

ILLINOIS POLLUTION CONTROL BOARD
June 25, 1987

IN THE MATTER OF:)
)
PROPOSED AMENDMENTS TO TITLE 35,) R84-29
SUBTITLE D: MINE RELATED WATER)
POLLUTION, CHAPTER I, PARTS)
402 AND 406)

ADOPTED RULE. FINAL ORDER.

OPINION AND ORDER OF THE BOARD (by R.C. Flemal):

This matter comes before the Board upon a May 31, 1984, proposal filed by the Illinois Coal Association ("ICA"), as revised on February 25, 1985. The ICA requests that the Board amend 35 Ill. Adm. Code 406.106 by deleting the current provision relating to mine discharges during rainfall events, and substituting it with standards patterned after the federal regulations governing such discharges. Under the provisions of the ICA proposal, mine discharges would be exempted from the requirements of Section 406.106(b) (except pH) during rainfall events, but a 0.5 ml/l settleable solids ("SS") limitation would be imposed on any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume). The 0.5 ml/l SS standard is the current federal standard¹. The impetus for the ICA proposal, inter alia, is that it would provide uniformity of state and federal regulations and would allow mine operators in Illinois to utilize more economically-designed and constructed sediment ponds.

Merit hearings on the proposal were held in Urbana, Illinois, on November 30, 1984, and in Springfield, Illinois, on December 21, 1984.

¹ The current effluent limitations guidelines for the coal mining point source category were promulgated on October 9, 1985 and are found at 50 Fed. Reg. 41,296 (1985) (codified at 40 C.F.R. Part 434).

The Board wishes to express its gratitude to Mr. Richard DiMambro of the Board's Scientific and Technical Section for his assistance in reviewing the technical matters associated with this proposed rule.

The Illinois Environmental Protection Agency ("Agency") submitted an alternative regulatory proposal in this docket on March 15, 1985. The Agency subsequently amended its proposal on March 20, and 21, 1986. The Agency proposal would eliminate the total suspended solids monitoring requirement for mine discharges and instead provide two design criteria alternatives for treatment of alkaline surface drainage. The alternatives are: design and construction of 24-hour detention ponds for runoff from the 10-year, 24-hour storm event (known as Alternative "A"); or design and construction of sediment ponds capable of removing 80% of the sediment from the 10-year, 24-hour storm event (known as Alternative "B").

On May 28, 1985, the ICA filed a motion for emergency rulemaking, requesting that its proposal be adopted by the Board as an emergency rule due to what it perceived as a threat to the public interest resulting from the passage of time occurring during the pendency of the proceeding. The Board denied the ICA motion by Order of June 13, 1985, finding that no threat to the public interest existed and furthermore that, even if such relief were to be granted, it would be effective for only 150 days and thus would lapse prior to the expected completion date of R84-29.

The economic impact analysis ("EcIS") prepared for this proceeding, "Economic Impact Analysis of R84-29: Mine-Related Water Pollution Regulations", was received by the Board on February 3, 1986. Hearings on the EcIS were conducted in DeKalb, Illinois, on March 10, 1986, and in Springfield, Illinois, on March 18, 1986. The EcIS fully considered and discussed the economic impact of the ICA proposal. However, the document did not thoroughly address the economic impact of the Agency proposal, as it omitted analysis of Alternative "B", one of the two alternative regulatory approaches put forth by the Agency in its proposal. As a consequence of this oversight, on April 4, 1986, the Agency filed a motion to the Board to request the Department of Energy and Natural Resources ("Department") to revise the portion of the EcIS analyzing the Agency proposal. The Board denied this motion by Order of April 24, 1986, holding that this shortcoming of the EcIS was remedied at hearing by extensive questioning on what the economic ramifications of Alternative "B" would be. Additionally, the Board noted that it is unaware of any statutory authority empowering it to order the Department to revise or supplement an EcIS.

Notwithstanding the Board's April 24, 1986, Order, the Department submitted additional comments for the record on May 29, 1986. The Department indicated that these comments were intended to clarify the position of the Department's contractor in regard to several issues raised during the economic impact hearings held in this proceeding.

The ICA and Agency submitted comments for the record on June 5, 1986, and the Agency did likewise on June 10, 1986, and June 13, 1986.

FIRST NOTICE HISTORY

On July 11, 1986, the Board proposed for first notice publication amendments to certain portions of 35 Ill. Adm. Code 402 and 406. The proposed amendments were published at 10 Ill. Reg. 12827, August 1, 1986, and largely paralleled the substance of the proposal put forth in this matter by the ICA. Two comments were received during the first notice period: one from the ICA on September 12, 1986, and the other from the Agency on September 15, 1986.

The two comments raised several questions concerning the proposed amendments, and reflected the widely divergent perspectives on this matter which have been espoused by the two major participants to this rulemaking, the ICA and the Agency. Probably the most significant of these differences focused on the annual increase in sediment loading to Illinois waterways projected to result from adoption of the 0.5 ml/l settleable solids ("SS") standard, and the environmental impact of that additional runoff. Adoption of the SS standard, which has been the focus of the ICA proposal throughout this docket, was proposed by the Board along with certain other amendments in its July 11, 1986, Opinion and Order. The Agency has repeatedly indicated its belief that the ICA and the EcIS prepared in this matter underestimate the adverse environmental impact that would result from adoption of the SS standard.

In response to the conflicting nature of the comments received during this first notice, the Board determined that an additional hearing would be necessary in order that certain aspects of the record might be expanded upon. More specifically, the Board stated by Interim Order of October 9, 1986, that this might be accomplished if certain matters were addressed at hearing, including:

1. A presentation of the results derived from the Agency's experimentation with the Sedimot II computer model (as described in paragraph four of the Agency's first notice comments).
2. Receipt of additional comments on 35 Ill. Adm. Code 406.102(i), as proposed by the Board in its First Notice Opinion and Order.
3. A clarification by the Agency of why it believes the Board's proposal is more stringent, in some regards, than the Federal limitations (the Agency espoused this position in paragraph three of its first notice comments).

4. A clarification by the Agency of the assertions made in paragraph two of its comments.
5. Additional testimony of Ms. Linda Huff, President, Huff & Huff, Inc. (the contractor which produced the EcIS for this proceeding), particularly in regard to her perspectives on the Agency's projections derived through the use of the Sedimot II model, and any additional comment she may have regarding the predicted economic ramifications of Alternative "B" of the Agency's March 15, 1985, proposal.
6. Additional testimony addressing the environmental effects of settleable solids.

The additional hearing was held on December 10, 1986, in Springfield, Illinois. Post-hearing comments were filed by the Department on December 22, 1986, and the Agency on February 3, 1987.

SECOND NOTICE HISTORY

After consideration of the first notice comments, the testimony presented at the December 10, 1986, hearing, and the post-hearing comments received, the Board found that it remained persuaded of the merits of the SS standard. Consequently, on April 30, 1987, the Board proposed for second notice, with slight modification, the amendments to Parts 402 and 406 which had been published for first notice on August 1, 1986. The modification consisted of adding definitions for the terms "coal preparation plant", "coal preparation plant associated areas", "mountaintop removal", "steep slope", and "base flow", and amending the proposed definition of "controlled surface mine drainage". Additionally, certain minor alterations were made to the text of proposed sections 406.110(a) and (c) in order to bring them in conformance with the Board's stated objective of structuring the new sections and amendments proposed in this proceeding so as to make them consistent with federal regulations.

The second notice period commenced on May 13, 1987. The Joint Committee on Administrative Rules ("JCAR") issued certification of no objection for Parts 402 and 406 on June 3, 1987. During the second notice period, JCAR raised two questions, only one of which went to a substantive issue. That question involved the proposed definition of "controlled surface mine drainage", and specifically asked why the Board had deleted from the definition proposed at first notice areas that had been mined but are no longer active.

FINAL NOTICE ACTION

The Board continues to believe that these regulations, as proposed at second notice, merit adoption. Therefore, the Board today adopts these regulations without change from the form in which they appeared at second notice, except that the Board will make the necessary changes in response to the questions posed by JCAR in this matter.

In response to JCAR's question regarding the definition of "controlled surface mine drainage", the Board notes that the deletion of mined but inactive areas from that definition at second notice was inadvertent. The Board therefore now adopts the definition of "controlled surface mine drainage" that was proposed at first notice, which did include mined but inactive areas. This change is shown in the text of this definition found in the Order, below.

JCAR's other question, which asked the Board to provide a citation to the applicable federal regulations with which these rules are consistent, has been answered by the Board. The applicable federal regulations are found at 40 CFR 434. This is noted in footnote 1, and will also be included in the Board's Notice of Adopted rules for this matter.

For the reasons discussed below, the Board today adopts language largely paralleling the proposal put forth by the ICA.

