with various technical pollution abatement devices. Currently installed equipment, scrubbers, and mechanical and electrostatic precipitators, capture the majority of releases.
- Of the 650 chemicals listed by the EPA, RRI Energy facilities meet the inventory reporting criteria for only 24. Of these 24 chemical releases, 10 percent (on average) go into approved landfills. Most of this material is ash that remains from burning coal. According to the EPA, when ash is in the ground, it qualifies as a "release to the environment," even when placed in controlled landfills. Approximately 90 percent of RRI Energy releases (on average) are to the air. Twelve of RRI Energy's 37 plants met TRI reporting requirements for the 2007 report year.



After thorough study, the EPA reported to Congress that there is no need to further regulate any of these releases. Coal and fuel oil burning plants generate low-cost reliable electricity for homes and businesses in the RRI Energy service areas. Burning this fuel releases elements that occur naturally in nature. The EPA, the Electric Power Research Institute (EPRI) and the Harvard Center for Risk Analysis have all concluded that electric industry releases, while large, do not pose any established health risks.



## ***Frequently Asked Questions (FAQ)***

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### **Q. What is TRI?**

A. The Toxic Release Inventory (TRI) is a publicly available database of information, which must be reported to satisfy U.S. Environmental Protection Agency (EPA) regulations on the release and transfer of approximately 650 chemicals by private companies and government facilities. Congress created TRI under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA). The U.S. EPA administers the [TRI program](#), collecting the data and making it available to the public.

### **Q. Who must file TRI reports?**

A. An individual facility must make a report if it meets all of the following criteria:

- It employs the equivalent of 10 or more full time employees.
- It exceeds the reporting threshold by manufacturing or processing at least 25,000 pounds, or otherwise uses at least 10,000 pounds of a listed chemical. Effective for reporting year 2000, the EPA classified certain chemicals as persistent, bioaccumulative and toxic (PBT) and lowered the reporting thresholds for those chemicals to between .1 grams to 100 pounds.
- It falls under specific Standard Industrial Classification (SIC) codes.

Based on these criteria, RRI Energy submitted a report in 2008 for the [Conemaugh](#), [Keystone](#), [Portland](#), [Seward](#), [Shawville](#), [Titus](#), [Cheswick](#), [Elrama](#) and [New Castle](#) power plants in Pennsylvania; [Avon Lake](#) and [Niles](#) power plants in Ohio; and for the [Indian River](#) power plant in Florida. TRI reporting for the electric power industry is limited to facilities that combust coal and/or oil for the purpose of generating electricity for distribution in commerce.

### **Q. What information is submitted in the TRI report?**

A. The TRI report includes the following information for each chemical that exceeds the EPA reporting threshold level:

- Amount released to the air, water, and land.
- Amount shipped offsite for recycling, energy recovery, treatment or disposal.
- Amount recycled, burned for energy recovery, or treated at the facility.
- Chemicals released accidentally, including spills.
- Source reduction activities.
- Environmental permits held.
- Name and telephone number of contact persons.

### **Q. How useful is the TRI data to the public and employees?**

A. The TRI data provides information to the public on the amount of material released or handled annually by industries within the community. However, the TRI data as reported has its limitations. While the total releases are available to the public, the data does not communicate to people their exposure, risk or actual toxicity associated with the releases. The TRI data currently reported can be misleading because it does not:

- Explain that reportable substances released at RRI Energy facilities are not hazardous to public health at the resultant ground-level concentrations. Actually, there are currently no health-based standards for most of the TRI-reportable pollutants from RRI Energy facilities.
- Provide information on the progress RRI Energy has made in reducing releases from coal-fired plants, such as beneficial use of ash products and the installation of air quality and other environmental controls. [Click here to read about how RRI Energy is reducing releases from power plants.](#) [Click here to see a list of air emission controls at our power plants.](#)



**Q. Why are power plant TRI releases so large, and what effect will these quantities have on employees and the public?**

A. Providing safe, reliable and affordable electricity to homes and businesses results in air, water and land releases. With today's technology, it is impossible to meet the country's need for electricity without burning coal, which releases some of its original chemical constituents back to the environment. Coal, like other fossil fuels, burns because it contains carbon and hydrogen, which has a high heating value. Coal also contains a small percentage of naturally occurring elements such as oxygen, nitrogen, chlorine, and various minerals (metals). These elements are also present in rocks and soil, as well as in coal.

Due to the size of our facilities and the amount of coal burned, our total releases, as defined by EPA, appear large. However, employees and the public are not exposed to the total releases because a large amount of these "releases" are placed in an engineered and regulatory approved landfill. Furthermore, EPA studies (Reference #2) have concluded that the resulting ground level concentration from releases to air and water are a low risk to human health.

