



Chlor-Alkali Sector Mercury Reduction Accomplishments

Binational Toxics Strategy
Mercury Work Group Meeting

May 17, 2006

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Agenda

- Context – some duplication of earlier presentation
- CI Commitment to the BTS
- Mercury use in chlor-alkali facilities
- Why some facilities are adding mercury
- Commitment to enhanced monitoring of cell room emissions
- Commitment to full accounting for mercury we use
- Chlorine – Mercury MACT Regulatory Issues

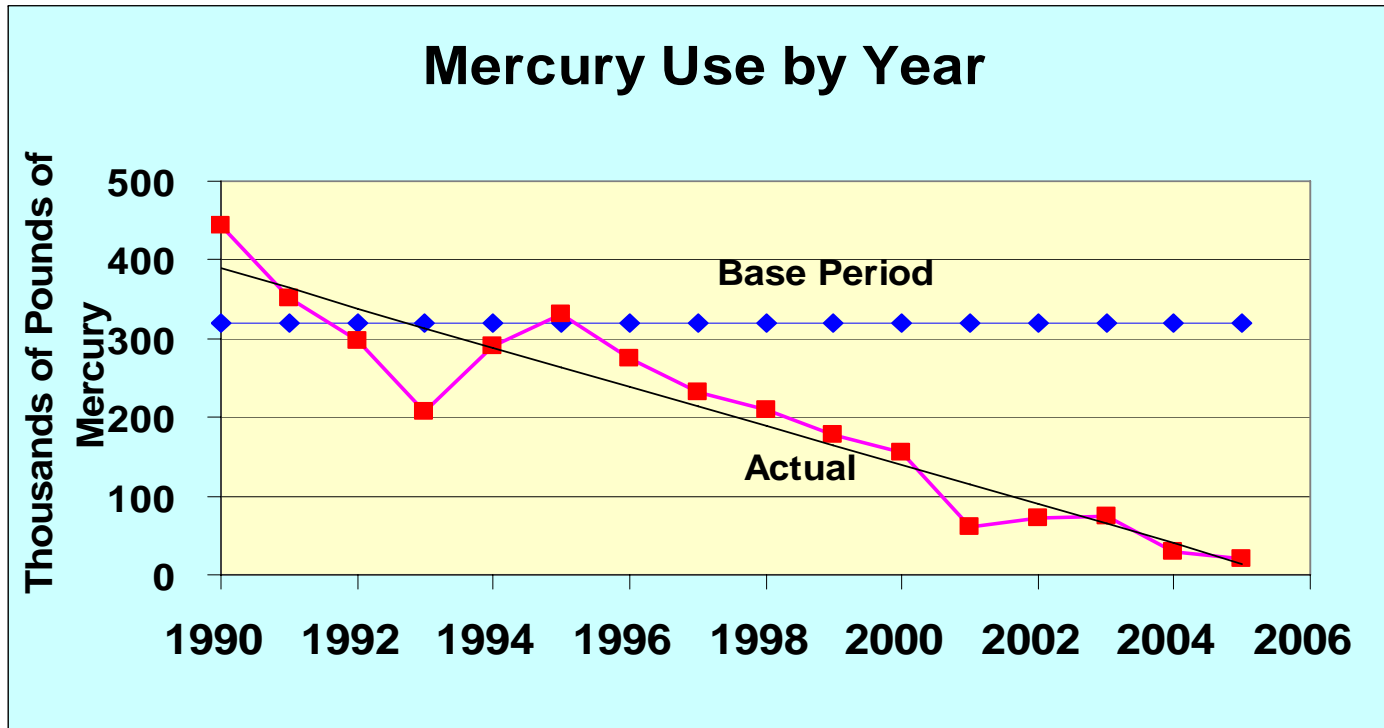
Commitment to BTS

- In 1996, the USA Mercury Cell Chlor-alkali industry committed to a 50% reduction in mercury use by 2005 in support of the US Binational Toxics Strategy Goal
 - In July 1997, industry representatives met with high EPA officials to discuss the commitment in detail

