

ILLINOIS POLLUTION CONTROL BOARD
May 24, 1979

VILLAGE OF CARY,)
)
) Petitioner,)
)
) v.) PCB 77-339
)
) ENVIRONMENTAL PROTECTION AGENCY,)
)
) Respondent.)

MR. BERNARD J. NARUSIS APPEARED ON BEHALF OF PETITIONER.
MR. DEAN HANSELL, ASSISTANT ATTORNEY GENERAL, APPEARED ON
BEHALF OF THE AGENCY.

SUPPLEMENTARY OPINION AND ORDER OF THE BOARD (by Mr. Dumelle):

On March 16, 1978 the Board denied Petitioner a variance from the standard for barium in Rule 304 B 4 of Chapter 6: Public Water Supplies. On April 27, 1978 the Board granted Petitioner's motion for a rehearing on this matter. A hearing was held on March 1, 1979 at the Village Hall in Cary.

Petitioner's water supply draws from three wells. Well #3 is a shallow well which pumps an average of 300 gallons per minute with no barium (R.29,32). Well #4 is a deep well which pumps an average of 460 gallons per minute with an average concentration of 4.0 mg/l barium (R.35,29,33). Well #6 is a deep well which pumps an average of 780 gallons per minute with an average concentration of 8.0 mg/l barium. Petitioner does not provide for barium removal at any of these sources (R.33) although the standard for barium is 1.0 mg/l. Well #3 and Well #4 supply water to an elevated 250,000 gallon tank which maintains pressure in the area served by these wells (R.21,23). Well #4 supplies water to an independent 250,000 gallon ground level storage tank which maintains pressure for that well's service area (R.48). The entire system serves a population of 6500 with 1300-1400 industrial, commercial and residential users (R.16,17).

Petitioner feels it would suffer an arbitrary and unreasonable hardship if it were required to comply with the present 1.0 mg/l standard for barium. Water from Well #4 would require softening at a capital cost of approximately \$250,000. Water from Well #6 would require softening with

the addition of lime, caustic or soda ash to prevent corrosion at a capital cost of \$250,000 (Ex.19). Additional annual operating costs of \$40,000-\$60,000 would be incurred to maintain these improvements. Petitioner feels that these costs are rendered unreasonable because there are no adverse health effects known from long term consumption of barium in drinking water. Petitioner supports this contention by referring to a recently completed study which sought to compare human mortality and morbidity rates in Illinois communities which exceeded or met the barium standard (Ex.2). The authors of that study stated that there was not enough information available to conclude that there were or were not adverse health effects from barium consumption (Ex.4). In Exhibit 6, the Director of the U.S. EPA Health Effects Research Laboratory confirmed the finding that no positive or negative conclusions could be drawn. Petitioner feels that water softening would result in increased sodium and a resulting danger to users who already suffer from hypertension and related conditions (R.134, Ex.11). The author of Exhibit 2 does not feel that there is evidence of adverse health effects attributable to consumption of softened water. U.S. EPA concurs with the recommendations of the American Heart Association which specify sodium restricted diets for several disease conditions (Ex.6).

In City of Crystal Lake v. EPA, PCB 77-332, March 29, 1979 and Village of Algonquin v. EPA, PCB 78-3, April 26, 1979 the Board granted variances from the barium standard on the condition (inter al.) that those communities maintain a level of 4.0 mg/l barium during their variances. Petitioner feels that this condition cannot be achieved in this instance. Although Wells 3 and 6 are both supplying water to the elevated storage tank, this mixture would not affect the quality of finished water at the tap (R.91). If Well #6 was removed from the system, thereby eliminating high barium levels, Wells 3 and 4 could not meet peak demand (R.30). Well #6 could be set to start up only during times of water main breaks, fires and malfunctions (R.51), but it is not clear how often this would occur. This type of control would not be very expensive (R.37) but it is not immediately available. The Cary Fire Protection District has indicated that all three wells are needed at all times to maintain adequate pressure for fire flows (R.137, Ex.22).