Coal Burned on an Average Day:

<i>Facility</i>	<i>Amount (tons)</i>
Conemaugh	14,700
Keystone	14,000
Seward (waste coal)	9,000
Shawville	4,500
Avon Lake	3,500
Cheswick	3,600
Elrama	2,800
Portland	2,600
New Castle	2,000
Niles	1,700
Titus	1,800

**Q. How will TRI emissions from power plants compare to other local sources?**

A. Due to the large size of our power plants and the relatively remote counties where many of them are located, the TRI releases from our power plants will undoubtedly exceed many of their industrial neighbors.

**Q. Do TRI releases make up a large part of the wastes generated by power plants?**

A. TRI releases certainly include most of the total releases for water and waste (primarily ash) releases. TRI releases do not include certain airborne releases, including nitrogen oxides, sulfur oxides, and carbon monoxide, which are regulated by other federal and state programs, primarily the Clean Air Act. Emissions of these pollutants are reported to the Environmental Protection Agency and to the appropriate environmental agencies of the states in which the plants are located.

**Q. Are TRI releases legal?**

A. Absolutely. Electricity generators are among the most regulated industries in the country in terms of environmental requirements. Power plant releases have been regulated and reported in the past. TRI is simply another layer of environmental reporting to agencies and the public. Accidental spills must be reported as they occur and again under TRI.



**Q. What does the industry plan to do about its toxic emissions?**

A. RRI Energy continues to examine ways to reduce releases through technology advancements, product substitution, and recycling. Much has been done in past years to reduce releases and our consideration of such efforts will continue at new power plant acquisitions. As an example of how RRI Energy recycles, significant quantities of coal ash are sold for use by the concrete industry, rather than placed in landfills.

**Q. What pertinent health studies are available?**

A. Several major studies relative to health related aspects of power plant operations are readily available and should be examined:

- EPA Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units - Final Report to Congress (February 1998). Commonly referred to as the HAPs Report.
- George M. Gray, Ph.D. toxicologist with the Harvard Center for Risk Analysis, recently conducted a comprehensive review of releases from power plants (April 1999). His analysis was that power plants had large releases but little risk.

**Q. Are people living near power plants exposed to toxic emissions? Are they in danger?**

A. Some of the chemicals released by power plants are listed in the 650 TRI chemicals, and by definition of EPCRA are considered toxic. However, the large volume released is misleading. For example, when it is possible, a large percent of the volume reported under TRI is placed on-site in engineered and regulatory approved landfills. The buried materials are not exposed to the public, so a true "release" has not occurred. Furthermore, EPA studies (Reference #2) have concluded that the resulting ground level concentration from releases to air, as well as into water are a low risk to human health.

**Q. Can you compare the risk from living near a coal plant to other risks?**

A. The EPA Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units and the EPRI Electric Utility Trace Substances Synthesis Report list the following risk comparisons, based on lifetime exposure:

Cancer risk of living near a coal plant	Less than 1 in 1,000,000
Death on the ground from falling aircraft	1 in 250,000 (4 times greater)
Being struck by lightning	1 in 10,000 (100 times greater)
Drowning at home in the bathtub	1 in 10,000 (100 times greater)

**Q. What future improvements will be made to reduce emissions? Why don't all units have the most efficient pollution control devices on them?**

A. RRI Energy units generally have emission control equipment installed. When the units were built, state of the art air control technology was installed in the units. We have installed more extensive emission control equipment on many of our units and are evaluating new installations on others. We have installed scrubbers for sulfur dioxide and particulate control at many of our plants. Scrubbers remove 75 percent or more of sulfur dioxide. We are in the process of installing equipment to further control nitrogen oxide emissions at many of our units.



**Q. What are you doing to reduce ash emissions?**

A. Particulate control devices, such as electrostatic precipitators, are used for all RRI Energy solid fueled power plants. These devices trap more than 99.9 percent of the ash contained in the exhaust gases.

**Q. If ash is a waste, why is it used to build public roads or make concrete to build houses or schools?**

A. Ash is a mixture of many naturally occurring elements and compounds. Long-term independent studies by the American Coal Ash Association (Reference #4) have proven that coal ash is equivalent to, or better than, other materials used in the cement making process. The studies prove that any traces of metals that may be present in the ash are permanently locked in the concrete once it has set. The Environmental Protection Agency reiterated in May 2003 that fly ash is a non-hazardous material. Ash materials, in fact, have also been designated as co-products when used in various recycling and reuse activities, such as concrete production and road construction.

