

**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].

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. 15009, effective September 8, 2008; amended in R18-24 at 43 Ill. Reg. 11620, effective September 25, 2019.

SUBPART A: EFFLUENT STANDARDS

Section 406.100 Preamble

- a) Part 406 applies to mine discharges and non-point source mine discharges as defined by 35 Ill. Adm. Code 402.101.
- b) Other discharges, including sanitary sewers, are regulated under Subtitle C, Chapter I: Water Pollution.
- c) A facility that 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 as provided in this Part 406, 35 Ill. Adm. Code 304 of Subtitle C is inapplicable to mine discharges and non-point source mine discharges.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.101 Averaging

- a) Compliance with the numerical standards of this Part must be determined based on 24-hour composite samples averaged over any calendar month. A single 24-hour composite sample must not exceed two times the numerical standards in this Part, and any grab sample taken individually or as an aliquot of any composite sample must not exceed five times the numerical standards in this Part.
- b) Despite subsection (a), if a permittee elects monitoring and reporting by grab samples under Section 406.102(f), then compliance with the numerical standards must be determined based on three or more grab samples averaged over a calendar month. A single grab sample must not exceed two times the numerical standards 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 must be within the specified range at all times and are not subject to averaging.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.102 Sampling, Reporting and Monitoring

- a) When treatment is provided for a discharge, effluent samples must be taken after the final treatment process and before entry into or mixture with any waters of the State.
- b) The permittee must design or modify structures that allow effluent samples at the required point. When treatment is not provided for a discharge, effluent samples must be taken at the nearest point of access to the discharge source at a point where the discharge leaves the mine, mine area, or other portions of the affected land. All effluent samples must be taken before entry into or mixture with waters of the State.
- c) The Agency will determine a reasonable frequency at which the permittee must report the actual concentration or level of any parameter identified in the State or NPDES permit.
 - 1) Each report submitted under this subsection (c) must 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 under Sections 406.109 and 406.110 were in effect.
 - 2) If alternate limitations under Sections 406.109 and 406.110 are in effect on fewer than three separate occasions during a reporting period, one sample must be taken from each pond discharge on each occasion during that period when the alternate limitations are in effect. The operator has the burden of proof that the applicable precipitation event caused the discharge or increase in discharge.
- d) The Agency may require monitoring and reporting based on 24-hour composite samples averaged over calendar months as a permit condition. The Agency may permit grab samples or composite samples of shorter duration after the permittee demonstrates that the samples reflect discharge levels over standard operating conditions.
- e) Despite subsection (d), if a permittee requests, the Agency may require monitoring and reporting based on grab samples as a permit condition, in which case Section 406.101(b) will apply.
- f) Monitoring must 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 Subtitle D.
- g) All methods of sample collection, preservation and analysis used in applying the requirements of Subtitle D must be in accord with USEPA's

current practice manual or other procedures acceptable to USEPA and the Agency.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

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. This Part is not intended to require users to clean up contamination caused by upstream sources or to require treatment when only traces of contaminants are added to the background. Complying with the numerical effluent standards is not required when effluent concentrations exceeding the standards result entirely from influent contamination 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.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.104 Dilution

- a) Dilution of an effluent from a treatment works or from any wastewater source is not acceptable as a wastewater treatment method to meet the effluent standards in this Subpart D. Rather, any person discharging contaminants to the waters of the State must provide the best degree of wastewater treatment consistent with technological feasibility, economic reasonableness, and sound engineering judgment.
- b) When determining the best degree of treatment under this Section, the following will be considered:
 - 1) The degree of waste reduction that 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 determining compliance with Section 406.106 must be recomputed to exclude the effect of any dilution that is improper under this Section.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.105 Commingling of Waste Streams

When waste streams from any facility are combined for treatment or discharge, pollutants 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 at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.106 Effluent Standards for Mine Discharges

- a) The effluent limitations in 35 Ill. Adm. Code 304 do 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 must not exceed the following levels:

Constituent		Concentration
Acidity		(total acidity must not exceed total alkalinity)
Iron (total)		3.5mg/L
Lead (total)		1 mg/L
Ammonia Nitrogen (as N)		5 mg/L
pH (range)		6-9
Zinc (total)		5 mg/L
Fluoride (total)		15 mg/L
Total suspended solids		35 mg/L
Manganese		2.0 mg/L

- 1) The ammonia nitrogen standard applies only to discharges from facilities using ammonia in wastewater treatment.
- 2) The manganese effluent limitation applies only to discharges from facilities where chemical addition is required to meet the iron or pH effluent limitations. The upper limit of pH must be 10 for any facility unable to comply with the manganese limit at pH 9. The manganese standard is not applicable to mine discharges associated with areas where no active mining, processing, or refuse disposal has taken place since May 13, 1976.
- c) New source coal mines are subject to a total iron limitation of 3.0 mg/L in addition to the requirements of subsection (b).