CURRENT ILLINOIS LAW

The effluent limitations applicable to mine discharge effluents are found at 35 Ill. Adm. Code 406.106, and state in full:

SECTION 406.106 EFFLUENT STANDARDS

- a) The effluent limitations contained in 35 Ill. Adm. Code 304 shall not apply to mine discharges or non-point source mine discharges.
- b) No person shall cause or allow a mine discharge effluent to exceed the following levels of contaminants:

Constituent	Storet Number	Concentration
Acidity	00435	(total acidity shall not exceed total alkalinity)
Iron (total)	01045	3.5 mg/l
Lead (total)	01051	1 mg/l

Ammonia Nitrogen (as N)	00610	5 mg/l
pH	00400	(range 6 to 9)
Zinc (total)	01092	5 mg/l
Fluoride (total)	00951	15 mg/l
Total suspended solids	00530	35 mg/l
Manganese	01055	2.0 mg/l

-
- 1) pH is not subject to averaging
 - 2) The ammonia nitrogen standard is applicable only to an operator utilizing ammonia in wastewater treatment.
 - 3) Any overflow, increase in volume of a discharge or discharge from a by-pass system caused by precipitation or snowmelt shall not be subject to the limitations of this Section. This exemption shall be available only if the sedimentation basin or treatment works is designed, constructed and maintained to contain or treat the volume of water which would fall on the areas tributary to the discharge, overflow or bypass during a 10-year, 24-hour or larger precipitation event (or snowmelt of equivalent volume). The operator shall have the burden of demonstrating that the prerequisites to an exemption set forth in this subsection have been met.
 - 4) The manganese effluent limitation is applicable only if required to meet the iron or pH effluent limitations. The upper limit of pH shall be 10 for any such facility that is unable to comply with the manganese limit at pH 9. The manganese standard is not applicable to mine discharges which are associated with areas where no active mining, processing or refuse disposal has taken place since May 13, 1976.

(Source: Amended at 8 Ill. Reg. 13239, effective July 16, 1984)

Section 406.106(b)(3) provides an exemption from effluent limitations for mine discharges occurring during wet weather events if the sedimentation pond utilized at the site is designed to contain or treat runoff from all storms of lesser magnitude than one of a 10-year, 24-hour event. This optional design standard was enacted in 1980² so as to mirror as closely as possible the federal regulation then in effect at 40 CFR 434.

CHANGES IN FEDERAL LAW

The Board's existing regulations pertaining to mine related discharges were adopted from United States Environmental Protection Agency ("USEPA") standards which that agency promulgated in response to the requirements of the Clean Water Act of 1972. USEPA promulgated new regulations on October 13, 1982, incorporating changes based upon new data and the results of studies commissioned by USEPA. The most significant change was the adoption of a settleable solids criterion in place of total suspended solids ("TSS") for discharges due to runoff from precipitation events less than the 10-year, 24-hour precipitation event. On October 9, 1985 USEPA promulgated changes to the 1982 regulations pursuant to a settlement agreement in the matter of National Coal Association, et. al. v. Environmental Protection Agency, Nos. 82-1939 et. al., 4th Cir., August 23, 1983.

The Board's regulations governing mine related discharges during precipitation events have not been consistent with the USEPA regulations since the changes to the latter in 1982. Section 434.63(a) of Part 40 of the Code of Federal Regulations describes the federal standard for discharges of alkaline mine drainage (the predominant type in Illinois) during precipitation events less than the 10-year, 24-hour event. That standard is performance-based and requires such discharges to meet an SS limitation of 0.5 ml/l and maintain pH between 6.0 and 9.0. These guidelines replaced the optional design standard that Illinois has retained to the present time. For precipitation events of greater magnitude than a 10-year, 24-hour event, the federal regulations require compliance with only the pH limitation (40 C.F.R. 434.63(d)). The federal regulations have retained the same dry weather limitations; thus Illinois and federal regulations governing mine discharges during dry weather (35 Ill. Adm. Code 406.106 and 40 C.F.R. 434.42, respectively) are consistent.

THE ICA PROPOSAL

By its submission of February 25, 1985, the ICA proposes that Section 406.106 be revised to appear as follows:

Section 406.106 Effluent Standards

² In the Matter of Proposed Amendments to Chapter 4 of the Regulations of the Illinois Pollution Control Board, R76-20 and R77-10 (consolidated), 39 PCB 260, July 24, 1980. At the time of its promulgation in 1980, section 406.106 was known as Rule 606 of Chapter 4: Mine Related Pollution.

- a) The effluent limitations contained in Part 35 Ill. Adm. Code 304 shall not apply to mine discharges or non-point source mine discharges.
- b) No person shall cause or allow a mine discharge effluent to exceed the following levels of contaminants:

Constituent	Storet Number	Concentration
Acidity	00435	(total acidity shall not exceed total alkalinity)
Iron (total)	01045	3.5 mg/l
Lead (total)	01051	1 mg/l
Ammonia Nitrogen (as N)	00610	5 mg/l
pH	00400	(range 6 to 9)
Zinc (total)	01092	5 mg/l
Fluoride (total)	00951	15 mg/l
Total suspended solids	00530	35 mg/l
Manganese 01055	2.0 mg/l	

-
- 1) pH is not subject to averaging.
 - 2) The ammonia nitrogen standard is applicable only to an operator utilizing ammonia in wastewater treatment.
 - 3) Any overflow, increase in volume of a discharge or discharge from a by-pass system caused by precipitation or snowmelt shall not be subject to the limitations of this Section. This exemption shall be available only if the sedimentation basin or treatment works is designed, constructed and maintained to contain or treat the volume of water which would fall on the areas tributary to the discharge, overflow or by-pass during a 10-year, 24-year or larger precipitation event (or snowmelt of equivalent volume). The operator shall have the burden of demonstrating that the prerequisites to an exemption set forth in this subsection have been met.
 - 34) The manganese effluent limitation is applicable only to discharges from facilities where chemical addition is required to meet the iron or pH effluent limitations. The upper limit of pH shall be 10 for any such facility that is unable to comply with the manganese limit at pH 9. The manganese standard is not applicable to mine discharges which are

associated with areas where no active mining, processing or refuse disposal has taken place since May 13, 1976.

- 4) For any new source which discharges water, the effluent limitation for iron shall be 3.0 mg/l.
- 5) Any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume), or from a reclamation area, shall be exempt from this subsection (b) except as it applies to pH. Such discharge shall also meet a settleable solid concentration of 0.5 ml/l.

Any discharge or increase in volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or series of storms or snowmelt of equivalent volume) shall be exempt from this subsection (b) except as it applies to pH.

For purposes of this subsection the term "reclamation area" means the surface area of a coal mine which has been returned to required contour and on which revegetation (specifically, seeding or planting) work has commenced.

The ICA has stated that its proposal is intended to be a "mirror image" of the comparable federal regulations (Tr. 4 at 135)³, translated into language compatible with Illinois' regulatory format. ICA Responsive Comments, June 5, 1986, p. 1. Though the ICA so intended, the Board believes the regulation proposed by ICA is in fact less stringent than the federal regulations. Consequently, at first notice the Board modified the ICA proposal in some respects in order that the regulation be in fact as stringent as present federal regulations.

³ Five transcripts have been produced during the conduct of this proceeding: one each from the two merit hearings, two EcIS hearings, and December 10, 1986, hearing. Unfortunately, the transcripts of the five hearings are not numbered consecutively. Therefore, in order to minimize confusion in citing to the record, each transcript will be referred to in the chronological order in which the hearing it transcribes occurred. Thus, the transcript of the November 30, 1984, merit hearing will be referred to as Transcript 1 ("Tr. 1"), the transcript of the December 21, 1984, merit hearing as Transcript 2 ("Tr. 2"), etc.

THE AGENCY PROPOSAL

The Agency submitted a revised proposal on March 21, 1985, which it offered for Board adoption in lieu of the ICA proposal. The Agency proposal states as follows:

Section 402.101 Definitions

For purposes of this Chapter the following terms are defined:

"Alkaline Surface Drainage": any drainage which results in a mine discharge other than from processing or mineral preparation plants which prior to treatment has a pH equal to or greater than 6.0 and does not contact any acid producing material.

Section 405.105 Surface Drainage Control

- a) A state or NPDES permit shall include a plan for surface drainage control as a condition.
- b) The applicant's plan for surface drainage control shall be incorporated into a permit by reference if it meets the standard of Section 405.102; otherwise, the Agency shall either deny the permit or issue it with a plan modified by conditions subject to the provisions of Section 405.101.
- c) Mining activities and the deposition of mine refuse shall be planned and conducted so as to avoid contact or interference with waters of the State where such contact can reasonably be expected to cause or allow pollution of such waters.
- d) Diversion, redirection or impoundment of streams shall not be undertaken where the Agency demonstrates that there is an economically reasonable alternative.
- e) Alkaline surface drainage from the affected land of a coal mine shall be passed through a sedimentation pond before leaving the mine area. Sedimentation ponds of Section 405.105(e) shall not be subject to the effluent limitations or monitoring requirements of Part 406 for iron, manganese, or total suspended solids; and shall be designed, constructed and maintained in accordance with the following:

1) Detention Time

- A) Sedimentation ponds shall be designed, constructed and maintained to provide 24 hours of detention time for all inflow including the runoff from tributary areas which results from a 10 year -- 24 hour precipitation event, or

- B) An alternate sedimentation pond detention time is allowable provided that the applicant demonstrates that 80% removal of sediment in all inflow including the runoff resulting from a 10 year -- 24 hour precipitation event will be achieved. The applicant must demonstrate the 80% removal efficiency through one or more of the following methods:
- 1) Influent and effluent sample analyses of existing sediment ponds which treat alkaline surface drainage from tributary areas with the same soil and runoff characteristics;
 - 2) Sediment delivery, sediment removal and pond performance models;
 - 3) Soils analyses and sedimentation pond hydraulic analyses.
- 2) Sedimentation ponds of Section 405.105(e) shall include separate storage volume for sediment to accumulate.
- 3) Sedimentation ponds of Section 405.105(e) shall be inspected annually by the permittee and certification made in writing to the Agency that the pond meets the criteria of Section 405.105(e).
- 4) If the permittee determines by the annual or other inspections that the actual design, construction or operation of a sediment pond approved under Section 405.105(e) does not meet the criteria of this Subsection, the permittee shall notify the Agency in writing by certified mail within five days and identify the corrective action to be taken to achieve compliance with this Subsection.