**Q. Why don't you recycle all of your ash instead of placing it in landfills?**

A. We recycle all of the ash we generate that can be productively used. We market all of the bottom ash from the [Seward](#) and [Portland](#) stations in Pennsylvania. In addition, we have an active coal ash-marketing program that seeks to develop new markets and expand existing markets.

**Q. Do you report mercury?**

A. Yes, we report [mercury](#) at a plant site if more than 10 pounds is handled during the year.

**Q. Do you report dioxin?**

A. Yes, we report [dioxin](#) and dioxin-like compounds if more than 0.1 gram is handled at a plant site.

**Q. Can we use the TRI facility ranking as an "environmental scorecard"?**

A. It would be inappropriate to consider the TRI facility ranking as an environmental scorecard since it does not consider the relative hazards, health risks, or the public exposure of each listing. For instance, high levels of one release could actually be less hazardous than a small quantity of another release. The TRI releases must be further analyzed to assess risk to public health when considering the flaws noted above.



## Glossary

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**Acid Rain** - Occurs when emissions of sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>) react in the atmosphere with water, oxygen, and oxidants to form various acidic compounds. These compounds then fall to the earth in either dry form (such as gas and particles) or wet form (such as rain, snow, and fog).

**Ammonia** - Is naturally present in coal in trace amounts. It can be injected to aid in pollution abatement. Coal- and oil-based power plants use it to reduce emissions such as nitrogen oxides from flue gas leaving the stacks. This controls the release of nitrogen oxides. It is added to water with other chemicals to prevent against corrosion in cooling towers.

**Antimony and Antimony Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Antimony resides in materials that are sold, retained on-site or in controlled off-site disposal areas.

**Arsenic and Arsenic Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Arsenic resides in materials that are retained on-site or sold.

**Ash** - The residue that remains after coal has been burned.

**Barium and Barium Compounds** - Are naturally present in coal and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Barium resides in materials that are retained on-site or sold. Barium compounds represent the largest single TRI land component from most coal-fired power plants.

**Benzo (g,h,i) perylene** - See PBTs

**Beryllium and Beryllium Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Beryllium resides in materials that are retained on-site or sold.

**Bioaccumulate** - To store a substance over time within an organism. Substances that bioaccumulate tend not to break down and dissipate.

**Boiler** - A large furnace in which water is heated into pressurized steam.

**Chromium and Chromium Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Chromium resides in materials that are retained on-site or sold.

**Coal** - A black substance composed of carbon and minerals that is mined from the earth and used as fuel.

**Cobalt and Cobalt Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Cobalt resides in materials that are retained on-site or sold.

**Combustion** - The process of burning.

**Combustion Gases** - Byproducts of burning fossil fuels, including carbon dioxide - which has been linked to the notion of [global warming](#) - water vapor, nitrogen oxides, sulfur dioxide and carbon monoxide.

**Copper and Copper Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Copper resides in materials that are retained on-site or sold.

**Dioxin and dioxin-like compounds** - Unintentional byproduct formed by the incineration of certain chlorinated chemicals. The Environmental Protection Agency classifies dioxin as persistent, bioaccumulative and toxic (PBT).

**EI** - [Edison Electric Institute](#).

**EPA** - [The U.S. Environmental Protection Agency](#).

**EPCRA** - [The Emergency Planning and Community Right-to-Know Act](#).

**EPRI** - [The Electric Power Research Institute](#).

**Exhaust Gas** - Gas that is left over after fuel is burned.

**Form R Report** - The form used for TRI reporting.

**Fossil Fuel** - The fuel used in combustion, including coal, lignite, fuel oil or natural gas.

**Fuel Oil** - A petroleum product that is used as a fuel.

**Generator** - A machine that produces electricity or other energy.



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**Global Warming** - A theoretical warming of the earth's atmosphere brought on by a buildup of carbon dioxide and other gases. Many industrial processes emit these gases.

**Hexachlorobenzene** - See PBTs.

**Hydrogen Chloride (HCl)** - Is created in gaseous form when inorganic chlorides that occur naturally in coal and oil are burned during the combustion process. Many power plants will release a large amount of hydrochloric acid aerosols. HCl will be emitted primarily to the air.

**Hydrogen Fluoride (HF)** - Is created in gaseous form when inorganic fluorides that occur naturally in coal are burned during the combustion process. Approximately 90 percent of the fluorides in coal are released as HF through power plant stacks. HF will be emitted primarily to the air.

**Landfill** - A permitted subsurface storage area that contains ash from the combustion process.

**Lead** - Is naturally present in coal and oil, and collects in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Lead resides in materials that are retained on-site or sold.

