

May 20, 2002

Mr. Bill Little, MPH
Senior Administrator
Sarasota County Health Department
1301 Cattlemen Road
Sarasota, Florida 34232

Subject: Hudson Bayou Sediment Assessment

Dear Mr. Little:

The Bureau of Environmental Epidemiology has assessed the human health risk from lead in sediments in Hudson Bayou, Sarasota County. We determined there is little potential for illness from lead in bayou sediments.

The only contaminant of concern in the 2001 Hudson Bayou Stormwater Study was lead. The highest sediment lead concentration was 1,400 parts per million (ppm). We used the Florida Department of Environmental Protection's Soil Cleanup Target Levels for residential use (400 ppm) as a screening tool to narrow the focus to those contaminants most important to public health. Identification of a contaminant of concern, however, does not necessarily mean that exposure will cause illness.

To be protective of human health, and because the sample data may not be representative, we considered two "worst-case" exposure scenarios. We consider worst-case scenarios because of uncertainties in environmental data and variability in individual susceptibilities.

The first exposure scenario assumes a 15-kilogram, 10-year-old child who accidentally eats 200 milligrams per day of the highest level of lead-contaminated sediment every day for 30 years. This is equivalent to a child ingesting a mouthful of sediment with the highest lead concentration from the bottom of the bayou every day for 30 years. This scenario also assumes dermal exposure to the maximum reported concentration of lead-contaminated sediments from swimming three hours per day, 50 days per year.

The second exposure scenario considers the potential health effects to a 15-kilogram, 10-year-old child from lead in the bayou sediments if they were dredged and deposited on land. In addition to the above assumptions of accidentally eating small amounts of sediment and dermal contact, we also considered breathing 2.1 cubic meters per hour of lead-contaminated dust from dried sediment.

There is little potential for health effects using the scenarios for the inhalation of airborne dust from dredged sediments or for dermal exposure by swimming. The estimated average daily dose in milligrams of lead per kilogram of body weight per day (mg/kg/day) for oral exposure to sediment while swimming approaches the level shown to cause decreased ALAD (a blood

Mr. Bill Little
Page Two
May 20, 2002

enzyme) activity in humans. The estimated lead dose from eating dredged sediments also exceeds the level shown to increase red blood cell porphyrin in humans. Porphyrin is a building block for hemoglobin and certain enzymes. It is not known, however, if these decreases in ALAD activity and increases in red blood cell porphyrin could result in an adverse health effect in humans.

We conclude that there is little chance that exposure to the sediment of Hudson Bayou at the maximum lead levels reported in the Sarasota County study would impact human health. Although dredging the sediments and placing them on land increases the chance for exposure, there is little potential for illness.

Sincerely,

A handwritten signature in black ink, appearing to read "Shaun Crawford", with a long horizontal flourish extending to the right.

Shaun Anthony Crawford, MSPH
Environmental Specialist III
Bureau of Environmental Epidemiology
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