

ILLINOIS POLLUTION CONTROL BOARD  
June 10, 1982

CITY OF CARLYLE, )  
 )  
 ) Petitioner, )  
 )  
 ) v. ) PCB 82-35  
 )  
 ) 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 by the City of Carlyle (City). The City seeks variance from the 15 mg/l total suspended solids (TSS) limitation of Rule 408(a) of Chapter 3: Water Pollution (which limitation has been incorporated into its NPDES permit) until August 1, 1985. On May 18, 1982 the Illinois Environmental Protection Agency (Agency) moved to file its Recommendation in support of variance instanter, which motion is hereby granted. Hearing was waived and none has been held.

The subject of this variance is the drinking water treatment plant (WTP) of the City of Carlyle, Clinton County. The WTP supplies the water needs of the City, the Village of Beckmeyer, and the Clinton County East and Carlyle Southwest Public Water Supply Districts as well as recreational and administrative facilities of the Illinois Department of Conservation and the U.S. Army Corps of Engineers. Raw water from the Kaskaskia River is treated with lime, alum, fluoride and chlorine. The lime and alum, in combination with the turbidity present in the raw water, produce a water treatment sludge which is discharged into the Kaskaskia River approximately one mile downstream from the Carlyle Lake Spillway. The WTP located on a reach of the River is heavily fished. The discharge contains TSS in violation of the Board's standard.

Discharge occurs from two distinct sources in the plant. One is filter backwash water ranging in volume from 4850 to 14,500 gallons, which is discharged either daily, or three out of every 5 days, depending on the turbidity of the raw water. The backwash TSS concentrations range from 60 to 780 mg/l, averaging 378 mg/l over the last three years. The other source of discharge is the settling tanks during cleaning, which generally occurs six times a year. The high TSS level has been reported as 11,000 mg/l, with a discharge volume of about 190,000 gallons.

Currently, effluent from these discharge sources is not being treated, due to lack of available land at the WTP site for treatment facilities. While in 1980 plans were made for construction of a new and expanded WTP at a different site, these plans were abandoned in 1981 by a new City administration for economic reasons.

In January, 1980 the Hoffman Rural Water District (Hoffman District) entered into a water purchase contract with the City for the purpose of servicing the Hoffman District's members, whose request for water service has been rejected by the City of Centralia because of that City's own water shortage. The Hoffman District has approximately 220 members who have water needs of approximately 45,000 gallons per day.

The Hoffman District currently has no common water supply, so its members rely on shallow dug or drilled wells, cisterns, ponds or lakes. As Clinton County is one of the state's dominant dairy producing counties, the Department of Public Health (IDPH) monitors the quality of water at the dairy farms in the Hoffman District's area. The total coliform and nitrate concentrations in the well water of 10 out of 13 wells in the District recently tested by IDPH were found to be unsatisfactory, which has resulted in the downgrading of the milk produced by these farms from Grade A status, "which disasterously reduces the ability to market the milk and [its] price".

The Farmers Home Administration has committed \$1,660,000 to finance construction of a central system for the Hoffman District, to allow the District to distribute water to be purchased pursuant to its January, 1980 contract with the City of Carlyle. However, in June, 1981 the Agency advised the Hoffman District that it would not issue a construction permit to the Hoffman District because of the City's sludge handling problems and resulting NPDES permit and Chapter 3 violations.

In its petition, the City asserts that its "present Mayor and City Council have a sincere desire to make the required improvements". The City had engaged engineering consultants Henry, Meisenheimer, & Gende, Inc. to recommend alternatives for upgrading its WTP and construction of a process wastewater treatment plant (PWTP). If variance is granted, the City would propose a two-phase improvement program, to be completed in about 3½ years. The first phase concerns the WTP, and would involve construction of a backwash holding lagoon with a 3 to 5 year capacity. The supernatant would be discharged to the Kaskaskia or piped back to the WTP, depending on the lagoon's location. Two sludge holding lagoons would also be constructed with a 3-5 year capacity, with the supernatant being discharged into the Kaskaskia. Lagoon construction would be estimated to be completed by June, 1983, at a cost of \$163,900. The second phase calls for construction of a new PWTP, anticipated to be completed by August, 1985 at a cost of \$194,000.