The Agency proposed that monitoring (sampling) of settling pond discharges be abolished because of its belief that numerous samples must be taken during precipitation events in order to reliably ascertain pond performance. Tr. 2 at 112. Such sampling is not presently required, and the Agency itself believes that frequent sampling during periods of runoff is impractical. Id. at 113. The Agency proposal therefore utilizes alternative design standards (10-year, 24-hour pond size, or pond removing 80% of the sediment in the runoff) rather than an effluent standard requiring monitoring for verification of performance.

DISCUSSION OF TSS AND SS STANDARDS

All of the midwestern states, with the exception of Illinois, have adopted the SS standard. EcIS at vi. The essential difference between the TSS and SS standards is in the manner in which solids are measured. As described in the EcIS:

The analytical difference between suspended solids and settleable solids translates into differing levels of treatment technology. The suspended solids test is based upon filtering solids from the effluent through an 0.3 micron filter, drying, and measuring the residue. Thus, the suspended solids test truly measures all suspended particles greater than 0.3 microns in size in the wastewater. The settleable solids test, however, measures the volume of suspended particles which settle in an Imhoff Cone within a one hour period. (Theoretically, this would include all particles greater than 12 microns, plus varying fractions of particles with smaller diameters). Thus, small or colloidal particles will remain suspended during the settleable solids test and these particles are not measured in this test.

EcIS at 2-3.

William Telliard, Chief of the Energy and Mining Branch, Industrial Technology Division, USEPA, testified that that Agency's 1982 adoption of the SS standard resulted from "extensive engineering and statistical analysis.." Tr. 1 at 31. More specifically, Mr. Telliard related that two studies were relied upon by USEPA, both of which dealt with the application of pond design. One of the studies concluded that USEPA could not feasibly propose a national suspended solids standard applicable to all operators at all times during precipitation events. Id. at 32. The second study, which evaluated the performance of certain 10-year, 24-hour ponds in nine states (including Illinois), found that these ponds achieved 99% compliance with the SS standard. Id. at 33.

Mr. Telliard also indicated several additional reasons behind USEPA's promulgation of the SS "effluent" standard, in place of the 10-year, 24-hour "design" standard. First, USEPA found that ponds smaller than those sized to meet the 10-year, 24-hour criteria can still meet the SS standard through the application of additional technology used to aid settling. Mr. Telliard indicated it was USEPA's belief that operators should have the flexibility to choose the manner in which they comply with the applicable standard. Id. at 34. Additionally, USEPA feels that the SS measurement better reflects the true performance of a pond employing simple settling technology. Id. at 35.

The latter point was echoed in testimony presented by Victor Ordija, Supervisor for the Environmental Quality Control Department, Mid-Continent Region, Consolidation Coal Company. Mr. Ordija related that settling ponds operate on the principle that suspended particles can be entrapped in the pond by settling to the bottom. He further stated that settling ponds are not "filters", which he believes is the type of technology necessary to meet the 35 mg/l TSS limitation of Section 406.106. Id. at 65. Mr. Ordija said that the 35 mg/l standard can generally be met after several days of dry weather, but that as soon as a substantial rain occurs large runoff volumes entering the pond throw the discharge out of compliance. Id. at 64.

The Agency is opposed to adoption of the SS standard primarily for two reasons. First, it believes the standard is subject to the same impracticality regarding sampling that caused the Agency to drop sampling as a requirement within its own proposal (see p. 12, above). Second, the SS standard is based on a test which the Agency contends is not capable of measuring most of the sediment carried in runoff waters. Id. at 88.

The SS test requires that a 1000 ml water sample be placed in an Imhoff cone and allowed to settle for a one-hour period. At the end of that time the amount of settleable solids accumulated in the bottom of the cone is measured. The water column length from the water surface to the cone bottom is 15 $\frac{1}{2}$ inches. Based on Stokes' Law⁴, under standard conditions of 10 C water temperature and 2.65 g/cm³ particle density, all particles larger than .012 mm should settle to the bottom of the cone during the test. Agency Exhibit 1, at 7.

In support of its argument that the SS test is inadequate, the Agency offered testimony on its opinion regarding the types of soil particles that are/are not measured by the Imhoff cone test. Ronald Barganz, Manager, Division of Mining Pollution Control, Illinois Environmental Protection Agency, testified that "about half of the silt-size particles and all clay-size particles can't be measured as part of the settleable solids in an Imhoff cone test because they will not settle to the bottom during the time of the test" (i.e. are smaller than .012 mm). Tr. 1 at 90. He further stated that "(s)ilt and clay-size particles frequently make up 75 to 90 percent of surface soil samples and deeper unconsolidated overburden samples in the (Illinois) mining areas". Id. He concludes that "most of the solids entering a sedimentation pond...(and)...almost all the solids leaving the sedimentation pond are not measurable using this (SS) test". Id. at 91.

⁴ Stokes' Law is a relationship which expresses the settling velocity of a sediment particle as a function of properties of the particle and the fluid through which it settles.

Later questioning of Mr. Barganz, however, indicated that these particles are sometimes detected during an Imhoff test in one of several ways. A portion of the particles less than .012 mm in size that begin the 1 hour settling period in the lower portion of the cone will settle during the test. Tr. 2 at 120. Sometimes particles larger than .012 mm, as they settle through the cone will hit smaller particles, agglomerate with them, and pull the smaller particles down to the bottom. Id. at 121. Also, a standard procedure of the Imhoff test is to scrape the side of the cone 45 minutes into the settling period. Some of the smaller particles that had been at rest on the side of the cone may settle to the bottom after being scraped. Id. at 122.

Mr. Barganz also testified that, in his estimation, ponds designed to meet the SS standard will trap 20-30% of the sediment instead of the 70-90% of sediment that would have been captured by 24-hour ponds. Agency Exhibit 1, at 10. Mr. Barganz acknowledged, though, that this prediction is theoretical and is not based on actual sampling of ponds in operation. Id. at 127-8.

ECONOMIC IMPACT

The EcIS reports that of the 492 coal mining discharges in Illinois, approximately 430 would be affected by the ICA and Agency proposals. EcIS at vi. The expected economic impact of each proposal will be discussed separately.

Economic Impact of the ICA Proposal

The EcIS calculates that if the ICA proposal were adopted, the size of settling ponds built in Illinois would be expected to decrease 57% as compared to the size required by the existing regulation. EcIS at vii. This reduction would be expected to result in a savings to the coal industry of between \$3.66 and \$5.07 million annually (due to reduced construction and removal costs). Id. at 44, 96. As this proposal is projected to increase suspended solids in settling pond effluents during precipitation events by 96 mg/l (Id. at 54), costs to downstream public water supplies would be expected to increase a maximum of \$3,100 to \$19,000 per year. Id. at 84. These costs are associated with the treatment necessary to remove the additional solids.

The EcIS anticipates that adoption of the ICA proposal would result in between 28,600 and 589,000 tons per year of additional coal being mined in Illinois. EcIS at 101. Regarding the impact of adoption of the ICA proposal on economic sectors associated with the coal industry, over 240 jobs would be expected to be created (Id. at 104), and a cumulative increase in wages and

salaries of \$9 million⁵ would occur between 1986 and 1995. Id. at 106. Adoption of the ICA proposal would increase the demand for goods and services between \$17 million and \$20 million over that 10 year period, and output or supply across all direct and indirect sectors is calculated to rise by \$23 million to \$25 million over the same timeframe. Id. at 106.

Economic Impact of the Agency Proposal

The Agency proposal embodies two design alternatives, wholly distinct from one another. If required to operate under the provisions of this proposal, an operator would be required to choose one of the two pond designs. The theorized economic impacts of the two designs vary considerably, and so will be discussed separately. As already defined, Alternative "A" refers to the design and construction of a 10-year, 24-hour pond, while Alternative "B" refers to a sediment pond capable of removing 80% of the sediment from a 10-year, 24-hour event.

Economic impact of Alternative "A". The EcIS reports that adoption of the Agency's Alternative "A" would result in a cost savings to the coal industry of \$315,000 annually. EcIS at ix. This potential cost savings is attributable to the Agency's elimination of monitoring as a requirement under both its Alternative "A" and Alternative "B". The Board refers to this economic benefit as "potential" because there is some disagreement as to whether or not the benefit would exist. Douglas Downing, Supervisor, Land Reclamation Division, Illinois Department of Mines and Minerals ("IDMM") believes that this cost savings would not occur. On May 29, 1986, he submitted a letter to the Board (which has been docketed as Public Comment Number 3 in this proceeding) indicating that even if the Agency ceased requiring monitoring, 62 Ill. Adm. Code 1780.21(b)(3) and 1784.14(b)(3) would still require coal operators to sample and report the data to IDMM. Mr. Downing is therefore of the opinion that IDMM's requirements would negate any potential economic benefit accruing from the Agency's idea of eliminating monitoring. In response, Ronald Barganz, Manager, Division of Mining Pollution Control, Illinois Environmental Protection Agency, testified that in his experience when the Agency relaxes a standard pertaining to coal companies, "Mines and Minerals...very quickly follow(s) suit" (Tr. 4 at 158). IDMM requires monitoring, however, because the federal Office of Surface Mining requires compliance with USEPA regulations (which require monitoring). As Mr. Barganz also indicated in his testimony, for IDMM to be in a position to be able to forego monitoring, USEPA would have to issue a written determination indicating that the Agency's (proposed) regulation is stricter than USEPA's. Id. at 159. Ignoring, for the moment, the

⁵ In constant 1983 dollars.

question of whether Illinois can adopt regulations dealing with the mining industry which are more strict than the applicable federal regulations, the Board notes that consideration given to the question of what another Agency will or will not do involves such a great deal of speculation that not very much weight can be given to the prospect of any Agency taking one particular action or another.