**Manganese and Manganese Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Manganese resides in materials that are retained on-site or sold.

**Mercury** - A metal that is naturally present in the earth's crust and in fossil fuels. EPA classifies mercury as a persistent, bioaccumulative and toxic (PBT) chemical.

**Metals** - A compound of the fossil fuel that is largely captured by the air pollution control equipment and placed in the landfill.

**Naphthalene** - It is found as an organic compound or constituent that is an impurity in the Residual Fuel Oil used in the combustion process to generate electricity. It is released to the air in very small amounts as a byproduct of incomplete combustion.

**Nickel and Nickel Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Nickel resides in materials that are retained on-site or sold.

**Ozone** - A form of oxygen when near the ground is a component of smog. At high altitudes ozone is beneficial because it filters UV rays from the sun.

**PAC** - Polycyclic aromatic compounds are present in trace amounts in coal and fuel oil. EPA classifies them as persistent, bioaccumulative and toxic (PBT) chemicals.

**Particle** - A type of air release generally composed of ash.

**PBT** - Persistent, bioaccumulative and toxic.

**Persistent, bioaccumulative toxics (PBTs)** - A group of chemicals that tend to persist in the environment and accumulate in animal tissue. PBTs common to utility facilities include **benzo (g,h,i) perylene; vanadium and vanadium compounds; dioxin and dioxin-like compounds; and hexachlorobenzene.**

**Plume** - The combustion gases exiting from a stack.

**Release** - An emission to the environment, primarily to a landfill (waste release) or from a stack (air release).

**Scrubber** - An environmental control device used to remove sulfur dioxide and other materials from the combustion gases.

**Selenium and Selenium Compounds** - Are naturally present in coal and oil, and collect in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Selenium resides in materials that are retained on-site or sold.

**Sulfur dioxide (SO<sub>2</sub>)** - A component of gas that is formed by the combustion of fuel containing sulfur.

**Stack** - The chimney at a power plant through which combustion gases pass.

**Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>)** - Is created in gaseous form when sulfur that occurs naturally in coal and oil is burned during the combustion process. Electric generating plants will report H<sub>2</sub>SO<sub>4</sub> as an air release.

**Thallium** - Is naturally present in coal, and collects in bottom ash, fly ash, slag and flue gas emission-control waste during and after the combustion process. Thallium resides in materials that are retained on-site or sold.

**TRI** - Toxic Release Inventory. An annual report of chemical releases required by specific industrial sources.

**Turbine** - A device that uses steam, water flow, fossil fuel, or wind to cause a spinning motion that activates electromagnetic forces and generates electricity.

**Utility** - An entity that provides a public service, such as the electric, gas, or telephone company.



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**Vanadium and Vanadium Compounds** - Is naturally present in coal and collects in bottom ash, fly ash and slag, as well as flue gas emission - control waste during and after the combustion process. Vanadium resides in materials that are sold, retained on-site, or in controlled off-site disposal areas. The EPA classifies Vanadium and Vanadium Compounds as persistent, bioaccumulative and toxic (PBT) chemical.

**Zinc and Zinc Compounds** - Are naturally present in coal, and collect in bottom ash, fly ash, slag and flue gas or emission-control waste during and after the combustion process. Zinc resides in materials that are sold, retained on-site, or in controlled off-site disposal areas.

