

ILLINOIS POLLUTION CONTROL BOARD
October 5, 1982

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

Adopted Rule. Final Order.

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

On July 21, 1982 the Board adopted a Proposed Rule/Second Notice Opinion and Order in this matter. The Second Notice period commenced on August 3, 1982 and expired on September 16, 1982 when the Joint Committee on Administrative Rules notified the Board of its determination that no objection to this rule-making would be issued.

During the Second Notice period the Board's public water supply regulations were restructured to conform with the codification system. What had been Chapter 6: Public Water Supply, became Illinois Administrative Code Title 35: Environmental Protection; Subtitle F: Public Water Supplies; Chapter I: Pollution Control Board. As a result, the proposed rules have necessarily been modified to conform with the new structure of the Public Water Supplies rules.

The following table is presented to show the relationship between the proposed Chapter 6 rules as they appeared for First Notice at 6 Illinois Register 6052 (May 21, 1982) and the new codified, adopted sections of 35 Ill. Adm. Code:

| <u>Proposed Chapter 6 Rules</u> | <u>Codified, Adopted Sections</u> |
|---------------------------------|-----------------------------------|
| 104 | 601.105 |
| 304 (Table I) | 604.202 |
| 304(A)(2)(a) | 604.102(a) |
| 304(B)(3) | 604.204 |
| 304(B)(4) | 604.203(d)(3) |
| 304(B)(5) | 604.203(d)(1) |
| 304 [Table I, Note (a)] | 604.203(b) |
| 304 [Table I, Note (b)] | 604.203(c) |
| 304 [Table I, Note (c)] | 604.203(e) |
| 304 [Table I, Note (d)] | 604.203(a) |
| 304 [Table I, Note (e)] | 604.203(d)(2) |
| 309(B)(1)(a) | 605.103 |
| 309(B)(1)(b) | 605.104(a) |
| 309(B)(2)(a) | 605.103 |
| 309(B)(2)(b) | 605.104(b) |

| <u>Proposed Chapter 6 Rules</u> | <u>Codified, Adopted Sections</u> |
|---------------------------------|-----------------------------------|
| 309(B)(3) | 605.104(c) |
| 309(B)(4) | 605.104(d) |
| 309(C)(1)(a) | 605.105 |
| 309(C)(1)(b) | 605.106(a)-(d) |
| 309(C)(1)(c) | 605.106(e) |

The Board's rationale for adoption of these rules has remained unchanged from that expressed in its July 21, 1982 Opinion and Order, but while the Board adopts that Opinion as its final Opinion in this matter, the following changes must be noted:

1. The definitions of "Halogen," "Trihalomethane (THM)," "Total Trihalomethanes (TTHM)," "Maximum Total Trihalomethane Potential (MTP)" and "Disinfectant" will be added to Section 601.105.
2. The proposed amendment to old Rule 304(A)(2)(a) to correct a typographical error is no longer necessary in that the correction was made during the codification procedure [Section 604.102(a)].
3. The proposed amendment of Rule 304(B)(3) is no longer necessary due to the restructuring of the Maximum Allowable Concentration rules (Section 604.204).
4. The Maximum Allowable Concentration of Trihalomethanes will appear in Section 604.202, while compliance dates and the method for determining compliance with the THM standard appear in Section 604.203(e).
5. The reduced frequency of chemical analysis sampling now appears in Section 605.103.
6. THM sampling and monitoring frequencies now appear in Section 605.104.
7. The correction of a typographical error regarding gross alpha activity now appears in Section 605.105.

Furthermore, the addition of Section 605.104 (see 5, above) requires the renumbering of Sections 605.104-605.109 which have become 605.105-605.110, respectively, and a citation error has been corrected in renumbered Section 605.106.

None of these changes are substantive, and the Board intends to adopt these rules as proposed for Second Notice as codified.

ORDER

The Board hereby adopts the following amendments to 35 Ill. Adm. Code 601, 604 and 605 and instructs the Clerk to file these rules with the Secretary of State:

TITLE 35: ENVIRONMENTAL PROTECTION

SUBTITLE F: PUBLIC WATER SUPPLIES

CHAPTER I: POLLUTION CONTROL BOARD

PART 601

Section 601.105 Definitions

For purposes of this Chapter:

"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.

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

"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.

"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.

"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.

PART 604

Section 604.202 Contaminants and Maximum Allowable Concentrations

The concentration of substances in the finished water shall not exceed the limits listed, except as provided in Section 604.203.

| 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 |
| Iron | Fe | 1.0 |
| Lead | Pb | 0.05 |
| Manganese | Mn | 0.15 |
| Mercury | Hg | 0.002 |
| Nitrate-Nitrogen | N | 10. |
| Organics | | |
| Pesticides | | |
| Chlorinated Hydrocarbon Insecticides | | |
| Aldrin | | 0.001 |
| Chlordane | | 0.003 |
| DDT | | 0.05 |
| Dieldrin | | 0.001 |
| Endrin | | 0.0002 |
| Heptachlor | | 0.0001 |
| Heptachlor Epoxide | | 0.0001 |
| Lindane | | 0.004 |
| Methoxychlor | | 0.1 |
| Toxaphene | | 0.005 |
| Chlorophenoxy Herbicides | | |
| 2,4-Dichlorophenoxyacetic acid (2,4-D) | | 0.01 |
| 2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP or Silvex) | | 0.01 |
| <u>Total Trihalomethanes</u> | | <u>0.10</u> |
| Selenium | Se | 0.01 |
| Silver | Ag | 0.05 |
| Turbidity | NTU | 1. |
| Zinc | Zn | 5. |

Section 604.203 Exceptions to Maximum Allowable Concentrations

The following supplementary conditions apply to the concentrations listed in Section 604.202.

