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EPA's Roadmap for Mercury

III. Managing Commodity-Grade Mercury Supplies

July 2006

III. MANAGING COMMODITY-GRADE MERCURY SUPPLIES

OVERVIEW

The Agency expects that an excess supply of elemental, commodity-grade mercury will emerge on the market over the coming years as various secondary sources of mercury—especially the expected phase-out of mercury-cell chlor-alkali plants—overtake a shrinking demand for mercury-containing products and industrial use of mercury. As a result, there will be an increasing need to safely manage mercury supplies for the long term. Ultimately, it will be important to look at ways to permanently "retire" most supplies of mercury that will eventually have little or no economic value. EPA estimates that current world demand for mercury is approximately 2,000 metric tons per year (mt/yr). Although highly variable from one year to the next, the amount of mercury available in commerce globally is also estimated at 2,000 mt/yr.[1] Other estimates prepared for the European Union (EU) indicate that the global mercury supply may be over 3,300 metric tons.[2] It is important to note that supply and demand numbers for countries outside the U.S. and Europe are very rough estimates. In the absence of efforts to retire mercury supplies, there is a danger that supplied mercury will find uses that have already been banned or eliminated in some countries, particularly in the developing world, possibly leading to unnecessary releases.

Sources. In recent years, approximately one-half of the world mercury supply has come from mercury mines in Spain, Algeria, and Kyrgyzstan (although Spain is no longer mining mercury). China has also mined mercury to meet its domestic demand.[3] There have been no active mercury mines in the U.S. since 1990. The remaining half of the world's mercury supply comes from secondary sources, such as industrial wastes and scrap products, as byproduct from gold mines in the U.S. and abroad, and from

closing mercury-cell chlor-alkali plants. The secondary mercury produced from these other sources is price-insensitive because the mercury results from environmental regulations and polices that require or encourage recovery (e.g., RCRA land disposal restrictions), and from industrial process conversions to non-mercury processes. Environmental regulations and polices that require mercury recovery can override the market's natural tendency over the long term to match supply with demand. Whereas the long-term trend for mercury mining has been one of decline, secondary production has remained relatively constant. It may even increase as mercury continues to be recycled/recovered and more mercury-cell chlor-alkali plants close, thereby making more mercury available to the secondary market.

The most significant factor driving the timing of a global mercury surplus is the rate at which remaining U.S. and international mercury-cell chlor-alkali plants close and liquidate their stocks of some 22,000 metric tons. Of these stocks, mercury-cell chlor-alkali plants in the U.S. account for about 2,600 metric tons of mercury stocks.[4] Mercury-cell chlor-alkali plants are being closed at the end of their useful life in the U.S. and abroad due to the industry's conversion to non-mercury technologies, a shrinking customer base, and high energy costs.

Progress to date. The Department of Defense (DoD) has mercury stocks that are being stored. The DoD has 4,436 metric tons of mercury in its strategic stockpile. DoD has sold some of its mercury stocks in the past, but since 1994 DoD has been storing its mercury in response to requests from EPA, states, and non-governmental organizations (NGOs). On April 30, 2004, the Defense National Stockpile Center (DNSC) published its final Mercury Management Environmental Impact Statement regarding the disposition of its mercury.[5] The DNSC decided to store its mercury at one location for at least a 40-year period. In addition, the Department of Energy has a known supply of 1,306 tons of mercury.

State and local governments have promoted public and private collection programs for both bulk elemental mercury and discarded mercury-containing products. Some businesses are also collecting unwanted mercury or mercury-containing products (e.g., thermostats). The total amount of mercury collected through these programs is unclear. Most of this mercury is sent to retorters, and it is likely that the supply of mercury will increase due to successful collection programs and efforts to eliminate mercury from schools, laboratories, and businesses.

The Environmental Council of the States (ECOS) and the Quicksilver Caucus (QSC), a coalition of state associations concerned with mercury pollution, have indicated that states do not have the resources or desire to manage surplus mercury for the long term and are looking to the federal government to address this issue.[6] Environmental groups and the U.S. Chlorine Institute are also looking to the federal government to address or assume responsibility for all private sector commodity-grade mercury that exceeds U.S. demand.

In addition, EPA's Office of Research and Development conducted research and published a report in 2005 on the technical and economic feasibility of selected land disposal technologies in a monofill context, as compared to above-ground storage for elemental mercury.[7]

Future focus. The issue of whether the federal government, states, or the private sector should take responsibility for managing commodity-grade mercury supplies from state and private sources is an important policy decision. Decisions regarding the disposition of commodity-grade mercury should be made in light of the global mercury market; data and research needs; public policy, statutory, and economic considerations; and the views of Congress, states, tribes, and non-governmental organizations.

Ultimately, it will be important to look at ways to permanently "retire" non-federally owned or managed commodity-grade mercury that will eventually have little or even negative economic value. Disposal of commodity-grade mercury would require regulatory changes, as current regulations under the Resource Conservation and Recovery Act (RCRA) require high concentration mercury wastes to be retorted for mercury recovery and reuse.[8]

Additional information on mercury supplies and flows would allow for more informed policy choices and decisions on this issue, and to better estimate when the global mercury surplus may occur. EPA, states, tribes, and the private sector must continue efforts, domestically and internationally, to address exposure, potential reduction strategies, and the quantity of mercury that will ultimately need to be stored or land disposed permanently.

Priority Activities for Addressing Mercury Supplies

Address Data Gaps on Mercury Supplies

- ***Publish Initial Report and Assemble Existing Data on Domestic and Global Commodity Mercury Production and Use –*** EPA will explore with industry and other federal agencies ways to fill information gaps on annual production and use of commodity mercury.
  Timeline: 2006

Safe Storage Practices for Disposal of Mercury

- ***Establish a Process to Address Mercury Surplus Issues –*** In 2006, EPA will work with other agencies to initiate a process with technical experts and interested parties to discuss options for addressing the expected mercury surplus over the next 10–30 years, and how to encourage the phase-out of mercury mining abroad.
  Timeline: Initiate discussion in 2006