



OPERATION PAYDIRT FACT SHEET

What is lead pollution?

- Lead contamination in the environment is due to human activities. Gasoline lead additives and lead-based paint are a major source of environmental contamination. Mining and smelting are additional contributors of environmental pollution.
- According to the Bureau of Mines, the total amount of lead put into gasoline and paint during the 20th century was approximately 12 million tons.
- A rapid phase-down of the use of lead as an additive to gasoline began in 1986 in the United States. It was entirely banned in 1996 with some exceptions.
- The addition of lead in house paint was banned in 1978.
- Although the use of lead is now limited, residual contamination from both gasoline and paint is present in soil and dust and continues to be a problem in many cities. Resuspension of soil and dust is a major contributor to the ongoing dispersal of lead. (These are conclusions by many researchers including Gabe, Filippelli, Laidlaw. See Mielke et al. "New Orleans Soil Lead (Pb) Cleanup Using Mississippi River Alluvium: Need, Feasibility and Cost, Environmental, Science, and Technology, 2006.)

How does lead poisoning affect children?

- According to the Centers for Disease Control (CDC), approximately 310,000 U.S. children aged 1-5 years have blood lead levels greater than 10 micrograms of lead per deciliter of blood, the level at which CDC recommends public health actions be initiated.
- Lead poisoning compromises healthy brain development. Because lead poisoning often occurs with no obvious symptoms, it frequently goes unrecognized. Lead poisoning can affect nearly every system in the body, causing disease and at very high levels it causes seizures, coma, and even death.
- Children are especially sensitive to lead because their stomach and intestines absorb up to 50% of the lead they ingest, whereas adults absorb about 10%, according to CDC. Children also play in the exterior soil and put hands and objects in their mouths.
- According to the Mayo Clinic and many studies, correlations are found between lead poisoning, learning disabilities, and violent crime.
- Childhood lead poisoning is the single greatest predictor of school disciplinary problems, which in turn are the major predictor for juvenile crime. (Denno, Fordham University School of Law.)

How much lead pollution is in New Orleans?

- Because New Orleans has been comprehensively tested and mapped, it is acknowledged as among the most lead polluted cities in the country. (Howard Mielke, PhD, Research Professor Tulane /Xavier Center for Bioenvironmental Research)
- The contaminated soil conditions existed before Katrina from lead paint and gas emissions and are considered "historic lead."
- There are approximately 86,000 properties in New Orleans currently exceeding the EPA standard (400 parts per million) for lead in bare soils where children can play.

- In New Orleans, prior to Hurricane Katrina, 14% of the children in the entire city, and 20-40% of the inner city children had blood lead levels greater than 10 micrograms of lead per deciliter of blood, the level at which CDC recommends public health actions be initiated. (See Mielke's comparison of census tract data and the universal blood lead screening dataset undertaken by the Louisiana Department of Health.)
- It is significant that 10 census tracts in New Orleans had a median surface soil lead level >1000 mg/kg (2.5 times the U.S. standard).
- If health effects occur at Blood Lead Levels greater than 2 micrograms of lead per deciliter of blood (recognized by many scientists as associated with learning problems), then more than 90% of the children in New Orleans are at risk. (See Mielke's comparison of census tract data and the universal blood lead screening dataset undertaken by the Louisiana Department of Health)
- Annual costs of lead poisoning in New Orleans are estimated at \$76 million in health, education, and societal harm according to a national calculation set forth by Landrigan, et al., published in Environmental Health Perspective, 2002. (See Mielke et al. "New Orleans Soil Lead (Pb) Cleanup Using Mississippi River Alluvium: Need, Feasibility and Cost, Environmental, Science, and Technology, 2006.)
- New Orleans requires a community-wide clean soil program because of the extent and quantity of lead accumulated in the soil.

How will OPERATION PAYDIRT address this serious problem?

- PAYDIRT will employ a "TLC" ("Treat, Lock and Cover") scientific method to make the soil lead-safe. Contaminated soil is TREATED with phosphate amendments such as Apatite II (a mineral derived from the fish industry) that render or LOCK the lead into a stable mineral formation that renders the lead non-bioavailable (not able to be readily absorbed into the body). Finally, the site is COVERED with 3-6" of clean soil for another level of safety. PAYDIRT Verification Sites are currently underway within the most contaminated areas in the city, to investigate the most effective methods to undertake such a strategy.

What constitutes the \$300 million?

- This is the estimated cost of treating 86,000 properties using projections based on a pilot project undertaken by Howard Mielke, PhD.

Which US cities have the highest levels of pollution?

- Larger cities have pockets of high lead exposures. Various studies demonstrate that Baltimore, Providence, Detroit, Cleveland, Chicago, Washington D.C., Indianapolis, Los Angeles, Oakland, Minneapolis/St. Paul, Milwaukee, El Paso, Honolulu, and Philadelphia are among them. The work of OPERATION PAYDIRT in New Orleans is to develop a process that can be applied to all lead-affected cities.

Which major scientists have recognized NOLA's problems?

- Among the leading scientists, regulatory agencies and research organizations that recognize the issue include:
 - Mark Johnson (Syracuse)
 - Gabe Filippelli (Indianapolis)
 - Rolf Tore Ottesen (Norway)
 - Howard Mielke (New Orleans)
 - Mark Laidlaw (Australia)
 - Environmental Protection Agency
 - Department of Environmental Quality
 - U.S. Geological Survey