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Forum: Bioavailability study needed for dioxin

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The Michigan Department of Environmental Quality (MDEQ) is threatening to declare a sizable portion of the city of Midland as a contaminated site requiring major cleanup action. But absent scientific evidence that pollution levels pose a health risk, such a dramatic step is unwarranted. Moreover, unnecessarily disturbing contaminated soils could actually worsen environmental conditions.

At issue are levels of dioxin on nearly 9,000 residential properties in Midland, affecting half the city's population. Soil analyses indicate some dioxin levels in excess of state and federal limits.

Dioxin is a generic term referring to 210 chemical compounds with similar structures. Dioxin is a byproduct of industrial combustion, as well as from natural sources such as volcanoes and forest fires. Emission controls have virtually eliminated dioxin releases from industrial sources. The principal source in Midland's case is believed to be incineration at Dow Chemical Co. before pollution control technology was in place.

The mere existence of dioxin in soil does not determine human exposure or health risk. Because dioxin binds tightly to soil, it enters the human bloodstream 95 percent of the time only through ingestion - that is, by consumption of wildlife or agricultural and dairy products from highly contaminated areas. Therefore, proximity to an industrial facility is far less a risk factor than the source of food supply.

Few, if any, Midland residents subsist solely on locally grown meats and vegetables. Indeed, a study by the Midland County Health Department in 2002 found no evidence of increased cancer in the past two decades, nor any increase in birth defects since 1992. In fact, cancer rates in Midland are lower than both the state and national averages.

Officials of the MDEQ nonetheless are considering whether to order Dow Chemical Co. to undertake major remediation measures as a condition of the company's operating permit. But no rational decision can possibly be made until a study of actual exposure levels is undertaken. Otherwise, regulators would simply be guessing whether a public health risk even exists.

State regulators do have discretion in the type and extent of cleanup actions required where dioxin levels exceed the Michigan standard. The Michigan Legislature in 1995 enacted a risk-based cleanup standard that allows cleanup requirements to be tailored to specific site use rather than a one-size-fits-all approach. But such a determination for Midland cannot be made until actual exposure levels are known.

The most accurate gauge of actual exposure requires a "bioavailability" study, which measures dioxin levels in the blood of city residents. Only with such information can researchers determine to what extent dioxin in the soil poses a health risk. Once the actual level of risk is established, regulators can better determine appropriate cleanup standards. To simply base cleanup requirements on soil analyses would be a breach of sound science.

As it is, soil sampling in the area has turned up broad variations of dioxin levels, which argues for a site-specific approach to remediation rather than applying a broad regulatory brush. Of 22 samples taken by MDEQ, for example, half actually measured below the state's stringent safety standard of 90 parts per trillion, while 90 percent of the samples measured below the federal safety standard of 1,000 parts per trillion.

Area lawmakers on Thursday proposed using $800,000 from the Clean Michigan Initiative (CMI) to fund a "bioavailability" study in Midland. (Voters authorized the state in 1998 to borrow up to $675 million in general obligation bonds for CMI projects, including environmental cleanup and natural resource protection.)

Overly aggressive cleanup requirements in themselves pose a risk. To insist that dioxin-laced soil be removed, rather than capped or confined, could actually increase airborne contamination. Too, the stigma attached to unnecessarily declaring Midland a contaminated community would produce incalculable economic hardship.

Gov. Jennifer Granholm has repeatedly emphasized the importance of retaining manufacturing jobs in Michigan. It is of particular importance to industry that the DEQ abide by sound science in regulatory decision-making. While agency officials undoubtedly are well intentioned in seeking to address dioxin contamination in Midland, an issue of this importance demands guidance from the governor. The community of Midland and the state as a whole would benefit more were the DEQ first to assess actual levels of human exposure before issuing remediation order.

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