### Perspective on Chemicals

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CHEMICAL	DESCRIPTION	COMMON USAGE
Antimony	Silvery-white metal found in earth's crust. Mineral arrives as trace element in coal.	Metal alloys, Solder, Sheet & pipe metal
Arsenic	Gray brittle metal-like substance in soil and rocks. Mineral arrives as trace element in coal.	Wood preservatives, Agricultural products, Electronics, Glass
Barium	Silvery-white metal found in earth's crust. Mineral arrives as trace element in coal.	Paints, Bricks, Tiles, Glass, Rubber, Fuel additives, Certain medical tests
Benzo (g,h,i) perylene	A PAC that occurs in oil, coal, wood, and natural gas as a result of incomplete combustion. Sources include wood-burning stoves, automobile exhaust, cigarette smoke, and power plants.	None
Beryllium	Hard, grayish metal found in mineral rocks, coal, and soil. Mineral arrives as trace element in coal.	Electrical parts, Machine parts, Ceramics, Mirrors
Chromium	Gray, solid material in rocks, animals, plants, and volcanic dust. Mineral arrives as trace element in coal.	Cement Plating, Metal fabrication, Asbestos-lined brakes, Catalytic converters
Cobalt	Steel gray, shiny hard metal in pure form found in rocks, soil, and streams. Mineral arrives as trace element in coal.	Component of Vitamin B, Superalloys, Porcelain enamel, Artificial joints
Copper	Either dark green crystals (copper acetate) or yellow to brown powder (copper chloride) Mineral arrives as trace element in coal.	Fungicide, Catalyst Pigment, Mildew preventative, Corrosion inhibitor, Shark repellent
Dioxin	Colorless solids or crystals in pure form. Dioxins are an unused byproduct formed when fuel is combusted in the presence of chlorine, including utility boilers, forest fires, and volcanoes.	None. Dioxin production as a commercial product has been banned in the U.S. since the 1970s.
Hydrogen Chloride (HCl)	Slightly yellow gas with a pungent, irritating odor. Chlorides arrive as trace element in coal. HCl is formed during coal combustion.	Iron and steel fabrication, Clean and electroplate metals, Etch circuit boards, Make solvents and dyes, Chloride salts
Hydrogen Fluoride (HF)	Colorless gas. Fluorides arrive as trace element in coal. HF is formed during coal combustion.	Metal fabrication, Etching circuit boards, Glass Stain removers, Pharmaceuticals
Lead	Bluish-gray metal found in soil and water. Mineral arrives as trace element in coal.	Roofing, X-ray shields, Ammunition, Batteries, Metal products
Manganese	Silver-colored metal found in soil, rocks and water. Mineral arrives as trace element in coal.	Steel, Dry-cell batteries, Matches, Fireworks, Porcelain
Molybdenum Trioxide	White or yellow to slightly bluish powder or granules. Mineral arrives as trace element in coal.	Alloys, Fertilizers



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Mercury	Silver-colored metal found in soil and streams that is liquid at room temperature. Mineral arrives as trace element in coal.	Thermometers, Fluorescent lights, Batteries, Dental fillings
Nickel	Hard, silvery-white metal in pure state. Mineral arrives as trace element in coal.	Metal coins, Stainless steel, Jewelry, Valves, Heat exchangers



CHEMICAL	DESCRIPTION	COMMON USAGE
Polycyclic Aromatic Compounds (PACs)	A category of chemicals that form during incomplete burning of fossil fuel, garbage and organic materials.	None.
Selenium	Amorphous or crystalline red to gray solid common in earth's crust. Mineral arrives as trace element in coal.	Anti-dandruff shampoos, Photography development, Pigments, Veterinary medicine
Sulfuric Acid	Clear, colorless, oily and odorless liquid. Sulfur is present in coal and combines with oxygen and hydrogen during combustion.	Battery acid, Phosphate fertilizer, Parchment paper, Metal galvanizing, Die casting, Wood preservatives
Thallium	Bluish-white metal in pure form found in earth's crust. Mineral arrives as trace element in coal.	Metal alloys
Vanadium	White-to gray metal found in nature, often occurring as crystals. Found in earth's crust, rocks, some iron ores, and crude petroleum deposits. No odor in pure form.	Primarily steel, but also automobile parts, springs, ball bearings, aircraft engines, rubber, plastics and ceramics.
Zinc	White colorless crystals. Mineral arrives as trace element in coal.	Metal galvanizing, Die casting, Wood preservatives, Golf balls, Fuel additive

## References

1. EPRI (1994) *Electric Utility Trace Substances Report*, EPRI TR-104614
2. USEPA (1998) *Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units – Final Report to Congress*, EPA-453/R-98-004a
3. Harvard Center for Risk Analysis (1999) *Toxic Pollution from Power Plants: Large Emissions, Little Risk in Risk in Perspective*, Vol. 7 Issue 2
4. ACAA Proceedings (2003) *15<sup>th</sup> International American Coal Symposium on Management & Use of Coal Combustion Products*, St. Petersburg, Florida



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**Summary of 2007 TRI Releases**

**RRI Energy -- Avon Lake Power Plant (Ohio)**

CHEMICAL	AIR	WATER	LANDFILL	TOTAL RELEASES
Ammonia	NA	NA	NA	NA
Arsenic Compounds	482	1	42,422	42,905
Barium Compounds	496	6	172,561	173,063
Chromium	305	1	37,820	38,126
Copper Compounds	160	1	28,572	28,733
Dioxin and Dioxin-like Compounds (grams)	0.22	NA	NA	0.22
Hydrochloric Acid (aerosol)	1,182,432	NA	NA	1,182,432
Hydrogen Fluoride	76,008	NA	NA	76,008
Lead Compounds	484.50	0.59	16,757.32	17,242.41
Manganese Compounds	576	1	36,043	36,620
Mercury Compounds	259.43	0.01	217.00	476.44
Nickel Compounds	329	1	32,821	33,151
Polycyclic Aromatic Compounds	NR	NR	NR	NR
Sulfuric Acid (aerosol)	228,175	NA	NA	228,175
Vanadium	266	2	54,988	55,256
Zinc Compounds	657	1	36,597	37,255
Total (Pounds)	1,490,629.93	14.6	458,798.32	1,949,442.85
Percentage by category	76.5%	0%	23.5%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

