

ILLINOIS POLLUTION CONTROL BOARD
July 10, 1980

VILLAGE OF WHEELING,)	
)	
Petitioner,)	
)	
v.)	PCB 80-59
)	
ENVIRONMENTAL PROTECTION AGENCY,)	
)	
Respondent.)	

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

This matter comes before the Board upon a petition for variance filed April 3, 1980 by the Village of Wheeling (Wheeling). The petitioner requests a variance from the gross alpha particle activity and radium content of finished water limitations of Rule 304(C)(1) of Chapter 6: Public Water Supplies (Rules). On June 23, 1980 the Environmental Protection Agency (Agency) recommended that the variance be granted with conditions. An amended recommendation was filed June 26, 1980. Wheeling waived its right to a hearing and the Board has received no public comment.

Wheeling has a population of 22,000 in Cook and Lake Counties. It operates a public water supply serving all residents. This includes three deep and three shallow wells, one reservoir and four elevated tanks. Two additional deep wells and a reservoir are under construction (Pet. 2). The deep wells are in sandstone, the shallow in dolomite. The following is a summary of data concerning the wells (Pet. 2, 8, 16; Rec. 2):

<u>Well No.</u>	<u>Depth (ft.)</u>	<u>Capacity (Ml/day)+</u>	<u>MGD</u>	<u>Alpha Activity (pCi/l)</u>
1	201	2.2	0.58	Less than 4
2	245	1.1	0.29	----
3	1370	4.1	1.1	10.0 ± 4.45
4	281	2.2	0.58	Less than 5
5	1361	6.1	1.6	12.0 ± 3.04
6	1350	4.2	1.1	9.67 ± 3.23
7*	1350	5.4	1.4	25.9 ± 5.5
Distribution		25.3	6.7	10.0 ± 3.45

+Megaliters (10^6 liters) per day.

*Under construction. A second deep well, designated 1A, is also under construction.

Rule 304(C)(1) sets a limit of 5 pCi/l for combined radium 226 and 228 alpha radioactivity. Since there is no evidence concerning the actual source of the activity in Wheeling's water, no variance from this standard will be awarded. Rule 304(C)(1) sets a limitation of 15 pCi/l for gross alpha particle activity in finished water. The source of this activity is often trace amounts of radium in water from deep aquifers. For the remainder of this Opinion, the terms "radium" and "gross alpha activity" will be used interchangeably. Well seven was built under a construction permit which included a condition that water not be pumped into the system from it unless the water met the Chapter 6 requirements. On November 15, 1979 the Agency indicated to Wheeling that well 7 did not meet the radiological standard (Pet. 16).

Rule 304(C)(1) sets standards for finished water rather than raw water. It is questionable whether it would be a sufficient reason to deny the operating permit absent evidence of the effect on finished water quality. However, the Agency has indicated that violation of Rule 304(C)(1) will likely occur in the area immediately affected by well 7. The demand and pumping capacity figures are as follow (Pet. 2, 8; Rec. 2):

	<u>Ml/day</u>	<u>MGD</u>
Average Daily Demand	6.7	1.8
Maximum Daily Demand	10.0	2.6
Deep Wells (3)	14.4	3.8
Shallow Wells (3)	5.5	1.4
Well 7	5.5	1.4

It appears that the three existing deep wells are more than adequate to meet the maximum daily demand. However, failure of well 5 would result in a reduction of deep well capacity to 8.3 Ml/day (2.2 MGD). A deficit of 1.7 Ml/day (0.4 MGD) would have to be met from the shallow wells or from well 7. The shallow wells are adequate to meet this contingency but Wheeling would prefer to use well 7 because the shallow wells produce water containing iron and hydrogen sulfide. Apparently this is within applicable standards and poses no threat to health. However, it results in numerous complaints (Pet. 2). The Agency recommends that the variance be conditioned on standby use of well 7 only (Rec. 3, 7). Wheeling will not be required to use the shallow water before resorting to well 7.

Rule 309(C)(1) provides that compliance with the radiological standards is to be determined from the average of four samples obtained quarterly. To date only one sample has been obtained. Wheeling's contention that the Agency's actions were wrong in the absence of adequate proof that the water was in violation of the standard should have been brought before the Board in the context of a permit appeal pursuant to Rule 211 and Part V of the Procedural Rules.

Wheeling contends that permit denial is wrong unless the Agency produces four quarterly analyses and the Agency contends that it cannot award the permit until Wheeling produces the analyses. Both parties assume that the first sentence of Rule 309(C)(1)(a) establishes a rule of proof in permit issuance. However, this sentence applies directly only to enforcement actions. For purposes of permit issuance it is possible for the applicant to satisfy its burden of showing that no violation of the rules will occur with evidence which is less significant statistically.

