

# Silver Taube: OSHA's limits for toxic exposure cause preventable harm to Silicon Valley workers



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Columnist Ruth Silver Taube writes that OSHA must revise its permissible exposure standards for toxic substances in the workplace. Photo courtesy of the California Department of Industrial Relations.

Standards for exposure to toxic chemicals at work, known as permissible exposure limits or PELs, have long been and still are vastly and indefensibly weaker than standards for environmental exposure to these same toxics. This disparity puts not only workers, but also their offspring at risk—especially where women of child-bearing age are a sizable part of the workforce.

The federal Occupational Safety and Health Administration (OSHA) [acknowledges](#) many of its permissible exposure limits for toxic chemicals in the workplace are outdated and inadequate for ensuring protection of worker health, and have not been updated since 1970. Former agency head [David Michaels estimates](#) 90% of OSHA's PELs date to industry standards of the 1960s and are not safe.

OSHA typically takes more than 10 years to issue a new chemical standard, and has issued only 32 new standards in 50 years. Penalties for breaching these inadequate standards are minimal. OSHA's [maximum penalty for a serious violation](#) is merely \$15,625 per violation. Cal/OSHA's is \$25,000.

The only legally enforceable occupational exposure limits at the federal level are OSHA's PELs. The National Institute for Occupational Safety and Health (NIOSH) has developed a set of recommended exposure limits, and California's enforceable workplace exposure standards, more stringent than federal standards, are still inadequate.

In "[OSHA Permissible Exposure Limits \(PELS\) Are Too Permissive](#)," a researcher at Georgia Institute of Technology concluded there's little reason to believe exposure limits on potentially toxic workplace substances set by any of the regulatory agencies are fully protective against serious adverse health effects.

The researcher selected 10 chemicals and compared the recommendations from federal OSHA, NIOSH and Cal/OSHA with exposure levels in the biomedical literature showing serious adverse health effects. All Cal/OSHA permissible workplace exposure standards exceeded the exposure limits in the biomedical literature that caused adverse health effects. For example, Cal/OSHA allows 100 parts per million for exposure for Ethylbenzene, although the biomedical literature detected serious adverse health effects at 0.06 parts per million. Additionally, there are under 500 chemicals to which OSHA has assigned permissible exposure limits, while there are tens of thousands of chemicals workers are/could be exposed to.

The disparity between Cal/OSHA's permissible exposure limits and the exposure levels in the biomedical literature leading to serious adverse health effects causes preventable harm.

A few industrial chemicals such as lead, methylmercury, polychlorinated biphenyls, arsenic and toluene [have long been recognized](#) as causes of neurodevelopmental disorders and subclinical brain dysfunction. Exposure during early fetal development can cause brain injury at doses much lower than those affecting adult brain function.

A [study](#) of maternal occupational exposure to substances with neurotoxicity and reproductive toxicity published by the National Institute of Health found mothers of autistic children were twice as likely to work in occupations where they are exposed to neurotoxins, about 14.4%, compared to mothers of controls, about 7.2%.

Starting with IBM in 1997, more than two dozen technology and chemical companies have been sued in at least 65 separate civil actions nationwide, according to court records compiled by Bloomberg Businessweek. Some are for cancer, but at least 136 are for children with birth defects or childhood diseases allegedly linked to maternal toxic exposures.

One such case was that of [Mark Flores](#). In the late 1970s his mother Yvette was hired by SpectraPhysics, which made lasers in Mountain View. Yvette sprayed a greenish adhesive to glass tubes and used a blow torch to cure it. She learned years later that she was being exposed to lead and the solvent methanol, both of which are neurotoxic to a fetus. In 1979, she gave birth to Mark who was profoundly disabled.

In the lawsuit Yvette filed, Dr. Cynthia Bearer, chief of the division of neonatology at the University of Maryland School of Medicine, explained fetuses are exquisitely sensitive to environmental toxicants such as lead and methanol; that fetal harm could occur even when workplace exposure levels were well below legal limits; and that hematomas on Mark's oversized head at birth were classic signs of methanol poisoning. Bearer and other experts opined that in utero lead exposure likely produced his extensive cognitive impairments. The case settled.

Safe Jobs, Healthy Families in San Jose, started by Amanda Hawes, the attorney in

the case, seeks to determine how many developmentally disabled adults in Silicon Valley are the children of electronics workers. The group aims to hold the industry accountable for the cost of care and to share the findings with working families and advocates so this devastating and preventable harm stops.

Even after these children age out of special education, their moms struggle with day-to-day care needs and fear what will happen when they can no longer provide the level of care and support needed. Many of them are Latina, Filipina and Vietnamese immigrants who first worked seasonally in the canneries and were thrilled to be sought after by the “clean” industry for year-round work when the fruit-processing industry moved to the Central Valley.

Cal/OSHA is finally in the process of [updating its lead standard](#). Written comment on the new standard closed on April 20. In its [initial statement of reasons](#) for the revisions, the agency indicates existing requirements are based on lead toxicity information and medical and epidemiological data that is more than 40 years old. More recent evidence demonstrates low levels of lead exposure may have harmful health effects.

The proposed amendments to the regulations are designed to mitigate these harmful health issues from lower levels of exposure by maintaining employees' blood lead levels below 10 micrograms per deciliter, whereas existing regulations were designed to maintain employees' blood lead levels below 40 micrograms per deciliter, a level four times higher.

OSHA must revise its permissible exposure standards for toxic substances in the workplace, and the industry must be held accountable for the cost of care for children who suffered preventable harm from exposure to neurotoxic chemicals.

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