

APR 15 2002

STATE OF ILLINOIS
Pollution Control Board

ORIGINAL

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
WATER QUALITY TRIENNIAL REVIEW)	R02-11	
AMENDMENTS TO 35 ILL.ADM.COM)	(Rulemaking-Water)
302.208(e)-(g), 302.504(a),)	
302.575(d),303.444,309.141(h);)	
AND PROPOSED 35 ILL.ADM.CODE)	
301.267, 301.313, 301.413,)	
304.120 AND 309.157)	

P.c. #19

NOTICE OF FILING

TO: SEE ATTACHED SERVICE LIST.

PLEASE TAKE NOTICE that on Monday, April 15, 2002, we filed the attached COMMENTS OF DR. BRIAN D. ANDERSON OF DEPARTMENT OF NATURAL RESOURCES, with the Clerk of the Pollution Control Board, a copy of which is herewith served upon you.

ILLINOIS DEPARTMENT OF
NATURAL RESOURCES,

By: *Stanley Yonkauskis Jr*
Stanley Yonkauskis, Jr.

April 15, 2002

Stanley Yonkauskis, Jr.
Legal Counsel
Illinois Department of Natural Resources
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(217) 782-1809

CERTIFICATE OF SERVICE

I Stanley Yonkauski, Jr., the undersigned, certify that I have served a copy of the attached COMMENTS OF DR. BRIAN D. ANDERSON OF DEPARTMENT OF NATURAL RESOURCES, in the matter of Water Quality Triennial Review Amendments:

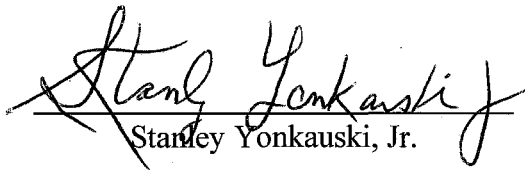
Ms. Dorothy M. Gunn
Clerk of the Board
James R. Thompson Center
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601

in person

April 15, 2002; and upon

(SEE ATTACHED SERVICE LIST)

by depositing copies of said documents in the United States mail in Springfield, Illinois
on April 15, 2002.


Stanley Yonkauski, Jr.

RECEIVED
CLERK'S OFFICE
APR 15 2002
STATE OF ILLINOIS
Pollution Control Board

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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COMMENTS OF THE ILLINOIS DEPARTMENT OF NATURAL RESOURCES

The Illinois Environmental Protection Agency has proposed raising both the chronic and the acute cyanide standard. The proposal would raise the weak acidic chronic standard from 5.2 micrograms per liter to 11 micrograms per liter and the weak acidic acute standard from 22 to 49 micrograms per liter. The stated rationale for this change is that the federal standard was developed using data for cold water fish species (trout) and these species are not native to Illinois. While they may not be native both the rainbow trout (Oncorhynchus mykiss) and brown trout (Salmo trutta) have been stocked in Illinois and on occasion do reproduce in Illinois. The rainbow trout is known to have reproduced in Devil's Kitchen Lake, a reservoir in Williamson County (Laird and Page, Non-Native Fishes Inhabiting the Lakes and Streams of Illinois, 1996) and the brown trout may have reproduced in Piscasaw Creek (also Laird and Page, 1996). The Department of Natural Resources has invested significant resources in developing its trout program and in stocking trout in Illinois waters, and we believe this fishery should be protected.

Illinois also has a number of fish species that could be considered cool water fishes, generally restricted to the northern part of the state (such as the Blackchin shiner and the Iowa darter). According to Scott and Crossman (Scott, W.B. and E.J. Crossman, Freshwater Fishes of Canada, Bull. 184, 1973), "clear, clean, weedy waters are essential for survival of the blackchin shiner and it is especially noteworthy that it has been eliminated from the Iowa fauna during the last 25 years and from Ohio waters since around 1950, presumably because of the drastic changes in water quality and loss of habitat." The authors report that the Iowa darter is an inhabitant of

clear, standing, or slowly moving waters of lakes or rivers having rooted aquatic vegetation. It is a glacial relic species that can apparently withstand cooler waters than most darters. Like most darters it is intolerant of turbid, muddy waters of low visibility, which destroy its food supply. The Iowa darter is listed as an Illinois endangered species. While little is known about the sensitivity of these species to chemical pollutants, it is known that they are sensitive to turbid waters and that their range has become restricted in recent years because of human disturbance of their habitat and changes in water quality. Toxicity tests of more sensitive cold water species such as rainbow or brook trout would be more appropriate for the protection of these species than would data from warm water fishes.

Ambient Water Quality Criteria for Cyanide - 1984 (USEPA, 1985), the source of the National Criteria for cyanide, considered data for only 10 fish species and 7 invertebrate species. The trout species are used as surrogates for other potentially sensitive cold and cool water species, since all the fish species used in the formulation of the standard besides the trouts are tolerant to warm water; they were all also hardy species, easily maintained in artificial environments. Though the invertebrates tested were generally more resistant to cyanide than the fish species tested, they represented very few groups and a couple of the invertebrates were just as sensitive as the fish. The group that is of most concern to the Department is unionid mussels. There are 27 species of mussels listed as state or federal endangered or threatened species occurring in the waters of Illinois (Illinois Endangered Species Protection Board, Checklist of Endangered and Threatened Animals and Plants of Illinois, 1999), but no data on unionid mussels was used in setting the National Criteria. In fact, we have been unable to identify any data relating to the sensitivity of freshwater mussels to cyanide. Unionids do, however, tend to be more sensitive than fish species to pollutants generally, and other metals specifically. They have a potentially vulnerable stage in their life cycle called a glochidia. The glochidia are further dependant on several species of small fishes as hosts. Larval mussels could prove sensitive to pollutants like other larval forms and reproductive success could be impaired with an increase in the standard. Further, if the host fish are sensitive to cyanide the reproductive success could be compromised. Finally, being sedentary, mussels do not have the ability to leave an area very quickly in response to a pollutant.

The USEPA guidance document dated above describes a troubling study. The guidance document, on page 8, references a study by Kimball, et. al., 1978, that reports adverse impacts on bluegill, (Lepomis macrochirus) spawning at concentrations as low as 5.4 micrograms per liter of free cyanide. However, the authors then point out that the most sensitive effect of cyanide was on the reproduction of brook trout (Salvelinus fontinalis) and flathead minnow (Pimephales promelas). The authors did not use the bluegill data in the development of the standard. While they rejected the use of this data in developing the acute standard, they clearly felt compelled to cite the study and they did base the chronic standard on data from the same paper demonstrating chronic effects upon bluegill at 13.57 micrograms per liter (Kimball et.al., 1978). Given these considerations, the new proposed standard of 11 micrograms per liter does not provide an adequate margin of safety.

For the above reasons, we oppose the proposed changes in the cyanide standard. In IEPA's Statement of Reasons they assert the new cyanide standards are "intended to be protective of all species found in General Use waters." While that may indeed be their intention, we find no scientific foundation for such a conclusion.

Illinois Department of Natural Resources

By Brian D. Anderson

Brian D. Anderson, PhD

Director

Office of Scientific Research & Analysis

April 17, 2002
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R02-11
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