ILLINOIS POLLUTION CONTROL BOARD
February 19, 1987

CITY OF ELMHURST,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 86-157
	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

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

This matter comes before the Board on the petition for variance filed on September 26, 1986 as amended November 24 by the City of Elmhurst (City). The City seeks a five year variance from 35 Ill. Adm. Code 602.105 (a) "Standards For Issuance" and 602.106(a) "Restricted Status" to the extent those rules relate to the exceedance by the City's public water supply of the 5 pCi/l combined radium-226 and radium-228 standard of 35 Ill. Adm. Code 604.301(a). On December 29, 1986 the Illinois Environmental Protection Agency (Agency) filed a Recommendation in support of grant of variance subject to conditions. Hearing was waived and none has been held. This matter is being given expedited consideration pursuant to the City's motion of February 4, 1987.

The City of Elmhurst, located in DuPage County, estimates that it supplies drinking water to 13,800 residential, industrial and utility customers representing approximately 44,200 people and 1,273 industries and businesses employing approximately 20,000 people (based on 1985 figures). The City draws water from the following wells.

WELL	DEPTH	CAPACITY	COMBINED RADIUM CONTENT
3	1478 feet	1370 gpm, 1.972 mgd	8.9 pCi/l
4	1388 feet	1019 gpm, 1.467 mgd	7.8 pCi/l
5	1454 feet	935 gpm, 1.346 mgd	6.9 pCi/l
6	1471 feet	1032 gpm, 1.486 mgd	9.7 pCi/l
7	290 feet	465 gpm, 0.669 mgd	4.0 pCi/l
8	210 feet	763 gpm, 1.100 mgd	3.5 pCi/l
9	1479 feet	1215 gpm, 1.749 mgd	8.7 pCi/l
10	1570 feet	810 gpm, 1.166 mgd	9.5 pCi/l

Well No. 8 is used on a standby basis only, due to its high iron content (2.8 mg/l).

The City was first advised of the high radium content in its water supply in September, 1984. The Agency reported that analysis of the composite of four consecutive quarterly samples from the City's distribution system indicated that the radium-226 content was 3.7 pCi/l and the radium-228 content was 4.2 pCi/l. (The City advises that this 7.9 pCi/l reading was obtained at a time when Well No. 8 was not being operated, and that if its pumping capacity were to be included the reading would be 7.4 pCi/l.) By letter of October 4, 1986, the Agency advised the City that it was being placed on restricted status, with the result that no permits for water main extensions can be issued.

The City has been a member of the DuPage Water Commission (Commission) since its inception in 1980-81, with the goal of replacing its well water supply with Lake Michigan water. The Commission is in the final stages of negotiating a water purchases and sale contract which provides for construction of a county-wide transmission and distribution system costing in excess of $350,000,000. Delivery of Lake Michigan water is expected to begin in 1991, at which time the City intends to abandon most of its deep wells, and to use the balance of the deep wells as well as the shallow wells only in extreme emergencies, such as severe interruption of lake water supplies or firefighting requirements. The City estimates that the costs it will incur pursuant to contract with the Commission will be $16,000,000 over a 19-year period.

In order to bring its water system into compliance prior to its receipt of Lake Michigan water, the City would be required to finance and construct multi-million dollar improvements to its existing system which would be abandoned once transmission of Lake Michigan Water begins.

The City asserts that compliance through blending is not feasible. The City's two shallow wells are the only wells whose radium content complies with the standard. Well No. 7, which has a 4.0 pCi/l radium content, produces little more than 7% of the average annual pumpage. If one includes the pumping capacity of the high iron Well No. 8, which has a 3.5 pCi/l radium content, the shallow wells are able to provide 16% of the City's water needs.

The City's six wells have an average radium content of 8.58 pCi/l, and account for 93% or 84% of the City's water, depending on whether Well No. 8 is included. With such a substantially high percentage of the system's water having an average combined radium level of 8.58 pCi/l and a small percentage having levels of 3.5 pCi/l, the City asserts that it is not possible to achieve compliance by blending water from existing wells. As to possible new shallow water sources to be used in blending, based on the City's last attempts to drill test holes and an opinion offered by the State Water Survey, it is the City's belief that there is

little likelihood of locating an aquifer which would yield water of sufficient quantity and quality to be used for blending.

