

ILLINOIS POLLUTION CONTROL BOARD
February 26, 1976

METROPOLITAN SANITARY DISTRICT OF)
GREATER CHICAGO, a municipal)
Corporation,)
 Petitioner,)
 v.) PCB 75-338
))
THE ENVIRONMENTAL PROTECTION)
AGENCY,)
 Respondent.)

- and -

FULTON COUNTY CITIZENS FOR)
BETTER HEALTH AND ENVIRONMENT,)
a not-for-profit Corporation,)
 Intervenor.)

OPINION AND ORDER OF THE BOARD (by Mr. Goodman):

This matter comes before the Pollution Control Board (Board) upon the August 27, 1975, Permit Appeal of the Metropolitan Sanitary District of Greater Chicago (MSD). On September 29, 1975, Fulton County Citizens for Better Health and Environment (Citizens) was permitted to intervene. Fourteen days of hearings were held in Fulton County.

On August 14, 1975, the Environmental Protection Agency (Agency) issued three permits to MSD. Permit number 1975-SA-753-COP-1 was issued to allow sludge and supernatant application to the former Gale and Henderson Farms. Permit number 1975-SA-754-COP-1 was issued to allow reclamation sludge incorporation on the United Electric Property. Permit number 1975-SA-755-COP-1 was issued to allow construction of a sludge distribution system for the United Electric, Gale and Henderson Properties. All of the property is located within Fulton County, Illinois. Permits 753 and 754 contain special conditions to which MSD objects. In permit 753, MSD objects to special conditions 2, 7 and 11. MSD objects to special condition 11 in permit 754 which is identical to special condition 11 in permit 753. The subject conditions state:

SPECIAL CONDITION #2: The application rate of sludge and supernatant shall not exceed a rate necessary to apply a

maximum of 120 pounds of available nitrogen per acre during the duration of this permit. This may involve a combination of sludge and supernatant; however, if considered separately, application should be limited to 30,000 gallons of sludge at 4.1 percent solids or 117,000 gallons of supernatant at 0.1 percent solids.

The permittee shall submit schematic piping diagrams and equipment specifications for any specialized supernatant pumping equipment prior to construction of said equipment.

SPECIAL CONDITION #7: The permittee shall manage the cropping of the hay in such a manner that three crops or more are harvested during the one year of operation.

SPECIAL CONDITION #11: The quantity of sludge/supernatant in the storage basins shall not exceed 4.80 million wet tons by the expiration date of this permit. The permittee shall report monthly to the Agency the total quantity of sludge/supernatant in storage at the site.

SPECIAL CONDITION #11

The Board will consider special condition #11 first. This condition limits the amount of sludge/supernatant which MSD may retain in its storage basins. These basins are located on property contiguous to the properties which are the subject of the permit. Although there was some confusion on the part of the Agency's witnesses, the purpose of the condition was twofold: 1) to control potential odor and 2) to insure that MSD realized that the issuance of these permits did not constitute a permit to ship or store sludge. (R 159, 179, 182, 383.4, 576, 1402-3, 1453, 1510, 1953-4, 1967, 2070, 2236, and 2253). The assumptions that formed the basis for special condition 11 were:

- 1) No more sludge would be brought from Chicago;
- 2) No unpermitted activities would occur;
- 3) No supernatant would be returned to Chicago;
- 4) No sludge would be applied to stages 1-7 and 9; and
- 5) The capabilities of MSD to apply sludge were the same as reported by MSD (R 204, 264).

Based upon the above assumptions, the Agency arrived at the numerical figure in #11 by reducing the volume of sludge in the basins by the amount to be applied (R 276). Jim Frank, Agency Agriculture Advisor, testified that the application rate and method approved by the Agency would result in a small amount of odor but would not present an unreasonable interference with the enjoyment of life or property (R. 524).

It is the Opinion of the Board that the Agency's imposition of special condition #11 is unreasonable when reviewed within the scope of the instant permits. The Agency feels that this condition does not limit the shipment of sludge to Fulton County in and of itself (R 1354). However, the Agency admits it has no knowledge of any method by which MSD could take sludge straight from the barges to the Gale and United Electric Properties (R 2603). It would seem that if MSD could not add any sludge to the basins, then it is effectively forestalled from shipping sludge to Fulton County as there is no means to use any sludge so shipped. The Board takes notice of the fact that MSD's Comprehensive Permit is currently under appeal and that there is currently an enforcement action concerning odor violations pending before the Board. Special condition #11 prejudices these actions. If MSD were to prevail in both of those actions, it would still be unable to ship more sludge to Fulton County due to special condition #11. When this is considered together with the fact that the basins are not located on any of the property to which permits 753, 754 and 755 apply, the Board must conclude that this condition is unreasonable and more properly belongs in the Comprehensive Permit. It would seem that special condition #10 in permit 754 (which states:

SPECIAL CONDITION #10: This permit shall not be construed or interpreted as permitting or condoning the shipment to or storage of sludge or supernatant in Fulton County by MSDGC except as permitted by the Illinois Environmental Protection Agency.)

would be sufficient to fulfill the Agency's purpose of informing MSD that these permits do not constitute permits to ship or store sludge. As far as the odor potential from the new application of sludge to these properties, the Agency's expert states that this would not result in a 9(A) violation if applied in the quantity and methods approved (R 524). Therefore, the Board will strike special condition #11 from permits 753 and 754.