The EcIS also explores other aspects of the economic impact of Alternative "A". It concludes that no savings in capital costs would occur pursuant to Alternative "A", because the size of sedimentation ponds constructed would be expected to remain the same. EcIS at 46. The EcIS indicates that Alternative "A" would cause an increased number of proposed site-specific rule changes, thereby increasing the administrative and engineering costs of compliance. Id. at 94. The EcIS theorizes this would occur since the 10-year, 24-hour design, an option under the present regulation, would become mandatory and that some mines cannot utilize the design because it is "economically and/or technically infeasible" Id. The EcIS does not quantify this cost but suggests that it be considered. Id. at 95. The EcIS also notes that adoption of Alternative "A" would continue the "dual" levels of regulation of coal mine discharges that currently exists due to the Agency's enforcement of Illinois standards and IDMM's enforcement of Illinois and federal standards. The EcIS does not quantify this cost, but states that ambiguity could be the result of reporting under and enforcing criteria with two sets of standards (Id.).

Economic impact of Alternative "B". The EcIS did not include detailed consideration of the Agency's Alternative "B". Tr. 3 at 64. Linda Huff, President of Huff & Huff, Inc., the contractor which performed the EcIS, testified that Alternative "B" was not considered because she was not sure of "how the alternative would apply. In other words, what is it that (operators) have to do in order to prove this 80% (removal of sediment)?" Id. Questioning of Ms. Huff at hearing did elicit information for the record, however, on what the probable economic impact of Alternative "B" would be. Ms. Huff stated that if the Board adopted the Agency proposal, and if all operators chose Alternative "B" as their manner of compliance, the economic benefits (cost savings) accruing to the operators would be approximately the same as that which would occur as a result of adoption of the ICA proposal. Id. at 67-9.

The Board continues to find that the overall economic impact of these proposed regulations is positive. The cost savings to coal operators in Illinois are considerable⁶, and the increased cost to public water supplies in Illinois, estimated to be in the

⁶ See December 22, 1986, comment of the Department.

area of \$3,718 to \$54,944 (Tr. 5 at 320-321), is minimal in comparison.

ENVIRONMENTAL IMPACT

Some supporters of the ICA proposal testified that because the existing regulation requires coal mine discharges to often be lower in suspended solids than the streams they discharge into, the regulation is stricter than necessary and thus should be abandoned in favor of the SS standard. Tr. 1 at 44-5, 73. The Board notes at the outset of this discussion that that line of reasoning, in and of itself, is not sufficient when determining the environmental impact of a proposed regulation. If the Board had adopted such an approach in the past, little progress would have been made in reducing the amount of pollutants in any medium. The observation made in the testimony mentioned above is but one factor for the Board to consider in evaluating the merits of the ICA and Agency proposals.

Both settleable and suspended solids can have an adverse impact on aquatic organisms. For example, the European Inland Fisheries Advisory Commission (1965) stated that water normally containing from 80 to 400 ppm (mg/l) suspended solids are unlikely to support good freshwater fisheries, although fisheries may sometimes be found at the lower concentrations within this range. EcIS at 78. Many Illinois streams fall within this category already. Id. Nevertheless, a proposal which would allow additional sediment to be discharged to the State's waterways must be carefully evaluated for the degree of adverse environmental impact stemming from it. This concern is justified because, inter alia, as discussed in the EcIS:

The addition of suspended solids will cause an increase in the silt deposition. As the sediment accumulates the benthic community will go through a transition in which those organisms typically found in this environment will be replaced by sediment dwelling organisms, such as, Chironomidae (midges) and Oligochaeta (worms) which are classified as tolerant of pollution by the Illinois Environmental Protection Agency. As the benthic community undergoes a transformation, there will also be change in the fish community with fish species, such as, Carp (Cyprinus carpio) and goldfish (Carassius auratus), which tolerate silty conditions, being the dominant fishes.

EcIS at 79.

Silt also decreases the occurrence of aquatic vegetation, due to the loss of water clarity. EcIS at 72.

The questions of the potential increase in sediment loading resulting from adoption of the SS standard, and the environmental

impact of the additional sediment loss brought about as a result, have been strenuously debated throughout the record in this matter. Not surprisingly, then, widely varying answers to these questions have been offered to the Board. To assist the Board in arriving at well-reasoned decisions on these and other questions relevant to this proceeding, the Board contracted with Dr. Billy Barfield, Professor of Agricultural Engineering at the University of Kentucky, to appear on the Board's behalf as an expert witness at the December 10, 1986, hearing. Dr. Barfield is an acknowledged expert in the area of sedimentation pond design and reservoir modeling. He is the chief author of the Sedimot II computer model, a well-known model that can be used to predict sediment pond performance. In fact, the United States Office of Surface Mining has stated in the Federal Register that this model is the preferred method of predicting sediment pond performance, (Board Exhibit 2(b)). Both the ICA and the Agency utilized Sedimot II in modeling the impacts they would expect to occur from adoption of the SS standard.

Increased Sediment Loading, as Calculated by Participants

The EcIS prepared for this proceeding predicted that adoption of the SS standard would result in an additional loading after a 2-year, 24-hour storm of 96 mg/l from a hypothetical pond designed to meet the SS standard. This equates to an increase in the annual statewide loading of 3,400 tons (EcIS at 58). In calculating this figure, the authors of the EcIS assumed that ponds designed to meet the SS standard would achieve a trapping efficiency⁷ of 90%, and that they would be 50 to 60% smaller than those currently constructed to contain runoff from 10-year, 24-hour storm events (EcIS at 54). At the December 10, 1986, hearing, Ms. Huff revised this figure in light of calculations made by the Agency through the use of Sedimot II⁸. At that time Ms. Huff stated that she felt the incremental statewide loading would be somewhere between 3,400 and 17,000 tons per year (Tr. 5 at 333).

The Agency presented calculations showing that adoption of the SS standard would increase sediment loading statewide by 7,400 tons per year⁹. The ICA presented its own calculations

⁷ The "trapping efficiency" of a sedimentation pond is the percentage of sediment particles flowing into the pond which settle or are retained in the pond, and do not flow out in the discharge from the pond.

⁸ These calculations are found in the Agency's September 5, 1986 first notice comment.

⁹ The Agency calculated that adoption of the SS standard would

through the testimony of Jim Buck of Amax Coal Company. Mr. Buck estimates that adoption of the SS standard would increase sediment loading statewide by 1,440 tons annually (Id. at 305; ICA Exhibit X).

Increased Sediment Loading,
as Calculated by Board

It is agreed by all participants that adoption of the new regulations would cause an increase in the amount of sediment released from coal mine sedimentation ponds. This agreement stems from an agreed assumption that new ponds would be sized smaller, and therefore that the trapping efficiency of the new ponds would be somewhat less than the trapping efficiency of ponds constructed under the existing regulations.

A difficulty arises in attempting to evaluate the incremental increase in sediment loadings which would be occasioned by the new regulations. As shown, numerous estimates have been presented in the record of this proceeding. All such estimates are based on reasonable authority, but are nonetheless disparate due principally to differing assumptions as well as some apparent miscalculations. Accordingly, the Board believes that the best perspective is gained by initially reviewing the basic calculations by which the incremental loadings may be estimated.

The basic relationship is that a given quantity of water with a given concentration of sediment contains a specific volume of sediment. In terms of the issue at hand, this can be restated in the form: a given quantity of runoff from a sedimentation pond which has a given concentration of sediment contains a specific sediment load or yield. Convenient units in which to cast this relationship are acre-inch per year for runoff, mg/l for sediment concentration, and pounds per acre per year for sediment yield. Given these units, a runoff of one acre-inch per year which has a concentration of 1 mg/l will produce a sediment yield of .2266 lbs/acre/yr.

increase pond discharge by .74 tons per acre following a 2-year 24-hour storm event. Multiplying this figure by 5,000 acres, which is the figure assumed by the participants to fairly represent the annual acreage disturbed by mining operations, the Agency concluded that 3,700 additional tons would be discharged following a storm event of the 2-year 24-hour magnitude. Dr. Barfield indicated at hearing that twice the discharge resulting from a 2-year 24-hour storm event for a given watershed is approximately equal to the annual discharge from that watershed (Tr. 5 at 305). Therefore, accepting that assumption, the Agency predicts an annual increased sediment loading of two times 3,700 tons, or 7,400 tons.

The next step is to consider the average annual runoff, measured in inches, which is typical of the coal mine areas of Illinois. Average annual runoff varies as a function of both climate, including annual precipitation, and local conditions of topography, vegetation, etc. Thus, average annual runoff would be most appropriately determined with site-specific data, since the runoff from mined areas may not be the same as runoff from areas where land use is different. However, absent such data, the best approximations available are the average runoff data collected by the U.S. Geological Survey in the principal coal mining areas of the State. Annual runoff in the Big Muddy Basin, as measured at Murphysboro, averaged 11.23 inch/yr prior to the construction of Rend Lake, and has averaged 12.20 inch/yr subsequent to the construction of the lake. Annual runoff in the basin of the South Fork of the Saline River, as measured at Carrier Mills, has averaged 14.97 inch/yr. These two stations are generally typical of the coal mining region of southern Illinois. The La Moine River, as measured at Colmar, and which has had an average annual runoff of 9.45 inch/yr, probably provides a more realistic estimate for runoff in the coal mining areas of western Illinois. Given these data, it is reasonable to assume a value of approximately 13.0 inches per year for runoff in the southern part of the State, and approximately 10.0 inches per year in the western part of the State.

