

ILLINOIS POLLUTION CONTROL BOARD  
November 7, 1985

VILLAGE OF HAMPSHIRE, )  
 )  
 Petitioner, )  
 )  
 v. ) PCB 85-114  
 )  
 ILLINOIS ENVIRONMENTAL )  
 PROTECTION AGENCY, )  
 )  
 Respondent. )

OPINION AND ORDER OF THE BOARD (by R. C. Flemal):

This matter comes before the Board on a petition ("Petition") to extend an existing variance filed by the Village of Hampshire ("Hampshire") on August 12, 1985. Hampshire seeks to extend the variance granted on January 22, 1981, in PCB 80-165, which provided relief from the 1.0 mg/l maximum allowable barium concentration of 35 Ill. Adm. Code 604.202 (formerly Rule 304(B)(4) of Ch. 6: Public Water Supply Rules and Regulations of the Illinois Pollution Control Board) for five years, subject to conditions. The instant request seeks to extend the variance to January 16, 1988, a period of approximately two years.

The Illinois Environmental Protection Agency ("Agency") filed its recommendation ("Recommendation") on September 12, 1985, with an accompanying motion requesting that the Board allow filing of the recommendation instanter. That motion was granted by Board Order of September 20, 1985. The Agency recommends that variance be denied, contending in major part that Petitioner has not adequately proven that compliance with the barium standard would impose an arbitrary or unreasonable hardship, and that Petitioner has not made good faith efforts to comply with the conditions of the variance granted in PCB 80-165.

On October 23, 1985, Hampshire submitted to the Board a response ("Response") to the Agency Recommendation, requesting that leave be granted to file said Response instanter. The Board notes that according to 35 Ill. Adm. Code 104.181(a) such response is due within seven days of receipt by Petitioner of the Recommendation; receipt is acknowledged by Petitioner to have occurred on September 10, 1985. While the Board is not pleased with the lateness of filing, it nonetheless grants Petitioner's motion to file, believing that the Response contains information pertinent to a proper resolution of this matter.

Hearing was waived, and none has been held since no additional objections have been filed with the Board.

BACKGROUND

The Village of Hampshire, which is located in Kane County, owns and operates a water supply system which provides potable water to approximately 1600 residents of the Village. Raw water is supplied to the system from three wells, as follows:

- Well No. 5: Primary source of supply for drinking water for the Village, constructed in 1968 and deepened in 1971 to a depth of 818 feet; this well is open to the Maquoketa Group, Galena and Platteville Dolomites, and Glenwood-St. Peter Formations; the well is fitted with a 60 horsepower pump and generates approximately 275 gallons of water per minute.
- Well No. 3: Back-up well completed in 1943; this well extends to a depth of 514 feet and is open to the Maquoketa Group and the Galena and Platteville Dolomites.
- Well No. 4: Back-up well completed in 1943; this well extends to a depth of 355 feet and is open to shallow sand and gravel units, the Maquoketa Group, and the Galena and Platteville Dolomites.

Hampshire contends that wells No. 3 and No. 4 are available for use in emergency situations, but are not capable of providing the Village's needs on a continuous basis; no capacity data for either of the back-up wells has been provided by Petitioner. Hampshire additionally contends that no other raw or finished water supply is currently available, including no adjacent communities from which water could be purchased on a cost-effective basis.

Petitioner asserts that water obtained from the primary source, well No. 5, has a barium concentration between 2.0 mg/l and 2.2 mg/l; well No. 4 is asserted to have a barium concentration of 2.0 mg/l; no data have been provided on the barium concentration of well No. 3. Identical concentrations were asserted to have existed in the wells at the time of filing of petition in PCB 80-165 (September, 1980).

