

ILLINOIS POLLUTION CONTROL BOARD
April 25, 1972

ENVIRONMENTAL PROTECTION AGENCY)
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 v.) #71-323
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 AYRSHIRE COAL COMPANY, a Division)
 of AMERICAN METAL CLIMAX, INC.,)
 and AMERICAN METAL CLIMAX, INC., a)
 Corporation)

OPINION OF THE BOARD (BY MR. LAWTON):

Respondent (Ayrshire) controls a strip coal mine (Delta Mine) east of Marion, Illinois in Williamson County, the natural drainage from part of which flows into the South Fork of the Saline River. On October 13, 1971, the Illinois Environmental Protection Agency (Agency) filed a complaint alleging that Ayrshire caused or allowed the discharge of contaminants from this mine so as to cause or threaten pollution of the waters of Illinois, in violation of Section 12(a) of the Environmental Protection Act (Act); deposited contaminants upon the land so as to create a water pollution hazard, in violation of Section 12(d) of the Act; and violated Rule SWB-14 of the Rules and Regulations of the Sanitary Water Board (continued in effect by Section 49(c) of the Act) pertaining to the minimum quality conditions acceptable for all waters subject to the regulation and to quality conditions applicable to aquatic life and agriculture and stock watering sectors of the waters of Illinois.

On the date of the scheduled hearing, the Parties proposed to stipulate to certain facts in order to avoid litigation. The proposed stipulation pertained to Ayrshire's ownership and control of the sources of mine drainage and the accuracy of the Agency's effluent measurements and water quality data. The Hearing Officer ordered that the parties, pursuant to PCB Procedural Rule 333, submit a Stipulation of Facts Material to Controversy; that each party submit written argument on the issue of an appropriate remedy; and that the Parties submit to the Board a plan for abating the contaminated mine drainage, including time schedules and costs. In the event the Parties failed to reach an agreement on a proposed control plan, an additional hearing was to be held solely on the issue of abatement. The terms of the proposed stipulation and the Hearing Officer's order were announced at the public hearing in Marion, Illinois on November 22, 1971. Members of the public were afforded an opportunity to comment on the allegations of the Agency's complaint and the proposed settlement.

The Parties have submitted the Stipulation of Facts; have requested that no cease and desist order be entered and have filed written arguments on the issue of appropriate penalty. After meetings between the parties, Ayrshire submitted to the Board on March 23, 1972, its proposed abatement plan. On April 11, 1972, the Agency stated its agreement with the proposed control strategy.

We find that Ayrshire, by carelessly maintaining and improperly controlling these sources of contaminated mine drainage has caused, threatened and allowed the discharge of contaminants so as to tend to cause water pollution of the South Fork of the Saline River. However, in view of the proposed abatement program discussed below, we decline to enter a cease and desist order at this time. We impose a \$1,000.00 penalty for violation of Section 12(a) of the Act as aforesaid. We approve the Plan of Abatement of this contaminated mine drainage. Our action is based on the following considerations:

In 1946, Ayrshire purchased the Delta Mine from its original operators. When Ayrshire assumed control of the mine, it also assumed control of a coal mine preparation plant used for sizing and washing extracted minerals. This preparation plant generated a waste product known as "gob", consisting of shales, clays, coal fines and other refuse materials produced by the cleaning of mined coal. Gob contains iron sulphide, also known as "pyrites", capable upon exposure to air of oxidizing to form sulphuric acid which is then transported by water moving over and through the refuse area. This acid drainage can also pick up other mineral contaminants as it flows and, upon reaching streams in sufficient quantity and concentration, can be toxic to aquatic life, produce discoloration and render water unsuitable for public use.

Prior to and after Ayrshire's assumption of control of this mined area, gob was piled in large heaps around the preparation plant. Likewise, overturned earth, "overburden", from the strip mining operation was cast in this area to form "spoil banks". These gob piles and spoil banks which Ayrshire inherited and to the growth of which Ayrshire contributed, constitute a source of contaminated mine drainage to the South Fork of the Saline River and led to the prosecution of this case (Stipulation of Facts, as amended, Page 1).

As Ayrshire states, the gob piles probably became a source of contamination almost immediately after their formation in the early 1940's and continued as such during the 1950's and 1960's (Respondent's Argument, pp. 5-6). In 1965, the Company became aware of state regulations with respect to water pollution, and an effluent abatement program was initiated.

The abatement efforts begun in July, 1965, consisted of an attempt to eliminate acid mine drainage (at-source control rather than treatment), by preventing air and water from contacting the gob. Several laudable steps were taken:

- (a) Gob from the Delta Mine was no longer used for construction of haulage and county roads;
- (b) All gob generated from the preparation plant after the control plan was initiated was buried.
- (c) Existing gob piles were covered with two to four feet of earth in an attempt to seal them;
- (d) Water was diverted from gob areas and run-off water from these areas collected in a ditch (completed March, 1970) and pumped back for use in the preparation plant, or impounded and diluted before release ("Collection Ditch" plan);
- (e) Monthly progress reports were made to the Sanitary Water Board.