The second step is to estimate the average sediment concentration in that runoff which passes through sediment ponds. This is the most difficult of the estimates to make, partially because the paucity of data and partially because sediment concentrations experience such wide extremes that a very large data set is necessary to calculate a meaningful average. An additional compounding factor associated with the large variability exhibited by sediment concentration data is that high concentrations tend to coincide with large discharges. Thus, high percentages of the total load are transported during just that small fraction of the time which corresponds to high discharges, and also concentrations averaged over the full spectrum of discharge events are not likely to be representative of the average "effective" concentration. For these reasons, it is most appropriate to consider the average concentration as that concentration which typifies a fairly high discharge event. During the course of this proceeding, the discharge event which has been so considered has been the runoff event produced by the 2-year rainfall, which is the maximum rainfall event to be expected in any two-year period. This event is not entirely arbitrarily chosen, but rather has some standing in the field of sediment studies as the event most commonly used by authorities. The Board will accordingly use this event in the following analysis, and subsequent use of "average concentration" will be assumed to be synonymous with the average sediment concentration being discharged from a sedimentation pond after a runoff event occasioned by a 2-year rainfall. It is further instructive to note that on the average the 2-year rainfall tends

to carry approximately one-half of the average annual runoff (see footnote 9). Thus, based on the figures cited above, the 2-year rainfall would produce a runoff event of approximately 6.5 inches in the southern part of the State and 5.0 inches in the western part of the State.

Three different estimates of average sediment concentration from ponds are of interest. These are the average concentrations under the present regulations, sediment concentrations which could be expected assuming adoption of the proposed regulations, and the increment of concentration change which would be expected were the regulations to be adopted. The latter, which is equivalent to the difference between the two other average concentrations, is of principal interest because from this figure the incremental loading associated with adoption of the proposed regulations can be calculated.

Unfortunately, there are poor or conflicting data regarding both present average concentrations and average concentrations under the proposed regulations. It is therefore necessary to consider possible ranges of values. Considering first the average concentrations from ponds under the present regulations, the EcIS cites the figure of 96 mg/l. This is generally at the low end of estimates that have been provided in the record, but is consistent with the figures most commonly cited by members of the Coal Association (see, for example, Tr. 5 at 340, 342). Dr. Barfield indirectly provided an estimate which lies at the high end of the range. Barfield estimated that effluent concentrations from a pond which had a 90% trapping efficiency, or from which 10% of the sediment would escape, would be about 5000 mg/l. Since it is generally agreed that ponds designed according to the present regulations have a trapping efficiency of about 95%, which is equivalent to allowing 5% of the sediment to escape, Dr. Barfield's figures implies that present pond effluent concentrations would be approximately one-half of 5000 mg/l, or 2500 mg/l (i.e., an equivalent amount of water would discharge, but the water would contain only half as much sediment).

Both the EcIS and the Barfield estimates are open to some question. The EcIS estimate was criticized as having been based on data collected during periods of only fairly low discharges (Tr. 5 at 335-336), and thus as not being representative of the higher concentrations typical of high pond discharges. Conversely, the Barfield data is based principally on Dr. Barfield's experience and actual field measurements made in the Appalachian coal province, which is characterized by substantially greater relief, and hence also likely greater runoff and erosion, than typifies the coal mining areas of Illinois. There is further question regarding the Barfield data concerning whether the Barfield ponds were constructed in a fashion comparable to ponds constructed under Illinois' present regulations. In spite of these questions, these two estimates

serve as useful likely extremes with which to define the possible range of average sediment concentrations from ponds constructed according to present Illinois regulations.

Given the range of average concentrations for existing ponds, as presented in the two preceeding paragraphs, it is relatively straightforward to estimate the average concentration to be expected from ponds constructed according to the proposed regulations. This simplicity stems from the accepted relationship, as previously noted, that the proposed regulations would result in a trapping efficiency decrease from 95% to 90%. Since, as also previously noted, the same amount of discharge occurs in either case, it follows that the average concentrations under the proposed regulations would be twice the average concentrations which exist under the present regulations. Using the EcIS estimate this would be 192 mg/l, and using the Barfield estimate this would be 5000 mg/l.

The range of incremental increase in average concentrations which would be allowed from ponds constructed according to the proposed regulations is then the difference between the two sets, or 96 mg/l for the EcIS data and 2500 mg/l for the Barfield data.

All the data necessary for utilizing the beginning runoff/concentration/yield relationship are now assembled, and the basic question of what would be the incremental increase in sediment yield given adoption of the proposed regulations may be addressed. The following table shows the expected incremental sediment loading under the various runoff and sediment concentration scenarios:

<u>Average Annual Runoff (in/yr)</u>	<u>Average Incremental Concentration (mg/l)</u>	<u>Incremental Sediment Loading (lbs/acre/yr)</u>
10.0	96	218
13.0	96	283
10.0	2500	5665
13.0	2500	7364

A useful dimension which may be added to this analysis is to consider the incremental sediment loadings in terms of tons per acre per year, which is the conventional unit used in discussion of sediment yields from agricultural lands, construction sites, and other similar areas where sediment yields are of interest. This is accomplished by dividing the right hand column above by 2000 lbs/ton. A second useful dimension is to consider the total statewide incremental increase in sediment load. This may be accomplished by noting that there are at any given time, approximately 5000 acres of disturbed land in Illinois which are tributary to coal mine sedimentation ponds. If it is assumed that all of this acreage were eventually converted to being

tributary to ponds constructed under the proposed regulations, the total incremental tonnage would be 5000 times the incremental tonnage calculated according to the procedure outlined at the beginning of this paragraph. The following data are thus produced:

<u>Average Annual Runoff (in/yr)</u>	<u>Average Incremental Concentration (mg/l)</u>	<u>Incremental Sediment Loading (tons/acre/yr)</u>	<u>Statewide Incremental Sediment Loading (tons/yr)</u>
10.0	96	.109	545 ¹⁰
13.0	96	.141	707
10.0	2500	2.83	14,162
13.0	2500	3.68	18,411

As the preceding discussion suggests, the most probable incremental loadings are likely be between the extremes presented above.

With these data in mind, the Board remains convinced that little adverse environmental impact will occur as a result of adopting the SS standard. As illustration, the following worst-case scenario can be developed. The Big Muddy River and Saline River basins receive over two-thirds of the mining discharges in Illinois (EcIS at 65). Taking the highest estimate in the record for statewide incremental sediment loading in tons per year (18,411), and further assuming that all the ponds in the two drainage basins are designed according to the proposed standards, a maximum of approximately 12,500 additional tons might be anticipated to be discharged to those two river basins. The record also indicates that the existing sediment load for the Big Muddy River Basin is on the order of 255,900 tons per year (EcIS at 58). Although the record does not contain a similar estimate of the sediment load of the Saline River, it is reasonable to assume, given the similarity in drainage basin characteristics, that the unit area production of sediment in the Saline Basin is similar to that in the Big Muddy Basin. Therefore, since the

¹⁰ The Board realizes that the figure put forward in the EcIS as representing the statewide annual incremental sediment loading in tons per year (assuming all ponds were designed according to the SS standard) is 3,400 tons (EcIS at 58). The Board believes, however, that that figure is not consistent with the EcIS conclusion that adoption of the SS standard would cause a 96 mg/l increase in the sediment levels discharged from sedimentation ponds following a 2-year 24-hour storm event. By accepting the latter finding of the EcIS, the Board has found it necessary to revise (downward) the 3,400 ton figure (as shown above). The Board believes its revised figures to have been correctly derived and calculated.

Saline and Big Muddy Rivers have drainage areas of 1177 and 2387¹¹ square miles, respectively, the total existing sediment yield from the two basins combined would be approximately 382,000 tons per year. The worst case scenario would thus cause a 3.3% increase in the sediment load of the two basins combined.

The Board is confident that this analysis grossly overstates what the actual incremental sediment load would be, since it is predicated on the severest possible assumptions. Conversely, if one were to accept as being more reasonable the EcIS conclusion that the statewide incremental sediment loading would be 3,400 tons per year, the same analysis provides an estimate of only a 0.6% increase in sediment load in the two basins combined. A still lower estimate of 0.1% is arrived at if the statewide incremental loading of 707 tons per year, as previously derived, is assumed.

The Board notes that the above analysis should not be construed as supporting a view that a 3.3% increase in the annual sediment loading of the Saline and Big Muddy Rivers is necessarily insignificant. Rather, the Board presents the discussion only for the purpose of showing that even under the worst possible conditions the projected incremental sediment loading is a small number, and additionally that under more realistic assumptions than provided for by the worst case scenario, the incremental sediment loading would be smaller still.

The Board must also make one other note regarding the potential environmental impact stemming from adoption of the SS standard. The Agency has, admittedly, had concerns throughout this proceeding regarding the increased sedimentation which might occur if the ICA proposal is adopted. These concerns have caused the Agency to vigorously oppose the adoption here of the SS standard. In support of its position, and ostensibly to give the Board more options in this proceeding, the Agency offered a proposal of its own in lieu of the ICA proposal (see pgs. 10-12, above). During the first notice period, the Agency submitted comments which included projections, compiled through the use of Sedimot II, of the performance of several hypothetical sedimentation ponds sized according to the requirements of the SS standard. The Agency had assumed that such ponds would remove only 20-30% of the inflowing sediment. However, the two SS-sized ponds the Agency asked Sedimot II to evaluate during a theorized 10-year, 24-hour storm event both trapped 82% of the inflowing sediment (Board Exhibit 3, p. 49), and therefore would have satisfied Alternative B of the Agency's proposal. Sedimot II, an

¹¹ Drainage areas are from U.S. Geological Survey Water Resources Investigations 79-110, "River Mileages and Drainage Areas for Illinois Streams".

analytical tool widely regarded as the most authoritative model of its kind, thus predicts that the increased sediment loading will be significantly less than that feared by the Agency.