Actual measured barium concentrations in the distribution system, as provided in the Agency Recommendation, for the period October 6, 1982 to April 18, 1985 have been:

<u>Date</u>	<u>Concentration (mg/l)</u>
10/06/82	2.1
01/11/83	2.1
04/12/83	1.9
07/06/83	1.7
02/08/84	1.7
04/11/84	2.0
07/18/84	2.1
10/16/84	1.79
02/20/85	1.64
03/20/85	3.02
04/08/85	3.07
07/08/85	1.7

The record does not address the issue as to why the concentrations in the distribution system depart from the concentrations asserted to exist in the raw water sources. Noteworthy is that two of the twelve distribution system concentrations exceed the maximum concentration (2.2 mg/l) alleged for the primary raw water source. This same 2.2 mg/l was asserted to be the maximum concentration at the time of granting of the existing variance, and that variance was in fact conditioned such that Petitioner was not to allow the barium concentration in the water supply to exceed 2.2 mg/l (PCB 80-165, January 22, 2981, p. 3).

Hampshire does not dispute the data provided by the Agency concerning concentrations of barium in its distribution system (Response, p. 1). In apparent defense, Hampshire contends that these data show "that the concentration has been consistently below 2.1 mg/l, despite the 3.02 reading of March 20, 1985 and 3.07 reading of April 8, 1985". The Board can not give weight to this defense, in as much as any plain reading of the phrase "consistently below" would not allow that two of twelve values exceed the specified limit and three additional values are at the limit.

A number of matters are at issue in this case. Among these are the health risk associated with levels of barium such as those encountered in the Hampshire system, whether Petitioner has adequately carried its burden of showing that compliance would involve arbitrary or unreasonable hardship, and whether Petitioner has made good faith efforts to comply with the conditions imposed in its existing variance.

#### HEALTH RISK

The Agency, in its review of the environmental impact, concluded that "an incremental increase in the allowable concentration for barium even up to a maximum of 3.07 mg/l, should cause no significant health or environmental risk for the

time period of this recommended variance" (Recommendation p. 5, emphasis as in original). The Board agrees with this general assessment, but notes the particular implication of the underscored qualification. That is, while a rational conclusion would allow that short-term exposure would produce no significant health risk, the same conclusion can not be reached under conditions of long-term exposure. It is in part because situations such as this exist that the Safe Drinking Water Act ("SDWA"), and the Board in its enforcement of the SDWA, entertain the possibility of short-term relief via variances. But implicit in the variance process is that compliance will be achieved in some timely fashion, and that long-term exposures and attendant health risk will thereby not be allowed to occur.

Hampshire notes that the United States Environmental Protection Agency ("USEPA") currently has its 1.0 mg/l barium standard under review. The Board takes note that the first step in this review process has been completed. Namely, the USEPA has proposed that the Recommended Maximum Contaminant Level (RMCL) for barium in drinking water be 1.5 mg/l (U.S. Environmental Protection Agency, Office of Drinking Water, Barium Health Advisory, Draft, September 30, 1985). Several aspects of this action warrant notice. First, RMCL's are proposed at levels at which no known or anticipated adverse effects on the health of persons occur; they are nonenforceable and considered as health-related goals rather than as standards. Second, the USEPA action to date has been only to propose an RMCL for barium; the proposal may be altered subject to information received during a mandated comment period of 120 days following publication. Third, when and if the USEPA sets a final RMCL, it must then proceed to set a Maximum Contaminant Level (MCL) which, in addition to health effects, also considers matters such as the availability and performance of analytical methods and treatment technologies and assessment of the costs of the applicable technologies. In the ideal an MCL will be set equal to its RMCL; in no case may the MCL be less than the RMCL. Fourth, the MCL is a federally enforceable maximum concentration. However, a state which holds primacy under the SDWA, as does Illinois, may elect to support a standard more stringent than the federal standard.