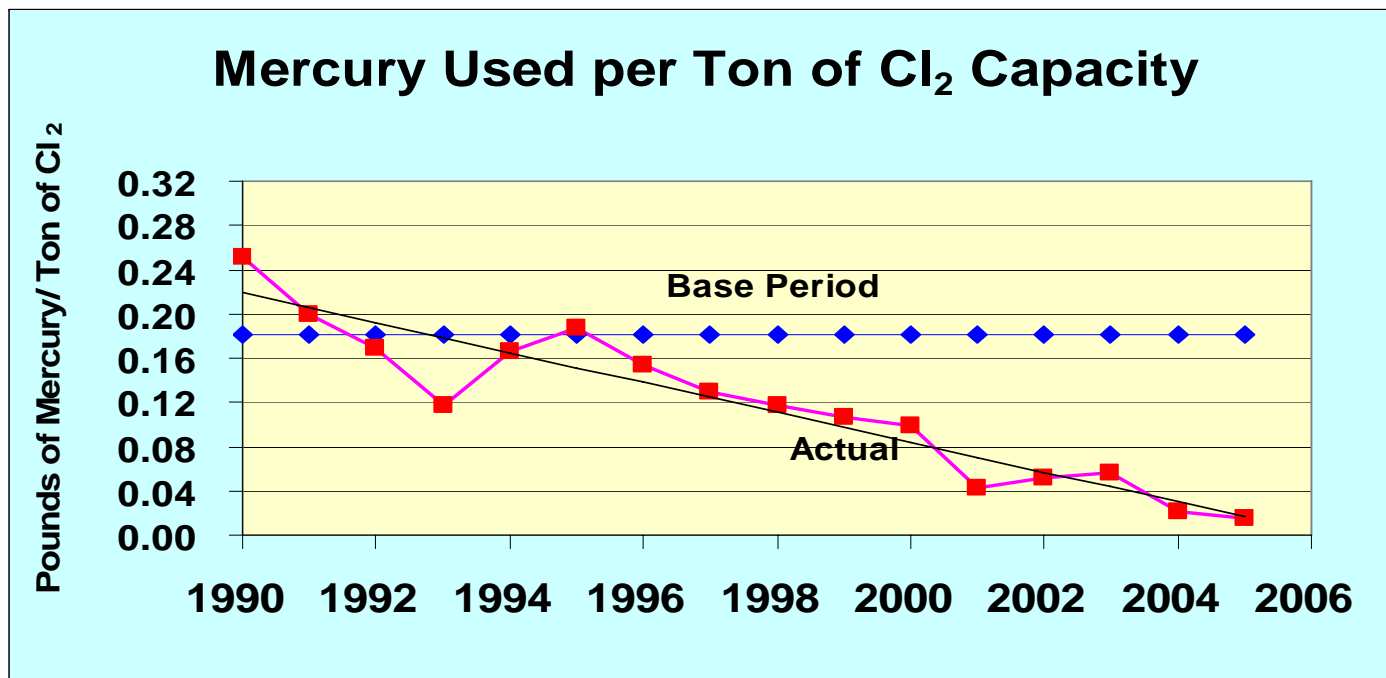
Commitment to BTS *(con't)*

- CI/Industry committed to provide EPA with an annual progress report
- CI has just issued its Ninth Annual Progress Report

Mercury Use Since 1990



Mercury Use Since 1990 Per Ton of Chlorine Capacity



Mercury Purchases vs. Mercury Use

- In the long term mercury purchases should approximate mercury use
- Near term issues – New more stringent Mercury MACT are requiring process changes – Dec 2006
 - Fugitive emissions from cell rooms likely will be reduced significantly as part of the new regulation

Sources of Fugitive Emissions

Equipment Maintenance [Major]

- Cell openings
- Decomposer openings
- Other maintenance (e.g., piping, vessels)

Process Leaks [Minor]

(e.g., Hydrogen process stream)

Actions to Reduce Fugitive Emissions

- Larger Equipment to Reduce Cell Openings
 - Decomposers – in some cases - up to 1/3
 - Means more mercury in inventory
- Improve Electrical Distribution System to reduce primary cell maintenance
 - Poor electrical distribution can damage anodes requiring repair (cell openings)
- More reliable equipment
 - Sealless mercury pumps
 - Hydrogen coolers (larger, better design)

Larger Equipment Means More Mercury in Inventory

- Mercury purchases in the last four years exceeded mercury use by 351 tons
- This mercury is present in the process and the increased inventory can be observed by physical measurement

Surplus Mercury From Closed Facilities

- Since the commitment was made, the number of mercury cell facilities decreased from 14 to 8
 - We consider mercury obtained at an operating site to be a purchase even if the mercury is obtained from a closed site
 - If we credited ourselves for surplus mercury from closed sites, mercury purchases since 1999 would be negative.

Closure vs. Conversion

- Company must consider economics
- Is the high cost of conversion justified?
- Power cost, salt/brine supply, and customer base are key issues
- 30 mercury cell chlor-alkali plants have closed in the last 37 years.

Closure vs. Conversion *(con't)*

- Three converted to membrane and are still operating.
- One attempted to convert to membrane but was unsuccessful and closed.
- One converted to diaphragm and subsequently closed.
- Three had other non - mercury processes operating and are still operating today.
- Twenty two sites simply closed resulting in some impact in the local economies.

Enhanced Monitoring of Cell Room Emissions

- Third parties have raised concerns that unaccounted for mercury is escaping to the environment via cell room emissions
- All measurements conducted on cell room emissions have shown that emissions are within the current NESHAP allowance
 - In many cases, emissions were measured to be only 50-60% of allowable limits

Enhanced Monitoring of Cell Room Emissions *(con't)*

- Techniques have been developed to measure cell room emissions a on a continuous basis.
- Two facilities completed installations in 2005
- Several others in progress
- EPA verified methodology – within MACT limits

Full Accounting for Mercury Used

- 2,600 tons of mercury inventory in the eight plants currently operating
- Use is slightly less than 1% (average 24 tons/year 2001-2005)
- Physical measurement of mercury inventory is difficult
 - Increases emissions to environment
 - Increases risk of personnel exposure
 - Increases potential for a spill

Unaccounted for Mercury

- Began reporting in 2004 back to 2002
- Declined 89% from 28 tons in 2002 to three tons in 2005
- Unaccounted for mercury is within the statistical accuracy of measuring mercury inventories

Regulatory Issues

- New, more stringent MACT promulgated in December 2003 – effective December 2006
- Legal challenges to MACT
 - Earthjustice lawsuit challenging the rule
 - NRDC petition for EPA to reconsider
 - EPA has agreed to reconsider – scope unknown [minor changes or major rewrite?]

Regulatory Issues *(con't)*

- Legal challenges to MACT (contd)
 - CI has been allowed to intervene
 - EPA plans to do additional testing at other facilities
 - CI fully cooperating with EPA

Summary of Commitments

- Work to continue to fully account for the mercury in our process inventory
- Continue to work to reduce the amount of mercury used
- Develop methods to more accurately measure emissions from the cell rooms at each chlor-alkali facility

Summary of Commitments *(con't)*

- Further reduce the emissions from point sources so emissions are less than 10% of currently allowed limits
- Implement the extensive new MACT work practices, monitoring, and reporting requirements

Goals / Path Forward

- Fully comply with the new MACT
- Continue mercury reduction activities
- Integration of BTS reporting with UNEP reporting



Questions?

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