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.107 Offensive Discharges

In addition to the other requirements of Subtitle D, mine discharge effluent must not contain settleable solids, floating debris, visible oil, grease, scum, or sludge solids. Color, odor, and turbidity must be reduced below obvious levels.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.108 Non-Point Source Mine Discharges

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

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.109 Effluent Standards for Coal Mine Discharges from Reclamation Areas

- a) The effluent limitations at 35 Ill. Adm. Code 304 and Section 406.106 do not apply to mine discharges from reclamation areas.
- b) A mine discharge effluent from a reclamation area must not exceed the following levels of contaminants:

Constituent	Concentration
Settleable solids	0.5 ml/L
pH (range)	6-9

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

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

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

- a) Discharges from mountaintop removal areas, steep slope areas, and coal preparation plants and plant associated areas, and discharges of alkaline mine drainage are eligible for alternate effluent limitations during precipitation events. Discharges ineligible for alternate effluent limitations during precipitation events include drainage from coal refuse piles and discharges of alkaline mine drainage from underground mines that are not commingled with other eligible discharges. Any discharge or increase in discharge volume 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 Section 406.106(b):

Constituent	Concentration
Settleable solids	0.5 ml/L
pH (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 discharge volume 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 Section 406.106(b):

Constituent	Concentration
Settleable solids	0.5 ml/L
pH (range)	6-9

- c) Discharges of acid or ferruginous mine drainage (excluding discharges in subsection (b), mountaintop removal area discharges, steep slope area discharges, controlled surface mines discharges, and discharges from underground workings) caused by precipitation:

- 1) 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 Section 406.109(b):

Constituent	Concentration
Settleable solids	0.5 ml/L
Iron (total)	3.5 mg/L
pH (range)	6-9

- 2) 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 must comply with subsection (c)(1), except for the total iron effluent standard.

- d) All discharges mentioned in subsections (a), (b), and (c), discharges of acid or ferruginous mine drainage from underground workings that 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) are subject only to a pH limitation range of 6-9.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

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, mine discharges and non-point source mine discharges, alone or in combination with other sources, must not cause a violation of any water quality standards under 35 Ill. Adm. Code 302 or 303. If the Agency finds that a discharge that would comply with Subtitle D effluent standards would cause or is causing a violation of water quality standards, the Agency will take appropriate action under Section 31 or 39 of the Environmental Protection Act [415 ILCS 5] and require the discharge to meet effluent limits necessary to comply with the water quality standards. When 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 based on technical feasibility, economic reasonableness, and fairness to all dischargers.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

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

Good mining practices are designed to minimize discharge of total dissolved solids, chloride, sulfate, iron, and manganese. The Agency must consider whether the operator is using the following good mining practices:

- a) Practices that may stop or minimize water from coming into contact with disturbed areas (Section 406.205);
- b) Retention and control 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: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.205 Contact with Disturbed Areas

The Agency must consider whether the operator's practices stop or minimize water from coming into contact with disturbed areas by considering erosion controls, including:

- a) Diversions
 - 1) Bypass diversions that collect and convey water around or through disturbed areas to receiving stream waters that would otherwise flow over or through disturbed areas.
 - 2) On-site diversions that convey water around or over disturbed areas or undermined areas connected to the surface.
 - 3) Interception diversions that isolate on-site critical areas, including raw spoils, partially stabilized spoils, and highway access roads.
- b) Runoff Controls
 - 1) Clearing, grubbing, scalping, grading and reclamation to keep stages of the mining operation concurrent with extraction operations and to allow only a minimum disturbed surface area to be exposed at any one time.
 - 2) Keeping gradients and inclines to the active pit as short as possible to minimize the amount of drainage going to the active pit.
 - 3) Soil stabilization measures such as revegetation and mulching to reduce the potential for exposing materials that may produce dissolved solids.
 - 4) Sealing boreholes acting as conduits allowing 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) Prompt disposal of potential contaminant-producing materials in areas that will prohibit or minimize contact with surface and groundwater.
- 7) Covering or treating potential contaminant-producing materials to minimize adverse effects on water quality.
- 8) Sealing 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: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.206 Retention and Control of Exposed Waters

The Agency must consider the following to determine whether the operator's practices retain and control waters exposed to disturbed materials:

- a) Erosion Controls: grading, sloping, and revegetating of disturbed soil surfaces to reduce and detain runoff.
- b) Sedimentation Controls: routing and segregating or combining wastewater and mine runoff water to minimize any effect on the receiving stream's quality.
- c) Reuse of Discharges: reusing water with 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 or adjacent crop land tolerating higher concentrations of total dissolved solids.
- d) Minimum Exposure of Waters to Disturbed Materials:
 - 1) Applying water management practices, either continuously or at frequent intervals, to minimize water contact with disturbed materials.

- 2) Preventing water accumulation in active pits, benches, terraces, roads, processing areas, surface depressions, and underground mine workings and cavities where contaminants will be dissolved.
- 3) Promptly removing water to diversions and appropriate impoundments to minimize additional loadings of total dissolved solids.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.207 Control of Discharge Waters

The Agency must consider the following practices to determine whether an operator is controlling and treating waters containing elevated levels of total dissolved solids, chloride, or sulfate discharged from the site:

- a) Regulating 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 according to fluctuating or intermittent stream flows so that the total dissolved solids concentration remains within established water quality standards; or
 - 2) Regulating the flow or fluctuation of receiving streams by timely discharge of water from existing impoundments that 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 or water quality is better.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

Section 406.208 Unconventional Practices

The Agency must consider the following unconventional practices in considering whether an operator's practices avoid producing or discharging elevated levels of total dissolved solids, chloride, and sulfate:

- a) Diverting groundwater by intercepting the flow path before entering a surface or underground mine when the mine operator determined it 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 used to tap nonpolluted aquifers to reduce the amount of water entering a mine.
- c) Any additional practices the operator uses effectively to reduce levels of total dissolved solids, chloride, sulfate, iron and manganese in discharges.

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)

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 correlate previous Board rule numbers with current Illinois Administrative Code Section numbers.

Chapter 4, Mine Related Pollution Part VI, Effluent and Water Quality Standards	35 Ill. Adm. Code 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

(Source: Amended at 43 Ill. Reg. 11620, effective September 25, 2019)