The reported alternatives to this plan would involve a) mechanical dewatering of sludge and reuse of backwash water, b) lagoon storage and drying of sludge and backwash water reuse, and c) lagoon storage and drying of both sludge and backwash. The City has rejected these alternatives, as it believes that mechanical dewatering of alum sludge has proven to be cost ineffective for small systems due to the high costs of equipment and power, and the chemical conditioning required to produce a stable sludge cake.

The City asserts that it cannot undertake the economic burden of commencing with both phases of the construction program simultaneously. It states that its citizens, a large percentage of whom are senior citizens, are already economically hard-pressed, and have recently experienced a 25% increase in electric rates. The City anticipates some bonding and other financial difficulties in financing the project as a whole, but believes that these can be "overcome with minimal economic impact, if given sufficient time for proper planning and financing" of the two-phase plan.

The City believes that continuation of its current discharges during a variance period will have minimal environmental impact, based on lack of fish kills and Department of Fisheries' calculation in 1977 that the fish population was average for the stream type. The Agency in its Recommendation notes that TSS has been reported by the Illinois Water System Information Group as being the most significant of all pollutants within the Kaskaskia River Basin. However, TSS discharges from point sources are reported to be quantitatively significant only at very low flows and in very local reaches.

The Agency recommends that variance be granted, given the asserted hardships to the City and the Hoffman District, particularly since the City has committed to a compliance plan. However, the Agency estimates that the City's sludge discharges increase the TSS load on the river by 1800 pounds during each of the 6 yearly discharge events (whereas backwash discharge increases it by 100 pounds during each of the discharge events which occur either daily or three out of every five days). It therefore recommends that variance be conditioned on the taking of steps to minimize the slug loads discharged from the sedimentation basin during the variance period.

The Board finds that denial of variance would impose an arbitrary or unreasonable hardship, as the City's proposed two-phase construction plan seems well designed to eliminate an environmental problem while minimizing the asserted economic hardships on both the Carlyle and Hoffman District communities. Variance is therefore granted until October 1, 1985 subject to conditions, to allow a slight cushion for start-up adjustments.

The Board feels that neither the petition nor the Agency's Recommendation sufficiently address the conditions under which sludge can be discharged into the Kaskaskia River to cause the least impact. This is of concern particularly since the City

has calculated the river's low flow to be 50 cfs (32.2 mgd) while the Agency calculates it to be 41 cfs (26.5 mgd), and since the Agency also questions the means by which the City arrived at its estimates of the river's dilution ratios. Therefore, the City will be ordered to develop, in consultation with the Agency, a written plan specifying the conditions under which it will discharge sludge.

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

#### ORDER

1. Petitioner, the City of Carlyle, is hereby granted a variance from the 15 mg/l TSS limitation of Rule 408(a) of Chapter 3: Water Pollution until October 1, 1985, subject to the following conditions:

a) Petitioner shall adhere to the compliance schedule as outlined in Paragraph 7(B) of the petition, which is incorporated herein as if fully set forth, and shall submit semi-annual reports to the Agency on its progress. Reports shall be submitted to:

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Compliance Assurance Section  
2200 Churchill Road  
Springfield, IL 62706

Reports shall be submitted on or before January 1 and July 1, with the first report to be submitted by January 1, 1983.

b) Petitioner shall develop, in consultation with the Agency, a written plan stating the conditions under which sedimentation basin sludge shall be discharged. This plan shall be submitted to the Agency at the above address within 60 days of the date of this Order.

c) Only filter backwash wastewater and sedimentation basin sludge shall be discharged.

d) If construction and operation of the wastewater treatment facilities within a 15 mg/l TSS limit is obtained prior to October 1, 1985, this variance shall expire at such earlier time.

2. Within forty-five days of the date of this Order, Petitioner shall execute and forward to the Illinois Environmental Protection Agency, Division of Water Pollution Control, Compliance Assurance Section, 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:

CERTIFICATE

I, (We), \_\_\_\_\_, having read the Order of the Illinois Pollution Control Board in PCB 82-35, dated \_\_\_\_\_, 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

3. The Agency shall modify Petitioner's NPDES permit consistent with the terms of this Order.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 10<sup>th</sup> day of June, 1982 by a vote of 5-0.

  
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Christan L. Moffett, Clerk  
Illinois Pollution Control Board