These control efforts were successful in mitigating contaminated drainage to the Middle Fork of the Saline River, but pollutional drainage to the South Fork from the gob piles have continued to the present. The water quality of these discharges is not disputed. (Stipulation of Facts). As a standard of comparison, it should be noted that PCB Regulations, Chap. III, Water Pollution, Part IV, sets an effluent standard for manufacturing and processing sources of 2 mg/l total iron and a pH range of 5 to 10. The Board is proposing an effluent standard applicable to mine drainage of 7 mg/l total iron and a pH of 5-10 (#R71-25).

The discharge points on which the Agency conducted effluent sampling are located primarily below the county road which forms the back side of the Collection Ditch and through which most of the contaminated drainage occurs. These points are situated generally off of the mine property.

An Agency engineer on August 5, 1971 made the following observations and collected the following water quality samples:

- (a) At discharge point D-6 (overflow and seepage from the collection sump in the Collection Ditch), the water was amber in color and the bed was covered with rusty orange deposits. The water had a pH of 3 and an iron content of 140 ppm. The pump designed to drain this collection sump was not in operation. The discharge flow rate was approximately 250 gallons per minute (gpm);
- (b) Point D-2 had a pH of 2.7 and an iron concentration of 102 ppm. The discharge here flowed at approximately 5 gpm (earlier samples estimate the flow to be up to 25 gpm);

- (c) Point D-5 had a pH of 3.3 and an iron concentration of 18 ppm. The bed under the flow was a rusty color. This discharge point is outside the mine property;
- (d) This sample was collected where discharge points D-6 and D-7 combine outside the mined area. The ditch here flows southward to the River and contained amber-colored water, with rusty orange bottom deposits and coal fines on the bed. The drainage flowing at 400 gpm had a pH of 2.9 and an iron level of 65 ppm. Coal fines were observed in the field adjacent to the drainage ditch;
- (e) Point D-8 beyond the mined area had a flow of 20 gpm, pH of 3.4 and an iron level of 2.4 ppm.

Samples taken at these discharge points on July 2, 1971 were approximately the same.

On June 18, 1971, this Agency inspector sampled the water quality of the South Fork of the Saline River upstream and downstream from the entrance point of the mine drainage ditches (Delta Ditches). These samples showed no appreciable impact from the mine drainage on that particular date. At this time, effluent sampling of the discharge points reflected the same poor quality of the previously discussed samples.

Mr. Robert Gates of the Agency, on April 29, 1971, made observations and took water quality samples approximating those previously discussed, except for the flow rate of Point D-6 which was only five gallons per minute. The pump which would reduce the quantity of discharge from this point was in operation on that date.

Samples taken by a third agency inspector on September 15, 1970, September 21, 1970 and November 16, 1970 reflect the flow rate of D-6 to vary from 50 to 200 gallons per minute. The water quality on these dates approximates that of previously discussed sampling periods. Similarly, photographs taken by the Agency, (Exhibit B) reflect discoloration and bottom deposits in the drainage ditches.

The control program, begun in 1965, failed in part largely because of the unworkability of the "Collection Ditch" plan for preventing run-off water from the mine site, although an additional discharge source, Point D-7, originated in 1971. This is seepage from a strip pit north of the county road which became contaminated with acid water. The Collection Ditch, from the beginning, did not function properly for several reasons:

- (a) The collection sump in the Ditch was located next to a railroad bed; if the sump was lowered to a depth adequate to collect the volume of run-off water, the fill material supporting the railroad track would slide. To prevent this, the collection sump was maintained at a high level, depriving

it of surge capacity and allowing overflow during a heavy rainfall (Point D-6), or when the pump was shut down for repairs;

- (b) The water which the sump could contain exerted hydraulic pressure on the county road which formed the south side of the sump, causing continuous seepage through the road bed (the source of several discharge points).
- (c) A 500 foot layer of bed rock which "probably should have been removed in the construction of the ditch" (Respondent's Argument, Page 12) caused water to back up in the Collection Ditch which, in turn, caused the Ditch to fill with sediment. This produced seepage through the plugged culverts in the county road. (Discharge points 2, 3, 4 and 5).

The final phase of Ayrshire's control program initiated in March, 1970, appears to have been poorly designed and badly maintained. In addition, Ayrshire failed to take prompt remedial action upon notification that its Collection Ditch and pumping system were functioning improperly. Ayrshire was informed by letter of June 14, 1971 (Exhibit A) of the continued unacceptable quality of its mine drainage and of the shortcomings of the Collection Ditch control effort as originally designed, although Ayrshire probably was aware of these facts on April 29, 1971 when Mr. Gates of the Agency made an inspection of the mine site and communicated his observations to the Company. Stipulation of Facts, Page 2. Respondent's Argument indicates Ayrshire was aware that the Collection Ditch did not function properly from the very beginning. (Respondent's Argument, p. 12). No corrective action was taken until the filing of the present proceeding and a settlement was proposed.