In view of the conditions laid out in the preceding paragraph, the Board notes that a change in the USEPA posture regarding barium in drinking water, be such change viewed as either favorable or unfavorable to Petitioner, cannot be expected with any immediacy. The Board can not therefore lay great credence on Hampshire's implied position that its requested variance is supported by actions at the federal level, at least as these actions have proceeded to date. In fact, such weight as may be given to the recent federal action would seem to imply that Petitioner's drinking water does impose a long-term health risk: all of the samples taken from the distribution system since 1982 contain concentrations in excess of the USEPA's Recommended Maximum Contaminant Level.

An additional facet of the health risk issue is that the State of Illinois currently supports a 1.0 mg/l standard. Federal action will occasion a change in the State standard only if a more stringent federal standard supersedes the State standard, or if the federal review process produces a less stringent standard and the State finds the federal position sufficiently compelling to warrant a change in the State rule. That any such change might occur is too speculative to be given weight in the instant matter. Accordingly, the Board must consider that the appropriate standard, and attendant health risk level, is 1.0 mg/l.

#### HARDSHIP

With respect to the matter of the showing of arbitrary or unreasonable hardship, the Board notes that §35(a) of the Illinois Environmental Protection Act mandates that a variance may be granted only if Petitioner demonstrates that immediate compliance would impose an arbitrary or unreasonable hardship. Petitioner contends that such hardship does exist because an alternative source of low barium water is not available and because development of an alternative source or treatment of the existing water supply would be economically unreasonable.

Hampshire has considered the possibility of water blending as a method of attaining compliance. This effort has apparently focused on developing a shallow well, which Hampshire contends would involve approximately \$496,500 in construction costs and an additional \$7,000 in annual operation and maintenance costs. Hampshire further contends that any shallow source would likely have a high iron content, and hence introduce a new problem.

Petitioner allows that it has not actually undertaken a program to explore for a shallow water alternative source due to insufficient funds. However, it asserts that in 1985 it requested the assistance of the Illinois State Geological Survey ("ISGS") in this endeavor. The Agency counters that it can not determine if Petitioner's claim of insufficient funds is valid, since no estimates of costs or financial resources have been provided. The Agency moreover notes that, while the request to the ISGS is considered positive, Hampshire was told of this option by its own consultant by letter dated July 21, 1980 (Baxter & Woodman, Inc., attachment to Petition, page 3). The Agency adds that "Petitioner does not explain why it delayed five years in investigating this option, which apparently will be done free." (Recommendation, p. 6).

The Agency further questions Petitioner's efforts towards attaining compliance via blending by noting a condition to the existing variance, namely:

A. By June 1, 1981, the Petitioner shall submit to the Agency a report on the economic feasibility of developing Well #3 and/or Well #4 to serve as either primary wells or as blending wells so that finished water with a barium content of 1.0 mg/l or less may be delivered. (PCB 80-165, January 22, 1981, p. 3)

The Agency asserts that Petitioner has failed, and continues to fail, to submit this report, a fact to which Petitioner admits (Response, p. 2).

As a basis for contending that blending among the existing wells might offer the prospect of attaining compliance, the Agency recalls, on page 3 of its Recommendation, a portion of its earlier recommendation in the matter of PCB 80-165, specifically:

the Agency believes that the alternative of a more extensive use of Well #4 has not been adequately investigated or considered. In the only Agency test available which analyzes the water of Well #4 the level of barium was shown to be 0.1 mg/l. (Attachment A). If Petitioner has evidence which contradicts this analysis it should be brought forward. While the water from the shallower well may have a higher iron content than Well #5 and may not be of sufficient size to meet the petitioner's needs, the Agency believes the possibility of blending is worth investigating. Assuming the barium content is as low as this last test indicates water from that well could be blended with water from Well #5 to provide a water quality that complies with the barium guidelines.

Hampshire asserts in its current petition that the barium concentration of well No. 4 is 2.0 mg/l, but it is not clear from the record whether this assertion is meant by Petitioner to be the contradictory evidence sought by the Agency in 1980 and again in the instant case.

