ILLINOIS POLLUTION CONTROL BOARD
January 25, 1990

DIANE MARIE BARRY,	)	
	)	
Complainant,	)	
	)	
v.	)	PCB 89-29
	)	(Enforcement)
VILLAGE OF FOX RIVER GROVE,	)	
	)	
Respondent.	)	

MS. DIANE MARIE BARRY APPEARED, PRO SE.

MR. PETER ROSENTHAL, OF ROSENTHAL, MURPHEY, COBLENTZ & JANEGA, APPEARED FOR RESPONDENT.

OPINION AND ORDER OF THE BOARD (by B. Forcade):

This matter comes to the Board on a complaint filed January 18, 1989, by Diane Marie Barry ("Ms. Barry") against the Village of Fox River Grove ("Fox River Grove" or "the Village"). That complaint asserts that the Village is providing drinking water that is pink in color, that the pink color is caused by excessive levels of potassium permanganate, and that such excessive levels violate Section 18 of Title 4 of the Environmental Protection Act ("the Act"). A hearing was held on April 27, 1989. No briefing schedule was requested, and no briefs were filed.

Title IV of the Act governs public water supplies for the purpose of protecting public health and all beneficial purposes. As part of the implementation of that goal, Section 18(a) of the Act provides:

> Owners and official custodians of public water supplies shall direct and maintain the continuous operation and maintenance of water-supply facilities so that water shall be assuredly safe in quality, clean, adequate in quantity, and of satisfactory mineral character for ordinary domestic consumption.

At hearing, the testimony by Complainant's witnesses focused primarily on the color of the water provided in the public water supply. The color of the water was variously described as pink (R. 4,6,7,14,19), slight pink to fuchsia pink (R. 4), almost violet (R. 7), light pink (R. 8), the pink was very, very dark (R. 10), and fuchsia pink to very dark (R. 15-16). The Village does not dispute that at times the water has been pink in color. (R. 6).

The pink water was first noticed in 1987. (R. 8). It continued through 1988 and on until March 17, 1989. (R. 12, 14, 15, 16, 21, 24-25, 30). The water would not be pink at all times. It would be pink for a while and then the color would disappear. (R. 11). The number of times that pink water would appear varied from one time to seven times per month. (R. 11, 24-25).

The pink color in the drinking water in the Village of Fox River Grove comes from the chemical potassium permanganate which is added during the water treatment process to remove some contaminants. Fox River Grove has two wells, one set at 140 feet, one set at 120 feet. These wells contain iron and manganese which is removed by treatment and filtration in the four green sand filters; green sand is also called zeolite. It functions much like the zeolite that is found in the household water softeners. The potassium permanganate which is added to the water prior to filtration is a fairly strong oxidant. It helps remove from the water undesirable levels of such things as taste and odors, iron, and manganese. The potassium permanganate oxidizes the iron and manganese, changes them from the soluble state into an insoluble form, which allows them to be removed by the filters in the system. (R. 34-36, 45-47, 60).

The potassium permanganate comes in a 110 pound drum of dry powder. The material is mixed in a 45 gallon solution tank. The solution tank is mixed to a 2.6 per cent solution. This solution is transferred at a slow rate by a chemical feed pump into the water main before the filters. It takes approximately 15 days to pump the 45 gallons of solution into the water main, and then the process is repeated. (R. 34-37).

Fox River Grove pumps about three gallons from the solution tank into the water mains each day, which is added to the normal daily pumping volume of about 400,000 gallons. This results in a potassium permanganate concentration of about 0.2 mg/l prior to the filters. The level where color starts to appear is about 0.1 mg/l. (R. 48-54). As explained by the Village's consulting engineer, the color should be removed in the filters:

> What's going into the water supply is what remains after it goes through the filters. If the filters were in a depleted condition, in other words not all of the active sites were at capacity with manganese oxide, all of the potassium permanganate would be used up by the filters and by the iron oxidation process, and there would be no potassium permanganate getting into the water system. The potassium permanganate only goes up to the water system if there is more potassium permanganate tha[n] is needed for oxidizing the iron and manganese and if the filter is saturated with it. (R. 50 - 51).

