

ILLINOIS POLLUTION CONTROL BOARD
October 19, 1978

VILLAGE OF RIO,)
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 Petitioner,)
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 v.) PCB 78-218
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 ENVIRONMENTAL PROTECTION AGENCY,)
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 Respondent.)

OPINION AND ORDER OF THE BOARD (by Dr. Satchell):

The Village of Rio filed a petition for variance from Rule 304(B)(4) of the Chapter 6: Public Water Supply Regulations (Chapter 6) on August 14, 1978. The request is that variance be granted from the fluoride standard of 2.0 mg/l in finished water until January 1, 1981. The Environmental Protection Agency (Agency) filed a favorable recommendation on September 18, 1978.

The Village of Rio is in northwestern Knox County, Illinois. The present population is approximately 300 persons, while the number of water connections is 109. The existing water facilities consist of a 675 feet deep well, a 20,000 gallon wooden elevated storage tank with an aerator located in the top, and a small building housing chlorination equipment, electrical controls, and valves. The original facilities were constructed in 1958 with chlorination equipment added in 1974.

The existing well provides a sufficient quantity of water except during mechanical failures. To alleviate this problem a new well is proposed to provide a duplicate source of water.

The existing wooden elevated tank leaks continually and becomes contaminated. The tower does not have adequate volume to sustain a fire flow very long and the low tower height causes the water pressure in some parts of the distribution system to be less than adequate. Because of the inadequacies it is proposed to construct a new elevated water storage tank of sufficient volume and height.

The present village well is 675 feet deep and taps creviced dolomite and limestone formations of Devonian and Silurian ages. The Illinois State Water Survey (Survey) has indicated that chances are good for developing an additional supply of similar quality from a well similar to the present well. The Survey

further indicates that chances are the desired quantity of water can be obtained from deeper formations; however, the quality of water would be poorer than that presently obtained. Thus the determination was made to drill the well to the same depth as the current well.

Laboratory analyses done by the Survey and the Agency indicate that the raw water from the existing well has a natural fluoride content of from 2.0-2.4 mg/l. The finished water quality contains a fluoride content approximately the same as the raw water. Thus it is anticipated that the proposed well will have a natural fluoride content of slightly more than 2.0 mg/l.

The Village has investigated a number of treatment alternatives including: adsorption processes, reverse osmosis, electro dialysis and alternate ground or surface water supplies. There is no alternative groundwater supply with a lower fluoride content and no surface supply with proven quality. The other alternatives are not economically feasible. The most cost effective solution was the adsorption process with total installation costs of \$128,000. In addition to the installation cost, the fluoride removal system will impose additional operating costs of \$24,000 per year. This amounts to \$320 per user per year or \$28 per month. This is in addition to the \$8 user cost without fluoride removal. Petitioner and the Agency agree the fluoride removal equipment is costly, difficult to operate and control, and may be unreliable.

The Village purports and the Agency agrees that at the fluoride levels present in the Village's water supply no adverse health effects are expected and may be beneficial in reducing tooth decay and hardening bone structure. The Agency further states that the aesthetic effects of enamel mottling will be nonexistent or at most exceedingly minor and are not sufficient to justify the high costs of fluoride removal.

The current fluoride standard was recommended by the Agency because that is the level established by the Federal government as a maximum contaminant level under the Safe Drinking Water Act. If the State does not maintain at least as stringent a water supply program as the Federal government, the State will not be eligible for primary enforcement authority of the Federal program. The Agency and the Illinois Department of Public Health believe the maximum allowable concentration of fluoride in finished water should be at least four times (4 mg/l) the optimum level. The Agency is hopeful that USEPA will revise upward its present fluoride standard in promulgating its Revised Primary Drinking Water Regulations. Accordingly the Agency does not believe the

level of fluoride in Petitioner's finished water will be detrimental to its users. The Agency recommended that a variance be granted.


The Board finds that Petitioner would suffer an arbitrary and unreasonable hardship if required to install fluoride removal equipment at this time. The Board has noted before that the technology involved has not reached an advanced state, Central Illinois Utility Company v. Environmental Protection Agency, PCB 77-349, April 13, 1978. Clearly the heavy financial burden on 109 water users for unproven equipment that may prove unnecessary in a few years is not required. The Board will grant a variance from the fluoride requirements of Rule 304(B)(4) of Chapter 6 until January 1, 1981. Since there are no conditions imposed with this variance, no certificate of acceptance is required.

This Opinion constitutes the Board's findings of fact and conclusions of law in this matter.

ORDER

It is the Order of the Pollution Control Board that the Village of Rio is granted a variance from the fluoride limitation in Rule 304(B)(4) of the Chapter 6: Public Water Supply Regulations until January 1, 1981.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 19th day of October, 1978 by a vote of 4-0.


Christan L. Moffett, Clerk
Illinois Pollution Control Board