

ILLINOIS POLLUTION CONTROL BOARD  
August 22, 1991

ZEIGLER COAL COMPANY, )  
 )  
 Petitioner, )  
 ) PCB 91-12  
 v. ) (Variance)  
 )  
 ILLINOIS ENVIRONMENTAL )  
 PROTECTION AGENCY, )  
 )  
 Respondent. )

KEITH PELUCHETTE APPEARED ON BEHALF OF THE PETITIONER; and LISA ELIS MORENO APPEARED ON BEHALF OF THE RESPONDENT.

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

This matter is before the Board on petitioner's ("Ziegler") request for variance filed on January 22, 1991. Ziegler seeks a variance from 35 Ill. Adm. Code 406.203(c)(1)(A) for its NPDES discharge point as it relates to the company's mining operation in Randolph County. Hearing was held on July 10, 1991 and many local citizens in addition to representatives of the Randolph County Farm Bureau participated. In its variance recommendation of May 17, 1991 the Agency supported granting this petition contingent upon certain conditions.

FACTS

The petitioner owns and operates the Ziegler Spartan underground mine and adjacent Central Cleaning Plant, a coal preparation plant serving several mines, located near Sparta, Randolph County,, Illinois. The mine employs approximately 260 people and has an annual production of approximately 1,000,000 tons of clean subbituminous coal. The mine and preparation plant are covered by NPDES Permit #IL0055824, last issued on April 20, 1987. This permit covers outfall 001, the discharge from a lime slurry treatment system installed pursuant to IEPA v. Ziegler Coal Company, PCB 75-280 to treat acid mine runoff from the coarse refuse disposal area ("gob pile").

The area tributary to outfall 001 consists of acid runoff (average pH, 2.6) from both a 70.2-acre active refuse disposal area which drains into Mine Lake No. 1, which also functions as the treatment system collection basin and a 14.8 acre area which drains into Mine Lake No. 2. The drainage from Mine Lake No. 2 is pumped into Lake No. 1. Treatment consists of sodium hydroxide neutralization in a flash mixer to raise the pH of the drainage and to precipitate metals and assist settling in a two-cell sedimentation basin, before discharge via outfall 001 to Mary's River, which is tributary to the Mississippi River.

DISCUSSION

In its variance petition, Ziegler seeks relief from the 3,500 mg/l sulfate water quality limitations of 35 Ill. Adm. Code 406.203(c)(1)(A) for NPDES outfall 001 at its Spartan mine. Under the provisions of 35 Ill. Adm. Code 406.202, mine discharges are prohibited from causing violations of the sulfate water quality standard of 3500 mg/l established by 35 Ill. Adm. Code 302.208(e). Section 406.203 further sets out procedures whereby alternative water quality-based permit conditions may be established by the Illinois Environmental Protection Agency ("Agency") for mine-related discharges of sulfates. Under subsection (c), a discharger may be allowed an alternative standard upon the following demonstration:

1. the discharge will not cause an adverse effect on the environment in and around the receiving stream, by either demonstrating that the discharge will contain 3,500 mg/l or less sulfates (subsection (c)(1)(A)) or through performance of an actual stream study (subsection (c)(1)(B));
2. the discharge will not adversely affect any public water supply; and
3. good mining practices designed to minimize discharges of sulfates (or other relevant parameters) are being employed.

The problem which confronts Ziegler is directly related to its operations. In order to produce a clean product, the company must wash its coal. The refuse from this cleansing contains pyrite materials such as iron and manganese, and is stored in an area of ten acres referred to as a "gob pile". As these pyritic materials are exposed to oxygen, sulfuric acid is created. When rain falls on the gob pile, the sulfuric acid drains into a collection basin. Acidity is balanced by the sodium hydroxide and the metals are settled in holding ponds, but the sulfates remain in the water. Moreover, the amount of sulfuric acid which drains into Ziegler's collection basin is directly related to rainfall amounts. When rainfall is sporadic, the runoff produced by the gob pile is more concentrated because a longer period of oxidation has produced more sulfuric acid.

As a result, Ziegler has been unable to adhere to the 3,500 mg/l mandated by 35 Ill. Adm. Code 406.203(c)(1)(A). The chart below sets forth the sulfate discharges by Ziegler over the last two years.

<u>MONTH</u>	<u>AVERAGE FLOW/MGD</u>	<u>SULFATE mg/l (MAX)</u>
<u>1991</u>		
Feb	No Flow	4232
Jan	Not Reported	2957
<u>1990</u>		
Dec		

Nov	0.288	3555
Oct	0.495	3383
Sept	0.416	3295
Aug	Not Reported	4553
July	Not Reported	No Flow
June	No Flow	No Flow
May	0.960	4573
April	0.960	4241
March	No Flow	No Flow
Feb	0.960	3455
Jan	0.960	3444
<u>1989</u>		
Dec	No Flow	No Flow
Nov	0.960	3519
Oct	0.960	3368
Sept	0.969	3649
Aug	0.960	3786
July	No Flow	No Flow
June	0.960	3342
May	No Flow	No Flow
April	0.960	2846
March	0.960	2673
Feb	0.960	3390
Jan	0.960	3345

In order to resolve this situation, the company has proposed a stream study pursuant to Section 406.203(c)(1)(B) of the Code. Once this study is finalized, Ziegler would either have the terms of its NPDES permit altered or petition the Board for an adjusted standard. It is the company's position that a stream study is the best possible environmental and engineering alternative.