As a treatment alternative Hampshire has considered sodium zeolite softening. In order to reduce the barium concentration from 2.2 mg/l to 1.0 mg/l or less, it would be necessary to treat approximately 70 percent of the output of well No. 5; the remaining 30 percent of water pumped from well No. 5 would bypass the softening unit and be blended with the treated portion. Petitioner's estimated capital expenditure for such a treatment system is approximately \$519,200, with additional annual maintenance costs of approximately \$16,000. Petitioner also notes that a brackish water disposal problem would be created and the sodium content of the water would be increased.

While the Agency does not disagree with Petitioner's estimates of the cost of compliance, it does believe that economic hardship has not been proven. In addition to the matter of whether blending possibilities have been fully explored, the Agency notes that Petitioner has failed to provide financial

data\*, including bonding authority, upon which economic hardship could be evaluated, as well as various information specified in the conditions of the existing variance. With respect to the latter, the Agency notes that Hampshire has failed, and continues to fail to comply with the conditions of paragraphs B and C of the existing variance, specifically:

B. Beginning on or about June 1, 1981, and at six month intervals thereafter, the Petitioner shall communicate with the Agency in order to ascertain whether barium removal techniques specifically applicable to small systems have been developed and identified.

C. As expeditiously after identification of a feasible compliance method as is practicable, but no later than January 1, 1984, Petitioner shall submit to the Agency a program (with increments of progress) for bringing its system into compliance with barium standards. (PCB 80-165, January 22, 1981, p. 3).

In its Response, Petitioner allows that it did not, at six month intervals, communicate with the Agency in order to ascertain whether barium removal techniques specifically applicable to small systems have been developed. However, Hampshire notes that on May 9, 1985, it did undertake one such communication, and that it received a reply (attachment to Response) dated May 21, 1985, from the Agency indicating that to the best knowledge of the Agency no such systems have been developed.

#### GOOD FAITH EFFORTS

On the matter of good faith effort to comply with the existing variance, it has been noted above that the Agency asserts that Petitioner has failed to comply with those three conditions which entail submittals to or communication with the Agency, namely conditions A, B, and C as reproduced above. The Agency also contends that Petitioner has failed to fully comply with the remaining two conditions, specifically:

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\*Petitioner does note that in 1979 the Village completed construction of a new sanitary sewer plant, and created an eighteen year bonded indebtedness in an amount equal to \$350,000, requiring annual payments of \$18,887.50 in 1985, escalating to \$35,997.50 in 1996 (Petition, p. 5). In the Response (p. 2-3) Petitioner indicates that the bonding occurred in 1978, that the present annual expense is \$28,850.00, and that the 1996 cost will be \$36,995.00. In its Response Petitioner further notes that Hampshire currently taxes at the maximum statutory rate of .25% for general corporate purposes and imposes no tax specifically for water purposes, and that the overall tax rate for the village for FY86 is .74%.

D. Petitioner shall take all reasonable measures with its existing equipment to minimize the level of barium in its water supply and shall not allow the barium concentration to exceed 2.2 mg/l.

E. On or before March 30, 1981 and every three months thereafter Petitioner will send to each user of its public water supply a written notice to the effect that Petitioner has been granted by the Pollution Control Board a variance from the 1.0 mg/l maximum barium standard. The notice shall state the average content of barium in samples taken since the last notice period during which samples were taken. (PCB 80-165, January 22, 1981, p. 3).

The Agency cites the two distribution system analyses of March and April, 1985 (3.02 mg/l and 3.07 mg/l) as failure to comply with condition D. The Agency also questions compliance with condition E on the basis that no copy of such notice has been sent to the Agency since January, 1979. The Agency thereby concludes that either Petitioner gave notice and violated 35 Ill. Adm. Code 653.404(c) by failing to provide the Agency with copies, or failed to give notice and violated 35 Ill. Adm. Code 606.201. For its part, Petitioner asserts that notices have been regularly sent to its users (Petition, p.2; Response, p.1), but admits that copies of such were first sent to the Agency as of the date of the Response (Response, p.2).

