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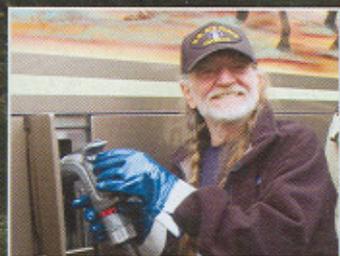
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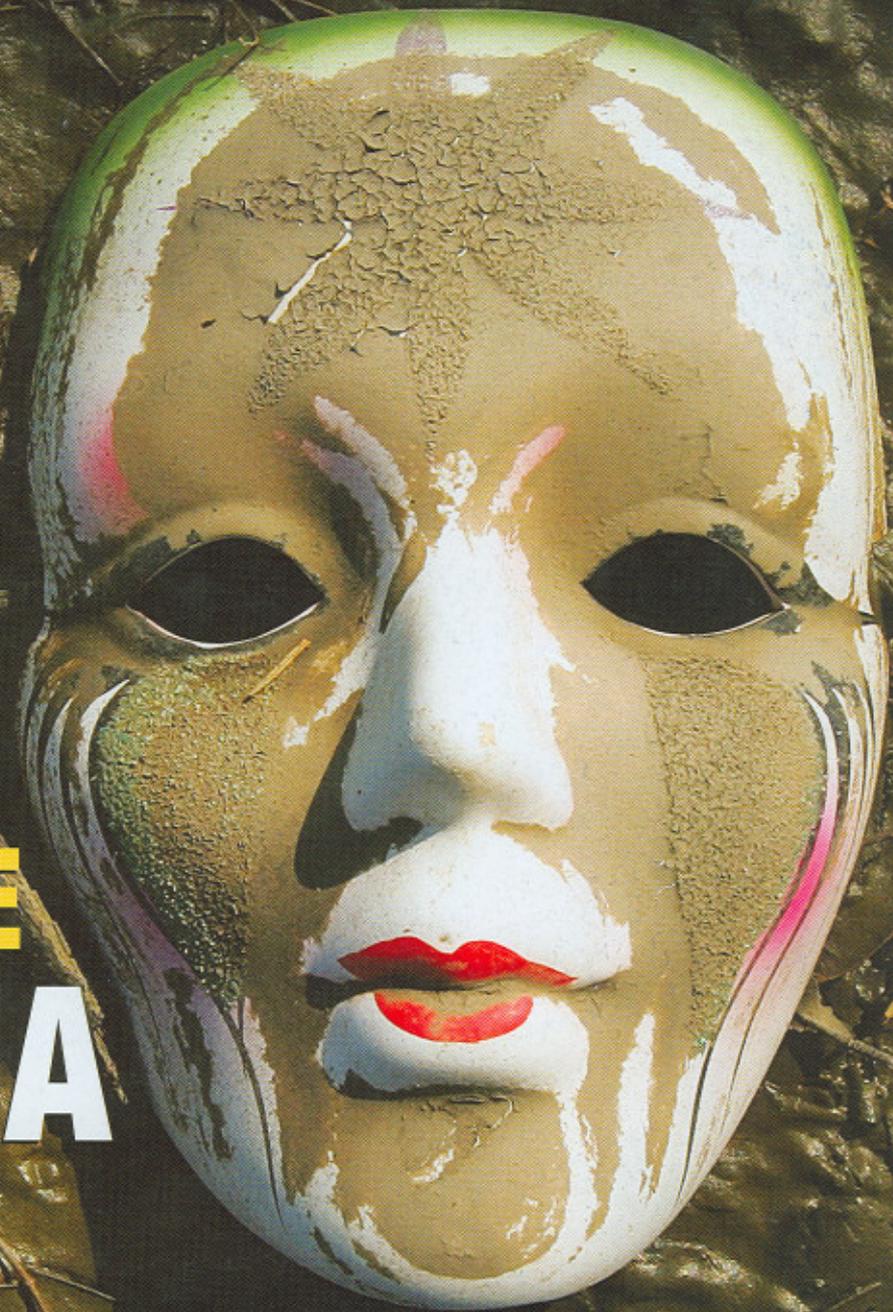
Why Buy Biodiesel?

