

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD DEC 10 2004

STATE OF ILLINOIS  
Pollution Control Board

IN THE MATTER OF: )

REVISIONS TO RADIUM WATER QUALITY )  
STANDARDS: PROPOSED NEW 35 ILL. ADM )  
CODE 302.307 AND AMENDMENTS TO )  
35 ILL. ADM. CODE 302.207 and 302.525 )

R 04-21  
(Rulemaking - Water)

NOTICE

TO: Dorothy Gunn, Clerk  
Illinois Pollution Control Board  
James R. Thompson Center  
100 W. Randolph Street, Suite 11-500  
Chicago, Illinois 60601

PC#33

**SEE ATTACHED SERVICE LIST**

PLEASE TAKE NOTICE that I have filed with the Office of the Pollution Control Board the POST-HEARING COMMENTS OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY on behalf of the Illinois Environmental Protection Agency, a copy of which is herewith served upon you.

Date: December 8, 2004

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By: 

Deborah J. Williams  
Assistant Counsel  
Division of Legal Counsel

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DEC 10 2004

STATE OF ILLINOIS  
Pollution Control Board

**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

REVISIONS TO RADIUM WATER	)	
QUALITY STANDARDS: PROPOSED	)	
NEW 35 ILL.ADM.CODE 302.307	)	R04-021
AND AMENDMENTS TO 35 ILL.ADM.	)	Rulemaking – Water
CODE 302.207 AND 302.525	)	
	)	

**POST-HEARING COMMENTS OF THE ILLINOIS  
ENVIRONMENTAL PROTECTION AGENCY**

NOW COMES the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
("Illinois EPA" or "Agency"), by and through one of its attorneys, Deborah J. Williams,  
and hereby respectfully submits to the Illinois Pollution Control Board ("Board") its Post-  
Hearing Comments in the above-captioned regulatory proceeding. In support thereof, the  
Illinois EPA states as follows:

**PROCEDURAL HISTORY AND BACKGROUND ON THE ILLINOIS  
EPA'S PROPOSAL**

Under Section 303(c) of the Clean Water Act, the Illinois EPA has the obligation  
to no less than every three years conduct reviews of its water quality standards and  
update those standards where needed. 33 U.S.C. 1313(c). As part of that process, the  
Agency filed a proposal to update the Water Quality Standards for Radium on January  
13, 2004.

The current General Use water quality standard for radium 226 (contained in 35  
Ill. Adm. Code 302.207) is 1 picocurie per liter ("pCi/L") and was adopted by the Board  
in the initial set of Board regulations in 1972. *See*, R71-14. An identical standard  
appeared in the regulations for the Lake Michigan Basin in 1997 due to a change in the

Since the adoption of the Board's initial water quality standards regulations and the predecessor Sanitary Water Board regulations, U.S. EPA has concluded that 5 pCi/L is the appropriate standard protective of the human consumption use. Tr. of April 1, 2004 Hearing at 10-17. Therefore, in its regulatory proposal the Illinois EPA proposed adding a combined radium 226 and 228 water quality standard of 5 pCi/L to the Board's Public and Food Processing Water Supply standards, found in Subpart C of Subtitle C of the Board's Water Quality Standards Regulations. *See*, 35 Ill. Adm. Code 302.301-302.306. The Board's Public and Food Processing Water Supply standards are cumulative with the Board's General Use water quality standards and apply "at any point at which water is withdrawn for treatment and distribution as potable supply or for food processing." 35 Ill. Adm. Code 302.301. As presented in the Agency's proposal and the Board's First Notice, the new standard would be placed in Section 302.307 of Subpart C of Part 302.

Following the first two hearings, it became clear that the second component of the Agency's proposal would understandably prove more controversial. In addition to adding the new standard to Subchapter C, the Illinois EPA has also proposed to repeal the current General Use standard in Section 302.207 of Subpart B and the Lake Michigan Basin standard in Section 302.525 of Subpart E.<sup>1</sup> The basis for the second component of the Illinois EPA proposal was a review of existing scientific literature and U.S. EPA guidance which reached the conclusion that no reliable scientific data is available on which to form a conclusion regarding an appropriate water quality standard to protect the aquatic life use. U.S. EPA has developed no water quality criteria document on radium

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<sup>1</sup>There is no evidence in the Record of any controversy specifically regarding the repeal of the Lake Michigan Basin radium water quality standard. There are several reasons for this. First, Lake Michigan is a drinking water supply and will therefore be subject to the 5 pCi/L water quality standard in the Illinois EPA's proposal. There is also no factual evidence of expected discharges of radium to Lake Michigan.

## **ADDITIONAL STUDIES AND TECHNICAL SUBMITTALS BY WRT**

The Illinois EPA would like to briefly review and summarize for the Board the additional technical information submitted by WRT. This review will focus on studies and other tools brought to the Board's attention during the third and fourth hearings in this regulatory proceeding.

### **National Council on Radiation Protection Study**

At the August 25, 2004 hearing in this matter, WRT pointed the Board's attention to a study by a well respected radiation group entitled Effects of Ionizing Radiation on Aquatic Organisms, National Council on Radiation Protection and Measurements Report No. 109, Bethesda MD (1991). See, Exhibit 10. WRT was able to draw no conclusions for the Board on the meaning of this report except to say that it was improperly overlooked by the Illinois EPA in its preparation of this regulatory proposal. The Illinois EPA review this document and found only one reference to radium in particular on page 55. An Agency toxicology expert attempted to translate the dose provided in Table 7.5 on page 55 to a concentration value in pCi/L to estimate what concentration of radium in surface waters would provide a dose to aquatic life comparable to the dose to humans from drinking water consumption relied on by the MCL. This conversion resulted in an extremely high value of 22,000 pCi/L. See, Exhibit 12 at No. 2. None of the commenters have thus far provided a different interpretation of that document.

