

## **Backgrounder**

*Taking Stock 2001* is the CEC's annual report on toxic chemical pollution from industrial facilities, such as chemical manufacturers, steel mills, paper mills, manufacturers of plastics, coal and oil-fired power plants, and hazardous waste management facilities. It is based on data for the year 2001, the most recently available comparable data from the two countries, Canada and the United States. This year's report features a special analysis of air releases and persistent bioaccumulative toxic chemicals, principally mercury and its compounds.

### ***Air:***

- Emitting chemicals to the air is the most common type of release. On-site air releases accounted for over one-quarter of all releases and transfers in 2001. Over 755.5 million kg of chemicals were released into the air in 2001.
- The states and provinces with the largest toxic air releases in 2001 were North Carolina, Ohio and Ontario. Electric utilities reported the largest toxic air releases in these states and province as well as in North America. The chemical released to air in the largest amount was hydrochloric acid, primarily from electric utilities.
- The carcinogens released to air in the largest amounts were styrene and dichloromethane. The rubber and plastics products sector accounted for more than 70 percent of releases of these chemicals.
- On-site air releases in NPRI (Canada) increased by 3 percent from 1998 to 2001. The paper products industry reported the largest air releases in NPRI in both 1998 and 2001, with an increase of 5 percent during the period. Many NPRI paper products facilities indicated a change in estimation methods and/or increased production as reasons for the increases. Also, NPRI facilities newly reporting in 2001 that did not report in 1998 contributed to the increases seen from 1998 to 2001.
- On-site air releases in TRI (United States) decreased by 20 percent from 1998 to 2001. Electric utilities reported the largest toxic air releases of any industry sector in TRI in both 1998 and 2001. They reported a decrease of 10 percent during the period.
- The facility in Canada with the largest decrease in air releases from 1998 to 2001 was the Bowater Maritimes (formerly Avenor Maritimes) paper products facility in Dalhousie, New Brunswick. It reported a decrease of 1.7 million kg, primarily of sulfuric acid, due to a reduction in the sulfur content of the fuel used at the facility.
- The facility in the United States with the largest decrease in toxic air emissions from 1998 to 2001 was the Magnesium Corporation of America facility in Rowley, Utah. This facility reported a reduction of 19.7 million kg, primarily of chlorine. Some of these reductions were driven by new regulatory action.

### ***Mercury:***

- Mercury occurs naturally in coal and is released into the air when coal is burned to produce electricity at power plants. Other mercury sources include

waste incineration and industrial processes. Once released into the air, mercury may deposit onto the ground or water. Biological processes transform the mercury into a highly toxic form that can build up in fish, ultimately exposing people to mercury when they eat the contaminated fish. As a result of this exposure, people can suffer damage to their senses and brain. Children are especially vulnerable, as are women of childbearing age, and people who regularly and frequently eat contaminated fish with elevated levels of mercury.

- Total releases of mercury decreased by 48 percent in North America from 2000 to 2001. However, this was due to a decrease of 273,000 kg in TRI, where one hazardous waste facility in Texas reported a decrease of almost 261,500 kg mainly in transfers to disposal. NPRI showed an increase of over 12,000 kg of total releases, where one hazardous waste facility in Quebec reported an increase of almost 13,000 kg in on-site releases to land.
- Electric power plants (only coal and oil-fired power plants are included in *Taking Stock*), accounted for almost two-thirds of the 43,384 kg of mercury released into the air by North American industrial facilities in 2001.
- Other information shows that sources of mercury like coal power plants are in continued development in North America. The US Department of Energy projected in its *EIA Annual Energy Outlook Report 2004* an additional 96 GW of coal capacity in the United States by 2025, an equivalent of 192 new 500 megawatt coal power plants. From 2011 on, coal-fired capacity is expected to account for 40 percent of all capacity additions in the United States. In Canada, five new coal power plant units have been announced for operation by 2006—all in Alberta.
- Among North American electric power plants, Reliant Energy's Keystone Power Plant in Pennsylvania reported the largest on-site air emissions of mercury, 819 kg, in *Taking Stock*. This plant also doubled its estimate of on-site toxic air releases from 1998 to 2001, making it the second-largest toxic air polluter in North America (7,856 tonnes in 2001). However, the increase was primarily due to a change in estimation techniques.
- Conversely, Reliant Energy's Conemaugh Power Plant in Pennsylvania, had the second largest decrease in on-site air emissions of mercury from 2000 to 2001. The facility lowered its toxic air emissions by 54.5 percent, from 499 to 227 kg.
- In Canada, one facility is responsible for the 10 percent increase in toxic air emissions of all toxics from electric power plants in that country from 1998 to 2001: Ontario Power Generation's Nanticoke Generating Station. The coal power plant was also responsible for the second largest on-site air releases of mercury (226 kg) by a Canadian electrical facility. The company noted that some of this increase was due to increased production and changes in fuel blend. TransAlta Corporation's Sundance Thermal Generating Plant in Duffield, Alberta, reported the largest mercury air releases with 279 kg.