Ziegler has taken this position after a long history of sulfate problems. From 1980 until 1986, the company used lime in order to reduce its effluent discharge. While sometimes effective, this practice produced a great deal of sludge within the holding ponds, thereby creating a constant removal problem. In addition, the sulfate emissions were in excess of 3,500 mg/l. Consequently, the company constructed a flash mixer which consists of sodium hydroxide neutralization at a cost of approximately \$150,000. Although this process has served the company better than lime treatment, Ziegler has been unable to comply with the 3,500 mg/l standard in accordance with its NPDES permit. The one other option which the company has considered, but has determined to be infeasible, is water dilution from its fresh water lake. Ziegler has rejected this alternative because this reservoir remains its only fresh water source and is used for other needs.

The Agency agrees with Ziegler's analysis. Joyce Munie, a Permit Section Manager for the Agency in the Mine Pollution Control Program, testified that the Agency has been aware of the company's problems for a long period of time and it was the Agency that

initially recommended a stream study. Ms. Munie explained that the purpose of the stream study was to look at the biota of the waterway in addition to the downstream uses and ensure that the emissions from Ziegler's source will not impact negatively upon the naturally occurring organisms. Ms. Munie also pointed out that physical treatments such as distillation or reverse osmosis could reduce the company's sulfate emissions, but that the cost of these measures would effectively shut the company down.

In addition to the petitioner and the Agency, many citizens participated in the hearing. Mr. Steve Stallman, Mr. Fred Schupbach, Mr. Robert Robertson, Mr. Rudy Eggemeyer, Mr. Paul Robertson and Mr. Kenneth Baird all asked relevant questions and their participation aided the Board in assessing the instant case. In general, these citizens were concerned that the quality of the stream remain intact and not regress to the state it was in prior to the regulations which became effective in 1984. Some of these citizens have cattle who drink the water downstream and were concerned about the long-term effects of sulfate ingestion. Other concerns articulated were in the nature of untreated drainage ditches which flowed into the tributary, whether the study would be objective and whether a larger standard of permissible sulfate emissions would result in more pollution. (Tr. at 73-99).

Of particular concern to the Board is a question posed by Mr. Stallman; namely, why Ziegler's gob pile has to be so large? (Tr. at 82-83). For example, Larry Harp, Environmental Manager for Ziegler testified that to date, the company has covered at least 45 acres of gob. (Tr. at 33). The company places dirt over the pile and then seeds, thereby precluding runoff by preventing oxidation. Mr. Stallman wanted to know why Ziegler could not make smaller gob piles and cover them promptly and therefore prevent the problem at its source. The answer furnished by Mr. Harp was, at best, incomplete. As a result of this questioning, the Board is very interested in this aspect and will address it as one of the conditions to insure that the company is doing everything possible to limit the transformation of coal refuse into sulfuric acid.

#### HARDSHIP

Based on the testimony of the company coupled with that of the Agency, the Board finds that for Ziegler to immediately comply with the sulfate limitations of its NPDES permit constitutes an arbitrary or unreasonable hardship. The company has already used lime. Given the problems inherent with that practice, Ziegler constructed its current flash mixer at a cost of \$150,000. This too has failed to produce the desired effect. Moreover, the Agency testified that the physical treatments available to the company (distillation and reverse osmosis) would be so costly that it would shut operations down. Taken together, these factors clearly indicate an arbitrary or unreasonable hardship.

### ENVIRONMENTAL IMPACT

The environmental impact is largely unknown. Ziegler represents that, in the past, it has done informal studies which indicate that even when its sulfate emissions are above 3,500 mg/l, three hundred to four hundred feet downstream the sulfates were measured between 500 and 600 mg/l. It is the company's assertion that is the dilution which takes place in the stream renders the sulfates innocuous. The company therefore believes that a stream impact study will reveal no damage to the aquatic biota of the waterway. While the Board welcomes a study of the stream, we are not convinced of Ziegler's assertions. The Agency also expressed reservations about the company's claims. (Rec. at 3). As part of the conditions within this variance, we will mandate that the study include readings downstream where cattle are watered. Moreover, we will insist that there be readings taken before and after discharges are released from the holding ponds which exceed the 3,500 mg/l standard for sulfate.

### CONCLUSIONS

Based on the information before us, we are convinced that Ziegler is acting in good faith and at the behest of its neighbors. We find that the company has presented adequate proof, that absent a variance, it would suffer an arbitrary or unreasonable hardship. We also find that the issuance of a variance comports with federal law in this case. It should also be noted that while the environmental impact is unknown, the record indicates that Ziegler has exceeded the sulfate standard for quite some time. Within this timeframe, there have been no ill effects directly traced to the sulfate emissions. In fact, Mr. Schüpbach, who lives 1-1/2 miles downstream from Ziegler's emission source, stated that the water quality of the stream has improved of late. (Tr. at 71).