Just Ask Willie Nelson

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THE TOXIC LEGACY OF HURRICANE KATRINA



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Soil samples show high arsenic, lead, dioxin, chromium and other toxins in New Orleans neighborhoods.

ARSENIC AND OLD WASTE

The Environmental Legacy of Hurricane Katrina

By Jim Motavalli

Susan Cowsill, a singer-songwriter (and member of the famous 1960s singing family) says the culture of New Orleans is a big part of her music. But it was with some trepidation that she and her family recently returned home after a nomadic post-Katrina existence in Austin and Houston. "I want to believe what the Environmental Protection Agency (EPA) is saying, that it is safe," she says.

On December 16, an EPA advisory assured residents that most samples taken between October 29 and November 27 showed chemical concentrations "below acceptable levels." But, it added, a limited number of samples showed high concentrations of, among other things, arsenic, hydrocarbons, chlordane, dieldrin, aldrin and lead. The EPA and Louisiana's Department of Environmental Quality (LDEQ) were "working together to determine next steps."

So how worried should people be, as they contemplate moving back to the Big Easy? Environmental consultant and chemist Wilma Subra, a MacArthur Prize winner, says they should be very worried indeed. The big problem, she said, is sediment that sat on the bottom of rivers and other water bodies collecting industrial chemical contamination and agricultural runoff. The sediment was relatively harmless *in situ*, but it was deposited all over New Orleans by the storm.

Subra's own tests, conducted at 33 locations in Louisiana, Mississippi and Alabama for the Sierra Club and the Natural Resources Defense Council, showed especially elevated levels of arsenic, but also high amounts of lead, dioxin, chromium and other hazardous substances well above safe standards. The EPA's results were radically different, she said, because they're based on

the extremely relaxed state LDEQ standards. Held to the stricter federal numbers, she said, a majority of the samples would have exceeded safe levels for arsenic, among other chemicals.

Dr. Peter L. deFur, a biologist who conducts research on environmental health and ecological risk assessment at Virginia Commonwealth Institute, says short-term effects can include respiratory problems and skin rashes. Possible longer-term effects are cancer and birth defects. Children are most at risk from exposure to the sediment, he says, "because they are both closer to the ground and more susceptible to toxic exposures because of their developing status." A recent Columbia University/Mailman School of Public Health Study found that children exposed to arsenic-tainted water from wells in Bangladesh faced reduced intellectual function.

The EPA doesn't say whether it's safe for residents to move back to New Orleans. Those decisions, says EPA Press Secretary Eryn Witcher, "incorporate a variety of factors, which are best made by local officials. EPA is committed to sharing the results of our water, air and sediment sampling and test results with federal, state and local partners so local officials can consider a variety of factors."

EPA warns New Orleans residents to avoid contact with the sediment, but Subra says that it has now become airborne and would be very difficult to avoid even if residents had access to the protective clothing, respirators and gloves the environmental agency recommends (but doesn't provide). "It's in all of the areas where the flood waters reached," she says. "It was dangerous when it was wet because it stuck to skin, but now it has dried, cracked and become powdery so that it can be blown

around by the wind. You can see it in the air and taste it when you drive down the street. It's in the yard, in the house—people are breathing it in the whole time."

The worst danger from the sediment, then, is in New Orleans' poorest neighborhoods. According to the Brookings Institution, 38 of the city's 49 poorest districts were flooded. And 80 percent of the neighborhoods under water had non-white majorities.

"We're seeing what's called the 'Katrina cough,'" says Mary Lee Orr, executive director of the Louisiana Environmental Action Network. "There are a lot of respiratory illnesses. And especially among people who have been in the flood waters we're seeing skin infections that don't respond to normal antibiotic treatment. One of our board members living in an area with a lot of mold and sediment had a heart attack. These additional stressors on folks' bodies manifest as various illnesses."

