ILLINOIS POLLUTION CONTROL BOARD January 22, 1981

VILLAGE OF HANNA CITY,) Petitioner,) v.) PCB 80-206 ILLINOIS ENVIRONMENTAL) PROTECTION AGENCY,) Respondent.)

CONCURRING OPINION (by D. Satchell):

My reason for concurring in this case is that the variance for gross alpha particle activity was denied as being unproven, based on evidence before the Board.

I would have granted the variance particularly to inform the residents (Rule 313 D 1) that their water supply may contain more radioactivity than is deemed in the Board's Public Water Supply Rules to constitute an acceptable risk level.

In support of this action, I would offer the following:

- Radioactivity is a "no threshold" contaminant, i.e., any level presents some risk;
- 2. The record provides four values (pCi/l) for radioactivity:
 - a. 24.7 (petition)
 - b. 44.8 for Well #1
 - c. 36.2 and 49.5 for Well #2 (Rec. Att. B-1);
- 3. Examination of the record concerning the accuracy problem (<u>City of Minonk</u>, PCB 80-136) reveals involvement of radiochemical composition, storage time period from drying to assay, and fluctuations in barometric pressure during storage time. These factors lead me to believe the accuracy problem is most probably caused by the formation and adsorption of radon, a gaseous element produced by radioactive decay of radium. Since Rule 304 C 1(b) excludes radon and uranium activity from gross alpha emissions, the reported results might well be too high. It was stated that the theoretical overestimation can be up to four times the proper amount.

- 4. Assuming that the high results given include the maximum error of four times, it then follows that the alpha activity is primarily the result of a high radium content. Because of radium's high relative biological effectiveness (RBE) Rule 304 C 1(a) states that activity caused by radium -266 and radium -228 shall not exceed 5 pCi/1; and
- 5. Rule 309 C 1(a)(1) states that monitoring requirements for radium -226 and radium -228 may be provided by gross alpha particle activity if such activity does not exceed 5 pCi/l at confidence of ninety-five percent.

Respectfully submitted,

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Concurring Opinion was filed on the 24^{+} day of 34^{-} und 34^{-} , 1981.

Christan Clerk L. ffdtæ MO

Illinois Pollution Control Board