

ILLINOIS POLLUTION CONTROL BOARD
April 29, 1982

IN THE MATTER OF:)
)
AMENDMENTS TO CHAPTER 6:) R81-11
PUBLIC WATER SUPPLIES)
(Trihalomethanes))

PROPOSED RULE. FIRST NOTICE.

ORDER OF THE BOARD (by J.D. Dumelle):

On January 30, 1981 the Illinois Environmental Protection Agency (Agency) filed a proposal for rulemaking in this matter. Merit hearings were held on May 15, 1981 and May 29, 1981. On June 15, 1981 the Agency amended its petition. On February 3, 1982 the Institute of Natural Resources filed its study entitled Economic Impact of Proposed Trihalomethane Standards for Public Water Supplies, Document No. 80-254 and hearings were held considering that study on April 2 and 8, 1982. Finally, on April 14, 1982 the Agency filed comments on the proposed rulemaking and the comment period closed on April 23, 1982.

The Board hereby instructs the Clerk of the Board to proceed to First Notice in this matter and will propose the amendments exactly as the Agency has proposed them, as amended. These rules are in conformity with the Safe Drinking Water Act (P.L. 93-523) and must be adopted in order for the State to retain primacy. No one has testified or commented against these rules as amended, and the economic impact study indicates that this proposed rules will result in a net economic benefit for the State.

The proposed amendments to Chapter 6: Water Pollution, are indicated below (added language is underlined; deleted language is stricken).

Rule 104 Definitions [note: the following definitions are to be inserted alphabetically into the present definitions.]

"Halogen" means one of the chemical elements chlorine, bromine or iodine.

"Trihalomethane (THM)" means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

"Total Trihalomethanes (TTHM)" means the sum of the concentration in milligrams per liter of the trihalomethane compounds trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform)), rounded to two significant figures.

"Maximum Total Trihalomethane Potential (MTP)" means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after 7 days at a temperature of 25° C or above.

"Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone, added to water in any part of the treatment or distribution process, which is intended to kill or inactivate pathogenic microorganisms.

304 Finished Water Quality

A. Bacteriological Quality

1. Standard Sample

The standard sample for the coliform test shall consist of:

- a. For the membrane filter technique, not less than 100 milliliters.
- b. For the fermentation tube method, five standard portions of either 10 milliliters or 100 milliliters.

2. Total Coliform Limits

The number of organisms of the coliform group present in potable water, as indicated by representative samples examined, shall not exceed the following limits:

- a. When the membrane filter technique is used, arithmetic mean coliform density of all standard samples examined per month shall not exceed ~~four~~ one per 100 milliliters. Any individual standard sample shall not exceed four coliform colonies per 100 milliliters in:
 - (1) more than one standard sample when less than twenty are examined per month; or
 - (2) more than five percent of the standard samples when twenty or more are examined per month.

[note: the remaining text of subsection A remains unchanged from present rules.]

B. Chemical and Physical Quality

1. The finished water shall contain no impurity in concentrations that may be hazardous to the health of the consumer or excessively corrosive or otherwise deleterious to the water supply. Drinking water shall contain no impurity which could reasonably be expected to cause offense to the sense of sight, taste, or smell.
2. Substances used in treatment should not remain in the water in concentrations greater than required by good practice. Substances which may have a deleterious physiological effect, or for which physiological effects are not known, shall not be used in a manner that would permit them to reach the consumer.
3. If the result of an analysis made pursuant to these Rules indicates that the level of any contaminant listed in Table I, except Total Trihalomethanes, exceeds the maximum allowable concentration, the owner or operator of the public water supply shall report to the Agency within 7 days and initiate three additional analyses at the same sampling point within one month. When the average of four analyses, rounded to the same number of significant figures as the maximum allowable concentration for the substance in question, exceeds the maximum allowable concentration, the owner or operator of the public water supply shall notify the Agency pursuant to Rule 310 B and give notice to the public pursuant to Rule 313 D of these Rules. Monitoring after public notification shall be at a frequency designated by the Agency and shall continue until the maximum allowable concentration has not been exceeded in two successive samples or until a monitoring schedule as a condition to a variance or enforcement action shall become effective.
4. If the average of samples covering any twelve month period exceeds the maximum allowable concentration for Total Trihalomethanes, as listed in Table I, the owner or operator of the public water supply shall notify the Agency pursuant to Rule 310 B and give notice to the public pursuant to Rule 313 D of these Rules. Monitoring after public notification shall be at the frequency required by Rule 309 B or until a monitoring schedule as a condition to

a variance or enforcement action shall become effective.