The Board does not generally award a variance where it is unlikely that the Petitioner is in violation of the rules. The Board is satisfied that the single sample in this case demonstrates a violation of the standard with sufficient certainty to justify the award of a variance.

The parties agree that lime softening is the best available treatment method for radium. Petitioner estimates that a capital outlay of \$700,000 would be required for well 7 or about \$32 per person in Wheeling (Pet. 4). No estimates of operating costs are given. Petitioner also presents cost data for the other existing and proposed wells. However, there is no demonstrated need at this time to treat this other water.

The Agency has suggested that it could be cheaper to treat the shallow wells for iron and hydrogen sulfide than to treat the deep wells for radium. Accordingly the Agency has recommended that the variance be conditioned on a study of this alternative (Rec. 3).

Wheeling has requested an allocation of Lake Michigan water. This would be available to mix with the deep well water to maintain acceptable radiological levels. Under the Safe Drinking Water Act Petitioner must show that it has entered into an enforceable agreement to become a part of a regional water system in order to qualify for a variance through January 1, 1983; otherwise the variance cannot extend beyond January 1, 1981 (Rec. 3) (Safe Drinking Water Act §1416(b)(2)(B)). Wheeling's membership in the regional

system is conditioned on its receipt of a Lake Michigan water allocation (Rec. 4; Amended Rec.). The variance will be granted through January 1, 1983; however, a condition will be provided for expiration if an allocation is not received or in the event Petitioner fails to join the regional system. In this case compliance or a new variance petition will be necessary.

Bills have been introduced in Congress to alter the radiological standards or extend the time required for compliance (Pet. 4; Rec. 4). The Board has previously noted an expert opinion that the standards could be increased considerably and still provide adequate protection (Pet. 4; Rec. 5; Village of Glasford v. EPA, PCB 79-238, February 7, 1980). The Agency believes that occasional use of well 7 to supplement the present supply should create no risk to the health of the consumers (Rec. 6). The Agency recommends that Wheeling be required to provide quarterly notice of this variance to its customers pursuant to Rule 313(D).

The Board concludes that because of the uncertainty of the extent of the violation, the possibility of modification of the radiological standard, the possibility of obtaining Lake Michigan water and the cost of immediate compliance the Petitioner has demonstrated sufficient arbitrary or unreasonable hardship to justify award of a variance. In addition to the conditions noted above, Petitioner will be required to report periodically to the Agency concerning its progress in planning for treatment or obtaining other water and to explore the availability of landfill sites to accept radioactive water softening wastes.

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

ORDER

Petitioner, the Village of Wheeling, is granted a variance from Rule 304(C)(1) of Chapter 6: Public Water Supplies, subject to the following conditions:

1. This variance will expire January 1, 1983; provided, however, that in the event that Petitioner's Lake Michigan water allocation is denied or in the event it fails to promptly enter into an enforceable agreement to join a regional public water system after receipt of an allocation, then this variance will expire.

2. Petitioner shall, in consultation with the Agency, continue its sampling program to determine as accurately as possible the level of radiation provided to its customers.
3. Petitioner shall continue its efforts to receive a Lake Michigan water allocation and keep the Agency periodically informed as to the progress of that activity. Petitioner shall explore the possibilities of treating its shallow wells in order to remove the iron and hydrogen sulfide which now makes them objectionable as water sources and shall also investigate the possibility of developing other water sources to be used to supplement its present well sources should it be required to meet the present requirements of alpha radiation or radium 226 and 228 in its water supply.
4. Petitioner shall use well 7 only in a backup capacity to its existing three deep wells when they are not able to provide for daily demand.
5. Petitioner shall explore the availability of landfill sites that can and will accept radiation bearing water softening wastes should blending of additional water sources not prove to be a feasible alternative and lime softening is found to be necessary as a treatment technique.
6. Petitioner shall provide notice of this variance to its customers in writing at least every three months.
7. Within forty-five days of the date of this Order, Petitioner shall execute and forward to the Illinois Environmental Protection Agency, Division of Public Water Supplies, 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 the Certificate shall be as follows:

CERTIFICATION

I, (We), _____, having read and fully understanding the Order in PCB 80-59, hereby accept that Order and agree to be bound by all of its terms and conditions.

SIGNED _____

TITLE _____

DATE _____

IT IS SO ORDERED.

Mr. Dumelle concurs.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order were adopted on the 10th day of July, 1980 by a vote of 5-0.

Christan L. Moffett
Christan L. Moffett, Clerk
Illinois Pollution Control Board