Each of the sampled discharge points from the mined area flows into the Delta Ditches which, in turn, flow directly into the South Fork of the Saline River. Each of these discharge points acts as a conduit for consistently toxic water; the only variable is the flow rate of the various discharges. Acid is unusually toxic to aquatic life and can be easily flushed down the Ditches in slugs after a heavy rainfall, causing immediate and severe damage to the receiving stream, even though the normal mine drainage rate (apparently greater than several hundred gallons per minute) has no obvious effect on the South Fork of the Saline River so far as the present record is concerned (based on one sample). Similarly, in a period of drought and low flow in the South Fork, a normal rainfall could reasonably wash down enough contamination to cause pollution in the receiving stream because of its diminished dilution capacity. The fact that the South Fork is a small river with little assimilative capacity, increases the hazard posed by these contaminating point and non-point discharges. The pollution impact of Ayrshire's Delta Ditch drainage thus depends largely upon the fortuitousness of a heavy rainfall and the flow rate of the South Fork of the

Saline River. Additional contingencies are whether the pump in the Collection Ditch is working and whether the sump is overflowing. The fluctuations of weather and the vagaries of mechanical failure cannot control protection of the waters of Illinois.

By this opinion, we do not hold that the mere presence of a potential source of water pollutants on the land necessarily constitutes a "threat" of water pollution in violation of Section 12(a) of the Act. Nor does the threatened discharge of any kind of contaminants into the waters of Illinois necessarily "tend to cause water pollution". Rather, where as here, a large source of toxic contaminants is deposited or is maintained on the land in close proximity to the waters of Illinois, which contaminants can readily reach the waters of the state in such quantities and concentrations or under such conditions as to cause pollution of those waters, the risk of pollution becomes unreasonable and constitutes an unlawful threat within the meaning of the Environmental Protection Act. (See Environmental Protection Agency v. Soil Enrichment Materials Corporation, PCB #71-272).

We find no evidence that Ayrshire has caused a violation of SWB-14 or has "caused" water pollution in violation of Section 12(a) of the Act. While the Delta drainage unquestionably produces sedimentation and bottom deposits in the Ditches, is discolored and has a very low pH, there are no facts before us which would indicate that the Delta Ditches are "waters of Illinois" within the meaning of SWB-14 and the Environmental Protection Act. While discharging pollutants into a stream that is an "open sewer" may be unlawful (Environmental Protection Agency v. City of Champaign, PCB #71-15), contaminating the waters of an open sewer that is a sewer is generally permissible (See Environmental Protection Agency v. Koppers Company, Inc., PCB #70-49). The Agency proceeded as if in total ignorance of the Koppers case and, a few cursory conclusions aside, made no reference to whether or not any or all of the Delta Ditches constitutes a stream. Understandably, Respondent remained silent on this point. Also, Ayrshire has not, on the evidence before us, caused water pollution of the South Fork of the Saline River. The water quality data (one measurement) shows the Delta Ditch drainage to exert no demonstrable impact on the South Fork on the date of that sample.

Nor has Respondent "deposited contaminants on the land so as to create a water pollution hazard" in violation of Section 12(d) of the Act. The Stipulation of Facts states that the discharges arise from gob piles and cast material deposited prior to July 1, 1970, the effective date of the Act. Had these contaminating gob piles and spoil banks been deposited or enlarged subsequent to that date, Respondent might be in violation of Section 12(d).

Ayrshire's proposed abatement program appears to be an effective strategy to eliminate the "threat" of water pollution. It encompasses the grading of refuse piles to prevent water from ponding on them;

covering refuse areas with earth to seal them; lowering the Collection Ditch to ease the hydraulic pressure on the county road through which seepage escapes to the South Fork; constructing an interception ditch to reduce the flow into the Collection Ditch; and improving the sump and pump system in the Collection Ditch, thus more effectively directing run-off water back to the preparation plant. The system, if successful, should prevent contaminated drainage from leaving the mine site. To prevent erosion, revegetation of the covered refuse area is planned. This should stabilize the cover and help maintain the control system.

Finally, it should be noted that the Saline River Basin has faced this hazard of toxic Delta Mine drainage for years despite prolonged, costly (approximately \$300,000.00 by 1972) but only partially successful control efforts. This is dramatic evidence of the need for environmental planning to prevent the creation of mine-related water pollution sources. (See #R71-25, Mine-related Pollution, Proposed Regulations).