It is the breakthrough of excess potassium permanganate from the backside of the filters into the public distribution system which causes the pink water about which the witnesses complain.

With one exception, the sole complaint about the drinking water was its color. No one complained about the taste or odor of the water. In fact, the complainant admits that the water tastes perfectly normal. (R. 16). No one has complained of illness from drinking the water, and the witnesses specifically refute illness as a result of consumption. (R. 13, 28). It is undisputed that potassium permanganate is not a carcinogen (R. 45), and that the level where acute effects (such as brown stains in the mouth and diarrhea) first appear is around 250 mg/l (R. 49), three orders of magnitude higher than the levels added to the water. Lower levels would be expected to be found in the distribution system under normal operations. Based on the Village consulting engineer's best knowledge, the levels present in the distribution system are below the level of concern for chronic consumption. (R. 53-54, 57-58). The lack of health effects at levels presently under consideration was supported by testimony of a representative of the Illinois Environmental Protection Agency. (R. 73).

The one possible connection between the "pink water" and health effects was raised by Ms. Barry in regards to her three and one-half year old son. For clarity, the entire transcript on this point will be reproduced here:

> [Question by the Hearing Officer]: Is there anything else you want to tell us?
>
> [Answer by Ms. Barry]: I guess for the whole of last year my son, when I would give him a bath, would get like raised pimples all over his rear end and his legs, and now that [the pink water] is gone, it does not appear.
>
> Q. How old is your son ?
>
> A. He is now three and a half. And I don't know that that is - - it may be coincidence. But it is not there any longer.
>
> Q. When would this rash or pimples appear ?
>
> A. It would appear right after he got in the bathtub, and then it would leave within a matter of about an hour after he was out of the tub. (R. 16 - 17).

Ms. Barry was subsequently questioned on this point by Mr. Rosenthal, the attorney for the Village:

[Question by Mr. Rosenthal]: In terms of the pimple that you noticed on your son, does your son have any allergies ?

[Answer by Ms. Barry]: Not to my knowledge, no.

Q. Did you ever take him to a doctor for examination ?

A. I did take him to the doctor for examination and was given a cream to put on it. They have no idea, of course what did it. It would get quite raised and red.

Q. You don't have any idea as to what actually caused it ?

A. No.

Q. And you don't know whether it was potassium permanganate or not ?

A. No, sir. All I know is he doesn't have any more since pretty much the beginning of the year, when this stopped.

Q. But this was also after you started putting cream on it?

A. No, the cream did not work. (R. 27-28).

Some additional information was provided by the Village's consulting engineer when asked if potassium permanganate is a skin irritant, "In the material [safety] data sheets they list that dilute solutions can be mildly irritating but they don't define what dilute means. In other words is it 2.6 percent solution dilute or is it the level that we are talking about dilute. There is no information provided on that." (R. 54).

Based on the totality of the circumstances, the Board finds that a causal connection between the potassium permanganate levels in the drinking water supply and the skin irritation described in the testimony has not been established in this record. The tenuous nature of the testimony supporting such connection, the multiplicity of other possible causes for the problem, and the significant amount of testimony asserting no adverse health effects at levels presently under consideration force the Board to conclude that the causal connection has not been shown here to be more likely true than not.

Of particular importance in this proceeding are the undisputed facts that potassium permanganate is added for purposes of water treatment only, and that it is not good water

treatment practice to have that material break through the filters to the distribution system. The Board has regulations governing such practices at 35 Ill. Adm. Code 604.201 (b):

> Substances used in treatment should not remain in the water in concentrations greater than required by good practice. Substances which may have a deleterious physiological effect, or for which the physiological effects are not known, shall not be used in a manner that would permit them to reach the consumer.

