

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:

PROPOSED SITE SPECIFIC)
RULE FOR CITY OF SPRINGFIELD,)
ILLINOIS, OFFICE OF PUBLIC)
UTILITIES, CITY WATER, LIGHT)
AND POWER AND SPRINGFIELD)
METRO SANITARY DISTRICT)
FROM 35 ILL. ADM. CODE)
SECTION 302.208(g))

PCB No. 2009-0008
(Rulemaking-Water)

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STATE OF ILLINOIS
Pollution Control Board
PC6

NOTICE OF FILING

John Theirrault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 W. Randolph, Suite 11-500
Chicago, Illinois 60601

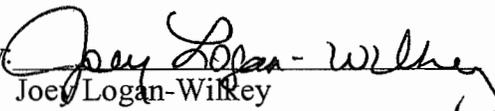
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Michael Mankowski
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Springfield, Illinois 62706

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board the **Illinois EPA's Post-Hearing Comments**, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By 
Joey Logan-Wilkey
Assistant Counsel
Division of Legal Counsel

Dated: January 29, 2009
1021 North Grand Ave. East
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THIS FILING PRINTED ON RECYCLED PAPER

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ILLINOIS EPA'S POST-HEARING COMMENTS

NOW COMES the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY ("Illinois EPA"), by and through one of its attorneys, Joey Logan-Wilkey, and pursuant to the Illinois Pollution Control Board's ("Board") January 7, 2009, Hearing Officer Order, provides the following comments in response to questions posed during the December 16, 2008 hearing regarding evidence that aquatic life is unimpaired by boron concentrations in the Sangamon River, changes observed in the macroinvertebrate index observed in Sugar Creek since the creation of the ash ponds by CWLP, and studies of chemical, biological, and physical conditions of the stream segments impacted by the proposed rulemaking:

The proposed adjusted standard for boron will be protective of catfish and other aquatic organisms residing in the water bodies that pertain to this rulemaking. The concerns over catfish sensitivity have arisen over the data within the Hanson technical support document which lists a 9-day LOEC (lowest observable effect concentrations) range for boron at 1.0 - 25.9 mg/L (Birge and Black 1977; Birge and Black 1981 in

Butterwick et al. 1989). Research by other authors has failed to replicate the results of these studies, which has led to questioning of the study design and methodologies employed by Birge and Black (Eckhert 1998, Rowe et al. 1998). Overly sensitive results within the Birge and Black studies may have resulted from the failure to remove dead embryos from the tests, the flat dose-response curve, and the low treatment concentrations which may have led to boron deficiencies within the tests. More recent research has verified that the dose-response curve for boron toxicity to fish is U-shaped, a dose-response curve typically seen in essential elements. Eckert (1998) determined that chronic exposure to boron concentrations of 0.01 - 10 mg/L had no observable effects on rainbow trout embryo mortality and/or morphology and further observed that larval growth was greatest in the highest treatment (10 mg/L), thus implying that boron stimulates embryonic growth in trout. Rowe et al. (1998) also observed a dose-dependent increase in growth of rainbow trout embryos chronically exposed to boron, with the greatest growth occurring in the highest treatments (0.54 and 1.08 mg/L). Based on these studies as well as other valid acute and chronic tests in the literature we are confident that catfish within the receiving waters associated within this rulemaking will not be adversely affected by boron. Eckhert, C.D. 1998. Boron Stimulates Embryonic Trout Growth. *J. Nutr.* 128:2488-2493. Rowe, R.I, C. Bouzan, S. Nabili, and C.D. Eckhert. 1998. The Response of Trout and Zebrafish Embryos to Low and High Boron Concentrations is U-Shaped.

The oldest Illinois EPA macroinvertebrate data from the stream sections in question are from Sugar Creek collected in September 1975. A water sample collected as part of the Illinois EPA ambient network from Sugar Creek at the Illinois Route 29 bridge

(station EOA-01) on October 5, 1972 had a boron concentration 2.7 mg/l indicating that the ash ponds or a similar source of boron were active at that time. As a result, we do not have pre- and post-ash pond macroinvertebrate data with which to make a comparison.

The Illinois EPA has collected chemical, biological and physical condition data from Sugar Creek and Sangamon River both before and after the site-specific boron rule went into effect (Table 1). These data were collected by Illinois EPA, Surface Water Section, Central Monitoring Unit staff as part of the facility related stream survey (FRSS) or intensive basin survey (IBS) program.

Table 1. Illinois EPA monitoring stations, sample year and MBI values on stream segments included under the City of Springfield site-specific boron rule.