- 4- 5. The concentration of substances listed in Table I, except for Total Trihalomethanes, shall not exceed in the finished water the limits listed. The average of Total Trihalomethanes concentration in the finished water of four samples of any four consecutive quarters per treatment plant or per aquifer shall not exceed the limit listed in Table I.

TABLE I
MAXIMUM ALLOWABLE CONCENTRATIONS
FINISHED WATER QUALITY

Substance	Reported As	Maximum Concentration mg/l
Arsenic	As	0.05
Barium	Ba	1.
Cadmium	Cd	0.010
Chromium	Cr	0.05
Copper	Cu	5.
Cyanide	CN	0.2
Fluoride	F	1.8(d)
Iron	Fe	1.0(a)
Lead	Pb	0.05
Manganese	Mn	0.15(a)
Mercury	Hg	0.002
Nitrate-Nitrogen	N	10.(b)
Organics		
Total Trihalomethanes		0.10(e)
Pesticides		
Chlorinated Hydrocarbon Insecticides		
Aldrin		0.001
Chlordane		0.003
DDT		0.05
Dieldrin		0.001
Endrin		0.0002
Heptachlor Epoxide		0.0001
Lindane		0.004
Methoxychlor		0.1
Toxaphene		0.005
Chlorophenoxy Herbicides		
2,4-Dichlorophenoxyacetic acid (2,4-D)		0.1

	2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP or Silvex)	0.01
Selenium	Se	0.01
Silver	Ag	0.05
Turbidity	NTU	1.0(C)
Zinc	Zn	5.

NOTES:

- a. All non-community water supplies and those community water supplies which serve a population of 1000 or less or 300 service connections or less shall be exempt from the standards for iron and manganese. All other water supplies shall comply with these standards by July 1, 1981. Iron in excess of 1.0 mg/l and manganese in excess of 0.15 mg/l may be allowed at the discretion of the Agency if sequestration tried on an experimental basis proves to be effective. If sequestering is not effective, positive iron or manganese reduction treatment as applicable must be provided. No experimental use of a sequestering agent may be tried without previous Agency approval.
- b. The provisions of Rule 304 B 3 notwithstanding, compliance with the maximum allowable concentration for nitrate shall be determined on the basis of the mean of two analyses. When a level exceeding the maximum allowable concentration for nitrate is found, a second analysis shall be initiated within 24 hours, and if the mean of the two analyses exceeds the maximum allowable concentration, the owner or operator of the public water supply shall report his findings to the State pursuant to Rule 310 B and shall notify the public pursuant to Rule 313 D.
- c. Turbidity in drinking water shall not exceed one turbidity unit at the point where water enters the distribution system unless it can be demonstrated that a higher turbidity not exceeding 5 NTU does not:
 - (1) interfere with disinfection, or
 - (2) cause tastes and odors upon disinfection, or
 - (3) prevent the maintenance of an effective disinfection agent throughout the distribution system, or
 - (4) result in deposits in the distribution system, or
 - (5) cause customers to question the safety of their drinking water.

The provisions of Rule 304 B 3 notwithstanding, if a turbidity

measurement exceeds the maximum allowable concentration, a resample must be taken as soon as practicable, and preferably within one hour. If the check sample confirms that the standard has been exceeded, the Agency must be notified within 48 hours. The value of the check sample shall be the value used in calculating the monthly average. If the monthly average of the daily samples taken in accordance with Rule 309 D exceeds the maximum allowable concentration, or if the average of two samples taken on consecutive days exceeds 5 NTU, the owner or operator of the public water supply shall report to the Agency and notify the public as directed in Rule 310 B and 313 D.

- d. Those counties of the State north of and including the counties of Henderson, McDonough, Fulton, Tazewell, McLean, Ford and Iroquois shall have a maximum allowable concentration of 2.0 mg/l.
- e. Community water supplies serving 75,000 or more individuals shall comply with this standard by the effective date of these regulations. Community water supplies serving 10,000 to 74,999 individuals shall comply with this standard by November 5, 1983. This standard does not apply to supplies serving less than 10,000 individuals.