NA – Reportable in this calendar year, but no releases reported

NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases**

**RRI Energy -- Cheswick Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	LANDFILL	SURFACE IMPOUNDMENT	TOTAL RELEASES
Ammonia	680	NA	NA	NA	680
Arsenic Compounds	481	11	36,121	0	36,613
Barium Compounds	1488	55	180,119	0	181,662
Chromium	301	9	31,144	0	31,454
Copper Compounds	229	7	24,007	0	24,243
Dioxin and Dioxin-like Compounds (grams)	0.21	NA	NA	NA	0.21
Hydrochloric Acid (aerosol)	2,600,800	NA	NA	NA	2,600,800
Hydrogen Fluoride	175,340	NA	NA	NA	175,340
Lead Compounds	500.36	4.35	14,291.64	0.00	14,796.35
Manganese Compounds	581	9	30,380	0	30,970
Mercury Compounds	180.003	0.04	126.03	0.00	306.073
Nickel Compounds	341	8	27,797	0	28,146
Sulfuric Acid (aerosol)	390,251	NA	NA	NA	390,251
Vanadium	485	14	45,763	0	46,262
Zinc Compounds	929	9	31,091	0	32,029
Total (Pounds)	3,172,586.36	126.39	420,839.67	0	3,593,552.42
Percentage by category	88.3%	0%	11.7%	0%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

NA – Reportable in this calendar year, but no releases reported

NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases**

**RRI Energy -- Conemaugh Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	ON-SITE LANDFILL	TOTAL RELEASES
Ammonia	10,000	780	0.0	10,780
Arsenic Compounds	2,011	654	130,000	132,665
Barium Compounds	532	1,651	270,000	272,183
Chromium Compounds	1,300	93	6,500	7,893
Cobalt Compounds	481	820	16,000	17,301
Copper Compounds	436	440	76,000	76,876
Dioxin and Dioxin-like Compounds (grams)	0.90	NA	NA	0.90
Hydrochloric Acid (aerosol)	680,005	NA	NA	680,005
Hydrogen Fluoride	68,005	NA	NA	68,005
Lead Compounds	2,033.1	65.2	24,731.1	26,829.4
Manganese Compounds	2,404	45,000	540,000	587,404
Mercury Compounds	501.2	6.1	1,755.4	2,262.7
Nickel Compounds	1,402	1,720	36,000	39,122
Selenium Compounds	3,501	411	10,390	14,302
Sulfuric Acid (aerosol)	780,005	NA	NA	780,005
Thallium Compounds	27	44	3,700	3,771
Vanadium Compounds	652	0	290,000	290,652
Zinc Compounds	2,306	3,400	69,000	74,706
Totals (Pounds)	1,555,601.3	55,084.3	1,474,076.5	3,084,762.1
Percentage by category	50.4%	1.8%	47.8%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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**Summary of 2007 TRI Releases**

**RRI Energy -- Elrama Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	OFF-SITE LANDFILL	SURFACE IMPOUNDMENT	TOTAL RELEASES
Ammonia	13,860	NA	NA	NA	13,860
Arsenic Compounds	393	27	0	0	420
Barium Compounds	645	70	0	0	715
Chromium Compounds	251	23	0	0	274
Copper Compounds	196	17	0	0	213
Dioxin and Dioxin-like Compounds (grams)	0.18	NA	NA	NA	0.18
Hydrochloric Acid (aerosol)	226,540	NA	NA	NA	226,540
Hydrogen Fluoride	80,320	NA	NA	NA	80,320
Lead Compounds	391.32	10.44	0.00	0.00	401.76
Mercury	57.35	0.17	0.00	0.00	57.52
Manganese Compounds	460	18	0	0	478
Nickel Compounds	268	21	0	0	289
Sulfuric Acid (aerosol)	134,046	NA	NA	NA	134,046
Vanadium Compounds	420	33	0	0	455
Zinc Compounds	759	22	0	0	781
Total (Pounds)	458,606.67	241.61	0	0	458,848.28
Percentage by category	100%	0%	0%	0%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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**Summary of 2007 TRI Releases**