This opinion constitutes the findings of fact and conclusions of law of the Board.

ORDER

1. All provisions of the stipulated Plan of Abatement for Delta Mine Drainage dated March 21, 1972 are hereby adopted and made a part of this Order. Respondent Ayrshire shall comply with all terms of said Plan of Abatement respecting but not limited to the following abatement procedures:
 - (a) Ayrshire shall construct a Contour Collecting Ditch to direct runoff into the present Collecting Ditch so that only runoff from undisturbed land will be permitted to drain into the D-2 water sampling station. This shall be completed by May 1, 1972.
 - (b) Ayrshire shall lower the water level in the Present Collecting Ditch by deepening said Ditch five feet or more and maintaining a minimum bottom width of ten feet so as to prevent seepage through the county road into drainage areas D-2, D-3, D-4 and D-5. This shall be completed by August 1, 1972.
 - (c) Ayrshire shall construct a 500,000 gallon sump at the end of the Present Collecting Ditch and shall maintain said sump at a sufficiently low elevation to eliminate seepage through the county road from the sump. Said sump shall be drained by means of an electric pump with a capacity of 1,000 gpm which shall be supported by duplicate spare pump. This shall be completed by August 1972.

- (d) The Present Sump shall be backfilled, graded and covered with four feet of dirt upon completion of the sump required by Par.1(Cbf the Order, so as to eliminate mine drainage from seeping through the fill material into the D-6 sampling station. This shall be completed by August 1, 1972.
- (e) Ayrshire shall construct a 30,000 gallon Collecting Sump, drained by an electric pump of 500 gpm capacity with a duplicate back-up pump so as to eliminate mine drainage from sampling station D-7. This shall be completed by September 1, 1972.
- (f) Ayrshire shall construct an Upper Contour Collecting Ditch parallel to the Collecting Ditch so as to collect runoff from the existing refuse and cast overburden near the Collecting Ditch, reduce the drainage into the Collecting Ditch and eliminate mine drainage from sampling stations D-3, D-4 and D-5. This shall be completed by November 1, 1972.
- (g) Washer refuse deposited between the Upper Contour Collecting Ditch and the Intercept Ditch shall be covered with cast overburden, and the entire area graded to control ponding and direct surface runoff to the collection ditches. This shall be completed by December 31, 1972.
- (h) On or before December 31, 1972, Ayrshire shall submit to the Board and the Agency a plan to abate the mine drainage from sampling stations D-8 and D-9.
- (i) Ayrshire shall deposit waste refuse from the preparation plant of the Delta Mine in an open cut pit and cover said pit when filled with non-acid-producing overburden.
- (j) On or before November 1, 1973, Ayrshire shall seed and plant the area affected by the above paragraphs of this Order so as to prevent erosion of the control system.
- (k) Ayrshire shall submit to the Agency bi-monthly progress reports of efforts toward compliance with this Order
- (l) Upon the completion of each phase of the aforesaid Plan of Abatement, Ayrshire shall conduct water quality sampling of the discharge points affected by said phase and shall report the results of such sampling to the Agency

2. By November 1, 1972, Ayrshire shall have so abated and controlled that drainage from its Delta Mine which is the subject of this proceeding that said drainage maintains a pH range of 5 to 10, and a total iron concentration of 7 mg/l and total acid does not exceed total alkalinity. Should said drainage fail to comply with such water quality, by November 1, 1972, Ayrshire shall impound and treat said drainage so as to comply with all applicable effluent standards, pending the completion of a permanent abatement system. This Par. 2 shall not apply to that drainage to sampling stations D-8 and D-9.
3. Notwithstanding the above paragraphs of this Order, Ayrshire shall comply with any Rules and Regulations for the Control of Mine Related Pollution adopted pursuant to pending proceedings in #R71-25. This par. 3 shall not apply to the effluent concentrations of discharges to sampling stations controlled by par. 2 of this Order until November 1, 1972. This par. 3 shall not apply to the effluent concentrations of discharges to sampling stations D-8 and D-9 until further Order of this Board pursuant to par. 1(h) of this Order.
4. Ayrshire shall post with the Agency on or before June 1, 1972 in a form satisfactory to the Agency, a bond in an amount equal to the cost of its Plan of Abatement except for points D-8 and D-9, which amount shall be forfeited to the State of Illinois in the event the conditions of this Order are not met. The amount of said bond shall be substantiated by detailed supporting cost estimates submitted to the Agency.
5. Ayrshire shall pay to the State of Illinois, on or before June 1, 1972, the sum of \$1,000.00 as a penalty for violation of Section 12(a) of the Environmental Protection Act, as aforesaid.

I, Christian Moffett, Clerk of the Pollution Control Board, certify that the above Opinion was adopted on the 25th day of April, 1972, by a vote of 5 to 0.

Christian Moffett

