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

PART 406
MINE WASTE EFFLUENT AND WATER QUALITY STANDARDS

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AUTHORITY: Implementing Sections 12 and 13 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/12, 13 and 27].

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 11 Ill. Reg. 12899, effective July 27, 1987; amended in R07-9 at 32 Ill. Reg. 14978, effective September 8, 2008.

SUBPART A: EFFLUENT STANDARDS

Section 406.100 Preamble

a) Part 406 applies to mine discharges and non-point source mine discharges as defined by Section 402.101.

b) Other discharges, including sanitary sewers, are regulated under Subtitle C, Chapter I: Water Pollution.

c) A facility which has another discharge will be subject to both Subtitle C and Subtitle D. Subtitle D governs mining activities, including mine discharges and non-point source mine discharges. Subtitle C governs other discharges.

d) Except to the extent provided in this Part 406, Part 304 of subtitle C is inapplicable to mine discharges and non-point source mine discharges.

(Source: Amended at 32 Ill. Reg. 14978, effective September 8, 2008)

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 11 Ill. Reg. 12899, effective July 27, 1987)

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 11 Ill. Reg. 12899, effective July 27, 1987)

Section 406.103 Background Concentrations

Because the effluent standards in this part are based upon concentrations achievable with conventional treatment technology that is largely unaffected by ordinary levels of contaminants in intake water, they are absolute standards that must be met without subtracting background concentrations. However, it is not the intent of these regulations to require users to clean up contamination caused essentially by upstream sources or to require treatment when only traces of contaminants are added to the background. Compliance with the numerical effluent standards is therefore not required when effluent concentrations in excess of the standards result entirely from the contamination of influent before it enters the affected land. Background concentrations or discharges upstream from affected land are rebuttably presumed not to have caused a violation of this part.

Section 406.104 Dilution

a) Dilution of an effluent from a treatment works or from any wastewater source is not acceptable as a method of treatment of wastes in order to meet the effluent standards set forth in this Subpart. Rather, it shall be the obligation of any person discharging contaminants of any kind to the waters of the state to provide the best degree of treatment of wastewater consistent with technological feasibility, economic reasonableness and sound engineering judgment.

b) In making determinations as to what kind of treatment is the best degree of treatment within the meaning of this Section, the following will be considered;

1) What degree of waste reduction can be achieved by process change, improved housekeeping and recovery of individual waste components for reuse; and

2) Whether individual process wastewater streams should be segregated or combined.

c) Concentrations measured for the purpose of determining compliance with Section 406.106 shall be recomputed to exclude the effect of any dilution that is improper under this Section.

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

Section 406.105 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: Former Section 406.105 renumbered to Section 406.202 at 8 Ill. Reg. 13239, effective July 16, 1984; new Section adopted at 11 Ill. Reg. 12899, effective July 27, 1987)

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) Except as provided in Sections 406.109 and 406.110, a mine discharge effluent shall not exceed the following levels of contaminants:

Constituent	Storet Number	Concentration
Acidity	00435	(total acidity shall not exceed total alkalinity)
Iron (total)	01045	3.5mg/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) The ammonia nitrogen standard is applicable only to an operator utilizing ammonia in wastewater treatment.

2) 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/1 in addition to the requirements of subsection (b) above.

(Source: Amended at R84-29 at Ill. Reg. 12899, effective July 27, 1987)

Section 406.107 Offensive Discharges

In addition to the other requirements of this Chapter, no mine discharge effluent shall contain settleable solids, floating debris, visible oil, grease, scum or sludge solids. Color, odor and turbidity shall be reduced to below obvious levels.

Section 406.108 Non-Point Source Mine Discharges

Surface drainage from the affected land of a coal mine, including disturbed areas which have been graded, seeded or planted, shall be passed through a sedimentation pond or a series of sedimentation ponds before leaving the facility.

Section 406.109 Effluent Standards for Coal Mine Discharges from Reclamation Areas

a) The effluent limitations contained in 35 Ill. Adm. Code 304 and Section 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:

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

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: Added in R84-29 at 11 Ill. Reg. 12899, effective July 27, 1987)

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):

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

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):

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

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

Constituent	Number	Storet Concentration

Settleable solids	ml/l
pH	00400(range 6-9)

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: Added in R84-29 at 11 Ill. Reg. 12899, effective July 27, 1987)

SUBPART B: WATER QUALITY STANDARDS

Section 406.201 Temporary Exemption from Section 406.105 (Repealed)

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

Section 406.202 Violation of Water Quality Standards

In addition to the other requirements of this Part, no mine discharge or non-point source mine discharge shall, alone or in combination with other sources, cause a violation of any water quality standards of 35 Ill. Adm. Code 302 or 303. When the Agency finds that a discharge which would comply with effluent standards contained in this Part would cause or is causing a violation of water quality standards, the Agency shall take appropriate action under Section 31 or 39 of the Environmental Protection Act to require the discharge to meet whatever effluent limits are necessary to ensure compliance with the water quality standards. When such a violation is caused by the cumulative effect of more than one source, several sources may be joined in an enforcement or variance proceeding and measures for necessary effluent reductions will be determined on the basis of technical feasibility, economic reasonableness and fairness to all dischargers.

(Source: Renumbered from Section 406.105 and amended at 8 Ill. Reg. 13239, effective July 16, 1984)

Section 406.203 TDS Related Permit Conditions (Repealed)

(Source: Repealed at 32 Ill. Reg. 14978, effective September 8, 2008)

Section 406.204 Good Mining Practices

In determining whether an operator is utilizing good mining practices designed to minimize discharge of total dissolved solids, chloride, sulfate, iron and manganese, the Agency shall consider whether the operator is utilizing the following good mining practices, further defined in the Sections indicated:

a) Practices which may stop or minimize water from coming into contact with disturbed areas (Section 406.205);

b) Retention and control within the site of waters exposed to disturbed materials (Section 406.206);

c) Control and treatment of waters discharged from the site (Section 406.207);

d) Unconventional practices (Section 406.208).