- a) Fluoride: 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 fluoride concentration of 2.0 mg/l.

b) Iron and Manganese:

- 1) 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.
- 2) 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.

- c) Nitrate-Nitrogen: The provisions of Section 604.204 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 Agency pursuant to 35 Ill. Adm. Code 606.102 and shall notify the public pursuant to 35 Ill. Adm. Code 606.

d) Total Trihalomethanes:

- 1) 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 Section 604.202.
- 2) Supplies serving 75,000 or more individuals shall comply with the Total Trihalomethanes standard listed in Section 604.202 by the effective date of these regulations. 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.
- 3) If the average of samples covering any twelve-month period exceeds the Maximum Allowable Concentration for Total Trihalomethanes, as listed in Section 604.202, the owner or operator of the supply shall notify the Agency pursuant to Section 606.102 and give notice to the public pursuant to Sections 606.201 - 606.205 of these Rules. Monitoring after public notification shall be at the frequency required by Section 605.103.

d)e) Turbidity:

- 1) 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 Nephelometric Turbidity Units (NTU) does not:
 - A) interfere with disinfection, or
 - B) cause tastes and odors upon disinfection, or
 - C) prevent the maintenance of an effective disinfection agent throughout the distribution system, or
 - D) result in deposits in the distribution system, or
 - E) cause customers to question the safety of their drinking water.

- 2) The provisions of Section 604.204 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 35 Ill. Adm. Code 605.10~~8~~9 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 35 Ill. Adm. Code 606.

PART 605

Section 605.103 Frequency of Chemical Analysis Sampling

A minimum of one representative sample each of the raw and finished water is to be submitted every year to the Agency's laboratory 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 finished water samples to the Agency for analysis at least every two three years. 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 35 Ill. Adm. Code 604.202 and 604.203, or if the presence of other dangerous or potentially dangerous substances is suspected.

Section 605.104 **Frequency of Trihalomethane Analysis Sampling**

- a)** **Surface Water Sources: 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 Trihalomethanes concentrations below the Maximum Allowable Concentration, and upon written application by the 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.**
- b)** **Ground Water Sources: Supplies serving 10,000 individuals or more shall submit at least one sample per treatment plant for MTP analysis. After written request by the 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 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 supply shall submit samples in accordance with Section 605.103.**
- c)** **Significant changes in water sources or treatment will require testing in accordance with Section 605.104(a).**
- d)** **If the result of an analysis made pursuant to the reduced monitoring schedules provided by Section 605.104(a) indicates that the level of Total Trihalomethanes exceeds the Maximum Allowable Concentration listed in Section 604.202, the owner or operator of the supply shall initiate analysis of one check sample promptly after the exceedance is reported to the supply. If the check sample confirms that the level of Total Trihalomethanes exceeds the Maximum Allowable Concentration, the supply shall sample in accordance with the frequency set out in Section 605.104(a), for at least one year.**

Section 605.1045 **Monitoring Requirements for Radium-226, -228 and Gross Alpha Particle Activity**

- a)** **Compliance with 35 Ill. Adm. Code 604.301 shall be based on the analysis of an annual composite of four consecutive quarterly samples or the average of the analyses of four samples obtained at quarterly intervals.**

- b) 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 (1.6596 sigma where sigma 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.
- c) When the gross alpha particle activity exceeds 5 pCi/l, the same or an equivalent sample shall be analyzed for radium-226. If the concentration of radium-226 exceeds 3 pCi/l, the same or an equivalent sample shall be analyzed for radium-228.
- d) A supply using two or more sources having different concentrations of radioactivity shall monitor source water in addition to water from a free-flowing tap, when required by the Agency.

Section 605.1056 Monitoring Frequency for Radium-226, -228
and Gross Alpha Particle Activity

Suppliers of water shall monitor at least once every four years. When an annual record taken in conformance with Section 605.1045 has established that the average annual concentration is less than half the maximum contaminant levels established by 35 Ill. Adm. Code 604.301, analysis of a single sample may be substituted for the quarterly sampling procedure required by Section 605.1045.

- a) More frequent monitoring shall be conducted when required by the Agency in the vicinity of mining or other operations.
- b) Monitoring for compliance with radium-228 levels need be done only in the initial test of each source and when specifically requested by the Agency, provided that the average annual concentration of radium-228 has been assayed at least once using the quarterly sampling procedure required by Section 605.1034(a)(1).
- c) Owners and operators of supplies shall conduct annual monitoring of any community water system in which the radium-226 concentration exceeds 3 pCi/l, except when specifically exempted by the Agency.
- d) Monitoring at quarterly intervals shall be continued until the annual average concentration no longer exceeds the maximum contaminant level or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

- e) If the average annual maximum allowable concentration for gross alpha particle activity or total radium is exceeded, the owner or operator of a community water supply shall give notice to the Agency and notify the public as required by 35 Ill. Adm. Code 606.

[Note: Sections 605.106-605.109 have been renumbered as Sections 605.107-605.110, respectively.]

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 5th day of October, 1982 by a vote of 5-1.



 Christan L. Moffett, Clerk
 Illinois Pollution Control Board