Policy Briefing **September 2000**

Assuming Federal Responsibility for Managing the Stockpile of Mercury Leftover from Ceased Industrial Production

The Issue: About 260,000 pounds of mercury, a potent neurotoxin, are leftover from the recent closure of the HoltraChem Manufacturing Company plant in Orrington, Maine. Unless government intervenes, the company intends to sell this mercury for reuse where much of it will eventually escape into the environment. The use of mercury inevitably results in local contamination, long distance transport and mercury fallout in polluted rainfall.

The Solution: Instead of selling HoltraChem's mercury back into commerce, this leftover mercury inventory could be purchased and safely stored in a stockpile facility on an interim basis. Eventually, the mercury stockpile should be chemically treated to render it relatively inert and disposed of in a secure hazardous waste landfill.

Action Needed: The federal government should purchase and accept HoltraChem's leftover mercury for addition to the national stockpile of mercury currently managed by the Defense Logistics Agency (DLA). An Environmental Impact Statement being prepared by DLA will evaluate the option of permanently retiring the mercury stockpile through safe treatment and disposal.

WHY SHOULD MERCURY BE STOCKPILED AND PERMANENTLY RETIRED?

- Mercury is highly toxic, long lived and builds up to high levels in the food chain
- About 66,000 children may be born each year in the U.S. with learning disabilities and brain damage related to mercury-contaminated fish eaten by their mothers
- Health warnings have been issued in 41 states advising people to reduce or avoid consumption of fresh water fish and certain seafood due to mercury contamination
- The use of mercury in manufacturing and in consumer products inevitably results in mercury releases to the environment from production waste and careless disposal.
- Air emissions of mercury travel long distances, contributing to unsafe levels of mercury being routinely detected in rainfall far from the original sources
- Goals have been set to virtually eliminate mercury releases from human activities in the New England states, the Great Lakes region and other states and provinces
- Mercury use continues to decline and much of the U.S demand is already being met through recycling of mercury-added products at the end of their useful life
- If mercury was sold abroad it would return to us in atmospheric deposition, contaminated fish and products

WHY DOES THE FEDERAL GOVERNMENT STOCKPILE MERCURY?

The United States government owns about 10 million pounds of mercury in Department of Defense and Department of Energy stockpiles. This mercury was declared in excess of national need and was slated for sale on the world market. Mercury sales were halted in 1994 due to concerns about the impact on the global environment. The Defense National Stockpile Center (DNSC) of the Defense Logistics Agency currently stores the stockpiled mercury in five locations: Somerville, NJ; Oak Ridge, TN; Warren, OH; New Haven, IN; and Binghamton, NY. The DNSC is preparing an Environmental Impact Statement to address long term management of the mercury stockpile, including the option of permanent retirement through treatment and disposal.

Stockpiling is an interim solution. Permanent retirement could be achieved through a treatment technology called "amalgamation" in which liquid mercury is combined with other chemicals to form a relatively inert solid waste that can be encapsulated and securely disposed of in the ground. U.S. EPA has begun to review its current regulations that prohibited the land disposal of mercury-bearing waste in order to encourage recycling. With the glut in the mercury market and the recognized danger of its continued use, EPA will consider changes in regulations to encourage permanent retirement of mercury stockpiles.

WHO SUPPORTS THE PERMANENT RETIREMENT OF MERCURY?

The Environmental Council of States (ECOS), made up of state agency environmental commissioners from throughout the country, adopted a resolution in 1996 calling for a permanent halt to mercury sales from the national stockpile and for research and evaluation of long term management, retirement and substitution options.

U.S. EPA Office of Research and Developed sponsored a workshop in Baltimore in March of this year at which state and federal officials and technical experts all agreed that EPA must lead the way in identifying and supporting ultimate retirement options for mercury, both in commerce and in the Department of Defense stockpiles.

The New England Governors' Conference adopted a resolution on September 22, 2000 calling for all parties to work constructively together "to ensure that large quantities of stockpiled or recovered mercury are permanently retired in a manner that safely and securely avoids reintroduction of that mercury into the marketplace or, potentially, into the environment."

HOW MUCH MERCURY WOULD BE STOCKPILED FROM HOLTRACHEM?

About 260,000 pounds of mercury are left over from the chlor-alkali production process at HoltraChem. This represents about 2,300 gallons of the liquid metal.

It only takes one gram of mercury (about 0.002 pounds) to render all the fish in a 25-acre lake unsafe for human consumption.

HoltraChem's mercury inventory represents less than 3 percent of the mercury in the current federal stockpile of about 10 million pounds.

Total U.S. demand for mercury was estimated at 806,000 pounds for 1999. HoltraChem's inventory is equivalent to about one-third of annual U.S. consumption.

The amount of mercury leftover at HoltraChem equals about one-tenth of all the mercury recycled for reuse throughout the entire world each year.

WHO ELSE USES MERCURY AND HOW MUCH IS IN COMMERCE?

Mercury use continues to steadily decline. Here are the major industries and products that use mercury with the annual U.S. demand estimated for 1999:

Thermostats and electrical switches	220,000 pounds
Chlor-alkali production (like HoltraChem)	190,000 pounds
Lighting (fluorescent and outdoor lights)	91,000 pounds
Dental amalgam fillings	91,000 pounds
Instruments (thermometers, barometers, etc.)	61,000 pounds

Mercury is deliberately added to all these products with the exception of chlor-alkali production in which mercury is used to help convert salty water to chlorine and caustic soda. For the mercury-added products, much more mercury is stored in products that are still being used than is consumed each year. Many products contain small amounts of mercury should be recycled at the end of their useful life including thermostats, switches, lighting and instruments. Industrial plants making these products are unlikely to have a huge inventory of leftover mercury should they close because the mercury is added to the product.

Chlor-alkali production is the only use that would result in single large quantities of mercury becoming available when production ceases. Outdated mercury-cell chlor-alkali plants are slowly being phased out due to the availability of much more efficient mercury-free processes and a decline in chlorine use. There is about 10 other mercury-based chlor-alkali plants in the United States besides HoltraChem's recently closed Orrington, Maine facility.

WHAT PRECEDENT WOULD BE SET BY ACCEPTING THIS MERCURY?

If the Defense Department accepted the HoltraChem mercury inventory into the national stockpile, only a limited precedent would be established. The only other sector likely to generate bulk quantities of mercury all of a sudden is the chlor-alkali industry. And although additional mercury-based chlor-alkali plants will close, the consolidation in that industry is likely to stretch out over a time period of several years. The Chlorine Institute, a trade association representing chlor-alkali producers had recently negotiated an agreement with US EPA to reduce mercury use by 50% by 2003. The reduction was

to be achieved through process changes and more efficient mercury usage, not by plant closures.

During the next several years until the national stockpile is permanently retired, one or more additional chlor-alkali plants may close and offer the opportunity to remove more mercury from the marketplace.

WHAT WOULD IT COST TO STOCKPILE AND RETIRE THIS MERCURY?

Currently the purchase price of mercury is quite low, reportedly in the about 60 cents per pound. Pollution controls considered cost effective in removing mercury from air emissions could cost upwards of $20,000 per pound. HoltraChem's mercury inventory has been valued by Maine Department of Environmental Protection staff at $100,000 to $200,000.

Once the mercury stored at one of the national stockpile locations, operating and maintenance costs should not be high at all. Since mercury is so dense (13.5 times that of water), it won't take up a lot of space to store it.

The greater costs will come much later when a safe treatment and disposal option becomes available. Costs for such permanent retirement are not yet available.