However, even assuming that additional water sources could be located, the nature of the existing system is such that blending could be performed only after major system modifications. The City's existing water supply distribution system has no central treatment plant. The distribution system is capable of transmitting the water from one deep well and shallow Wells No. 7 and No. 8 to existing water storage reservoirs for blending. However, four of the City's deep wells discharge directly to the distribution system. These wells represent 61% of the average annual pumpage of the system. Installation of transmission mains to divert these flows to a central point or points would cost approximately $3.6 million.

The City therefore asserts that there is only one method by which it could achieve compliance. This would be by installation of treatment facilities which would employ either the lime softening or ion exchange method of water softening. Use of either of these methods concentrates radium in the sludge, causing waste disposal and handling difficulties; the ion exchange method also concentrates sodium in the finished water, which can pose health risks to persons with hypertension or heart problems.

Because it has no central treatment plant, the City believes it would be necessary to construct three separate treatment plants, at a total capital cost in excess of $6.7 million. This would amount to a per capita cost of $154, based on a population of 44,200. The anticipated increase in water bills for the average residential customer would be $60 per month for ten years to finance the capital cost, and $3 per month for as long as the system operates to cover increased operating, maintenance, and sludge disposal costs. The City notes that in assessing the reasonability of these costs that, assuming an 18 month construction period, that the softening systems will be operated for about three years only, so that the cost per year is over $2 million. The City also notes that this $6.71 million cost is additional to the $16 million incurred pursuant to contract with the Commission, as well as costs of retirement of approximately $5.4 million and $1.3 million outstanding general obligation and revenue bonds.

Particularly given its long term and substantial monetary commitment to obtaining Lake Michigan water, the City believes that to require immediate compliance would impose an arbitrary or unreasonable hardship. It also notes that by virtue of its inability to receive permits for water main extensions, that development has been forestalled which would generate revenue to assist in financing the Lake Michigan water project. The City

currently foresees the need to extend water mains to service the following new users:

1. "Public Storage Subdivision to be located on County Line Road in Elmhurst, Illinois, consisting of a 6-acre development for an 800 unit storage facility with an estimated construction cost of $1.8 million. It is estimated that this development will employ 2 persons and serve 800 customers. There would be 1 service connection. As part of this project, the developer will be required to install a 1,200 foot, 12 inch main extension to provide service to the facility as well as to connect this extension to an existing main, thereby providing a loop. This loop will provide better quality water to this project and other users, provide for increased fire flow and make water service available to other potential users.

2. Butterfield Exchange to be located at 384 Butterfield Road, Elmhurst, Illinois consisting of a 16-acre office/research project of 480,000 square feet with an estimated construction cost of $25 million. It is estimated that businesses locating in this development will employ nearly 2,000 people. There would be one service connection; however, the developer will be required to install a water main extension to provide a loop, improving water quality and providing for increased fire flow and thus more effective fire protection.

3. On the City's northeast boundary, and adjacent to the Public Storage Subdivision project noted in paragraph 1 above, lies a vacant 30-acre tract known as Maywood Sportsman Park. The extension of the water main contemplated as part of the Public Storage Subdivision project would make water service available to this site, the likely zoning of which is office/industrial. It is unknown at present how many service connections and how much employment development of this parcel would generate. Without the availability of water service it is unlikely this parcel will develop as no other water source is available to the City's knowledge.

4. Within the City's boundaries in its northeast quadrant, exists a 20-acre vacant tract which is expected to develop in the next five years. This tract has 12-acres of buildable area, all of which is zoned office/industrial. The extension of the water main contemplated as part of the Public

Storage Subdivision project would make water service available to this tract, encouraging its development. It is unknown at present how many service connections and how much employment development of this tract would generate. Agents for the owners of this property realize the importance of obtaining the variance requested in the Petition and have been in regular contact with the City as to the status of the variance request.

5. Parcels totalling 250 acres lie south of and adjacent to the City's boundaries. That part of this area with frontage on Roosevelt Road (Ill. Route 38) is suitable for office or multiple family use. Approximately 5,300 feet of water main would be required to provide water service to this area. The number of service connections is unknown at this time. At least one major property owner in this area has expressed interest in annexation."

Finally, as to the environmental and health effects of its request, the City asserts that it believes that grant of variance will impose no significant health risk to persons who will receive water from the new service connections during the term of this variance before replacement of the well water by Lake Michigan water. In support of this belief, the City has referred to the Board to the testimony and exhibits presented by Dr. Richard E. Toohey, Ph.D and Dr. James Stebbings, Ph.D., both of Argonne National Laboratory, at the hearing held on July 30 and August 2, 1985 in R85-14, Proposed Amendments to Public Water Supply Regulations, 35 Ill. Adm. Code at 602.105 and 602.106.

