

US EPA ARCHIVE DOCUMENT

THE CHLORINE INSTITUTE, INC.

1300 Wilson Boulevard

Arlington, VA 22209

Phone: 703-741-5760 Fax: 703-741-6068

SIXTH ANNUAL REPORT TO EPA

For the Year 2002

May 12, 2003

This is the sixth annual report that the Chlorine Institute is submitting to EPA as a result of the commitment made to attain a goal of reducing mercury use by 50% by 2005 over the base years of 1990-1995.

Mercury use is detailed in Table 1. The overall reduction to date is 81%. As stated in the Chlorine Institute's original commitment to EPA, the reduction in mercury use would not be a straight line decline. In 2002, mercury use increased from 2001 levels by 0.9%. After adjusting for shutdown facilities (the mercury cell plant in Deer Park, Texas was permanently closed during 2002), the reduction in mercury use by the chlor-alkali industry from the base period is 74 %. In 2002, mercury use increased from 2001 levels by 6.9% based on a per-ton of annual chlorine production capacity.

In 2002, mercury purchases exceeded mercury use by approximately 100 tons. This was due to actions and activities at four facilities. Over the last several years, improvements in mercury cell technology have allowed for the reduction in mercury emissions through better cell room equipment performance and reliability. However, at some facilities, implementing the technology requires a one time increase the inventory of mercury into the individual cells. Such an increase in mercury inventories is being coordinated with other capital improvements in the cells, e.g., the installation of improved technology mercury pumps and hydrogen coolers to minimize fugitive emissions, enlargement of the decomposers to improve the decomposition of the amalgam formed in the primary cell, and modifications of the electrical distribution system in the cell to minimize short circuiting while also minimizing electrical power consumption. Because the facilities involved in these changes have between 52 and 106 individual cells, these process changes are being done over a multi-year period.

When these projects are fully completed, the mercury inventory in the cells will have increased significantly from the inventories prior to the start of the projects. It is expected that these cell room improvements will allow for less frequent maintenance openings of the individual cells resulting in lesser mercury emissions. These changes are being made for a variety of reasons. First, the changes will facilitate compliance with the new maximum achievable control technology regulations for mercury emissions that were proposed in July 2002 and are expected to be finalized this summer. Secondly, they will allow for a reduction in energy consumption. Lastly, they will reduce mercury emissions consistent with the mercury cell chlor-alkali industry's commitment to the Binational Toxics Strategy (BTS) and the industry's overall Responsible Care® commitment to reduce mercury emissions and use.

One of the four facilities undergoing the capital upgrade conducted a technical review of the project and a plant tour for federal and state regulatory officials last October. Detailed information about the upgrade was provided, and EPA has posted it on its BTS website. A representative of that facility will be providing an overview of the project at the semi-annual BTS mercury workgroup meeting in Windsor on May 15.

Approximately 100 tons were added to the inventories in these four facilities in 2002. In 2003, an estimated 80 tons will be required, in 2004 an estimated 50 tons will be required. While the bulk of these capital improvements are expected to be complete in 2004, 10 -15 tons will be needed by one facility to complete the work in 2005.

As originally committed to EPA, the Institute stated that it would not consider identifiable increases in mercury process inventories as a use. The Institute wishes to point out that since the commitment was originally made, five mercury cell facilities have closed. These facilities are estimated to have a total of 800 -900 tons of mercury. If this quantity of mercury were credited (offset) against mercury purchases by the industry, the net mercury purchases by the industry would have been zero or even a negative figure.

A summary of the Institute's mercury task groups and their activities for 2002 are discussed in Appendices A and B.

The following mercury related activities during the 2002 year:

- Conducted a workshop on sulfide technology and how it can be enhanced (January)
- Conducted Mercury Issues Workshop at The Chlorine Institute's Annual meeting in Dallas (March)
- Prepared and submitted the Fifth Annual Report to EPA concerning industry's commitment to a 50% reduction for mercury usage by 2005 (April)
- Reactivated the Mercury Health Issues Task Group to review and/or revise key pamphlets concerning exposure and medical surveillance
- One of the four facilities undergoing extensive cell room capital improvements conducted a detailed technical review of the upgrade and plant tour for federal and state regulatory officials.

The 2003 Mercury Issues Workshop was held during the Chlorine Institute's Annual meeting in Chicago last month.

Table I
Chlor-Alkali Mercury Cell Process – USA Only

	1990	1991	1992	1993	1994	1995	Average 1990-95	1996	1997	1998	1999	2000	2001	2002
Total Mercury purchases, lb.	407,890	330,209	231,872	133,219	268,731	406,517	296,408	242,015	320,460	340,658	214,749	172,885	69,932	259,069
Total Mercury Purchases, tons	204	165	116	67	134	203	148	121	160	170	107	86	35	130
Total Mercury Used, lb.	443,024	350,702	296,292	207,077	291,077	330,448	319,715	273,659	232,056	208,863	176,769	158,032	60,032	60,629
Total Mercury Used, tons	222	175	148	104	146	165	160	137	116	104	88	79	30	30
Annual Chlorine Capacity, 1,000 tons	1,757	1,757	1,757	1,757	1,757	1,762	1,758	1,784	1,801	1,785	1,676	1,549	1,378	1,301
Total Number of Mercury Cells	762	762	762	762	762	762	762	762	762	762	706	682	646	594
Mercury Used, lb/ton of Chlorine Capacity	0.252	0.200	0.169	0.118	0.166	0.188	0.182	0.153	0.129	0.117	0.105	0.102	0.044	0.047

Note: 1 ton = 2,000 lb

APPENDICES

Appendix A - Mission Statements of Various Groups

Mercury Issues Management Steering Committee (MIMSC)

The mission of the Mercury Issues Management Steering Committee (MIMSC) is to address proactively safety, health, and environmental issues that will impact the manufacture and use of chlor-alkali products produced by the mercury cell process. The steering committee will develop and promote practices that will assist the users of this technology in the achievement of the goal to reduce mercury usage by 50% and in the continued protection of human health and the environment. MIMSC has established numerous technical task groups to carry out its mission

The Mercury Emissions Measurement (MEM) Task Group

The mission of the Mercury Emissions Measurement (MEM) Task Group is to identify methods that are technically feasible to measure mercury emissions from cell room operations.

