

ILLINOIS POLLUTION CONTROL BOARD
September 20, 1985

VILLAGE OF MINOOKA,)
)
 Petitioner,)
)
 v.) PCB 85-100
)
 ILLINOIS ENVIRONMENTAL)
 PROTECTION AGENCY,)
)
 Respondent.)

OPINION AND ORDER OF THE BOARD (by W.J. Nega):

This matter comes before the Board on a Petition for Variance filed by the Village of Minooka on July 8, 1985. The Petitioner requested variance from 35 Ill. Adm. Code 602.105(a) (Standards for Issuance) and 35 Ill. Adm. Code 602.106(b) (Restricted Status list) as they relate to 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity).

The Petitioner waived its right to a hearing and no hearing was held on this matter.

On August 15, 1985, the Illinois Environmental Protection Agency (Agency) filed its Recommendation in this matter. The Agency has recommended that variance be granted for a period not to exceed five years from 35 Ill. Adm. Code 602.105(a) and 35 Ill. Adm. Code 602.106(a) as they relate to 35 Ill. Adm. Code 604.301(a) (combined radium-226 and radium-228) only. The Agency further recommended that the Petitioner's request for variance from 35 Ill. Adm. Code 602.105(a) and 35 Ill. Adm. Code 602.106(b) as they apply to 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity) be denied as unnecessary.

The Board adopted an emergency rule on August 15, 1985 in the matter of Proposed Amendments to Public Water Supply Regulations, 35 Ill. Adm. Code 602.105 and 602.106 (docketed as R85-14). This rule, effective until January 12, 1986, allows the Agency to issue permits for water main extensions to public water supplies presently on Restricted Status for delivering finished water with fluoride, combined radium-226 and radium-228, or gross alpha particle activity concentrations in excess of those allowed by current Board regulations.

In conjunction with the enactment of the emergency rule in R85-14, the Board entered an Interim Order in PCB 85-100 on August 15, 1985 which delineated the options available to the Village of Minooka in light of the Board's adoption of the emergency rule in R85-14.

The Village of Minooka, which is located in Grundy County, Illinois, provides, via 573 residential user lines and 7 industrial/business user lines, potable water supply and distribution for a population of 1,771. (Pet. 4). Additionally, the Petitioner's water distribution system "serves two Illinois Department of Transportation rest areas along Interstate 80". (Pet. 4-5). The Petitioner's water supply and distribution system is not part of a regional public water supply. The Village of Minooka owns and operates a deep well water supply and distribution system which consists of two deep wells, various pumps, and concomitant distribution facilities which provide water service to local residential, commercial, and industrial users as needed. Charges for this service are established by village ordinance and are made to all users. (Pet. 5). The Village of Minooka has two deep wells as its primary water sources: Well #3, which was placed into operation in 1965 and is 1,508 feet deep, and Well #4, which was placed into operation in 1973 and is 725 feet deep. (Pet. 5).

The Petitioner was first advised of the excessive combined radium content of its water by an Agency letter dated September 4, 1984, which reported a radium-226 content of 5.6 pico Curies per liter (pCi/l) and a radium-228 content of 2.8 pCi/l. The combined radium-226 and radium-228 level was found to be 8.4 pCi/l (i.e., $5.6 \text{ pCi/l} + 2.8 \text{ pCi/l} = 8.4 \text{ pCi/l}$), which exceeds the requisite 5 pCi/l state and Federal combined radium standard by 3.4 pCi/l. The water sample analysis of an annual composite of four consecutive quarterly samples (or the average of the analyses of four samples obtained at quarterly intervals) was performed by the USEPA laboratory. (Pet., Attachment A).

By letter dated October 4, 1984, the Agency notified the Village of Minooka that its public water supply was being placed on restricted status because the Petitioner's water supply exceeded the maximum allowable concentration for combined radium-226 and radium-228. (Pet., Attachment B). The practical effect of being placed on restricted status is that all construction ceases within the listed municipality because the Agency, pursuant to Section 39 of the Illinois Environmental Protection Act (Act), will not grant construction and operating permits until compliance is achieved or variance is granted.

The Village of Minooka does not presently treat its water to control radium content. The Petitioner notes that it was totally unaware of the excessive radium and gross alpha particle activity in its groundwater until the Agency notified it about this matter and consequently it did not achieve compliance by the required compliance date. (Pet. 6). After being notified by the Agency's September 14, 1984 letter that an environmental problem existed with regard to radium and gross alpha particle activity levels in its groundwater, the Village of Minooka retained an outside consultant, Engineering Enterprises, Inc., "to assist it in reviewing and evaluating this situation and to prepare recommendations for resolving this problem". (Pet. 6-7).

The Village of Minooka currently "envisions utilizing the Illinois State Geological Survey study of shallow water wells and the Village's own test wells to select a new permanent well site which will meet applicable standards". (Pet. 6). The Petitioner anticipates that "water mains will have to be constructed for connection to the new well", but has not yet developed "accurate costs and time figures" pertaining to locating and constructing its new water supply source. (Pet. 6-7).