Stream Name	Station	Year	MBI
Sugar Creek	EOA-01	1989	6.5
	EOA-01	1996	5.8
	EOA-06	1988	6.4
	EOA-06	1989	9.0
	EOA-06	1991	6.0
	EOA-06	1996	5.6
Sangamon River	E-26	1982	5.2
	E-26	1988	5.7
	E-26	1991	5.0
	E-26	2003	5.6
	E-RV-C2	1988	5.2
	E-50	1996	4.5

The Macroinvertebrate Biotic Index (MBI) is one tool used by Illinois EPA to summarize and evaluate macroinvertebrate sample data. Illinois EPA personnel have, based on available literature and field experience, assigned a pollution tolerance rating to each taxon. Pollution tolerance ratings range from 0 to 11; a rating of zero is assigned to taxa found only in unaltered streams of high water quality, and a rating of 11 is assigned to taxa known to occur in severely polluted or disturbed streams. Intermediate ratings are assigned based on an organism's relative degree of tolerance or intolerance to pollution (i.e., organic enrichment). The MBI is the mean tolerance rating for the sample and is computed as $MBI = \sum(n_i t_i) / N$, where n_i is the number of individuals in each taxon, t_i is the tolerance rating assigned to that taxon and N is the total number of individuals in the sample. A high MBI value, therefore, usually denotes a community of low species richness with few if any intolerant (sensitive) species present and poor water quality. Good water quality is indicated by a low MBI value which results from a higher proportion of sensitive organisms. Based on present assessment methods, the breakdown of MBI values to reflect water quality is as follows: good (≤ 5.9), fair (6.0-8.9) or poor (≥ 9.0).

The two stations on Sugar Creek (EOA) are located downstream of Lake Springfield and the ash pond discharge. Station EOA-01 located at the Illinois Route 29 bridge, is part of the Illinois EPA ambient water quality monitoring network and is sampled nine times a year for water chemistry. Station EOA-01 is upstream of the Springfield Sanitary District Sugar Creek WWTP discharge and as such has the most potential to reflect effects of the ash pond discharges. Station EOA-06 is located at the

Mechanicsburg Road bridge and is approximately one mile downstream from the Springfield Sanitary District Sugar Creek WWTP discharge point.

In 1989, the macroinvertebrate data indicated fair conditions in the segment below the ash ponds (EOA-01) and poor conditions below the WWTP discharge (EOA-06). In 1996, the macroinvertebrate data indicated good conditions at both sites. Water samples collected in conjunction with the macroinvertebrate data indicate that boron concentrations were similar during both the 1989 and 1996 surveys. Based on the ambient data from station EOA-01, boron concentrations averaged 3,118 ug/l between 1980 and 2005.

During the summer, habitat in this portion of Sugar Creek is characterized by long pools with substrates comprised primarily of silt/mud and plant detritus. Coarser substrates are typically only present in and around road crossing where rip-rap (i.e., large rocks) have been added to stabilize the banks near bridge structures. Submerged logs and brush provide in-stream cover for macroinvertebrates.

Macroinvertebrates have been collected from three sampling stations on the Sangamon River between the confluences of South Fork and Spring Creek. Station E-26 is located near the old US Route 36 bridge along the southwest part of Riverton. This station is part of the Illinois EPA ambient water quality monitoring network and is sampled nine times a year for water chemistry. Station E-RV-C2 is located at the US Route 54 bridge along the northwest part of Riverton. Station E-50 is located north of Springfield near the railroad bridge on the downstream portion of Riverside Park. MBI values indicated good water quality from all samples collected. Based on ambient data from station E-26, boron concentrations averaged 319 ug/l between 1980 and 2005.

Habitat in this portion of the Sangamon River is primarily a series of runs and pools with the substrate dominated by sand with some fine gravels. Submerged logs and brush provide in-stream cover for macroinvertebrates. Note the portion of South Fork Sangamon River where the site-specific rule applies has not been sampled by the Illinois EPA.

Respectfully submitted,
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: 
Joey Logan-Wilkey

Dated: January 29, 2009

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CERTIFICATE OF SERVICE

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FEB 02 2009

I, Joey Logan-Wilkey, certify that I have served the attached Illinois EPA ~~STATE OF ILLINOIS~~ **Hearing Comments**, by first class mail, upon the following persons: **Pollution Control Board**

John Theirrault, Clerk
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Marie E. Tipsord
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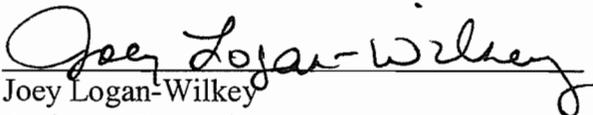
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ORIGINAL

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Joey Logan-Wilkey
Assistant Counsel
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