#### SUMMARY FINDINGS

Upon review of all the facts of record in this matter, the Board finds that variance of limited extension, particularly with conditions, is somewhat preferable to outright denial. By the Agency's own admission a limited extension variance should not expose the consumers of Petitioner's water to a significant health risk. However, to assure that the health risk be at the minimum possible, the Board conditions the extension such that barium concentrations in the delivered water not exceed a maximum of 2.2 mg/l.

The Board also finds that the costs associated with the compliance alternatives presented by Petitioner are such that immediate compliance would constitute an arbitrary or unreasonable hardship. In so doing, the Board is giving Hampshire the benefit of the doubt as to whether its hardship is self-imposed. However, the Board shares the Agency's concern about long-term health risks and notes that Petitioner must achieve compliance in a timely fashion. Accordingly, the Board conditions the variance upon a complete review of compliance alternatives and the submittal of a specific timetable for attaining compliance.

The Board further finds that Petitioner has been derelict in its responsibility to fully meet the conditions set forth in its

existing variance. Accordingly, the Board will set the period of variance extension to a single year, during which time Petitioner may address questions raised about its good faith by fulfilling the conditions of both the existing variance and its extension.

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

ORDER

The Village of Hampshire is hereby granted a variance from the barium limitation of 35 Ill. Adm. Code 604.202 for its public water supply, subject to the following conditions:

1. This variance begins upon the termination of the variance granted in PCB 80-165 and expires on January 22, 1987.
2. As soon as feasible, but not later than July 1, 1986, Petitioner shall submit to the Agency a report specifying alternative methods by which compliance with the 1.0 mg/l barium standard might be achieved. Such report shall include, but not be limited to:
  - A. Development of an alternative raw water source;
  - B. Blending of existing raw water with water from a new shallow well;
  - C. Blending of raw waters from existing wells No. 5, No. 4, and/or No. 3;
  - D. Zeolite water softening;
  - E. Lime water softening.
3. Based on its study of compliance alternatives, Petitioner shall identify the most feasible compliance method or methods. As expeditiously thereafter as is practicable, but not later than October 1, 1986, Petitioner shall submit to the Agency a report identifying this most feasible method, or methods, and a complete program (with increments of progress) for bringing its system into compliance based upon the method(s).
4. Petitioner shall take all reasonable measures with its existing equipment to minimize the level of barium in its water supply and shall not allow the barium concentration at any point of delivery to exceed 2.2 mg/l.
5. Every three months Petitioner shall send to each user of its public water supply a written notice to the effect that Petitioner has been granted a variance by the Pollution Control Board from the 1.0 mg/l maximum barium standard.

The notice shall state the average content of barium in samples taken since the last notice period during which samples were taken. Copies of all such notices shall be filed with the Illinois Environmental Protection Agency, pursuant to the Rules and Regulations of that Agency.

6. Within forty-five days of the date of this Order, Petitioner shall execute and forward to Mr. Wayne Wiemerslage, Enforcement Programs, Illinois Environmental Protection Agency, 2200 Churchill Road, Springfield, Illinois 62706, a Certificate of Acceptance and Agreement to be bound to all terms and conditions of this variance. This forty-five day period shall be held in abeyance for any period this matter is being appealed. The form of this certificate shall be as follows:

CERTIFICATION

I, (We), \_\_\_\_\_, having read the Order of the Illinois Pollution Control Board, in PCB 85-114, dated November 7, 1985, understand and accept the said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

\_\_\_\_\_  
Petitioner

\_\_\_\_\_  
By: Authorized Agent

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

IT IS SO ORDERED.

Board Members John Marlin and Ted Meyer concurring, and Jacob D. Dumelle and Bill Forcade dissenting.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order as adopted on the 7<sup>th</sup> day of November, 1985, by a vote of 5-2.

Dorothy M. Gunn  
Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board