At the same time, questions still remain. What effect will the accumulation of sulfates have upon the river and how will it affect those who live nearby? Does the apparent lack of short-term effects thus far negate the possibility of long-term damage? Aside from exceeding the sulfate standard, can the company alter its gob pile policy to prevent excess oxidation and thus the creation of sulfuric acid? These issues need to be resolved and solutions can only be accomplished with more information. Accordingly, the Board will grant Ziegler a variance from the terms of 35 Ill. Adm. Code Section 406.203(c)(1)(A). Additionally, we will request information from the company in regards to its policy vis-a-vis the gob piles.

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

### ORDER

Ziegler Coal Company is hereby granted a variance from 35 Ill. Adm. Code 406.203(c)(1)(A) for a period of 18 months from the date of this Order, subject to the following conditions:

- a. Petitioner shall conduct an intensive 12-month stream study to determine whether its high-sulfate effluent will cause an adverse effect on the environmental in and around Mary's River, the receiving stream. Prior to commencement of the study Petitioner shall submit to the Agency a detailed plan of study which shall address examination of the following:
  1. Upstream and downstream flows during wet and dry whether along with concentrations of sulfates in each instance;
  2. Concentration of sulfates in the upstream and downstream flows for each outfall and any combined effects of multiple outfalls;
  3. The quantity and quality of the discharge from outfall 001;
  4. The effects the receiving stream may have upon its downstream waters after confluence;
  5. Upstream and downstream biota;
  6. Comparison of the receiving stream with a similar stream unaffected by sulfates;
  7. Any other relevant information which is particular to this discharge.
- b. Concurrently with the intensive stream study, petitioner shall conduct a study addressing the alternatives for the reduction of sulfate in the discharge water from outfall 001, including:
  1. The dilution of treated water prior to discharge;
  2. The utilization water containing elevated sulfate levels as make-up water for the coal preparation plant/
  3. The company shall, within 90 days of this variance, submit a report to the Board and the Agency as to why modification of the existing coarse refuse disposal plan to minimize exposed refuse surfaces and decrease acid mine drainage surface runoff and seepage cannot be achieved at the source;
  4. A determination of whether changing the reagent utilized in the acid mine drainage treatment process will influence the concentration of sulfates in the discharge water.

- c. Upon completion of the stream and sulfate reduction studies Ziegler shall submit to the Agency either:
  - 1. An NPDES permit application requesting an increase in the applicable limitation for sulfates, in accordance with 35 Ill. Adm. Code 406.203(c)(1)(B); or
  - 2. An NPDES permit application which includes a compliance plan to reduce sulfate concentrations to 3,500 mg/l or less, in accordance with 35 Ill. Adm. Code 406.203(c)(1)(A).
- d. Petitioner shall submit to the Agency quarterly progress reports beginning 90 days after issuance of the Board's final order. All reports required under this variance shall be sent to the Agency as follows:

Joyce Munie, Permit Manager  
 Mine Pollution Control Program  
 Illinois Environmental Protection Agency  
 2200 Churchill Road, PO Box 19276  
 Springfield, Illinois 62794-9276

- e. During the term of the variance the concentration of sulfates in the discharge from outfall 001 shall not exceed 4,600 mg/l.
- f. Special attention shall be taken so that readings are taken downstream when sulfate emissions exceed the current limit.
- g. Under no circumstances will Zeigler Coal Company alter its current treatment process in reliance on this variance.

Within 45 days after the date of this Opinion and Order Petitioner shall execute and forward to:

Stephen C. Ewart  
 Division of Legal Counsel  
 Illinois Environmental Protection Agency  
 2200 Churchill Road, P.O. Box 19276  
 Springfield, Illinois 62794-9276

a certificate of acceptance of this variance by which it agrees to be bound by the terms and conditions contained herein. The 45 day period shall be in abeyance for any period during which the matter is appealed. This variance will be void if the Petitioner fails to execute and forward the certificate within the 45 day period. The form of the certification shall be as follows:

CERTIFICATION

I, (We), \_\_\_\_\_, having read the Opinion and

Order of the Illinois Pollution Control Board, in PCB 91-12, dated August 22, 1991, understand and accept the said Opinion and Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

\_\_\_\_\_  
Petitioner

\_\_\_\_\_  
By: Authorized Agent

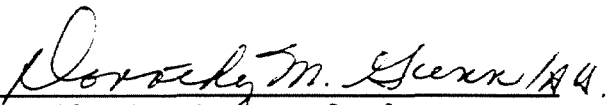
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Title

\_\_\_\_\_  
Date

Section 41 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111-1/2 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.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 22<sup>nd</sup> day of August, 1991 by a vote of 70.

  
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Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board