The Mercury Control Techniques (MCT) Task Group

The mission of the Mercury Control Techniques (MCT) Task Group is to identify and communicate control techniques and technologies that can be used by member companies to further reduce mercury emissions from the cell rooms

The Mercury Health Issues Task Group

The mission of the Mercury Health Issues Task Group is to address issues of concern pertaining to the health effects to employees potentially exposed to mercury.

The Mercury Containing Wastes Task Group

The mission of the Mercury Containing Wastes Task Group is to address regulatory issues of concern pertaining to mercury-containing wastes and to interact with EPA concerning regulatory proposals. Because there are no current regulatory issues pertaining to mercury containing wastes under consideration by EPA, the task group has been sunset.

The Mercury Water Quality Task Group

The mission of the Mercury Water Quality Task Group is to address issues concerning current and potential technologies and regulatory issues pertaining to waste water effluents.

Mercury Public Policy Task Group

The mission of Mercury Public Policy Task Group is to address government actions that may affect mercury cell technology consistent with sound science, risk management principles, and cost/benefit analysis.

APPENDIX B - Task Group Progress and Activities Reports for 2002

Mercury Emissions Measurement Task Group and Mercury Control Technique Task Group

These combined task groups received and reviewed the proposed mercury National Emissions Standards for Hazardous Air Pollutants (NESHAP) MACT regulation for mercury cell chlor-alkali facilities, published in the Federal Register July 3, 2002 with a 60 day comment period. The combined task groups met in August to discuss and prepare draft comments to the proposed mercury NESHAP regulation. The combined task groups also requested and received a 30-day extension on the comment period for the proposed mercury NESHAP MACT. The combined task group submitted comments to EPA by the October 3rd deadline indicating concern that EPA is planning only limited testing (due to lack of funds) pertaining to mercury continuous monitoring systems (CMS) of the point source streams, which may not be provide a valid indication of whether any of the systems being tested can be operated on an ongoing basis.

The primary mission of the Mercury Control Technique Task Group task group has been achieved with the development and publication of the guidance document and it has been sunset.

Mercury Health Effects Task Group

The task group is currently updating two Institute publications, *Pamphlets 125, Guidelines: Medical Surveillance and Hygiene Monitoring Practices for Control of Worker Exposure to Mercury in the Chlor-Alkali Industry*, and *Pamphlets 156, Guidelines to Physicians in Conducting Mercury Medical Surveillance Programs*. It is the team's intent to combine these documents into a single one entitled, *Guidelines – Medical Surveillance and Hygiene Monitoring Practices for Control of Worker Exposure to Mercury in the Chlor-Alkali Industry* for issuing in late 2003. The document is targeted for completion in September 2003.

Mercury Public Policy and Special Regulations Task Group

The PPSR Task Group has been diligently working on the mercury retirement issue. The group prepared industry points on the mercury retirement issue and publicly unveiled them at a major mercury workshop in Boston in May. Some of the points were included in Senate Bill S. 351. The PPSR task group supported Senate Bill S. 351 which stalled after passing the Senate and moving to the House of Representatives.

Mercury Water Quality Task Group

In January 2002, the team held a two day workshop at PPG's Lake Charles plant to discuss ways to optimize treatment for mercury removal from wastewater effluent. This task group is developing a guidance document, *Guidelines for the Optimization of Mercury Treatment (Sulfide Precipitation Process) Systems*, for issuing in late 2003. The document is targeted for completion in September 2003. All sections are targeted for completion by the end of September.

Mercury Issues Workshop

Workshops on mercury issues were conducted at both the 2003 Annual Meeting held in Chicago in April and in Dallas in March 2002. The workshops are held in conjunction with the Chlorine Institute's Annual Meeting and address a variety of technical and regulatory issues affecting the industry. Both meeting were attended by approximately 60 people representing mercury cell chlor-alkali plants throughout the world.

Mercury Containing Waste Task Group

The Mercury Containing Waste Task Group was sunset due to minimal activity for the task group through the past two years, as it has completed its objectives. If further issues develop, requiring a team to be formed, it will be done.

The mercury teams participate in two industry coalitions addressing mercury issues. These are the **Federal Water Quality Coalition** and the **Coalition for Mercury Management**.

The following task groups completed their mission and were sunset in 2002 or earlier years.

Mercury Control Technique Task Group (2002)

Mercury Containing Waste Task Group (2002)

Board Committee on Mercury Issues (BCMI) (2001)

The Mercury in Sodium Hydroxide – New Technology Task Group (2000)

The Mercury Balance Task Group (1999)

The Mercury in Sodium Hydroxide – Current Technology Task Group (1999)

The Mercury Cell Rubber Lining Task Group (1998)