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

Section 406.205 Contact with Disturbed Areas

In considering whether an operator is utilizing practices which may stop or minimize water from coming into contact with disturbed areas, the Agency shall consider the extent to which the operator is utilizing erosion controls, including:

a) Diversions

1) Bypass diversions to collect and convey around or through to a receiving stream waters that would otherwise flow over or through disturbed areas.

2) On-site diversions to convey water around or over: disturbed areas; or, undermined areas connected to the surface.

3) Interception diversions to isolate on-site critical areas, including, but not limited to: raw spoils, partially stabilized spoils and highway access roads.

b) Runoff Controls

1) Staging of clearing, grubbing, scalping, grading and reclamation operations so that the various stages of the mining operation are kept concurrent with extraction operations, and a minimum disturbed surface area is exposed at any one time.

2) Keeping gradients and inclines to the active pit as short as possible in order to minimize the amount of drainage going to the active pit.

3) Soil stabilization through measures such as revegetation and mulching to reduce the potential for exposing materials which may produce dissolved solids.

4) Sealing of boreholes acting as conduits which allow the uncontrolled entrance of water to underground mines or to active pit areas of surface mines.

5) Leaving sufficient barriers whenever mining adjacent to abandoned underground workings that may be inundated with water.

6) Disposal of potential contaminant producing materials as soon as possible in areas that will prohibit or minimize contact with surface and groundwater.

7) Covering or treating potential contaminant producing materials so as to minimize adverse effects on water quality.

8) Sealing of water-yielding fracture zones encountered during underground mining to reduce the flow of high total dissolved solids waters when geologic conditions permit successful sealing and when the flow from the fracture zone contributes significantly to the total dissolved solids load in the mine discharge.

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

Section 406.206 Retention and Control of Exposed Waters

In considering whether an operator is utilizing practices leading to the retention and control within the site of waters exposed to disturbed materials, the Agency shall consider the extent to which the operator is utilizing:

a) Erosion Controls: grading, sloping and revegetation of disturbed soil surfaces to reduce and detain runoff.

b) Sedimentation Controls: routing and segregation or combination of wastewater and mine runoff water to minimize any effect on the quality of the receiving stream.

c) Reuse of Discharges: Reuse of water bearing high concentrations of total dissolved solids, whenever possible, including:

1) Recirculation ponds to recycle water to the preparation plant.

2) Recirculation ponds to provide water for underground dust control.

3) Holding ponds to provide irrigation waters to reclaimed land and/or adjacent crop land with tolerances to accept higher concentrations of total dissolved solids.

d) Minimum Exposure of Waters to Disturbed Materials:

1) Application of water management practices, either continuously or at frequent intervals, in order to minimize water contact with disturbed materials.

2) Prevention of accumulation of waters in active pits, benches, terraces, roads, processing areas, surface depressions and underground mine workings and cavities where the dissolution of contaminants will be facilitated.

3) Removal of water to diversions and appropriate impoundments as soon as possible to minimize additional loadings of total dissolved solids.

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

Section 406.207 Control of Discharge Waters

In considering whether an operator is utilizing practices leading to control and treatment of waters discharged from the site containing elevated levels of total dissolved solids, chloride or sulfate, the Agency shall consider the extent to which the operator is utilizing:

a) Regulation of discharges when other control methods are insufficient and chemical treatment is economically unfeasible, including:

1) Regulating the flow of discharges high in total dissolved solids in accordance with fluctuating or intermittent stream flows so that the concentration of total dissolved solids remains within established water quality standards; or

2) Regulating the flow or fluctuation of receiving streams by timely discharge of water from existing impoundments which have suitable discharge control structures.

b) Rerouting over economically feasible distances, involving collecting discharges and conveying them to more suitable discharge points, such as

large holding ponds located adjacent to more suitable receiving streams where dilution and/or water quality is better.

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

Section 406.208 Unconventional Practices

In considering whether an operator is utilizing unconventional practices to prevent production or discharge of elevated levels of total dissolved solids, chloride and sulfate, the Agency shall consider the extent to which the operator is utilizing:

a) Diversion of groundwater by intercepting the flow path prior to entering a surface or underground mine when it is determined by the mine operator to be economically preferable to treating contaminated water after it passes through a mine.

b) Dewatering practices that remove clean formation water before contacting dissolved solids-producing materials, including techniques which can be employed to tap nonpolluted aquifers in order to reduce the amount of water entering a mine.

c) Any additional practices which the operator demonstrates to be effective in reducing levels of total dissolved solids, chloride, sulfate, iron and manganese in discharges.

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

Section 406.209 Expiration of Former Exemptions (Repealed)

(Source: Repealed at 32 Ill. Reg. 14978, effective September 8, 2008)

Section 406.APPENDIX A References to Previous Rules

The following table is provided to aid in referencing old Board rule numbers to section numbers pursuant to codification.

Chapter 4, Mine Related Pollution Part VI, Effluent and Water Quality Standards	35 Ill. Admin. Code Part 406
Rule 600	Section 406.100
Rule 601	Section 406.101
Rule 602	Section 406.102
Rule 603	Section 406.103
Rule 604	Section 406.104
Rule 605	Section 406.105

Rule 605.1	Section 406.201
Rule 606	Section 406.106
Rule 607	Section 406.107
Rule 608	Section 406.108

(filed August 10, 1981, effective August 10, 1981)