SPECIAL CONDITION #2

MSD objects to the 120 pound/acre of available nitrogen limitation found in special condition #2. This limitation is the equivalent to approximately four inches of sludge per acre per year. MSD suggests that 20 dry tons or 12 inches per acre per year is the reasonable agronomic loading rate. This is four times the amount found by the Agency to be reasonable (R 459-60, 462). Jim Frank calculated that the agronomic loading rate for alfalfa and smooth brome grass would be 120 lb. of available nitrogen per acre per year. He took into consideration three environmental factors: (1) ground water pollution from nitrates; (2) surface water pollution from polluted rain water or snow melt; (3) odor potential (R 2294-5). Frank interprets agronomic rate as the amount of nutrient or nitrogen that must be applied to grow a good crop on the soil from a nitrogen need stand point. This would include natural nitrogen loss such as volatilization, leaching and surface run-off. Presuming that MSD would be maintaining a smooth brome alfalfa mixture, the Agency determined that 33 lbs of available nitrogen was needed per ton of hay. According to the United States Department of Agriculture and Illinois Department of Agriculture Statistical Reporting Service and Annual Summary, the hay yield per acre in Fulton County was 2.3 tons in 1974 and 2.82 tons in 1973. Therefore, Frank settled on a 3 ton per acre figure. This was multiplied by the 33 pounds per ton and results in a 99 lb/acre application rate. This was increased to 120 lb. (2296-8). These permits deleted the requirement that MSD erect dikes and berms on the Gale and United Electric properties, which will save MSD approximately \$5,000,000 (R 1430). However, without berms and dikes, as you increase application above agronomic rates, you increase the likelihood of water pollution from the unretained run-off (R 518).

MSD rebuts these calculations through Dr. Lue-Hing's letter to the Agency (Agency Ex. 3) which presumes a 6 ton per acre yield. The loading rate suggested by Dr. Lue-Hing is based upon a reclamation program which would eventually build up the organic matter in the soil to 3-5% (R 709-10). The studies on which MSD's suggested loading rates are based were not designed to determine an agronomic nitrate rate for cultivation of smooth brome on the Gale property but rather to determine the maximum amount of nitrate you can apply to a given soil type without nitrate contamination of ground water. The MSD assumes that the Gale property has not received any general fertilizer and that there is 45 feet of soil material containing clay available to fix the ammonium ion to prevent leachate. The Agency contends that ammonium ion will probably not penetrate more than six inches (R 2303-6). MSD does not rebut, with direct testimony, the Agency's basis for the 120 lb. limitation. The Board finds this limitation to be reasonable and in the best environmental interest. Indeed, considering that alfalfa fixes its own nitrogen, the rate is generous. Therefore special condition #2 will be affirmed.

SPECIAL CONDITION #7

MSD objects to the requirement in special condition #7 which mandates a minimum of three cuttings per year. According to Jim Frank, special condition #7 was in part due to his observation that MSD employees had not known that the crop was past maturity (R 457). He settled on three cuttings because that was a normal or minimal number for a smooth brome crop in any given year with normal precipitation and normal management (R 518). MSD explained that its failure to cut the crop was due to its uncertainty as to whether it would be clearing, stripping and destroying the existing surface and rebuilding and recontouring it (R. 1223). Special condition #7 is supported by environmental factors, also. The Agency states that when a yield of hay is not removed and more sludge is applied to it, both the alfalfa and the sludge are contributing nitrogen to the soil. This can develop into a nitrogen sink where the nitrogen has no place to go other than surface run-off which will eventually reach the aquifer especially here, where the berm and dike requirements have been deleted (R 1430, 2310-11). In addition, nitrates formed may also enter the aquifer. Special condition #7 assumes that the hay will be harvested so as to produce a maximum yield, which is the basis for loading rate in special condition #2 (R 2311). If the hay is cut less than three times, it may be unpalatable and therefore unusable for cattle (R 2312). As MSD sells its crops, this would result in a loss of income to it (R 1185, 1467). In addition, MSD assumed that it would cut the crop three times per year (District Ex. 7, R. 519). Special conditions #2 and #7 are intermeshed both economically and environmentally. Having found special condition #2 to be reasonable, the Board also finds the three cutting requirement to be reasonable. The Board will affirm special condition #7.

The Board notes that these permits are of one year duration. MSD will have the opportunity to supply the Agency with additional information which may modify special conditions #2 and #7 in future permits.

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

ORDER

It is the Order of the Pollution Control Board that Special Condition #11 in permits 1975-SA-753-COP-1 and 1975-SA-754-COP-1 be and is, hereby, stricken from said permits. Special Conditions #2 and #7 in permit 1975-SA-753-COP-1 are affirmed.

IT IS SO ORDERED.

Mr. Young abstains.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 26th day of February, 1976 by a vote of 4-0.



Christan L. Moffett, Clerk
Illinois Pollution Control Board