C. Radiological Quality

The text of Subsection C remains unchanged from present rules.

309 Frequency of Sampling

A. Bacteriological

Text of Subsection A remains unchanged.

B. Chemical

1. Community Water Supplies -- Surface Water Sources

- a. A minimum of one representative sample each of the raw and finished water is to be submitted at least annually to the Agency for chemical analysis. ~~from community-water-supplies-which-utilize-a-surface water-source. Community-water-supplies-which utilize-a-ground-water-source-are-to-submit-such-samples-to-the-Agency-for-analysis-at-least-every two-years.--Sampling-for-specific-parameters-are or-may-be-in-excess-of-the-limits-listed-in-Table 17-or-if-the-presence-of-other-dangerous-or potentially-dangerous-substances-is-suspected.- Non-community-water-supplies-shall-submit-representative-samples-of-raw-and-finished-water-to-the~~

~~Agency's laboratory for chemical analysis at frequencies required by the Agency.~~

- b. Public water supplies serving over 10,000 individuals shall submit at least four samples per treatment plant per quarter for analysis or analytical results from a certified laboratory for total trihalomethanes to the Agency. After results of four consecutive quarters demonstrate consistent total trihalomethane concentrations below the Maximum Allowable Concentration, and upon written application by the public water supply the Agency may reduce the sample frequency to one sample per quarter until the Maximum Allowable Concentration is exceeded or until a significant change in source or treatment method is made.
2. Community Water Supplies -- Ground Water Sources

 - a. A minimum of one representative sample of the finished water is to be submitted at least every three years to the Agency for chemical analysis. ~~Community water supplies which utilize a ground water source are to submit such samples to the Agency at least every two years.~~
 - b. Public water supplies serving 10,000 individuals or more shall submit at least one sample per treatment plant for MTP analysis. After written request by the public water supply and the determination by the Agency that the results of the sample and local conditions indicate that the supply is not likely to approach or exceed the Maximum Allowable Concentration, the public water supply shall continue to submit one annual sample per treatment plant, or report of analysis by a certified laboratory to the Agency. If the sample exceeds the Maximum Allowable Concentration or cannot be analyzed for MTP, the public water supply shall submit samples in accordance with Sec. 309 B 1.
3. Significant changes in water sources or treatment will require testing in accord with Sec. 309 B 1 b.
4. If the result of an analysis made pursuant to the reduced monitoring schedules provided by this Rule indicates that the level of Total Trihalomethanes exceeds the maximum allowable concentration listed in Table I, the owner or operator of the public water supply shall initiate analysis of one check sample promptly after the exceedance is reported

to the public water supply. If the check sample confirms that the level of Total Trihalomethanes exceeds the maximum allowable concentration, the public water supply shall sample in accordance with the frequency set out in Rule 309 B 1 b, for at least one year.

5. Sampling for specific parameters may be required by the Agency more frequently whenever there is reason to believe that these parameters are or may be in excess of the limits listed in Table I or if the presence of other dangerous or potentially dangerous substances is suspected.
 6. Non-Community water supplies shall submit representative samples of raw and finished water to the Agency laboratory for chemical analysis at frequencies required by the Agency.
- C. Monitoring Frequency for Radioactivity in Community Water Supplies
1. Monitoring requirements for gross alpha particle activity, radium-226 and radium-228.
 - a. Compliance shall be based on the analysis of an annual composite of four consecutive quarterly samples or the average of the analysis of four samples obtained at quarterly intervals.
 - (1) A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis, provided that the measured gross alpha particle activity does not exceed 5 pCi/l at a confidence level of 95 percent ($\pm 1.96 \sigma$ where σ is the standard deviation of the net counting rate of the sample). In localities where radium-228 may be present in drinking water radium-226 and/or radium-228 analyses may be required by the Agency when the gross alpha particle activity exceeds 2 pCi/l.

[note: the remaining text of Subsection C remains unchanged from the present rules.]

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board hereby certify that the above Order was adopted on the 29th day of April, 1982 by a vote of S-O.



Christan L. Moffett, Clerk
Illinois Pollution Control Board