**RRI Energy – Indian River Power Plant (Florida)**

CHEMICAL	AIR	WATER	OFF-SITE TRANSFERS	TOTAL RELEASES
Lead	14	0.55	0	14.55
Naphthalene	16	0	0	16
PACs	0.15	0	0	0.15
PCBs	0.00015	0	0	0.00015
Sulfuric Acid	28,000	0	0	28,000
Totals (Pounds)	28,030.15015	0.55	0	28,030.70015
Percentage by category	100%	0%	0%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases**

**RRI Energy -- Keystone Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	ON-SITE LANDFILL	TOTAL RELEASES
Ammonia	132,000	3,200	0	135,200
Arsenic Compounds	1,916	303	120,000	122,219
Barium Compounds	2,215	2,806	120,000	125,021
Chromium Compounds	1,204	98	33,097	34,399
Copper Compounds	787	24	52,000	52,811
Dioxin and Dioxin-like Compounds (grams)	0.8815	NA	NA	0.8815
Hydrochloric Acid (aerosol)	14,000,005	NA	NA	14,000,005
Hydrogen Fluoride	1,200,005	NA	NA	1,200,005
Lead Compounds	1,952.2	16.8	26,786.7	28,755.7
Manganese Compounds	2,309	12,021	34,000	48,330
Mercury Compounds	846.7	0.0	1,665.4	2,512.1
Naphthalene	5.3	0.0	0.0	5.3
Nickel Compounds	1,303	271	23,000	24,574
PACs	5.6	0.0	0.0	5.6
Sulfuric Acid (aerosol)	1,000,005	NA	NA	1,000,005
Vanadium Compounds	1,928	0	260,000	261,928
Zinc Compounds	4,008	181	61,000	65,189
Totals (Pounds)	16,350,494.8	18,920.8	731,549.1	17,100,964.7
Percentage by category	95.6%	0.1%	4.3%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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**Summary of 2007 TRI Releases**

**RRI Energy -- New Castle Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	LANDFILL	SURFACE IMPOUNDMENT	TOTAL RELEASES
Ammonia	740.00	NA	NA	NA	740.00
Arsenic Compounds	286	4	23,860	0	24,150
Barium Compounds	150	14	80,375	0	80,539
Chromium Compounds	NR	180.00	NR	0	180.00
Dioxin and Dioxin-like Compounds (grams)	0.12	NA	NA	NA	0.12
Hydrochloric Acid (aerosol)	1,014,480	NA	NA	NA	1,014,480
Hydrogen Fluoride	95,800	NA	NA	NA	95,800
Lead Compounds	282.22	1.72	9,587.67	0	9,871.61
Manganese Compounds	340.00	NR	NR	0	340.00
Mercury	220.05	0.04	197.63	0	417.72
Nickel Compounds	200.00	NR	NR	0	200.00
Sulfuric Acid (aerosol)	107,526	NA	NA	NA	107,526
Vanadium Compounds	112	6	31,624	0	31,742
Zinc Compounds	313.85	NR	NR	0	313.85
Total (Pounds)	1,220,450.12	205.76	145,644.3	0	1,366,300.18
Percentage by category	89.3%	0%	10.7%	0.0%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases  
RRI Energy -- Niles Power Plant (Ohio)**

CHEMICAL	AIR	WATER	LANDFILL	SURFACE IMPOUNDMENT	TOTAL RELEASES
Ammonia	20,620	4,035	NA	NA	24,655
Barium Compounds	35	96	45,567	0	45,698
Dioxin and Dioxin-like Compounds (grams)	NR	NA	NA	NA	NA
Hydrochloric Acid (aerosol)	261,371	NA	NA	NA	261,371
Hydrogen Fluoride	38,834	NA	NA	NA	38,834
Lead Compounds	231.46	48.55	7,125.26	0.00	7,405.27
Manganese	272.2	42.20	20,124.25	NR	20,438.65
Mercury Compounds	183.37	0.12	318.26	0.00	501.75
Sulfuric Acid (aerosol)	78,857	NA	NA	NA	78,857
Vanadium	47	49	23,178	0	23,274
Total (Pounds)	400,451.03	4,270.87	96,312.77	0	501,034.67
Percentage by category	79.9%	0.9%	19.2%	0%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

NA – Reportable in this calendar year, but no releases reported

NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases**

**RRI Energy -- Portland Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	ON/OFF-SITE LANDFILL	TOTAL RELEASES
Barium	222	210	23,000	23,432
Dioxin and Dioxin-like Compounds (grams)	0.186	NA	NA	0.186
Hydrochloric Acid (aerosol)	2,700,005	NA	NA	2,700,005
Hydrogen Fluoride	240,005	NA	NA	240,005
Lead	375.2	4.6	1,514.6	1,894.4
Mercury compounds	130.4	0.1	203.3	333.8
Naphthalene	17.2	0.0	0.0	17.2
PACs	7.3	NA	NA	7.3
Sulfuric Acid (aerosol)	200,005	NA	NA	200,005
Vanadium Compounds	310	NA	34,000	34,310
Totals (Pounds)	3,141,077.1	214.7	58,717.9	3,200,009.7
Percentage by category	98.2%	0.0%	1.8%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