MONITORING DURING PRECIPITATION EVENTS

Adoption of a performance-based pond-design standard (such as the SS standard) requires that periodic monitoring be done to insure that ponds continue to meet the requisite level of performance. For this reason, the Board proposed for adoption at first notice Section 406.102(i), which read in full as follows:

At least one sample shall be collected during the time period the alternate limitations for precipitation events in 406.109 and 406.110 are in effect. The operator shall have the burden of proof that the discharge or increase in discharge was caused by the applicable precipitation event.

The Board intended that Section 406.102(i) would require one sample to be taken from each pond during each precipitation event. The comments received at first notice reflected disagreement with the section.

The ICA has contended that it could be "impossible to comply" with Section 406.102(i), as "(m)anpower to sample all of the ponds for each event is neither available, nor realistic" (comments of the Illinois Coal Association Re: R84-29, September 12, 1986). The ICA suggested instead that monitoring be limited to the collection of one quarterly sample from each pond, taken during a precipitation event.

The Agency, on the other hand, has argued that the Board's proposed requirement of one sample per pond per precipitation event is "insufficient to effectively judge a pond's performance in actual operation" (comments of the Illinois Environmental Protection Agency, September 15, 1986). The Agency stated that "meaningful" sampling requires that "multiple samples (be taken) during the rising leg, at or near the peak and on the falling leg of the hydrograph" (*Id.*). Alternatively, the Agency suggested that if the Board decides to not require multiple sampling during each precipitation event, then it should specify where on the runoff hydrograph (rising leg, peak, or falling leg) the sample should be collected.

The Board concluded in its second notice Opinion and Order that a middle ground between the ICA and Agency viewpoints has the most merit in this instance. Although Section 406.102(i) as proposed at first notice did reflect a position between those of the ICA and the Agency, the Board believed it necessary to further refine the requirements of the section. The Board was persuaded that a required sampling frequency of one sample per

pond per precipitation event may be an onerous burden, particularly in regard to those operators which may have dozens of ponds on a single mining site. Therefore, the Board proposed at second notice, and adopts today, the requirement that three samples be taken per pond per quarter, during three separate periods in which the alternate limitations for precipitation events are in effect. Formally, establishment of this requirement was accomplished by deleting the formerly proposed Section 406.102(i), and amending Section 406.102(d) in the following manner:

- d) At a reasonable frequency to be determined by the Agency, the permittee shall report the actual concentration or level of any parameter identified in the state of NPDES permit. Each report submitted pursuant to this subsection shall include at least three samples taken from each pond discharge during three separate periods occurring during that reporting period in which the alternate limitations for precipitation events of Section 406.109 and 406.110 were in effect. If such alternate limitations are in effect on fewer than three separate occasions during a reporting period, one sample shall be taken of each pond discharge during each occasion in that period when the alternate limitations are in effect. The operator shall have the burden of proof that the discharge or increase in discharge was caused by the applicable precipitation event.

The Board believes that the monitoring requirements as now adopted impose a more reasonable demand on the manpower capabilities of mine operators, yet at the same time will provide a substantial data base from which the performance of sedimentation ponds can be calculated and assessed.

SODIC SOILS

The hearing conducted in this matter on December 10, 1986, generated a subject of interest which had previously not been one of the plethora of issues which were already present in this proceeding. The new issue concerns "sodic" soils, or those soils having uncharacteristically high levels of "free" sodium (Tr. 5 at 19). The occurrence of sodic soils is significant because the particles of soils having that condition will not tend to flocculate, but will rather tend to disperse (Id.). Because such particles resist settling, the discharges of ponds receiving runoff from sodic soil areas may contain high levels of total suspended solids yet meet the SS standard.

The topic of sodic soils was raised at hearing by Dr. Barfield, who is familiar with studies concerning the existence of sodic soil conditions in Kentucky (Id. at 47-48). Dr. Barfield also indicated that he knows of a consultant who has

done work concerning some Illinois watersheds and has found some isolated instances of sodic soils in Illinois (Id. at 163).

At this point in time the Board can only state that questions such as whether sodic soils exist in Illinois, where they exist, and what impact they have on the monitoring of sedimentation pond performance warrant more investigation and study. The Board has searched for additional information on this subject, but has been unable to locate answers to these and other questions. Even Dr. Barfield was unable to quantitatively define a soil that might be considered "sodic" (Id. at 47-48), and did not have any personal knowledge concerning the location of sodic soils in Illinois (Id. at 163). If in the future it is discovered that sodic soils exist in Illinois in some significant degree, a future Board may do well to consider amending these regulations to reflect the existence of such soils and the ramifications they pose to the monitoring of pond performance.

AGENCY'S JUNE 22, 1987, MOTION

On June 22, 1987, the Agency filed a Motion for Clarification and Modification in which it requests that the Board, inter alia, modify the definition of "acid or ferruginous mine drainage", and make a conforming modification to the definition of "alkaline mine drainage". The Agency contends that, contrary to the general acknowledgement that most Illinois mine drainage is alkaline, the definition as drafted would require that Illinois mine drainage be classified as ferruginous mine drainage,. The Agency contends this to be the case since ferruginous mine drainage is defined as mine drainage which has an iron concentration greater than 10 mg/l, and since the wet weather runoff from Illinois mines typically contains more than 10 mg/l of total iron. The Agency's proposed modification would clarify that the test of whether the drainage is ferruginous is not to be conducted on wet weather runoff, but rather under base flow or low flow conditions. The conforming modification to the definition of "alkaline mine drainage" would include a similar proviso.

The Board believes that the Agency's proposed modification would serve a useful purpose of clarification. The reading that the test for ferruginous drainage is to be made under base flow or low flow conditions is the reading which has been historically applied to this definition. However, the Board does not believe that the modification is either essential or advisable at this time. The definitions in question have been drawn directly from definitions used in federal regulations, in conformity with the intent of making the Illinois regulations mirror as closely as possible the federal regulations. The issue of whether the test for ferruginous drainage may be made under wet weather runoff conditions had apparently not arisen under the federal

regulations until raised by the Agency. In response to an inquiry from the Agency to the USEPA, the USEPA has noted:

This letter is to advise the State that the determination of whether a coal mine should be classified in the acid/ferruginous or alkaline subcategory of the coal mine point source category may be made on the basis of base flow or low flow conditions.

Agency Ex. 23, Attach. V

It is thus clear that the interpretation which the Agency intends for these definitions is already permissible under federal interpretation, without needed additional modification.

There is the further practical matter of adopting a modification at this late stage in this proceeding. The entire rule has proceeded through both first and second notice. Moreover, the first notice period expires on August 1, 1987. Accordingly, it would seem necessary that if the Board were to make the modifications, it would have to begin the entire noticing process anew. The rulemaking has already been drawn out longer than is reasonable, and the Board does not believe that the uncertain gain in clarity justifies any more delay in adoption of the overall rule.

The Agency additionally requested in the June 22, 1987, motion that "coal preparation plants and plant associated area" be included in the exceptions specified in 406.110(c). For the reasons noted above, the Board also believes that the merits of this modification do not justify delaying the final adoption of the rule.

ORDER

The Clerk of the Pollution Control Board is directed to submit the following adopted rules to the Secretary of State for final notice:

**TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE D: MINE RELATED WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD**

**PART 402
DEFINITIONS**

Section

**402.100 Terms Defined Elsewhere
402.101 Definitions**

AUTHORITY: Authorized by Section 27 and implementing Sections 12 and 13 of the Illinois Environmental Protection Act (Ill. Rev. Stat., ch. 111 1/2, pars. 1012, 1013 and 1027) unless otherwise noted.

SOURCE: 4 Ill. Reg. no. 34, p. 164, effective August 7, 1980; Codified 5 Ill. Reg. no. 34, p. 8527, effective August 21, 1981 unless otherwise noted; Amended at _____ Ill. Reg. _____, effective _____.

Section 402.100 Terms Defined Elsewhere

Unless otherwise stated or unless the context clearly indicates a different meaning, the definition of terms used in this Chapter are the same as those found in the Illinois Environmental Protection Act (Act), (Ill. Rev. Stat. 1979, ch. 111 1/2, Section 1001 et seq.), the Water Pollution Regulations of the Illinois Pollution Control Board (Subtitle C, Chapter I) and the Federal Water Pollution Control Act of 1972 (FWPCA) (33 U.S.C. 1251 et seq., 1972 as amended). The following definitions which apply to this Chapter can be found in the Act, Subtitle C, Chapter I or the FWPCA: **Administrator, Agency, Board, Contaminant, Effluent, Federal Water Pollution Control Act (FWPCA), National Pollutant Discharge Elimination System (NPDES), Point Source Discharge, Pollutant, Refuse, Storet, Treatment Works, Underground Waters, Wastewater, Wastewater Source, Water Pollution and Waters.**

Section 402.101 Definitions

For purposes of this Chapter the following terms are defined:

"Abandon": to transfer ownership of or to close down mining activities, a mine or mine refuse area with no intention by that operator to reopen the affected land. A mine or mine refuse area which has been inoperative for one year shall be rebuttably

presumed to be abandoned.

"Acid or Ferruginous Mine Drainage": mine drainage which, before any treatment, has a pH of less than 6.0 or a total iron concentration greater than 10 mg/L.

