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STATE OF ILLINOIS
Pollution Control Board

12/14/2006

Dorothy Gunn, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 W. Randolph St. Ste 11-500
Chicago, IL 60601

Dear Ms. Gunn:

I am writing in support of the American Bottom Conservancy's request for a public hearing on the IEPA water permit to U.S. Steel Granite City Works for its industrial discharge into Horseshoe Lake, Madison County. The case number is 06-171. My students and I have conducted research on the chemical composition of the lake sediment since 2001. We took multiple cores from the sediment and found that lead concentrations reached 365 mg/Kg, zinc reached 4,000 mg/Kg, cadmium was 15mg/Kg. In all sediment cores the concentrations of heavy metals increased at the top of the cores indicating that the heavy metal contamination of the lake is relatively recent. Our dating of the sediment cores showed that the increases in metals contamination began in the early part of the 20th century. The timing of the increase in heavy metals suggests that it is a result of contamination by local Granite City industries. Our studies of lead isotopes in the lake sediment indicate that much of the contamination came from the NL Industries/Taracorp smelter located in Granite City. The smelter site and contaminated locations in Granite City were remediated under CERCLA, but the lake remains contaminated.

Our studies do not measure the extent of contamination of the lake that is attributable to the US Steel Granite City Works effluent. I have, however, reviewed the Facilities Report for the Granite City Works on the USEPA website and find surface water releases of lead and zinc. It is important to manage this effluent so that it does not add to the already high levels of contamination that are in the lake. The lake is a major recreational resource for Southwestern Illinois that has been degraded in the past by poor management of hazardous wastes by local industries. I would like to make certain that current management practices at the plant provide protection for the Lake. It is important to make certain that there be no further degradation of the lake environment.

Our studies are available online in the following locations:


Brugam, R.B., I. Bala, B. Vermillion, W. Retzlaff 2002. Historical impact of industrial development on Groundwater and surface water quality in the American bottoms Progress Report 1, *Illinois Groundwater Consortium*. 9 pp
<http://www.siu.edu/orda/igc/proceedings/02/brugam.pdf>

Brugam, R.B., I. Bala, B. Vermillion, W. Retzlaff 2003. Historical impact of industrial development on Groundwater and surface water quality in the American bottoms Progress Report 2, *Illinois Groundwater Consortium*. 17pp
<http://www.siu.edu/orda/igc/proceedings/03/brugam.pdf>

Brugam, R.B., I. Bala, J. Martin, B. Vermillion, and W. Retzlaff. 2003. The Sedimentary Record of Environmental Contamination in Horseshoe Lake, Madison County, Illinois. *Transactions of the Illinois State Academy of Science* 96:205-218.
<http://www.il-st-acad-sci.org/transactions/PDF/9620.pdf>

Vermillion, B, Brugam, R., Retzlaff, W. and Bala, I. 2005. The sedimentary record of environmental lead contamination at St. Louis, Missouri, U.S.A. area smelters. *Journal of Paleolimnology* 33:189-203.
<http://www.springerlink.com/content/r422372152714u0l/?p=26d2074ee1a54d98bf96cbeeb11a9a03&pi=0>

Yours truly,



Richard B. Brugam
Professor