



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO

GOVERNOR

MIKE D. McDANIEL, Ph.D.

SECRETARY

Arsenic sampling results explained

The Department of Environmental Quality and a host of other entities have taken many air, water and soil samples throughout the area impacted by hurricane Katrina. Throughout the entire sampling process, which began shortly after the hurricane hit, there have been several interpretations of the data.

This article is an attempt to explain the different types of screening levels and to give a perspective of how arsenic levels in New Orleans compare to other areas of the United States.

One interpretation of the arsenic samples has people saying the levels are “10 times the EPA standards.” This statement is based on comparison of point-by-point concentrations compared to the EPA screening level of 0.39 parts per million. While it is true that an arsenic reading of 3.9 parts per million is 10 times higher than EPA screening levels, that concentration is still well within the acceptable range (as defined by EPA and LDEQ). The range of acceptable arsenic concentrations is actually 0.39 ppm to 39 ppm. A concentration greater than the screening level (the 0.39 ppm at the lower end of the acceptable range) does not mean the levels are going to pose an unacceptable health risk, according to EPA health risk standards.

EPA indicates that exposure to arsenic at 39 ppm or below is not expected to pose unacceptable risk to residents. This health risk level is based on an exposure to 39 ppm (also known as mg/kg) for 350 days for 30 years. In other words, a resident (including children) must be exposed to the concentration of 39 ppm at all times. This includes having it on your skin, inhaling particles and incidentally ingesting it. And, as we all live our lives, it is impossible to be at that one and only location, just about all day, every day for 30 years. The resident would have to be exposed to that level of concentration that often before there would be any increase in potential health risks.

Arsenic is a naturally occurring element and can be found in varying levels throughout the world. In Louisiana, the average background level for arsenic is 12 ppm. This is based on a comprehensive, statewide sampling effort by Louisiana State University. Based on extensive studies by Dr. Mielke, (Xavier University in New Orleans) the historic levels of arsenic found in areas of New Orleans (pre-Katrina) are as high as 20 ppm. The average concentration of arsenic found in New Orleans in the sediment sampling effort was 12 ppm, which is well within what would be expected to be found. As one would expect, it would be impossible to clean the naturally occurring arsenic in soil to EPA’s screening level of 0.39 ppm. More so, as discussed above, it is not necessary to clean up to 0.39 ppm to protect human health.

Each state has different criteria for residential clean-up levels for arsenic. Also, industrial levels differ from state to state based on background levels. In Louisiana, the DEQ residential clean-up level for arsenic is 12 ppm.

Arsenic was often used as an herbicide or pesticide. Since it is a metal, once it is in the environment it doesn’t go away. That’s why some of the highest readings studied by DEQ show elevated levels of arsenic on older golf courses, where arsenic-containing herbicides have been used extensively for years. Arsenic is used in potting soil and used as a wood preservative, commonly associated with wood used for outdoors.

By using common sense and washing regularly, you can reduce your exposure to contaminated soils. For example, don't eat dirt and try to keep young children from putting their hands in their mouths if they have been playing in the dirt. If there are bare spots in your yard, try to grow grass or other vegetation over that area. Remove shoes before entering the home.

Just like the misleading statements regarding "toxic soup" resulting from the floodwaters, the statements regarding high health risks resulting from elevated arsenic concentrations of are a misrepresentation and incorrect interpretation of environmental conditions after Katrina.

For more information on arsenic, here are some informative web sites:

www.dec.state.ak.us/spar/csp/docs/usgsrod2.pdf

www.aehs.com/surveys/arsenic.pdf

dep.state.ct.us/wtr/regs/remediation/rsr.pdf

www.dnrec.state.de.us/dnrec2000/Divisions/AWM/SIRB/Arsenic/

www.deq.louisiana.gov/portal/Portals/0/technology/recap/RECAP-2003-FAQs.pdf

www.mass.gov/dep/cleanup/backtu.pdf

www.mde.state.md.us/assets/document/hazcleanup_Aug2001.pdf

www.state.me.us/dep/rwm/rem/download/rags.pdf

www.health.state.mn.us/divs/eh/hazardous/topics/arsenicstudy.pdf

www.nmenv.state.nm.us/gwp/vrp_soil_screening_guidelines.pdf

www.vironews.com/Regulatory%20Updates/Rhode%20Island%20Update%20May%202000.htm

www.dep.state.wv.us/Docs/3200RemediationGuidanceVersion2-1.pdf