Wells 3 and 6 could be connected and mixed to achieve a 4.0 mg/l barium concentration at a cost of approximately \$100,000 (R.106). This alternative might require rebuilding the pump at Well #6 since it would have to be throttled to match the smaller volume from Well #3. This alternative is not presently available and would result in wasted power (R.65). Petitioner has planned to add 200 homes to its system in 1979 (R.122) and presently has two industrial parks attempting to hook on. Although the relationship between industrial development and this proceeding is not

clear, it would appear that without Well #6 in regular operation, these developments can not proceed (R.130,131). Petitioner's water capital fund is presently operating at a deficit of \$2,300 (R.114), but the record is silent on whether future home and industrial connections would remedy this problem. There is also no evidence to show whether Petitioner's rate structure could be adjusted without arbitrary or unreasonable hardship.

If this variance were denied again, Petitioner would be required to provide all of its drinking water from Well #3. This would constitute hardship because Well #3 is not sufficiently productive or reliable to meet the task. This hardship is rendered arbitrary or unreasonable when it is compared to the unknown health effects of barium ingestion in drinking water. The barium levels in Petitioner's system which are listed in the Agency's Amendment to its Recommendation do not disclose any immediate threat to public health.

Since the Board has concluded that relief is needed, the issues remaining are the length and conditions of the relief. When the Board selected 4.0 mg/l as an interim standard for barium in City of Crystal Lake and Village of Algonquin, cited above, the standard was based on draft guidance from U.S. EPA and present capabilities of those two water supplies. In this instance, the 4.0 mg/l standard is not immediately achievable. Consequently the Board will limit this variance to a period of six months. This way the Board and the Agency will remain apprised of Petitioner's efforts to correct this noncompliance. Section 35 of the Act states that variances must be consistent with the Federal Safe Drinking Water Act. In order to assure that Petitioner meet the barium standard by January 1, 1981, which is the Federal deadline, the Board will require a detailed analysis of Petitioner's plans to reach timely compliance.

One of Petitioner's witnesses stated that blending the water from Wells 3 and 6 could result in the formation of a barium sulfate precipitate which could be removed through filtration (R.89). This alternative should be investigated along with conventional softening techniques. Petitioner has indicated that new shallow well sites are being investigated (R.84,98-101). Petitioner's plans should address the possibility of using these sources for blending. The record is silent on the chemical composition of the barium compound presently found in Petitioner's supply and whether it could be removed without blending through some other treatment technique. Petitioner's plans should include a laboratory analysis of the form of barium compound being detected and an evaluation of alternatives based on that analysis.

The Board agrees with the Agency's position that Petitioner not be required to conduct a survey of blood pressure levels among its high risk residents as recommended in the U.S. EPA guidance document. A survey of this nature would involve considerable expense and would be of dubious value in light of the inconsistent results obtained in Exhibit 2. In a similar vein, the Board will not set a specific sampling schedule for the Agency.

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

ORDER

1. Petitioner is hereby granted a variance from the standard for barium in Rule 304 B 4 of Chapter 6: Public Water Supplies for six months from the date of this Order.
2. Within 90 days of the date of this Order Petitioner shall submit a Petition for an Extension of this variance in compliance with Procedural Rule 402 which shall include, but not be limited to, the following:
 - a) A detailed laboratory analysis of the form of the barium compound being detected in Petitioner's water supply;
 - b) A detailed evaluation of costs and timetables necessary to meet the barium standard by January 1, 1981 through blending or any other additional means of treatment; and
 - c) An analysis of the means by which Petitioner will raise the necessary revenues to finance any necessary improvements.
3. Within 45 days of the date of this Order, Petitioner shall execute a Certificate of acceptance and agreement to be bound by the terms and conditions of this variance. The Certificate shall be forwarded to the Illinois Environmental Protection Agency, Division of Public Water Supplies, 2200 Churchill Road, Springfield, Illinois 62706. This 45 day period shall be held in abeyance if this matter is appealed. The form of the Certificate shall be as follows:

CERTIFICATION

I (We), _____, having read and fully understanding the Order in PCB 77-339, hereby accept that Order and agree to be bound by all of its terms and conditions.

SIGNED _____

TITLE _____

DATE _____

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Supplementary Opinion and Order were adopted on the 24th day of May, 1979 by a vote of 5-0.



Christan L. Moffett, Clerk
Illinois Pollution Control Board