The Agency has recommended that the Village of Minooka "does not need, and should not receive, a variance from 35 Ill. Adm. Code 602.105 or 602.106(b), to the extent those rules involve 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity)." (Rec. 4). The Agency points out that neither its September 14, 1984 letter nor its October 4, 1984 letter to the Petitioner made any reference to gross alpha particle activity and states that it "does not have any records demonstrating that Petitioner is currently exceeding 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity)". (Rec. 4-5). Moreover, if the gross alpha activity concentration is 12.8 pCi/l as asserted in the Village of Minooka's variance petition, it is within the authorized 15 pCi/l gross alpha particle limit specified in 35 Ill. Adm. Code 604.301(a). The Agency stresses that its Public Water Supply Division placed the Petitioner's facilities on restricted status "only because the Petitioner's water supply has exceeded the maximum allowable concentration for combined radium-226 and radium-228" and reiterates that the Village of Minooka "is not on Restricted Status for exceeding any other contaminant". (Rec. 4). The Board believes that the Agency is entirely correct in its viewpoint, and will therefore deny the variance from 35 Ill. Adm. Code 602.105(a) and 602.106(b) as they involve 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity) as unnecessary.

In reference to the environmental impact of the requested relief from the requirements of 35 Ill. Adm. Code 602.105(a) (Standards for Issuance) and of 35 Ill. Adm. Code 604.301(a) (combined radium-226 and radium-228), the Agency takes the following position:

"...While radiation at any level creates some risk, the risk associated with this level is very low. Original estimates were that 5 pCi/l could result in bone cancer to somewhere between 0.7 and 3 persons per million exposed. More recent feeling is that this is probably a high estimate since much less radium is retained in the body than what was previously thought. The maximum allowable concentration ("MAC") for radium is currently under review at the federal level. However, the Agency does not expect any proposal to change the standard before late 1985. The Agency does not have any information that the combined radium standard will be relaxed by USEPA...

The Agency believes an incremental increase in the allowable concentration for combined radium-226 and

radium-228, even up to a maximum of 20 pCi/l, should cause no significant health risk for the limited population served by new water main extensions for the time period of this recommended variance."

(Rec. 5-6).

In reference to two primary treatment methods to reduce the radium content of its water, the Village of Minooka has stated that:

"... The first primary treatment method is lime or lime-soda softening... lime softening can remove 80-90 percent of the radium... The problem with this method is that it produces large quantities of sludge and concentrates the radium. This causes additional problems and expenses in proper waste disposal...

The second treatment method is ion exchange water softening. This method is cheaper than lime softening, is effective and will remove more than 90% of the radium. However, if an ion exchange softener which is regenerated with salt is used, the sodium content of the water will be increased significantly. This may create a significant risk to persons who are hypertensive or who have heart problems. In addition, the waste from routine softening is high in total dissolved solids and may be very difficult to dispose of legally... Hence the Agency has informed Petitioner that it is actively discouraging the use of the ion exchange process for radionuclide removal."

(Pet. 7-8; Rec. 6-7).

These alternative methods for reducing the radium content of the water mandate large plant construction and are estimated to cost over \$8 million dollars.

The Village of Minooka has contended that the denial of the requested variance would impose an arbitrary or unreasonable hardship because:

"...There is currently a developer of single family residences in the community (Bonita Vista Subdivision) actively filing plats of subdivision who would experience great hardship if unable to develop such property. In fact, his lender requires payment from lot sales and the property will be lost through foreclosure unless further platting is allowed. The Village is requesting permission to extend the existing water main system to service an additional approximately 200 residential lots within the next five years. There is now pending an application for approximately 40 lots which already have construction material on site waiting to be installed in the ground...

Furthermore, the Agency has recognized the need for the requested variance by filing its Proposal for Amendments to Water Supplies Regulations, PCB R85-14, on June 17, 1985, which it asserts that the existing standards for radium and gross alpha should be increased by a multiple of four ... This would put Petitioner's existing water supply well within acceptable limits." (Pet. 11-13).

The Agency has concluded that "the grant of the requested variance would impose no significant injury on the public or on the environment for the limited time period of the requested variance and that denial of the recommended variance would be an arbitrary and unreasonable hardship to Petitioner." (Rec. 7).

In elaborating on its rationale for recommending that the Board grant the requested relief, the Agency states that:

"... Denial of a variance from 35 Ill. Adm. Code 602.105 Standards for Issuance, would result in an arbitrary or unreasonable hardship because denial of that variance would require the Agency to continue to deny construction and operating permits until compliance is achieved (unless a variance from 35 Ill. Adm. Code 604.301(a) is granted) (combined radium-226, -228). Continuation of Restricted Status means that no new water main extensions could be issued permits by the Agency and economic growth, etc., dependent on those water main extensions would not be allowed...

