Legal Lookout: EPA Expands Mercury Reduction Program

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Mercury is a naturally occurring metal found in the Earth's crust. At high doses, mercury is known to cause adverse human health effects. Over the past several years, EPA has focused on mercury exposures because of its potential to cause adverse human health and environmental effects, and because of its persistence and widespread distribution in the environment.

Mercury: what makes it potentially harmful

According to the Agency for Toxic Substances and Disease Registry (ATSDR), mercury exposure occurs from breathing contaminated air, ingesting contaminated water or food, and from certain dental and medical treatments. Inorganic mercury enters the air from a variety of sources, including mining ore deposits, burning coal or waste, and from certain manufacturing processes. According to EPA, approximately 60 percent of the airborne mercury deposited in the United States originates from man-made sources, such as coal-burning power plants.

Mercury combines with carbon to form organic mercury compounds such as methylmercury. It is produced by microscopic organisms in the water and soil and accumulates in the tissues of fish and shellfish. This contamination has lead officials to issue seafood advisories.

Because exposure to mercury at high levels can, according to the ATSDR, damage the brain, kidneys and developing fetus, EPA has set a limit of two ppb of mercury in drinking water. The Food and Drug Administration (FDA) has set a maximum permissible level of one ppm of methylmercury in seafood. The Occupational Safety and Health Administration has set limits of 0.1 mg/m3 of organic mercury per cubic meter of workplace air and 0.05 mg/m3 of metallic mercury vapor for 8-hour shifts and 40-hour work weeks.

Efforts to diminish exposures to mercury

The federal government has worked to diminish mercury in the environment and human exposure. The FDA and EPA jointly issued an advisory entitled What You Need to Know About Mercury in Fish and Shellfish. The advisory was intended to inform women who may become or were pregnant, nursing mothers, and the parents of young children about ways to minimize mercury exposure. Visit EPA's website at www.epa.gov/mercury/advisories.htm.

More recently, and of significance to *Pollution Engineering* readers, EPA issued a final rule under the Clean Air Act in 2005 regulating mercury emissions from coal-fired power plants and created a first-of-its-kind market-based cap-and-trade program, with the intent to permanently cap utility mercury emissions.

Phase one of the final rule sets a cap of 38 tons per year. Because the rule offers compelling incentives, EPA projects that emissions will decrease from 48 to 31 tons beginning in 2010. Emissions will continue to decline until they are reduced to the second phase cap of 15 tons per year when the program is fully implemented.

Shortly after the final rule was issued, four petitions for reconsideration were submitted. The petitioners claimed that the cap-and-trade approach could actually lead to enhanced

mercury deposits, creating hotspots that could pose serious human health threats. According to petitioners, hot spots would arise near facilities that elect to increase emissions by purchasing emission allowances from facilities that over-regulate mercury emissions. EPA agreed to reconsider several aspects of the rule.

On May 31, 2006, EPA took final action on the petitions. It revised the mercury rule in several respects, most particularly by clarifying that the rule does not apply to municipal waste combustors. EPA dismissed the hotspot concern by citing reports and modeling data that show no difference in mercury emissions in the vicinity of power plants. To access the reconsideration notice and the final rule, visit www.epa.gov/air/mercuryrule/rule.htm.

EPA's cap-and-trade system is both innovative and controversial. Detractors claim that a system that does not limit the total number of allowances potentially available to individual facilities is flawed and ultimately will not achieve the goals of the Clean Air Act. Regardless of the merits of this debate, the rule is expected to diminish mercury emissions and thus blunt the potential of mercury emissions to cause harm.

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