In its Recommendation, the Agency does not dispute the City's various assertions. The Agency believes that while radiation at any level create some risk, the risk associated with the 7.9 pCi/l level in petitioner's water is low. The Agency further states:

"The Agency believes that the hardship resulting from denial of the recommended variance from the effect of being on Restricted Status would outweigh the injury of the public from grant of that variance. In light of the cost to the Petitioner of treatment of its current water supply, the likelihood of no significant injury to the public from continuation of the present level of the contaminant in question in the Petitioner's water for the limited time period of the variance, and the likelihood of compliance with the [combined radium] standard due to obtaining Lake Michigan water, the Agency concludes that denial of a variance from the effects of Restricted Status

would impose an arbitrary or unreasonable hardship upon Petitioner.

The Agency observes that this grant of variance from restricted status should affect only those users who consume water drawn from any newly extended water lines. This variance should not affect the status of the rest of Petitioner's population drawing water from existing water lines, except insofar as the variance by its conditions may hasten compliance. Grant of variance may also, in the interim, lessen exposure for that portion of the population which will be consuming more effectively blended water. In so saying, the Agency emphasizes that it continues to place a high priority on compliance with the radium standards."

For these reasons, the Agency recommends grant of a five year variance, subject to conditions.

The Board finds that, in light of all the facts and circumstances of this case, denial of variance would impose an arbitrary or unreasonable hardship. The Board agrees with the Agency that no significant health risk will be incurred by the persons who are served by any new water main extensions during the limited time before the deep well water is replaced by Lake Michigan water. The Board will accordingly grant a five year variance, subject to conditions similar to those outlined by the Agency.

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

ORDER

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

   A) This variance expires on February 5, 1992 or at such earlier time as the City receives transmission of Lake Michigan water and ceases regular use of its existing well water supply system;

   B) Petitioner shall continue in efforts to obtain Lake Michigan water through the DuPage Water Commission;

   C) Petitioner shall report to the Agency 2 years prior to the expiration of this variance as to the status of

obtaining Lake Michigan water before this variance expires. If it reasonably appears that Petitioner will not obtain Lake Michigan water prior to said expiration, Petitioner shall apply to IEPA for all necessary permits for the construction of treatment facilities at that time and shall install said facilities and have them operational prior to said expiration;

D) In consultation with the Agency, Petitioner shall continue its sampling program to determine as accurately as possible the level of radioactivity in its wells and finished water. Until this variance expires, Petitioner shall collect quarterly samples of its water from its distribution system, shall composite and shall analyze them annually by a laboratory certified by the State of Illinois for radiological analysis so as to determine the concentration of radium-226 and radium-228. The results of the analyses shall be reported to the Water Quality Unit, Division of Public Water Supplies, 2200 Churchill Road, IEPA, Springfield, Illinois 62706, within 30 days of receipt of each analysis. At the option of Petitioner, the quarterly samples may be analyzed when collected. The running average of the most recent four quarterly sample results shall be reported to the above address within 30 days of receipt of the most recent quarterly sample;

E) Compliance shall be achieved with the maximum allowable concentration in question no later than five years from grant of this variance;

F) Pursuant to 35 Ill. Adm. Code 606.201, in its first set of water bills or within three months after the date of this Order, whichever occurs first, and every three months thereafter, Petitioner will send to each user of its public water supply a written notice to the effect that Petitioner is not in compliance with the combined radium-226, radium-228 standard, and that Petitioner has been granted by the Pollution Control Board a variance from 35 Ill. Adm. Code 602.105(a) Standards of Issuance and 35 Ill. Adm. Code 602.106(b) Restricted Status, as it relates to the combined radium standard. The notice shall state the average combined radium in samples taken since that the last notice period during which samples were taken;

G) That Petitioner shall take all reasonable measures with its existing equipment to minimize the level of radium in its finished water;

H) The Petitioner shall provide written progress reports to IEPA, DPWS, FOS every six months concerning steps taken

to comply with paragraph B and G. Progress reports shall quote each of the above paragraphs and immediately below each paragraph state what steps have been taken to comply with each paragraph.

2. Within forty-five days of the date of this Order, Petitioner shall execute and forward to Wayne L. 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.

I, (We), _____, having read the Order of the Illinois Pollution Control Board in PCB 86-157, dated February 19, 1987, 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.

J. D. Dumelle and B. Forcade dissented.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 19th day of February, 1987 by a vote of 4-2.

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