### **Observational Study of Round Lake in Florida**

WRT also submitted an unpublished, non-peer reviewed study from a lake in Florida called Round Lake. See, Attachment D to Exhibit 14. That study found high concentrations of radium in mussels in a lake that was being augmented at extremely high

usie WRT's system to comply with the MCL of 5 pCi/L, out of compliance with the surface water quality standard.

#### **Other information and testimony**

In addition to the above studies, Dr. Brian Anderson testified to an internet search he conducted to conclude that the Illinois EPA's preparation of this proposal had been irresponsible and faulty. Tr. of October 21, 2004 Hearing at 14-16. Dr. Anderson did not provide the Board with a print out of the "hits" received in that search and admitted he did not review any of the documents for their relevance to this proceeding. Tr. of October 21, 2004 Hearing at 46. The Illinois EPA believes that, upon further review, the Board and any other unbiased observer will be able to conclude that there is insufficient science available to make the determination the Board is asked to make in water quality standards proceedings with regards to radium 226 and 228.

Testimony presented at all four hearings supports the Agency's consistent position that currently there is virtually no data regarding radium in the Illinois environment. The Illinois EPA was able to present the example of radium sampling done once in the Fox River that obtained a value of less than 1 pCi/L. Statement of Reasons at 3. Neither the Illinois EPA, U.S. EPA, the Division of Nuclear Safety at the Illinois Emergency Management Agency ("IEMA") nor any other regulatory Agency with a presence in Illinois is known to have ambient water quality or sediment data available for the Board to consider in this proceeding. The question for the Board to consider is whether this absence of data and scientific studies is a result of ineptitude on the part of each of these regulatory bodies or whether it is based on the conclusion by experts in the field that the possibility of measurable environmental impacts was not deemed plausible

not mandate or prohibit any particular technology or group of technologies through a water quality standards proceeding. Treatment technology requirements for drinking water facilities could be addressed through amendments to the Board's public water supply treatment regulations or wastewater pre-treatment regulations.

### **Radium Water Quality Standards in Other States**

U.S. EPA has established no radium water quality criteria document or guidance and does not require states to regulate radium levels in surface waters. In developing this proposal and in responding to additional concerns raised by commenters, the Illinois EPA contacted a number of other states regarding their radium water quality standards. A table documenting those standards was submitted to the Board on November 23, 2004 in response to the Board's request for additional information. In summary, Illinois EPA's technical staff looked into radium water quality standards in 13 other states and the Ohio River Sanitation Commission, ("ORSANCO").<sup>3</sup> These 13 states and ORSANCO were chosen because they either neighbored Illinois or were thought to have radium issues similar to those seen in Illinois.

Of these thirteen states, four states have standards similar to that proposed by Illinois EPA and four states have no radium water quality standard at all. Arizona, Utah, Iowa and Oklahoma have water quality standards of 5 pCi/L applicable only to waters designated for domestic water supply use or as Public Water Intakes. Other waters in these states have no radium water quality standard -- just like in Illinois EPA's proposal

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<sup>3</sup> The states researched were as follows: Arizona, California, Florida, Iowa, Michigan, Ohio, Oklahoma, Utah, Wisconsin, Colorado, Missouri, Indiana and Minnesota.

the existing water quality standard is the result of a thirty year old mistake. Some argue it should remain broken, but most agree that it should be fixed. The disagreements in this proceeding are primarily over how to establish a water quality standard that will protect aquatic life and wildlife in Illinois when there is insufficient science available to answer the questions that must be asked when setting a standard. The information gaps include the absence of water quality, sediment or biological data; the absence of controlled, experimental toxicological or radiation studies; and the absence of U.S. EPA or other regulatory guidance. It is not entirely clear why so little attention has been given to the question of what level of radiation exposure is acceptable on a population basis for non-humans, but it may be possible over the next three years or at some other point in the future to resolve some of these information gaps by acquiring additional data. It may also be possible to use future data in conjunction with the existing D.O.E. model or some yet to be developed tool to attempt to do something no other State has yet done – develop a water quality standard for the protection of the aquatic life and wildlife use. Should this or any additional science become available, the Illinois EPA will again propose revision of the radium water quality standard to the Board. In the meantime, the Illinois EPA asks the Board to correct a mistaken regulation and not require the wastewater treatment community to comply with a water quality standard more stringent than its drinking water standard when all available information suggests that all human consumption is the most sensitive use for this parameter.

The Illinois EPA appreciates the time and resources the Board has dedicated to the resolution of this regulatory proceeding and the opportunity the Board has granted all

STATE OF ILLINOIS                    )  
  ) SS.  
COUNTY OF SANGAMON            )

PROOF OF SERVICE

I, the undersigned, on oath state that I have served the attached Post-Hearing Comments  
of the Illinois Environmental Protection Agency, upon the person to whom it is directed, by  
placing it in an envelope addressed to:

TO: Dorothy Gunn, Clerk  
Illinois Pollution Control Board  
James R. Thompson Center  
100 W. Randolph Street, Suite 11-500  
Chicago, Illinois 60601

**SEE ATTACHED SERVICE LIST**

and mailing it by First Class Mail from Springfield, Illinois on December 8, 2004, with sufficient  
postage affixed.

*Cynthia L. Wolfe*

SUBSCRIBED AND SWORN TO BEFORE ME

this 8<sup>th</sup> day of December, 2004

*Cynthia L. Wolfe*  
Notary Public



**THIS FILING IS SUBMITTED ON RECYCLED PAPER**



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