NA – Reportable in this calendar year, but no releases reported

NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases**

**RRI Energy -- Seward Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	ON/OFF-SITE LANDFILL	TOTAL RELEASES
Ammonia	9,100	NA	NA	9,100
Antimony	59.2	0	0	59.2
Arsenic	1,335.46	1	0	1,336.46
Barium Compounds	17.11	3	0.00	20.11
Beryllium Compounds	69.14	0	0	69.14
Chromium Compounds	847.32	1	NA	848.32
Cobalt Compounds	334.43	25	0	359.43
Copper Compounds	52.99	1	0	53.99
Dioxin and Dioxin-like Compounds (grams)	0.30	NA	NA	0.30
Hydrochloric Acid (aerosol)	884	NA	NA	884
Hydrogen Fluoride	137	NA	NA	137
Lead Compounds	200.6	0.41	0.00	201.01
Manganese Compounds	1,596.33	1,175	0	2,771.33
Mercury Compounds	1.14	0.03	0.00	1.17
Molybdenum Trioxide	22.21	0	0	22.21
Naphthalene	42.80	0	0	42.80
Nickel Compounds	913.18	97	0	1010.18
PACs	3.65	NR	NR	3.65
Selenium Compounds	2,320.19	0	0	2,320.19
Sulfuric Acid (aerosol)	90	NA	NA	90
Thallium Compounds	8.43	0	0	8.43
Vanadium compounds	32.93	1	0	33.93
Zinc Compounds	228.5	149	0	377.5
Totals (Pounds)	18,296.61	1,453.44	0	19,750.05



Toxic Release Inventory 2008

Percentage by category	92.6%	7.4%	0%	100%
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**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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NR – Not Reportable in this calendar year

**Summary of 2007 TRI Releases**

**RRI Energy -- Shawville Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	ON/OFF-SITE LANDFILL	TOTAL RELEASES
Ammonia	11,000	1,300	NA	12,300
Arsenic Compounds	627	7	68,000	68,634
Barium Compounds	525	150	150,000	150,675
Dioxin and Dioxin-like Compounds (grams)	0.270	NA	NA	0.270
Hydrochloric Acid (aerosol)	2,800,005	NA	NA	2,800,005
Hydrogen Fluoride	250,005	NA	NA	250,005
Lead Compounds	624.1	1.4	9,604.7	10,230.2
Manganese Compounds	NA	NA	NA	NA
Mercury	723.1	0.2	782.8	1,506.1
Sulfuric Acid (aerosol)	300,005	NA	NA	300,005
Vanadium Compounds	491	NA	100,000	100,491
Zinc Compounds	1,105	166	22,000	23,271
Totals (Pounds)	3,365,110.2	1,624.6	350,387.5	3,717,122.3
Percentage by category	90.53%	0.04%	9.43%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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NR – Not Reportable in this calendar year



**Summary of 2007 TRI Releases**

**RRI Energy -- Titus Power Plant (Pennsylvania)**

CHEMICAL	AIR	WATER	ON/OFF-SITE LANDFILL	TOTAL RELEASES
Barium Compounds	NA	NA	NA	NA
Copper Compounds	120	180	410	710
Dioxins and Dioxin-like Compounds (grams)	0.12	NA	NA	0.12
Hydrochloric Acid (aerosol)	1,600,005	NA	NA	1,600,005
Hydrogen Fluoride	140,005	NA	NA	140,005
Lead Compounds	248.2	12.9	36.7	297.8
Manganese Compounds	304	894	1,200	2,398
Mercury Compounds	92.0	0.7	7.2	99.9
Sulfuric Acid (aerosol)	26,005	NA	NA	26,005
Vanadium Compounds	304	NA	3,900	4,204
Zinc Compounds	567	211	390	1,168
Totals (Pounds)	1,767,650.2	1,298.6	5,943.9	1,774,892.7
Percentage by category	99.60%	0.07%	0.33%	100%

**Note:** Total releases are rounded to two significant digits. All units are in pounds, except for Dioxin and Dioxin-like compounds, which are expressed in grams. 1 pound = 454 grams; 1 gram = 0.0022 pounds

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NR – Not Reportable in this calendar year