Here, the Village's consulting Engineer states that good practice would remove the permanganate in the filters (R. 52 & 58), the Illinois Environmental Protection Agency representative stated that allowing the permanganate color to remain was definitely not good practice (R. 67 & 69), and the plant operator tacitly agreed that better practices were needed to control the permanganate color (R. 38-40). No one remotely asserted that allowing the permanganate color to remain could result from good practices.

The Board must conclude that the Village used potassium permanganate in the treatment of water and that it remained in the water in concentrations greater than required by good practices, in violation of 35 Ill. Adm. Code 604.201 (b) during the time frames considered in this proceeding.

Section 33 (c)

In making its orders and determinations in enforcement proceedings the Board must consider six factors listed in Section 33 (c) of the Act. Those factors are:

> c. In making its orders and determinations, the Board shall take into consideration all the facts and circumstances bearing upon the reasonableness of the emissions, discharges, or deposits involved including, but not limited to:
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> 1. the character and degree of injury to, or interference with the protection of the health, general welfare and physical property of the people;
>
> 2. the social and economic value of the pollution source;
>
> 3. the suitability or unsuitability of the pollution source to the area in which it is located, including the question of priority of location in the area involved;

4. the technical practicability and economic reasonableness of reducing or eliminating the emissions, discharges or deposits resulting from such pollution source;

5. any economic benefits accrued by a non-complying pollution source because of its delay in compliance with pollution control requirements; and

6. any subsequent compliance.

The violations have ceased and the Village presently appears to be in compliance. For that reason, and considering the nature of the Board's Order today, the discussion of the Section 33 (c) factors need not be too extensive. The Board finds that the character and degree of injury was slight and that the source is of substantial social and economic value. The Board finds that the water supply is not only suitable, but is essential to the area in which it is located. The Board finds that it is technically practical and economically reasonable to achieve compliance and that the Village has not accrued economic benefit from delayed compliance. The Board finds that the Village is presently in compliance.

Based on the record the Board believes that the best remedy at this time is to Order the Village to cease and desist from future violations of Section 604.201(b) and to require the Village, for a period of one year from the date of this Order, to conduct a daily visual inspection of the water after leaving the filters. The color of the water should be observed and recorded (to determine whether the water is pink and therefore has excessive potassium permanganate) and the results of such inspection tabulated monthly. Such monthly reports of the tabulated values shall be available for public inspection at the Village Hall, and one copy of the tabulation shall be sent to the complainant and to the Illinois Environmental Protection Agency each month.

Because the Board has determined that the Village violated Section 604.201 (b), the Board need not address whether the facts involved here constitute a violation of Section 18(a) of the Act.

This Opinion constitutes the Board's findings of fact and conclusions of law in this matter. This is a Final Order issued and entered by the Board, and, pursuant to Section 33(d) and 42 of the Act, it is enforceable by injunction mandamus or other appropriate remedy in a court of competent jurisdiction.

ORDER

The Village of Fox River Grove violated 35 Ill. Adm. Code 604.201 (b) from time to time between 1988 and March 17, 1989.

The Village shall cease and desist from future violations of 35 Ill. Adm. Code 604.201(b).

The Village of Fox River Grove is hereby Ordered to conduct a daily visual inspection for a period of one year of the color of its public water after the point where it leaves the filters. The visual color of the water shall be recorded as to whether it indicates the presence of potassium permanganate. The results of such daily inspections shall be tabulated monthly into a report which shall be available for public inspection at the Village Hall. A copy of each monthly report shall be mailed promptly to the complainant in this case and to the Illinois Environmental Protection Agency.

Section 41 of the Environmental Protection Act, Ill. Rev. Stat. 1987, ch. 111½, par. 1041, provides for appeal of final Orders of the Board within 35 days. The Rules of the Supreme Court of Illinois establish filing requirements.

IT IS SO ORDERED

Board Member J. Theodore Meyer concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 25th day of January, 1990, by a vote of 7-0.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board