If the Board grants Petitioner a variance from 35 Ill. Adm. Code 602.105(a) (Standards for Issuance) so that the Agency legally may not deny permits to Petitioner due to Petitioner violating the combined radium-226 and radium-228 standard, then the Agency should not be required to publish that Petitioner is on the Agency's Restrictive Status List for violating those standards, because that would mislead developers and other persons who check the Restricted Status List. Hence, a variance should also be granted from 35 Ill. Adm. Code 602.106(b), but only to the extent it involves the combined radium-226 and -228 standard."

(Rec. 7-8).

Thus, the Agency has recommended that the Village of Minooka be granted a 5-year variance from 35 Ill. Adm. Code 602.105(a) (Standards for Issuance) and 602.106(b) (Restricted Status), but only as they relate to 35 Ill. Adm. Code 604.301(a) (combined radium-226 and radium-228), and that the requested variance from those rules as they relate to 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity) be denied.

The Board basically agrees with the Agency's position and finds that the Village of Minooka has made an adequate showing that denial of the variance would impose an arbitrary or

unreasonable hardship. The Board agrees with the Agency that the risk of adverse health effects to the limited population consuming water delivered by the new water main extensions permitted pursuant to this 15 month variance will not be significant. However, the Board believes that, in this factual situation, a 15 month variance from the combined radium standard of 35 Ill. Adm. Code 604.301(a) is warranted. The Village of Minooka has only recently become aware of its radium excursion and has not yet identified the costs involved in selecting a new permanent well site. Before the Board can set a suitable compliance schedule for the Petitioner, it is necessary to know the precise details of the methods that the Village of Minooka has chosen to meet appropriate standards. Thus, the Petitioner will be given time to further evaluate and choose the compliance option that it prefers and can, at a later date, ask for an extension of variance if necessary.

The Board finds that denial of the variance would impose an arbitrary or unreasonable hardship. The Board will grant the Petitioner a variance from 35 Ill. Adm. Code 602.105(a) (Standards for Issuance) and from 35 Ill. Adm. Code 602.106(b) (Restricted Status) but only as they relate to 35 Ill. Adm. Code 604.301(a) (combined radium-226 and radium-228), and will deny the requested variance from those rules as they relate to 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity).

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

ORDER

1. The Petitioner, the Village of Minooka is hereby granted variance from 35 Ill. Adm. Code 602.105(a) and from 35 Ill. Adm. Code 602.106(b) but only as they relate to the 5 pCi/l combined radium-226 and radium-228 standard of 35 Ill. Adm. Code 604.301(a), subject to the following conditions.

- (a) This variance begins on January 12, 1986 and expires on March 20, 1987, or when analysis pursuant to 35 Ill. Adm. Code 605.105(a) shows compliance with the combined radium standard, whichever comes first.
- (b) By January 1, 1986, the Petitioner shall secure professional assistance (either from present staff or an outside consultant) in investigating compliance options, including a review of the possibility and feasibility of achieving compliance by blending water from shallow wells with that of its deep wells. By February 1, 1986, evidence that such professional assistance has been secured shall be submitted to the Agency's Division of Public Water Supplies, FOS, at 2200 Churchill Road, Springfield, Illinois 62706.

- (c) As expeditiously after identification of a feasible compliance method as is practicable, but no later than January 1, 1987, the Petitioner shall submit a program (with increments of progress) for bringing its system into compliance with radiological quality standards to the Agency's Division of Public Water Supplies, Permit Section, at 2200 Churchill Road, Springfield, Illinois 62706. The Village of Minooka shall adhere to all timetables contained in this compliance program.
- (d) Pursuant to 35 Ill. Adm. Code 606.201, the Petitioner shall send to each user of its public water supply a written notice to the effect that the Petitioner has been granted by the Illinois Pollution Control Board a variance from 35 Ill. Adm. Code 602.105(a) (Standards for Issuance) and from 602.106(b) (Restricted Status) as they relate to combined radium-226 and radium-228 in the first set of water bills issued after the grant of this variance and every three months thereafter. The notice shall state the average concentration of radium-226 and radium-228 in samples taken since the last notice period in which samples were taken.
- (e) Until full compliance is reached, the Petitioner shall take all reasonable measures with its existing equipment to minimize the level of combined radium-226 and radium-228 in its finished drinking water.

2. The Petitioner's requested variance from 35 Ill. Adm. Code 602.105(a) and 35 Ill. Adm. Code 602.106(b) as they relate to 35 Ill. Adm. Code 604.301(b) (gross alpha particle activity) is hereby denied.

3. Within forty-five days of the date of this Order, the Village of Minooka 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 days period shall be held in abeyance for any period this matter is being appealed. The form of this certificate shall be as follows:

CERTIFICATION

The Village of Minooka hereby accepts and agrees to be bound by all terms and conditions of the Order of the Pollution Control Board in PCB 85-100, dated September 20, 1985.

The Village of Minooka

By: Authorized Agent

Title

Date

IT IS SO ORDERED.

Chairman Dumelle and Board Members B. Forcade and R. Flemal dissented.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board hereby certify that the above Opinion and Order was adopted on the 20th day of September, 1985 by a vote of 4-3.

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