Dita McCarthy, whose 15-year-old daughter is temporarily attending classes at DeLisle Elementary School in Harrison County, Mississippi (where unsafe arsenic levels were found in Subra's tests), says she's seen "clouds of dust" that the kids walk through on their way to classes. "We thought it looked like the Dust Bowl, and we thought it was funny," she says. "But then we heard about the arsenic and it wasn't so amusing. The dust is sometimes so thick kids can't see each other, and there really needs to be more testing."

For its part, the EPA "recommends avoiding all contact with sediment deposited by the flood water, where possible, or washing with soap and water due to potential concerns associated with long-term skin contact."

Its recommendations about ingestion, which echoed those after 9/11, are limited to concerns about fuel oil vapors, the breathing of which "can cause nausea, eye irritation, increased blood pressure, headache, light-headedness, loss of appetite, poor coordination and difficulty concentrating."

Industry disputes the environmental groups' findings. Mark Harris, a researcher at the ChemRisk company hired by Dupont, said that Subra's study actually showed normal levels of metals and dioxins in the sediment, and that incorrect analysis had led to alarmist conclusions. The Mississippi Department of Environmental Quality agreed. But Dupont may have reason to be concerned, since federal inundation maps show that flood waters reached 25 feet outside the company's southern Mississippi DeLisle facility and may have engulfed retention ponds known to contain high dioxin levels.

There's no dispute that for the most part the sediment remains where it was dropped. "People have recently been allowed back into the Lower Ninth Ward, and the sediment is very, very thick there," says Subra. "There's no cleanup going on, except when people pick up debris and carry some of the sediment away."

Superfund Sites at Risk

Adding to the danger, some of the nation's most hazardous Superfund sites are in New Orleans, and they were flooded by Hurricane Katrina. These five sites include the Thompson-Hayward chemical plant and the Agricultural Street Landfill. U.S. PIRG reports that Thompson-Hayward produced pesticides and herbicides, including DDT and Agent Orange. Closed in 1986, the site was heavily contaminated with dioxin and other toxins. A layer of "clean dirt" was added to protect the public, but its fate is uncertain.

The Agricultural Street Landfill, 95 acres of municipal and industrial wastes located between Lake Pontchartrain and the French Quarter, suffered from regular underground fires and was nicknamed "Dante's Inferno." The cleanup method was a plastic liner and two feet of dirt. It too could have been breached.

Meanwhile, analysis shows that mold, some of it toxic, is widespread at very high levels. Sampling by NRDC in the Mid-City neighborhood in November found outdoor spore counts of 102,000 per cubic meter. The American Academy of Allergy and Immunology says any level above 50,000 per cubic meter is very high. Inside homes, levels of 640,000 spores per cubic meter were detected. People with allergies, asthma, lung diseases and weak immune systems are most at risk from mold.

New Orleans remains awash in contamination and debris. According to the *New York Times*, Katrina and Rita left behind 44 million cubic yards of waste, more than double the damage done by 1992's Hurricane Andrew. "There have been 222,000 refrigerators, washers and dryers gathered, and more than a million containers of hazardous waste have been plucked from land and sea," the newspaper reported. There are 300,000 ruined cars, many contaminated with heavy metals.

And yet the big cleansing of the Big Easy has only just begun. Only \$19 million in federal emergency funding has been appropriated for environmental cleanup, and \$15 million spent. Even a strong ally of President Bush, Mississippi Governor Haley Barbour, has criticized the slow pace of the work. "We can't rebuild until we clean up," he said December 7.

And the cleanup is also part of the health problem, since, as Knight Ridder Newspapers reported, burning debris has joined with toxic mold and the fumes from the glue and plywood in new trailers to irritate residents' lungs and nasal passages. "It's a very complicated set of risk factors people face," Dr. Howard Frumkin of the National Center for Environmental Health told the papers. "This is a huge set of environmental health challenges." CONTACT: Louisiana Environmental Action Network, (225)928-1315, www.leanweb.org; NRDC Sediment Contamination Report, www.nrdc.org/health/effects/katrinadata/sediment.asp.

JIM MOTAVALLI is editor of E.



Jeffrey Holmes and his "Toxic Art" display in New Orleans' Upper Ninth Ward. Holmes wanted his neighbors to see his moldy paintings before he threw them out.