"Acid-producing Material": material which when exposed to air and water is capable of causing drainage containing sulfuric acid. In determining whether material is acid-producing, consideration shall be given to the sulfur content of the material, the size and spatial distribution of pyritic compounds and other compounds of sulfur, the neutralizing effect of surrounding intermixed materials and the quality of drainage produced by mining on sites with similar soils.

"Affected Land": any land owned or controlled or otherwise used by the operator in connection with mining activities except the surface area above underground mine workings that is not otherwise used for mining activities. The term does not include offsite office buildings and farming operations or recreational activities on undisturbed land. Land described in a certificate of abandonment issued by the Agency under Section 405.110(e) is no longer part of the affected land.

"Alkaline Mine Drainage": mine drainage which, prior to treatment, has a pH equal to or greater than 6.0 and a total iron concentration of less than 10 mg/L/.

"Aquifer": a zone, stratum or group of strata which can store and transmit water in sufficient quantities for a specific use.

"Base Flow": any flow which is not a result of immediate runoff from precipitation. It includes, but is not limited to, groundwater flow, mechanical pumpages, springs, discharges from subsurface drainage systems, and controlled outfalls from other treatment works. It is normally any flow beyond 24 hours after the rainfall ceases.

"Coal Preparation Plant": a facility where coal is subjected to cleaning, concentrating, or other processing or preparation in order to separate coal from its impurities.

"Coal Preparation Plant Associated Areas": coal preparation plant yards, immediate access roads, coal refuse piles and coal storage piles and facilities.

"Coal Refuse Disposal Pile": any coal refuse permanently deposited on the earth or stored for more than 180 days. It does not include coal refuse deposited within the active mining area or coal refuse never removed from the active mining area.

"Coal Transfer Facility or Coal Storage Yard": any area where coal is transferred from one mode of transportation to another or

where coal is dumped, piled, stored or blended. The term includes but is not limited to coal docks, blending yards, conveyor belts and pipelines. As used in this Chapter, the terms mining activity and mine related facility shall include coal transfer facilities and coal storage yards.

"Construction Authorization": authorization under Section 403.104 to prepare land for mining activities or to construct mine related facilities. Construction authorization is issued to a person who holds or is required to have an NPDES permit.

"Construction Permit": a state permit issued under Section 404.101 which allows the operator to prepare land for mining activities or to construct mine related facilities.

"Controlled Surface Mine Drainage": any surface mine drainage that is pumped or siphoned from a mine area or mined area.

"Domestic Retail Sales Yard": a business which stockpiles coal or other materials solely for the purpose of supplying homeowners, small businesses, small industries or other institutions with the mineral for their individual consumption. The term does not include any sales yard located at a mine.

"Drainage Course": any natural or man-made channel or ditch which serves the purpose of directing the flow of water into a natural waterway.

"Facility": a contiguous area of land, including all structures above or below the ground, which is owned or controlled by one person.

"Mine Area or Mined Area": the surface and subsurface land where mining has occurred or is occurring. The term does not include the unmined surface land directly above underground mine workings which is not otherwise disturbed by mining activities.

"Mine Discharge": any point source discharge, whether natural or man-made, from a mine related facility. Such discharges include but are not limited to mechanical pumpages, pit overflows, spillways, drainage ditches, seepage from mine or mine refuse areas, effluent from processing and milling or mineral preparation plants. Other discharges including but not limited to sanitary sewers and sewage treatment works are not mine discharges. The term mine discharge includes surface runoff discharged from a sedimentation pond but does not include non-point source mine discharges.

"Mine Refuse": gob, coal, rock, slate, shale, mill tailings, boney, clay, pyrites and other unmerchantable solid or slurry material intended to be discarded which is connected with the cleaning and preparation of mined materials at a preparation plant or washery. It includes sludge or other precipitated

matter produced by the treatment of acid mine drainage but does not otherwise generally include sediment from alkaline mine drainage. The term also includes acid-producing spoil.

"Mine Refuse Area": any land used for dumping, storage or disposal of mine refuse.

"Mine Refuse Pile": any deposit of solid mine refuse which is intended to serve as permanent disposal of such material.

"Mine Related Facility": a portion of a facility which is related to mining activities. The term includes, but is not limited to, the following:

- a) Affected land;
- b) Coal storage yard or transfer facility;
- c) Mine;
- d) Mine drainage treatment facility;
- e) Mine refuse area; and
- f) Processing or mineral preparation plant.

"Mining": the surface or underground extraction or processing of natural deposits of coal, clay, fluorspar, gravel, lead bearing ores, peat, sand, stone, zinc bearing ores or other minerals by the use of any mechanical operation or process. The term also includes the recovery or processing of the minerals from a mine refuse area. It does not include drilling for oil or natural gas.

"Mining Activities": all activities on a facility which are directly in furtherance of mining, including activities before, during and after mining. The term does not include land acquisition, exploratory drilling, surveying and similar activities. The term includes, but is not limited to, the following:

- a) Preparation of land for mining activities;
- b) Construction of mine related facilities which could generate refuse, result in a discharge or have the potential to cause water pollution;
- c) Ownership or control of a mine related facility;
- d) Ownership or control of a coal storage yard or transfer facility;
- e) Generation or disposal of mine refuse;

- 55
- f) Mining;
 - g) Opening a mine;
 - h) Production of a mine discharge or non-point source mine discharge;
 - i) Surface drainage control; and
 - j) Use of acid-producing mine refuse.

"Mountaintop Removal": surface coal mining and reclamation operations that remove entire coal seams running through the upper fraction of a mountain, ridge, or hill by removal of all of the overburden and create a level plateau or gently rolling contour with no highwalls remaining.

"New Source Coal Mine": a coal mine, including an abandoned mine which is being remined, at which:

- a) Construction commenced after May 4, 1984; or
- b) A major alteration has resulted in a new, altered or increased discharge of pollutants. Major alterations are:
 - 1) Extraction from a coal seam not previously extracted by that mine;
 - 2) Discharge into a drainage area not previously affected by wastewater discharge from that mine;
 - 3) Extensive new surface disruption at the mining operation; and
 - 4) Construction of a new shaft, slope or drift.

"Non-point Source Mine Discharge": surface runoff from the affected land. The term does not include surface runoff which is discharged from a sedimentation pond or seepage from a mine or mine refuse area.

"Opening a Mine": any construction activity related to preparation for mining on a facility.

"Operating Permit": a state permit required of a person carrying out mining activities.

"Operator": a person who carries out mining activities.

"Permittee": a person who holds a state or NPDES permit issued under this Subtitle D, Chapter I. In some contexts the term permittee also includes a permit applicant.

"Person": any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, political subdivision, state agency, or any other legal entity, or their legal representative, agent or assigns.

"Processing or Mineral Preparation Plant": a facility used for the sizing or separation from the ore or raw mineral of coal, clay, fluorspar, gravel, lead bearing ores, peat, sand, stone, zinc bearing ores or other materials.

"Reclamation Area": the surface area of a coal mine which has been returned to the contour required by permit and on which revegetation work has commenced.

"Slurry": mine refuse separated from the mineral in the cleaning process consisting of readily pumpable fines and clays and other materials in the preparation plant effluent. This term includes mill tailings.

"Spoil": the accumulation of excavated overburden or other earth, dirt or rock overlying the mineral seam or other deposit excavated from its original location by surface or underground mining.

"State Permit" a construction permit or operating permit issued by the Agency. NPDES permits are not state permits.

"Steep Slope": any slope of more than 20 degrees.

"Surface Drainage Control": control of surface water on the affected land by a person who is engaging in mining activities. Control of surface water includes diversion of surface waters around or away from the active mining area or mine refuse area and diversion, redirection or impoundment of a stream or impoundment of water for flow augmentation or controlled release of effluents.

"Surface Mining": mining conducted in an open pit including area and contour strip mining.

"Underground Mining": mining conducted below the surface by means of constructing an access facility to the mineral deposit. The term includes slope, drift, shaft mines and auger or punch mining.

"Use of Acid-producing Mine Refuse": use of acid-producing mine refuse includes any use, offer for sale, sale or offer for use in roadway projects, mine roads, mine yards or elsewhere.

(Source: Amended in R84-29 at _____ Ill. Reg. _____, effective _____.)

**TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE D: MINE RELATED WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD**

**PART 406
MINE WASTE
EFFLUENT AND WATER
QUALITY STANDARDS**

SUBPART A: EFFLUENT STANDARDS

Section	
406.100	Preamble
406.101	Averaging
406.102	Sampling, Reporting and Monitoring
406.103	Background Concentrations
406.104	Dilution
406.105	Violation of Water Quality Standards {Renumbered} <u>Commingling of Waste Streams</u>
406.106	<u>Effluent Standards for Mine Discharges</u>
406.107	Offensive Discharges
406.108	Non-point Source Mine Discharges
406.109	<u>Effluent Standards for Discharge from Reclamation Areas</u>
406.110	<u>Alternate Effluent Standards for Precipitation Events</u>

SUBPART B: WATER QUALITY STANDARDS

Section	
406.201	Temporary Exemption from Section 406.105 (Repealed)
406.202	Violation of Water Quality Standards
406.203	TDS Related Permit Conditions
406.204	Good Mining Practices
406.205	Contact with Disturbed Areas
406.206	Retention and Control of Exposed Waters
406.207	Control of Discharge Waters
406.208	Unconventional Practices
406.209	Expiration of Former Exemptions

AUTHORITY: Implementing Sections 12 and 13 and authorized by Section 27 of the Illinois Environmental Protection Act (Ill. Rev. Stat. 1983, ch. 111 1/2, pars. 1012, 1013 and 1027).

SOURCE: Adopted in R76-20, R77-10, 39 PCB 196, at 4 Ill. Reg. 34, p. 164, effective August 7, 1980; codified at 5 Ill. Reg. 8527; emergency amendment in R83-6B at 7 Ill. Reg. 8386, effective July 5, 1983, for a maximum of 150 days; amended in R83-6B at 7 Ill. Reg. 14510, effective October 19, 1983; amended in R83-6A at 8 Ill. Reg. 13239, effective July 16, 1984; amended in R84-29 at _____ Ill. Reg. _____, effective _____.

Section 406.101 Averaging

- a) Compliance with the numerical standards of this part shall be determined on the basis of 24-hour composite samples averaged over any calendar month. In addition, no single 24-hour composite sample shall exceed two times the numerical standards prescribed in this part nor shall any grab sample taken individually or as an aliquot of any composite sample exceed five times the numerical standards prescribed in this part.
- b) Subsection (a) of this section notwithstanding, if a permittee elects monitoring and reporting by grab samples as provided in Section 406.102(f), then compliance with the numerical standards of this part shall be determined on the basis of three or more grab samples averaged over a calendar month. In addition, no single grab sample shall exceed two times the numerical standards prescribed in this part.
- c) The numerical standards for settleable solids are maximum values not to be exceeded at any time and are not subject to averaging.
- d) The numerical standards for pH shall be within the specified range at all times and are not subject to averaging.

(Source: Amended in R84-29 at _____ Ill. Reg. _____, effective _____.)

Section 406.102 Sampling, Reporting and Monitoring

- a) Where treatment is provided for a discharge, effluent samples shall be taken at a point after the final treatment process and before entry into or mixture with any waters of the state.
- b) Where treatment is provided the permittee shall design or modify structures so as to permit the taking of effluent samples by the Agency at the required point.
- c) Where treatment is not provided for a discharge, effluent samples shall be taken at the nearest point of access to the discharge source at a point where the discharge leaves the mine or mine area or other portions of the affected land, but in all cases effluent samples shall be taken before entry into or mixture with waters of the state.
- d) At a reasonable frequency to be determined by the Agency, the permittee shall report the actual

concentration or level of any parameter identified in the state or NPDES permit. Each report submitted pursuant to this subsection shall include at least three samples taken from each pond discharge during three separate periods occurring during that reporting period in which the alternate limitations for precipitation events of Section 406.109 and 406.110 were in effect. If such alternate limitations are in effect on fewer than three separate occasions during a reporting period, one sample shall be taken of each pond discharge during each occasion in that period when the alternate limitations are in effect. The operator shall have the burden of proof that the discharge or increase in discharge was caused by the applicable precipitation event.

- e) The Agency may by permit condition require monitoring and reporting on the basis of 24-hour composite samples averaged over calendar months. However, grab samples or composite samples of shorter duration may be permitted by the Agency after demonstration that such samples reflect discharge levels over standard operating conditions.
- f) Subsection (e) of this Section notwithstanding, if a permittee so requests, the Agency shall by permit condition require monitoring and reporting on the basis of grab samples, in which case Section 406.101(b) will apply.
- g) Monitoring as required in this rule shall continue after abandonment until the permittee has reasonably established that drainage complies with and will continue to comply with the requirements of the Act and this Chapter.
- h) All methods of sample collection, preservation and analysis used in applying any of the requirements of this Chapter shall be in accord with the United States Environmental Protection Agency's current manual of practice or with other procedures acceptable to the United States Environmental Protection Agency and the Agency.

(Source: Amended in R84-29 at _____ Ill. Reg. _____, effective _____.)

Section 406.105 **Violation of Water Quality Standards**
(Renumbered) Commingling of Waste Streams

Where waste streams from any facility described in this Part are combined for treatment or discharge with other waste streams from another facility, the concentration of each pollutant in the

combined discharge may not exceed the most stringent limitations for that pollutant applicable to any component waste stream of the discharge.

(Source: Amended in R84-29 at _____ Ill. Reg. _____, effective _____.)

Section 406.106 Effluent Standards for Mine Discharges

- a) The effluent limitations contained in 35 Ill. Adm. Code 304 shall not apply to mine discharges or non-point source mine discharges.
- b) No person shall cause or allow Except as provided in 35 Ill. Adm. Code 406.109 and 406.110, a mine discharge effluent to shall not exceed the following levels of contaminants:

Constituent	Storet Number	Concentration
Acidity	00435	(total acidity shall not exceed total alkalinity)
Iron (total)	01045	3.5 mg/l
Lead (total)	01051	1 mg/l
Ammonia Nitrogen (as N)	00610	5 mg/l
pH	00400	(range 6 to 9)
Zinc (total)	01092	5 mg/l
Fluoride (total)	00951	15 mg/l
Total suspended solids	00530	35 mg/l
Manganese	01055	2.0 mg/l

1) pH is not subject to averaging.

2) The ammonia nitrogen standard is applicable only to an operator utilizing ammonia in wastewater treatment.

3) Any overflow, increase in volume of a discharge or discharge from a by-pass system caused by precipitation or snowmelt shall not be subject to the limitations of this Section. This exemption shall be available only if the sedimentation basin or treatment works is designed, constructed and maintained to contain or treat the volume of water which would fall on the areas tributary to the discharge, overflow or bypass during a 10-year, 24-hour or larger precipitation event (or snowmelt of equivalent volume). The operator shall have the burden of demonstrating that the prerequisites to an exemption set forth in this subsection have been

met-

42) The manganese effluent limitation is applicable only to discharges from facilities where chemical addition is required to meet the iron or pH effluent limitations. The upper limit of pH shall be 10 for any such facility that is unable to comply with the manganese limit at pH 9. The manganese standard is not applicable to mine discharges which are associated with areas where no active mining, processing or refuse disposal has taken place since May 13, 1976.

c) New source coal mines shall be subject to a total iron limitation of 3.0 mg/l in addition to the requirements of subsection b) above.

(Source: Amended in R84-29 at _____ Ill. Reg. _____, effective _____.)

Section 406.109 Effluent Standards for Coal Mine Discharges from Reclamation Areas

a) The effluent limitations contained in 35 Ill. Adm. Code 304 and 406.106 shall not apply to mine discharges from reclamation areas.

b) A mine discharge effluent from a reclamation area shall not exceed the following levels of contaminants:

<u>Constituent</u>	<u>Storet Number</u>	<u>Concentration</u>
<u>Settleable solids</u>		<u>0.5 ml/l</u>
<u>pH</u>		<u>00400(range 6-9)</u>

c) Notwithstanding b), above, any discharge, or increase in the volume of discharge caused by precipitation within any 24 hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall be subject only to a pH limitation (range 6-9).

(Source: Adopted in R84-29 at _____ Ill. Reg. _____, effective _____.)

Section 406.110 Alternate Effluent Standards for Coal Mine Discharges During Precipitation Events

a) Discharges of alkaline mine drainage (except discharges from underground mines that are not commingled with other discharges eligible for these alternate limits), discharges from mountaintop removal operations,

discharges from steep slope areas, and discharges from coal preparation plants and plant associated areas, except for drainage from coal refuse disposal piles are eligible for alternate effluent limitations during precipitation events. Any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may comply with the following limitations instead of those in 406.106(b):

<u>Constituent</u>	<u>Storet Number</u>	<u>Concentration</u>
<u>Settleable solids</u>		<u>0.5 ml/l</u>
<u>pH</u>		<u>00400(range 6-9)</u>

- b) Discharges of acid or ferruginous mine discharge from coal refuse disposal piles are eligible for alternate effluent limitations during precipitation events. Any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period greater than the 1-year, 24-hour precipitation event and less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may comply with the following limitations instead of those in 406.106(b):

<u>Constituent</u>	<u>Storet Number</u>	<u>Concentration</u>
<u>Settleable solids</u>		<u>0.5 ml/l</u>
<u>pH</u>		<u>00400(range 6-9)</u>

- c) Discharges of acid or ferruginous mine drainage (except for discharges in subsection (b), above, mountaintop removal areas, steep slope areas, controlled surface mine discharges and discharges from underground workings):

- 1) caused by precipitation within any 24 hour period less than or equal to the 2-year, 24-hour precipitation event (or snowmelt of equivalent volume) may comply with the following limitations instead of those in 406.109(b):

<u>Constituent</u>	<u>Storet Number</u>	<u>Concentration</u>
<u>Settleable solids</u>		<u>0.5 ml/l</u>
<u>Iron (total)</u>		<u>01045 3.5 mg/l</u>
<u>pH</u>		<u>00400(range 6-9)</u>

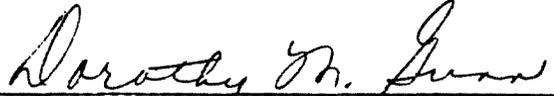
2) Caused by precipitation within any 24 hour period greater than the 2-year, 24-hour precipitation event but less than or equal to the 10-year, 24-hour precipitation event shall be subject to the requirements of subsection (c)(1), above, except for the total iron effluent standard.

d) All discharges mentioned in (a), (b), and (c) of this section, discharges of acid or ferruginous mine drainage from underground workings which are commingled with other discharges and controlled acid or ferruginous surface mine discharges caused by precipitation within any 24 hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall be subject only to a pH limitation (range 6-9).

(Source: Adopted in R84-29 at _____ Ill. Reg. _____, effective _____.)

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 25th day of June, 1987, by a vote of 6-0.


Dorothy M. Gunn, Clerk
Illinois Pollution Control Board